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DEC 2022/JAN 2023
VOLUME 4

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Assalamualaikum w.b.t. dan salam sejahtera

Alhamdulillah, syukur ke hadrat Ilahi dengan limpah rahmatNya Buletin AKSES edisi ke-4 ini dapat diterbitkan dengan jayanya.

Usaha murni ini merupakan satu saluran kepada ahli akademik FTSM untuk menghasilkan penulisan ilmiah, dan menyumbang hasil kajian, berita dan buah fikiran untuk dikongsi bersama pihak luar, warga UKM dan khasnya kepada warga FTSM. Kesinambungan penerbitan buletin ini, hendaklah digarap baik oleh warga FTSM bagi meningkatkan citra Fakulti untuk terus melangkah kehadapan. Sesungguhnya, penerbitan buletin ini mencerminkan kesungguhan warga FTSM dalam menggembleng tenaga untuk menjayakan budaya kerja sepasukan.

Akhir kata, saya ingin merakamkan ucapan tahniah kepada semua pihak yang telah berusaha menerbitkan Buletin AKSES. Semoga usaha murni ini akan berterusan sehingga menjadi budaya dalam kalangan warga FTSM.

Salam Hormat.

PROF. DR. SALWANI ABDULLAH
Dekan Fakulti Teknologi dan Sains Maklumat

Kata Alu-aluan
Ketua Editor

Assalamualaikumwarahmatullah dan salam sejahtera.

Syukur kerana dengan izinNya edisil ke-4 buletin penyelidikan FTSM, AKSES (Advancing Knowledge for Success) berjaya diterbitkan. Saya ingin mengucapkan tahniah kepada semua yang telah menyumbang artikel bagi keluaran kali ini. Artikel penyelidikan kali ini dipersembahkan dalam dwibahasa agar bulletin ini boleh memberi manfaat kepada lebih ramai pembaca. Kolaborator penyelidlkan juga di ketengahkan supaya dapat memberi gambaran kerjasama antara penyelidik FTSM dengan penyelidik daripada agensi dan industri di luar. Buletin ini diterbitkan bertujuan untuk berkongsi artikel ringkas berkaitan penyelidikan yang dijalankan, laporan aktiviti penyelidikan dan pengajaran, aktiviti SIG pelajar serta penghargaan dan pengiktirafan ahli akademik.

Sekalung penghargaan kepada Prof Dekan, Timbalan Dekan Penyelidikan dan Inovasi serta pengerusi pusat kajian CAIT, SOFTAM dan SIBER kerana menggalakkan penyelidik untuk menyumbang artikel dalam buletin ini. Kesibukan tugas hakiki penyelidik iaitu aktiviti penyelidikan, pendidikan dan khidmat masyarakat tidak menghalang mereka untuk menyumbang bahan ilmiah dalam bulletin ini.. Perkongsian ilmu lebih rancak lagi dijalankan melalui penganjuran webinar, bengkel dan kursus secara maya dan bersemuka. Kami berharap buletin ini dapat memberi manfaat kepada semua pembaca. Warga FTSM dialu-alukan untuk terus menyumbang artikel bagi keluaran seterusnya. Akhir kata, saya mewakili sidang editor mengucapkan tahniah dan syabas kepada semua penyumbang dan moga Tahun Baru 2023 memberi lebih motivasi untuk maju dan cemerlang.

Salam Hormat.

PROF. MADYA DR. NORAIDAH SAHARI@ASHAARI
Ketua Editor

CYBER RESILIENCE AND INFORMATION SECURITY: A CASE STUDY ON THE INTERNATIONAL CONFERENCE ON CYBER RESILIENCE 2022.

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Modern Cyber-attacks are the most challenging phenomenon to the Industrial Internet of Things, smart grid, Healthcare, bioinformatics, operational and IT network systems, critical infrastructure, business processes, organizations, societies, and nation-states. Protecting and securing valuable data, systems, and critical infrastructures and creating Cyber resilience is a top consideration. Therefore, to compose and depict every aspect of challenges, issues, and innovations dealing with cyber-attacks, the initiatives, and proactive countermeasures are hypothesized by the hundreds of young researchers from industries and academies through a common platform of the International Conference on Cyber Resilience (ICCR). The ICCR2022 was held at the Meydan Hotel, Dubai, United Arab Emirates, on 6-7th October 2022, organized by the Skyline University College, Universiti Kebangsaan Malaysia, Global Academic Forum on Technology, Center for Cyber-Physical Systems, Khalifa University, Center for Cyber Security Studies & Innovation Management (GAF-TIM) with the technical collaboration of IEEE UAE Section. The ICCR2020 assembled the platform for the international research communities that accumulated cyber resilience thoughts on cyber security topics focused with digital forensics, cryptography, steganography and watermarking, network security and code tampering, secure financial technology, cryptocurrency and blockchain, social engineering, cyber policy, and strategy. Cyber incidents are even more critical for industrial control systems, software interfaces, protocols, applications, information, and system integrity. Participants emphasized and materialized their research and discoveries on cyber resilience, innovative ideas, and methods through the presentations; the common objective to secure critical infrastructure is considered a national priority requiring collaboration, partnerships, and trust. The expert panel of ICCR 2022 has also given an in-depth look into the necessities and adoption of digital transformation. However, the keynote speaker addressed that financial loss leads to a loss of confidence for company stakeholders, employees, and consumers due to cybersecurity incidents. This is because cybersecurity incidents have significantly been squandered maintenance cost to operational technology (OT) and information technology (IT) industries in business processes, for the massive volume of data breaches amounting to 4.24 million in 2021.

Picture 1
Conference Activities

Gambar 2
Awards

Picture 3
With Skyline Vice-Chancellor and Official

Picture 4
Participants, stakeholders and industry partners

Pengarang : Dr. Kok Ven Jyn
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CYBER RESILIENCE FORUM 2022: CYBER RESILIENCE BEST PRACTICES FOR CRITICAL INFRASTRUCTURE ORGANIZATIONS

The widespread of the Internet of Things (IoT) has led to the increasing importance of the services organizations provide in cyberspace. However, increasingly organized and knowledgeable threat actors are emerging, attacking organizations to disrupt IT infrastructures and steal information (trade secrets). Following that, there is an increasing need to raise awareness of cybersecurity best practices in organizations.

With that in mind, the Center for Cyber Security, Faculty of Information Science and Technology, Universiti Kebangsaan Malaysia, collaborates with the University of Melbourne to organize the Cyber Resilience Forum 2022 entitled "Cyber Resilience Best Practices for Critical Infrastructure Organizations". This forum involves strategic partners, namely the National Cyber Security Agency (NACSA), the Australian Trade and Investment Commission (AUSTRAD), Australia's Department of Foreign Affairs and Trade (DFAT), and Cyber Security Academia Malaysia (CSAM). The forum was held on October 5, 2022 (Wednesday) at the Hilton Hotel, Kuala Lumpur, Malaysia.

The opening remarks were delivered by the High Commissioner for Australia, the Deputy Director-General of Malaysia's Security Council, and the Deputy Vice Chancellor of Universiti Kebangsaan Malaysia. The forum focuses on the conversation on the state of cyber practices in the banking, telecoms, and oil sectors, as well as the role of government, academia, and the legal fraternity in Malaysia's cyber resilience. The CRF2022 was a success, with 102 participants from the government, academic and private sectors. The open discussion involving government, academic, and private sectors bring to light the challenges and opportunities to close the cybersecurity gap within organizations.

FORUM KETAHANAN SIBER 2022: AMALAN BAIK KETAHANAN SIBER UNTUK ORGANISASI INFRASTRUKTUR KRITIKAL

Internet Benda (IoT) telah meningkatkan kepentingan perkhidmatan yang disediakan oleh organisasi di alam siber. Bagaimanapun, ancaman yang semakin teratur telah muncul, dan menyerang organisasi untuk mengganggu infrastruktur IT dan mencuri maklumat (rahsia perdagangan). Berikutan itu, terdapat keperluan yang semakin meningkat untuk meningkatkan kesedaran tentang amalan terbaik keselamatan siber dalam organisasi.

Dengan itu, Pusat Keselamatan Siber, Fakulti Sains dan Teknologi Maklumat, Universiti Kebangsaan Malaysia, bekerjasama dengan Universiti Melbourne untuk menganjurkan Forum Ketahanan Siber 2022 bertajuk "Amalan Terbaik Ketahanan Siber untuk Organisasi Infrastruktur Kritikal". Forum ini melibatkan rakan strategik iaitu Agensi Keselamatan Siber Kebangsaan (NACSA), Suruhanjaya Perdagangan dan Pelaburan Australia (AUSTRAD), Jabatan Hal Ehwal Luar Negeri dan Perdagangan Australia (DFAT) dan Cyber Security Academia Malaysia (CSAM). Forum ini telah diadakan pada 5 Oktober 2022 (Rabu) di Hotel Hilton, Kuala Lumpur, Malaysia.

Ucapan perasmian telah disampaikan oleh Pesuruhjaya Tinggi Australia, Timbalan Ketua Pengarah Majlis Keselamatan Malaysia dan Timbalan Naib Canselor Universiti Kebangsaan Malaysia. Forum ini memberi tumpuan kepada perbincangan mengenai keadaan amalan siber dalam sektor perbankan, telekomunikasi dan minyak, serta peranan kerajaan, ahli akademik dan persaudaraan undang-undang dalam daya tahan siber Malaysia. CRF2022 telah berjaya diadakan dengan 102 orang peserta daripada sektor kerajaan, akademik dan swasta. Perbincangan terbuka yang melibatkan sektor kerajaan, akademik dan swasta mendedahkan cabaran dan peluang untuk merapatkan jurang keselamatan siber dalam organisasi.

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NCT LABORATORY COMMUNITY ACTIVITIES TO SCHOOLS

Awareness of cyber security is vital to prevent society from becoming a victim of cybercrime. This awareness needs to be inculcated in every individual in society, especially school students. The reason is that school students are the most at-risk group to be exposed to cybercrime cases because their age and level of thinking make them quickly become cybercrime victims. This is seen through the increase in statistics in cybercrime cases among students in Malaysia. Therefore, cyber security awareness among school students needs to be implemented to ensure that they do not become victims of cybercrime. The government's initiatives in addressing this issue are through the web platform "Klik Bijak" and the "Cyber Safe" program in schools. Campaigns and talks are also among the initiatives taken by the school to help increase cyber security awareness among students, reducing cybercrime in Malaysia.

Students widely use Internet technology through gadgets such as smartphones and laptops to find information, contacts, and shops. With the advent of search engines such as Google, Yahoo, and Bing making all information now at human fingertips. Social media is a website or application that allows users to share content, photos, videos, links, and opinions. Social media websites are becoming attractive to the younger generation because of their low-cost features and quick access. Data sharing on social media such as Facebook, Instagram, and Twitter by students bring various concerns because the chances of students being exposed to cyber threats are very high. This is because many Internet users still have ignored the principles of security on the Internet and consider it a trivial matter. Furthermore, the freedom of communication offered by social media has opened up space and opportunities for criminals to launch organized scams.

Gambar 1
Barisan Penceramah dari Makmal NCT

Gambar 2
Barisan Penceramah dan Pengetua SMK Lembah Subang

Gambar 3
Pelajar-pelajar Tingkatan 4 dan Tingkatan 5, SMK Lembah Subang

Gambar 4
Sesi Pembentangan Program Keselamatan Siber

Therefore, among the security measures that students need to take to avoid becoming a victim of cybercrime are: constantly updating the operating software and applications in the gadget, not storing all personal data in the gadget, using strong passwords, and activating the use of two-step authentication. In addition, students should always be on the lookout for online scams via email, SMS, and phone calls. If feeling disturbed when online or on social media platforms, students should immediately make a report to parents or teachers.In conclusion, social media is important for students because it is today's primary medium of learning and interpersonal communication. However, the abuse, as well as poor management of social media, have adverse implications for them. Therefore, students' cyber security awareness must be emphasized to ensure that they have high digital intelligence.

AKTIVITI KEMASYARAKATAN MAKMAL NCT KE SEKOLAH

Kesedaran keselamatan siber adalah penting bagi mengelakkan masyarakat menjadi mangsa dalam jenayah siber. Kesedaran ini perlu diterapkan pada setiap individu dalam masyarakat, terutamanya pelajar sekolah. Ini adalah kerana, pelajar sekolah adalah golongan yang paling berisiko untuk terdedah dalam kes jenayah siber kerana faktor umur dan tahap pemikiran mereka mendorong mereka menjadi mangsa jenayah siber dengan mudah. Perkara ini dilihat melalui peningkatan statistik dalam kes jenayah siber dalam kalangan pelajar di Malaysia. Justeru, kesedaran keselamatan siber dalam kalangan pelajar sekolah perlu diterapkan bagi memastikan mereka tidak menjadi mangsa jenayah siber. Antara inisiatif kerajaan dalam menangani isu ini adalah melalui platform web "Klik Bijak" dan juga program "Cyber Safe" di sekolah-sekolah. Kempen dan ceramah juga antara inisiatif yang diambil oleh pihak sekolah untuk membantu meningkatkan kesedaran keselamatan siber dalam kalangan pelajar, yang seterusnya mengurangkan jenayah siber di Malaysia.

Teknologi Internet banyak digunakan oleh golongan pelajar melalui penggunaan gajet seperti telefon pintar dan komputer riba untuk mencari maklumat, kenalan, dan membeli-belah. Dengan adanya enjin pencarian seperti Google, Yahoo, dan Bing menjadikan segala maklumat kini di hujung jari manusia. Media sosial adalah laman web atau aplikasi yang membolehkan perkongsian kandungan, gambar, video, pautan, dan pendapat antara pengguna. Laman web media sosial menjadi tarikan generasi muda kerana ciri-ciri kos yang rendah dan akses yang cepat. Perkongsian data di media sosial seperti Facebook, Instagram, dan Twitter oleh golongan pelajar membawa pelbagai kebimbangan kerana peluang pelajar terdedah kepada ancaman siber adalah sangat tinggi. Hal ini kerana, masih ramai dalam kalangan pengguna Internet telah mengabaikan prinsip-prinsip keselamatan dalam Internet dan menganggap ia sebagai satu perkara yang remeh. Tambahan pula, kebebasan berkomunikasi yang ditawarkan oleh media sosial telah membuka ruang dan peluang kepada golongan penjenayah untuk melancarkan penipuan terancang.

Oleh itu, antara langkah keselamatan yang perlu diambil oleh pelajar untuk mengelak daripada menjadi mangsa jenayah siber adalah sentiasa mengemaskini perisian operasi dan aplikasi di dalam gajet, tidak menyimpan segala data peribadi di dalam gajet, menggunakan kata laluan yang kukuh, dan mengaktifkan penggunaan dua langkah pengesahan. Selain itu, pelajar juga harus sentiasa berwaspada dengan penipuan dalam talian melalui e-mel, SMS, dan panggilan telefon. Sekiranya, rasa terganggu apabila berada di dalam talian atau di platform media sosial, pelajar perlu segera membuat laporan kepada ibu bapa atau guru. Kesimpulannya, media sosial adalah penting untuk golongan pelajar kerana ia menjadi medium utama pembelajaran dan perhubungan interpersonal masakini. Bagaimanapun, penyalahgunaan serta pengurusan media sosial yang lemah memberikan implikasi yang buruk kepada mereka. Oleh itu, kesedaran keselamatan siber dalam kalangan pelajar perlulah dititikberatkan dari sekarang untuk memastikan mereka mempunyai kecerdasan digital yang tinggi.

CYBERSECURITY CAPTURE-THE-FLAG TRAINING PROGRAM

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Pusat :Pusat Kajian Keselamatan Siber, FTSM

Cybersecurity skill shortage remains a major concern both globally and locally. This skill is required in all sectors to deal with the increasingly sophisticated cyber threats and attacks. Specialized infrastructure and extensive content are needed to develop our undergradute students in this area. However, commercial solutions are costly and involve annual licencing fees. An alternate option is open-source solutions and resources.

Lecturers under the Cyber Security Research Center, together with students from the Special Interest Group (SIG) CyberHack & Ethics have curated a training program from various available resources and organized a local CTF competition. The structure of this Cybersecurity Capture-the-Flag (CTF) Training Program is modeled after the Italian National Interuniversity Consortium for Informatics (CINI)'s CyberChallenge.IT program.

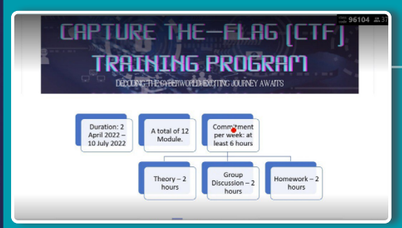
The training program was carried out throughout the second semester of the 2021/2022 academic session. It was opened to students from the Faculty of Information Science and Technology (FTSM) and Pusat Kesatria Universiti (Kesatria). The training program consisted of 12 modules covering data communications, network, web, software, and cloud security as well as cryptography and digital forensics. Each module is a combination of lectures and practical exercises. A total of 28 students participated and completed the training program despite their hectic schedules.

Simultaneously, 11 students from the SIG CyberHack & Ethics worked together to prepare the hardware and infrastructure required for a jeopardy-style Capture-the-Flag competition. Two main components for the CTF competition were set up: CTF platform and the challenge server. Containerized platforms based on Docker and Kubernetes, as well as a virtual private network (VPN) were installed and configured to deploy the challenge server and provide remote access to the participants.

Picture 1

Picture 2

Picture 1 and 2 – Jeopardy-style CTF Competition set up by SIG CyberHack & Ethics

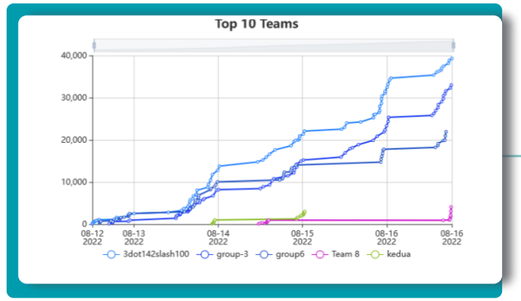


Picture 3

Picture 4

Picture 3 and 4 – Cybersecurity Capture-the-Flag (CTF) Training Program

The local CTF competition was successfully launched and the 28 participants were divided into seven groups to compete against one another. It was more of a friendly competition with the main goal of getting participants to apply what they had learned as well as familiarize themselves with CTF competitions in order to boost self-confidence. Feedback from the participants were positive and students who organized the competition had also gained invaluable technical skills. It is hoped that this is just the beginning of the cybersecurity learning journey for the undergraduates of UKM.



Picture 5
Hack-the-Juicebox CTF 2022 Scoreboard

Kekurangan kemahiran keselamatan siber masih menjadi kebimbangan utama di peringkat global dan tempatan. Kemahiran ini diperlukan dalam semua sektor untuk menangani ancaman dan serangan siber yang semakin canggih. Infrastruktur khusus dan kandungan yang menyeluruh diperlukan untuk membangunkan pelajar prasiswazah dalam bidang ini. Walau bagaimanapun, penyelesaian secara komersial adalah mahal dan melibatkan yuran pelesenan tahunan. Pilihan alternatif ialah penyelesaian sumber terbuka.

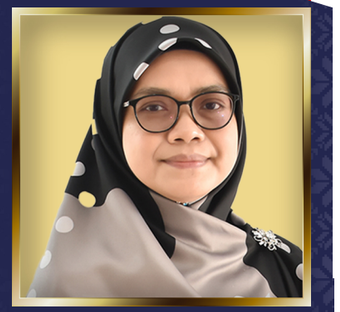
Para pensyarah di bawah Pusat Kajian Keselamatan Siber, bersama pelajar dari Kelab CyberHack & Ethics telah menyusun program latihan daripada pelbagai sumber yang sedia ada dan menganjurkan pertandingan Tangkap Bendera atau lebih dikenali sebagai Capture-the-Flag (CTF). Struktur program latihan Cybersecurity Capture-the-Flag (CTF) ini dimodelkan berdasarkan program CyberChallenge.IT oleh Itali National Interuniversity Consortium for Informatics (CINI).

Program latihan ini telah dijalankan sepanjang semester kedua sesi akademik 2021/2022. Ia dibuka kepada pelajar Fakulti Sains dan Teknologi Maklumat (FTSM) dan Pusat Kesatria Universiti (Kesatria). Ia terdiri daripada 12 modul yang meliputi komunikasi data, rangkaian, web, perisian, dan keselamatan awan serta kriptografi dan forensik digital. Setiap modul adalah gabungan kuliah dan latihan amali. Seramai 28 orang pelajar telah menyertai dan menamatkan program latihan walaupun dalam keadaan jadual mereka yang padat.

Pada masa yang sama, 11 pelajar dari Kelab CyberHack & Ethics telah bekerjasama untuk menyediakan perkakasan dan infrastruktur yang diperlukan untuk pertandingan CTF, iaitu: platform CTF dan pelayan cabaran (challenge server). Platform kontena berdasarkan teknologi Docker dan Kubernetes, serta rangkaian persendirian maya (VPN) telah dipasang dan dikonfigurasikan untuk akses pelayan cabaran secara jarak jauh oleh para peserta.

Pertandingan CTF telah berjaya dilancarkan dan 28 peserta dibahagikan kepada tujuh kumpulan untuk bersaing antara satu sama lain. Ia lebih kepada pertandingan persahabatan dengan matlamat utama untuk mendapatkan peserta mengaplikasikan apa yang telah dipelajari serta membiasakan diri dengan pertandingan CTF bagi meningkatkan keyakinan diri. Maklum balas daripada peserta adalah positif dan pelajar yang menganjurkan pertandingan juga telah memperoleh kemahiran teknikal yang tidak ternilai. Ini diharapkan hanyalah sebagai langkah permulaan terhadap pembelajaran keselamatan siber untuk mahasiswa UKM.

SEMINAR ON INFORMATION RETRIEVAL AND KNOWLEDGE MANAGEMENT 2022 (SIRKM'22)



Pengarang :Prof. Madya Dr. Masnizah Mohd.

Kolaborator :Universiti Kebangsaan Malaysia (UKM), Persatuan Capaian Maklumat dan Pengurusan Pengetahuan Malaysia (PECAMP), Japan Advanced Institute of Science and Technology (JAIST)

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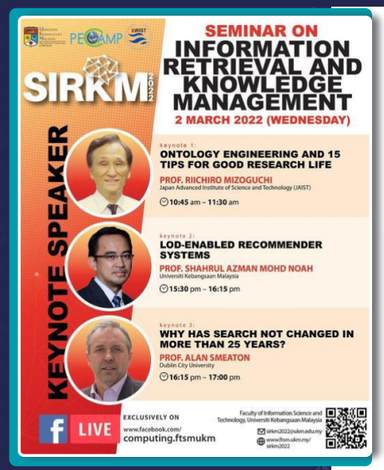
The Seminar on Information Retrieval and Knowledge Management 2022 (SIRKM'22) was held online on 2nd and 3rd March 2022. This seminar is jointly organized by Universiti Kebangsaan Malaysia (UKM), the Society of Information Retrieval and Knowledge Management, Malaysia (PECAMP), and the Japan Advanced Institute of Science and Technology (JAIST). The history of SIRKM starts with SIRKM'17 at Universiti Putra Malaysia, SIRKM'18 at the International Islamic University of Malaysia, SIRKM'20 (Online) at University of Malaya, and SIRKM'22 (Online) at Universiti Kebangsaan Malaysia. There were three keynote speakers, namely Professor Riichiro Mizoguchi from the Japan Advanced Institute of Science and Technology with the title Ontology Engineering and 15 Tips for Good Research Life, Professor Shahrul Azman Mohd Noah from the Universiti Kebangsaan Malaysia with the title LOD-Enabled Recommender Systems, and Professor Alan Smeaton from Dublin City University with the title Why Has Search not Changed In More Than 25 Years?

SIRKM'22 was attended by participants from Indonesia (Universitas Bina Darma, and Universitas Ahmad Dahlan) and mostly from local universities namely the Universiti Kebangsaan Malaysia, University of Malaya, MARA University of Technology, University of Putra Malaysia, Al-Madinah International University, International Islamic University Malaysia, Universiti Utara Malaysia, and Universiti Tunku Abdul Rahman. 32 articles were presented, and the five best articles were:

Myat Noe Win, Sri Devi Ravana, Fariza Nasaruddin, and Azmawaty Mohamad Nor from the University of Malaya dengan tajuk Computerized Clinical Decision Support System: Adaptive Intervention In Controlling Alcohol Addiction Among Indigenous In Malaysia.

Mohd Helmi Rakhani and Hazura Mohamed from Universiti Kebangsaan Malaysia dengan tajuk Evaluation of Best Practices of Official Government Websites for ASEAN Countries



https://www/ftsm.ukm.my/sirkm2022/sirkm2022/media.html

Salehah Hamzah, Masnizah Mohd, and Lailatul Qadri Zakaria from Universiti Kebangsaan Malaysia dengan tajuk Hate Speech Detection Modeling using Word Embedding and Deep Learning.

Siti Haryanti Hairol Anuar, Zuraida Abal Abas, Norhazwani Mohd Yunos, Mohd Fariduddin Mukhtar, and Nurul Hafizah Mohd Zaki from Universiti Teknikal Malaysia Melaka (UTeM) dengan tajuk Trends on Tracking Dynamic Community Detection: 2017-2021.

Opeyemi Lateef Usman, Ravie Chandren Muniyandi, Khairuddin Omar, Mazlyfarina Mohamad from Universiti Kebangsaan Malaysia dengan tajuk An Energy-Efficient Homomorphic Residue Number System based CNN Model for Classification of Dyslexia Neural-Biomarkers.

In addition, Session 3 - AWIST Doctoral Consortium has allowed doctoral students to get helpful feedback on their research through presentations and interactive sessions with renowned researchers in the field. As a conclusion, SIRKM'22 was successfully implemented and achieved the objective of strengthening research quality at UKM.

SEMINAR CAPAIAN MAKLUMAT DAN PENGURUSAN PENGETAHUAN 2022 (SIRKM'22)

Seminar Capaian Maklumat dan Pengurusan Pengetahuan 2022 (SIRKM'22) telah diadakan secara dalam talian pada 2 dan 3 Mac 2022. Program ini anjuran bersama Universiti Kebangsaan Malaysia (UKM), Persatuan Capaian Maklumat dan Pengurusan Pengetahuan Malaysia (PECAMP), dan Japan Advanced Institute of Science and Technology (JAIST). SIRKM merupakan acara utama di bawah PECAMP bagi pelajar pascasiswazah untuk berkongsi penyelidikan dalam bidang capaian maklumat dan pengurusan pengetahuan. Sejarah SIRKM bersama penganjur utama iaitu SIRKM'17 di Universiti Putra Malaysia, SIRKM'18 di Universiti Islam Antarabangsa Malaysia, SIRKM'20 di Universiti Malaya, dan SIRKM'22 di Universiti Kebangsaan Malaysia. Terdapat tiga pengucaptama iaitu Profesor Riichiro Mizoguchi dari Japan Advanced Institute of Science and Technology dengan tajuk Ontology Engineering and 15 Tips for Good Research Life, Profesor Shahrul Azman Mohd Noah dari Universiti Kebangsaan Malaysia dengan tajuk LOD-Enabled Recommender Systems, dan Profesor Alan Smeaton dari Dublin City University dengan tajuk Why Has Search not Changed In More Than 25 Years?

SIRKM'22 disertai oleh oleh peserta dari Indonesia (Universitas Bina Darma dan Universitas Ahmad Dahlan) dan kebanyakannya dari universiti tempatan iaitu Universiti Kebangsaan Malaysia, Universiti Malaya, Universiti Teknologi MARA, Universiti Putra Malaysia, Al-Madinah International University, Universiti Islam Antarabangsa Malaysia, Universiti Utara Malaysia, dan Universiti Tunku Abdul Rahman. 32 artikel telah dibentang dan lima artikel terbaik diberi kepada:

Myat Noe Win, Sri Devi Ravana, Fariza Nasaruddin dan Azmawaty Mohamad Nor dari Universiti Malaya bertajuk Computerized Clinical Decision Support System: Adaptive Intervention In Controlling Alcohol Addiction Among Indigenous In Malaysia.

Mohd Helmi Rakhani dan Hazura Mohamed dari Universiti Kebangsaan Malaysia bertajuk Evaluation of Best Practices of Official Government Websites for ASEAN Countries.

Salehah Hamzah, Masnizah Mohd dan Lailatul Qadri Zakaria dari Universiti Kebangsaan Malaysia bertajuk Hate Speech Detection Modelling using Word Embedding and Deep Learning.

Siti Haryanti Hairol Anuar, Zuraida Abal Abas, Norhazwani Mohd Yunos, Mohd Fariduddin Mukhtar dan Nurul Hafizah Mohd Zaki dari Universiti Teknikal Malaysia Melaka (UTeM) bertajuk Trends on Tracking Dynamic Community Detection: 2017-2021.

Opeyemi Lateef Usman, Ravie Chandren Muniyandi, Khairuddin Omar, Mazlyfarina Mohamad dari Universiti Kebangsaan Malaysia bertajuk An Energy-Efficient Homomorphic Residue Number System based CNN Model for Classification of Dyslexia Neural-Biomarkers.

Selain itu, antara kebitaraan SIRKM'22 ialah Sesi 3 iaitu AWIST Doctoral Consortium yang memberi peluang kepada pelajar kedoktoran mendapat maklum balas berguna mengenai penyelidikan mereka melalui pembentangan dan sesi interaksi bersama penyelidik tersohor dalam bidang. Kesimpulannya, SIRKM'22 berjaya dilaksanakan dan mencapai objektif bagi memantapkan kualiti dan jaringan penyelidikan di UKM.

HI-TEA WITH PRESIDEN OF SIRIM

Pengarang :Dr. Ahmad Tarmizi Abdul Ghani
Email :atag@ukm.edu.my
Pusat :Pusat Kajian Keselamatan Siber, FTSM

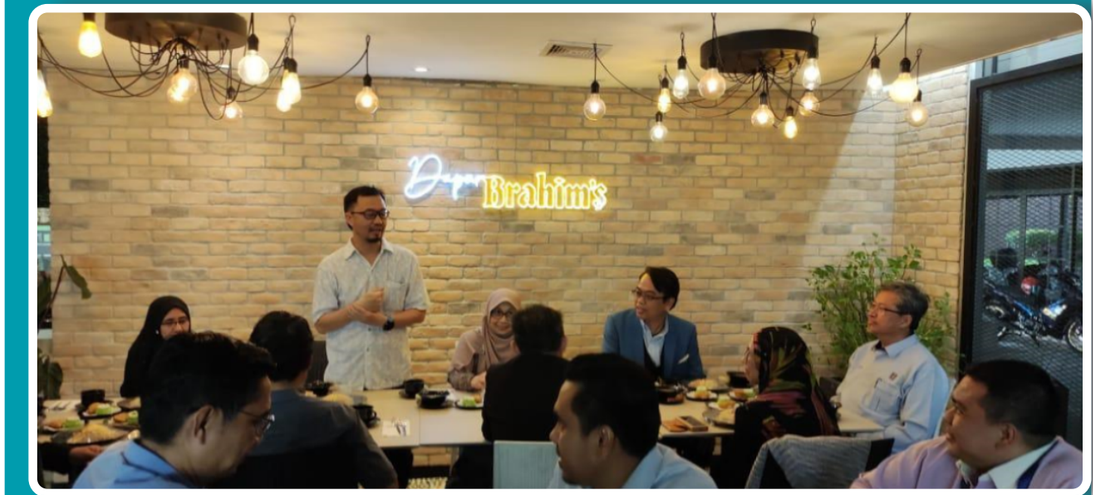
A hi-tea ceremony between the Faculty of Information Science and Technology, UKM, with the President of SIRIM, Dato Dr. Ahmad Sabirin Arshad, was held on 5th July 2022. This event is organized by the Cyber Security Research Center, FTSM, UKM, located at Canseloria Restaurant, UKM. This ceremony was attended by 11 representatives from FTSM, including the Dean of FTSM, Prof Dr. Salwani Abdullah, the Deputy Dean of Research and Innovation, and the Deputy Dean of Industry & Community Partnerships. While SIRIM's 11-member including SIRIM CTO, Ts. Tengku Intan Narqiah Tengku Othman and Senior Director, NMIM-SIRIM Dr. Osman Zakaria.

Among the matters discussed is the Memorandum of Understanding (MoU) between UKM and SIRIM for research purposes and also industry-academia collaboration. Apart from that, the President of SIRIM was invited as an Adjunct Professor at FTSM UKM, and he accepted the invitation. Among the collaborations in terms of research and industry that will be carried out between UKM and SIRIM are related to cyber security, artificial intelligence, and even robotics. One of FTSM's PhD alumni, Dr. Muhammad Azwan Ibrahim, is a Senior Metrologist, Electrical Group, National Metrology Institute of Malaysia (NMIM), an agency under SIRIM. He became the liaison between FTSM and SIRIM to ease this collaborative effort.

MINUM PETANG BERSAMA PRESIDEN SIRIM

Satu majlis minum petang antara Fakulti Teknologi dan Sains Maklumat, UKM bersama dengan Presiden SIRIM iaitu Dato Dr Ahmad Sabirin Arshad pada 5 Julai 2022 yang lalu. Majlis ini dianjurkan oleh Pusat Kajian Keselamatan Siber, FTSM, UKM bertempat di Restoran Canseloria, UKM pada jam 4 petang. Majlis ini dihadiri oleh wakil dari FTSM seramai 11 orang antaranya adalah Dekan FTSM iaitu Prof Dr. Salwani Abdullah, Timbalan Dekan Penyelidikan dan Inovasi dan juga Timbalan Dekan Hal Ehwal Jaringan Industri & Masyarakat. Manakala pihak SIRIM seramai 11 orang terdiri antaranya CTO Sirim, Ts.Tengku Intan Narqiah Tengku Othman dan Senior Director, NMIM-SIRIM Dr. Osman Zakaria.

Antara perkara yang dibincangkan adalah berkenaan Dokumen Persefahaman (MoU) antara UKM dan SIRIM untuk tujuan penyelidikan dan juga kolaborasi industri-akedemia. Selain dari itu, majlis ini turut menjemput Presiden SIRIM untuk menjadi Profesor Adjung di FTSM UKM dan beliau telah bersetuju dengan jemputan tersebut. Antara kerjasama dari segi penyelidikan dan industri yang bakal dijalankan antara UKM dan SIRIM adalah berkaitan dengan keselamatan siber, kecerdasan buatan dan juga robotik. Salah seorang alumni PhD FTSM iaitu Dr. Muhammad Azwan Ibrahim merupakan Senior Metrologist, Electrical Group, NMIM-SIRIM. Beliau bertugas ni National Metrology Institute of Malaysia (NMIM) merupakan salah satu agensi di bawah SIRIM. Beliau menjadi penghubung antara FTSM dan juga SIRIM dan membantu menjayakan usaha kolaborasi ini.



Pengarang :Dr. Umi Asma' Mokhtar
Pengarang Bersama :Mohd Syazwan Baharuddin
Email :umimokhtar@ukm.edu.my
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MANAGING RECORDS ACROSS MICROSOFT 365

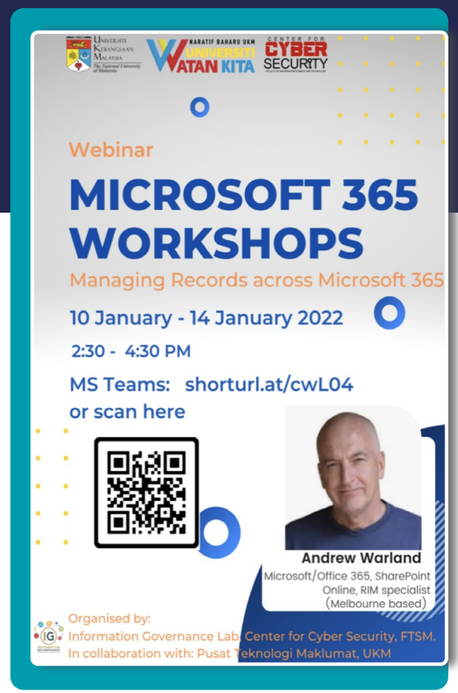
The workshop was organized by Information Governance Lab, FTSM, to better understand the key elements in Microsoft 365 that affect the management of records across the Microsoft 365 ecosystem, including in Exchange, MS Teams, SharePoint, and OneDrive for Business. It was participated by Pusat Teknologi Maklumat Bangi, Bahagian Teknologi Maklumat HCTM, and BGP (Bahagian Governans & Pentadbiran). The participants were exposed to the managing records across Microsoft 365 with a better understanding of the following:

- The key elements that affect the management of records include compliance to create an application of retention labels and policies, information protection, and audit;

- Information architecture design and configuration options to support the management of records in SharePoint Online;

- Configure the SharePoint sites and document libraries to manage records in accordance with ISO 16175; and

- Develop a governance plan to manage records in Microsoft 365.



PENGURUSAN REKOD MERENTAS MICROSOFT 365

Bengkel ini telah dianjurkan oleh Makmal Tadbir Urus Maklumat, FTSM untuk memberi pemahaman yang lebih baik tentang elemen utama dalam Microsoft 365 yang memberi kesan kepada pengurusan rekod merentas ekosistem Microsoft 365, termasuk dalam Exchange, MS Teams, SharePoint dan OneDrive for Business. Bengkel tersebut disertai oleh staf Pusat Teknologi Maklumat Bangi, Bahagian Teknologi Maklumat HCTM, dan BGP (Bahagian Governans & Pentadbiran). Para peserta telah didedahkan dengan rekod pengurusan menggunakan Microsoft 365 dengan pemahaman yang lebih baik berkaitan perkara berikut:

- Elemen utama yang mempengaruhi pengurusan rekod, termasuk pematuhan untuk mencipta dan menggunakan label dan dasar pengekalan, perlindungan maklumat dan audit;

- Reka bentuk seni bina maklumat dan pilihan konfigurasi untuk menyokong pengurusan rekod dalam SharePoint Online;

- Mengkonfigurasikan tapak SharePoint dan pustaka dokumen untuk mengurus rekod mengikut ISO 16175; dan

- Membangunkan rancangan tadbir urus untuk mengurus rekod dalam Microsoft 365.

INTERPARES TRUST AI FOR SOSARCHIVI

Pengarang :Dr. Umi Asma' Mokhtar

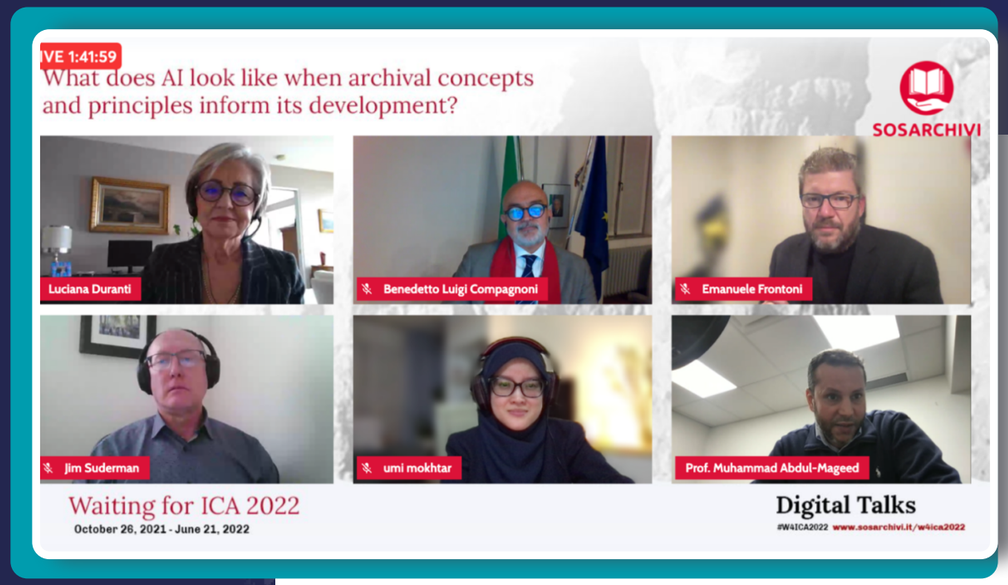
Pengarang Bersama :Mohd Syazwan Baharuddin

Email :umimokhtar@ukm.edu.my

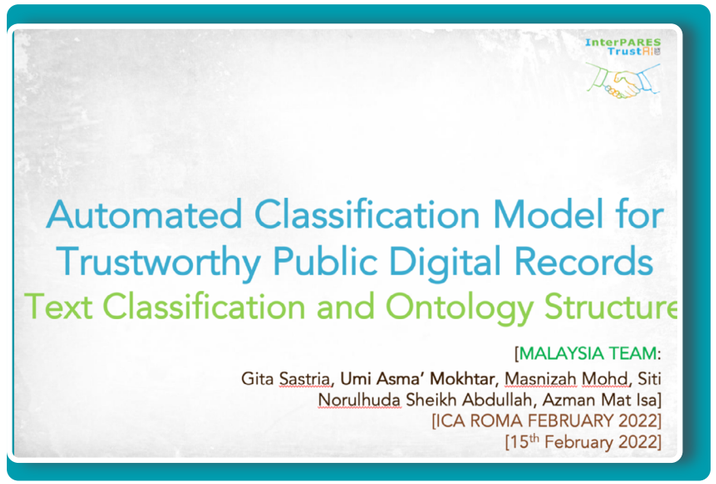
Pusat :Pusat Kajian Keselamatan Siber, FTSM

InterPARES Trust AI (2021-2026) is a multi-national interdisciplinary project aiming to design, develop, and leverage Artificial Intelligence to support the ongoing availability and accessibility of trustworthy public records by forming a sustainable, ongoing partnership producing original research, training students and other highly qualified personnel (HQP), and generating a virtuous circle between academia, archival institutions, government records professionals, and industry, a feedback loop reinforcing the knowledge and capabilities of each party. It has seven working groups, namely creation and use; appraisal and acquisition; arrangement and description; retention and preservation; management and administration; reference and access; and general studies. These seven working groups are comprised of professionals and academics from Europe, North America, and Asia, that includes Malaysia.

The Malaysian team consists of UKM, UiTM, and Arkib Negara, with UKM serving as the team's lead. Plenary meetings, symposiums, conferences, and seminars are a few of InterPARES Trust AI's many routine activities. On the 22nd of February 2022, we were invited to share our findings in "Waiting for the ICA 2022 Congress." This congress is a component of the 9th Annual Conference of the International Council on Archives (ICA), which will be held in Rome in 2022. The purpose of the "Waiting for the ICA2022" congress is to make the most of the short time remaining. Until the conference with a structured approach in the spirit of cooperation and cohesion that characterises our field utilising the means that these pandemic months have forced us to experience, promoting communication initiatives and supporting the development of professionals.



InterPARES Trust AI (2021-2026) merupakan projek interdisiplin multi-nasional yang bertujuan mereka bentuk, membangun dan memanfaatkan Kecerdasan Buatan untuk menyokong ketersediaan dan kebolehcapaian berterusan rekod awam yang boleh dipercayai dengan membentuk perkongsian berterusan yang mampan bagi menghasilkan penyelidikan asli, melatih pelajar dan kakitangan berkelayakan tinggi, dan membentuk ekosistem yang baik antara akademia, institusi arkib, profesional rekod kerajaan, dan industri, serta mengukuhkan pengetahuan dan keupayaan setiap pihak melalui maklum balas responsif. Ia mempunyai tujuh kumpulan kerja iaitu penciptaan dan penggunaan; penilaian dan pemerolehan; susunan dan penerangan; pengekalan dan pemeliharaan; pengurusan dan pentadbiran; rujukan dan akses; dan pengajian am. Tujuh kumpulan kerja ini terdiri daripada profesional dan ahli akademik dari Eropah, Amerika Utara, dan Asia, termasuk Malaysia.



Pasukan Malaysia terdiri daripada UKM, UiTM, dan Arkib Negara, dengan UKM bertindak sebagai ketua pasukan. Mesyuarat pleno, simposium, persidangan dan seminar adalah beberapa aktiviti rutin InterPARES Trust AI. Pada 22 Februari 2022, kami telah dijemput untuk berkongsi penemuan terkini dalam "Menunggu Kongres ICA 2022." Kongres ini merupakan komponen Persidangan Tahunan ke-9 Majlis Arkib Antarabangsa (ICA), yang akan diadakan di Rom pada tahun 2022. Tujuan kongres "Menunggu ICA2022" adalah untuk memanfaat masa sebelum persidangan berlangsung dengan pendekatan tersusun dalam semangat kerjasama dan perpaduan yang mencirikan bidang terbabit. Kaedah ini diambil kerana bersesuaian situasi Pandemik untuk mengalami, mempromosi inisiatif komunikasi dan menyokong pembangunan para profesional.

Pengarang :Prof. Dr. Zarina Shukur
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Email :zarinashukur@ukm.edu.my
Pusat :Pusat Kajian Keselamatan Siber, FTSM

UNDERSTANDING CONFORMITY REQUIREMENTS FOR SOFTWARE CONTROLLED WEIGHT AND MEASURING INSTRUMENTS FOR SUSTAINABLE TRADE

For commerce between APEC economies, software-controlled weight and measuring devices are frequently employed (i.e. digital scale, weighbridges, electricity meter). Every economy in the world has laws that govern the measuring devices used in transactions. Before any instrument is permitted to be used in trades, it must meet specific standards and requirements. The most important component of an instrument today is its software. The software component, however, lacks adequate control, enticing attackers to use the embedded code and the instruments' or devices' software to their advantage to unlawfully make revenue. The following parties would be severely impacted by tampering with these devices: relevant authorities in APEC economies, as the gain of trade tax, would be drastically decreased; consumers, as they must pay more,and producers, as they might get less payment than the actual price.

This project contributes to the development of common standards and procedures for regulating software across APEC economies because the software that has been certified by one economy can be readily accepted by another. This would lower trade barriers and assist in increasing confidence among APEC economies. Therefore, the goals of this project were to comprehend software testing techniques and processes, become familiar with standards relating to software for measuring devices, and determine the optimum strategy for creating good software for measuring instruments.

Laman Web

Sesi Foto

A virtual workshop was held from May 10–12, 2022, from 9 a.m. to 1 p.m. Malaysia time. A total of 132 academics from 13 APEC member nations, including the speakers, and 47 participants who work in the field of software measuring instruments attended the event. 45% of the attendees and 30% of the keynote speakers are women. Welcoming remarks, four sharing sessions, two case study presentations, four lectures on guidelines, and a pre-test and post-test make up the workshop sessions. Current Practice in Participants' Economies, Challenges in Examining Software for Pattern Approval, IT in Metrology: Scientific Advancement, and Software for Measuring Instrument: Good Practice are some of the themes covered in sharing sessions. Non-Automatic Weighing Instrument and Energy Meter Instruments are covered in case studies. While courses cover WELMEC and Overview of OIML Document.

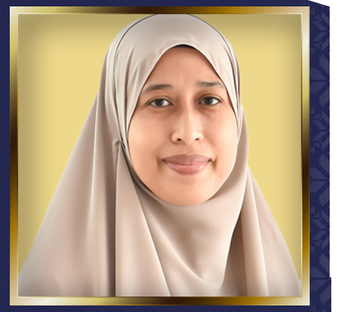
MEMAHAMI KEPERLUAN PEMATUHAN UNTUK BERAT KAWALAN PERISIAN DAN INSTRUMEN PENGUKUR PERDAGANGAN MAMPAN

Alat pengukur dan berat terkawal perisian digunakan secara meluas untuk perdagangan dalam kalangan ekonomi APEC (iaitu penimbang digital, jambatan timbang, meter elektrik). Alat pengukur yang digunakan untuk perdagangan dikawal oleh undang-undang dalam setiap ekonomi di dunia ini. Setiap instrumen hendaklah melepasi kriteria dan keperluan tertentu sebelum ia boleh dibenarkan untuk digunakan untuk perdagangan. Pada masa kini, perisian menjadi salah satu bahagian paling penting dalam instrumen itu sendiri. Namun, bahagian perisian tidak dikawal dengan secukupnya. Ini menarik penyerang untuk mengeksploitasi instrumen atau perisian peranti serta kod terbenam untuk memperoleh hasil secara haram. Pengubahsuaian peranti ini akan memberi kesan besar kepada pihak berikut: pihak berkuasa yang berkaitan dalam ekonomi APEC, kerana keuntungan cukai perdagangan akan dikurangkan dengan ketara; pengguna, kerana mereka perlu membayar lebih daripada harga sebenar; dan pengeluar, kerana mereka mungkin mendapat bayaran yang kurang daripada harga sebenar.

Alat pengukur dan berat terkawal perisian digunakan secara meluas untuk perdagangan dalam kalangan ekonomi APEC (iaitu penimbang digital, jambatan timbang, meter elektrik). Alat pengukur yang digunakan untuk perdagangan dikawal oleh undang-undang dalam setiap ekonomi di dunia ini. Setiap instrumen hendaklah melepasi kriteria dan keperluan tertentu sebelum ia boleh dibenarkan untuk digunakan untuk perdagangan. Pada masa kini, perisian menjadi salah satu bahagian paling penting dalam instrumen itu sendiri. Namun, bahagian perisian tidak dikawal dengan secukupnya. Ini menarik penyerang untuk mengeksploitasi instrumen atau perisian peranti serta kod terbenam untuk memperoleh hasil secara haram. Pengubahsuaian peranti ini akan memberi kesan besar kepada pihak berikut: pihak berkuasa yang berkaitan dalam ekonomi APEC, kerana keuntungan cukai perdagangan akan dikurangkan dengan ketara; pengguna, kerana mereka perlu membayar lebih daripada harga sebenar; dan pengeluar, kerana mereka mungkin mendapat bayaran yang kurang daripada harga sebenar.

Bengkel dalam talian telah diadakan dari 10-12 Mei 2022, setiap hari dari 9 pagi hingga 1 tengah hari waktu Malaysia. Seramai 47 peserta yang bekerja dalam bidang instrumen pengukur perisian dan 132 lagi ahli akademik daripada 13 negara anggota APEC, termasuk penceramah menyertai bengkel tersebut. 30% daripada penceramah utama dan 45% daripada peserta adalah perempuan. Sesi bengkel terdiri daripada ucapan alu-aluan, empat sesi perkongsian, dua pembentangan kajian kes, empat kuliah garis panduan dan ujian pra dan pasca. Topik sesi perkongsian termasuk Amalan Semasa dalam Ekonomi Peserta, Cabaran dalam Memeriksa Perisian untuk Kelulusan Corak, IT dalam Metrologi: Kemajuan Saintifik, Perisian untuk Alat Pengukur: Amalan Baik. Kajian kes meliputi Alat Timbang Bukan Automatik dan Instrumen Meter Tenaga. Sementara kuliah meliputi Gambaran Keseluruhan Dokumen OIML dan Dokumen WELMEC, OIML D31, WELMEC 7.2 dan Amalan Industri dalam Pengujian Perisian dan Dokumentasi Perisian. Hasil analisis ujian pra dan pasca menunjukkan terdapat peningkatan fahaman peserta dalam bengkel ini.

BAHASA INGGERIS: COMPUTATIONAL THINKING, PROGRAMMING AND LOGICAL ACTIVITIES THROUGH ROBOTS.



Pengarang : Dr. Nazatul Aini Abd Majid

Pengarang :Ts. Noor Faridatul Ainun Zainal,

Pengarang Bersama :Ts. Noor Faridatul Ainun Zainal, Prof. Dr. Zarina Shukur, Prof. Madya Dr. Mohammad Faidzul Nasrudin, Nasharuddin Zainal, Noor Natazashadatul Hanis Abu

Kod Projek : PRGS/1/2021/ICT01/UKM/02/2

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Pusat :Fakulti Teknologi dan Sains Maklumat dan Fakulti Kejuruteraan dan Alam Bina

Kolaborator: Astana Digital

The AkalBot system has three important components which are computational thinking, programming and logic through robots. The first component is Computational Thinking (CT) which is a cognitive skill that uses a systematic approach in solving a problem. This approach is based on the approach used in the field of computing which is decomposition, abstraction, pattern recognition and algorithmic thinking. The second component is a program which is the solution of using CT.

This program is important in moving the robot to solve a problem. The compnents of the program are visualized using blocks using a blockly editor. Therefore, students can learn the arrangement of the program components visually and observe the results. The third component is logical thinking which is critical and analytical thinking to solve a problem. Students are set to think logically by experiencing four phases in each AkalBot activity. Each activity in AkalBot is based on Kolb's experience-based learning theory which contains four phases namely 1) concrete experience, 2) reflective observation, 3) abstract conceptual and 4) active experiment. In the concrete experience phase, students will be given a step-by-step guide to experience the effects of the initial solution for an assignment.

In the next phase, which is reflective observation, students observe the impact of a logical thing that has been arranged. In the abstract conceptual phase, students are required to rearrange strategies based on CT techniques, logic and programming knowledge to solve the given problem. The results of the strategy are run in the final phase to see if the strategy that was arranged successfully solves the problem through the movement of the robot. The robot component is needed to support experiential learning sessions where students will be actively involved in doing tasks and seeing the results of running the program.

The use of robots allows more challenging tasks to be given because they involve technical skills. The use of AkalBot is expected to foster an interest in programming. Programming skills are important because the core of the intelligent technology driving the 4th Industrial Revolution is computer programs. Students will use the programming through three challenges namely Permulaan Pengembaraan, Pengembaraan 3 Sahabat dan Cabaran Mencari Senjata.

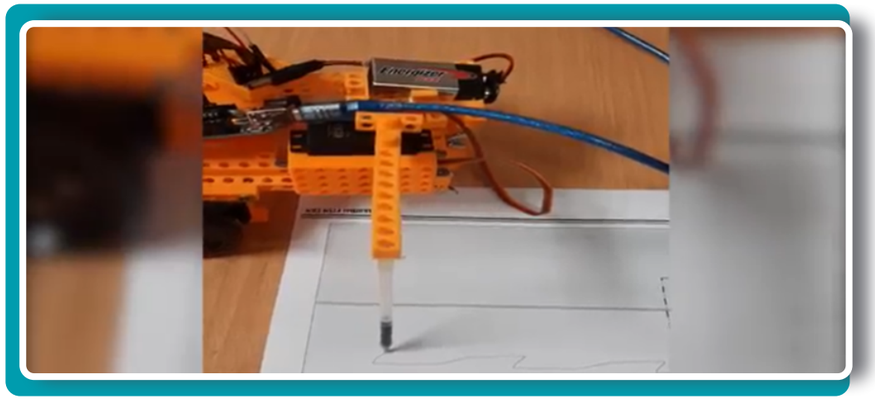
AKALBOT: AKTIVITI PEMIKIRAN KOMPUTASIONAL, ATURCARA DAN LOGIK MELALUI ROBOT.

Sistem AkalBot menerapkan tiga komponen penting iaitu pemikiran komputasional (CT), aturcara dan logik melalui robot. Komponen pertama ialah CT iaitu kemahiran kognitif yang menggunakan pendekatan yang sistematik dalam menyelesaikan sesuatu masalah. Pendekatan ini adalah berasaskan pendekatan yang digunakan dalam bidang komputeran iaitu leraian, peniskalaan, pengecaman corak dan pemikiran algoritma. Komponen kedua ialah aturcara yang merupakan solusi daripada pemikiran komputasional.

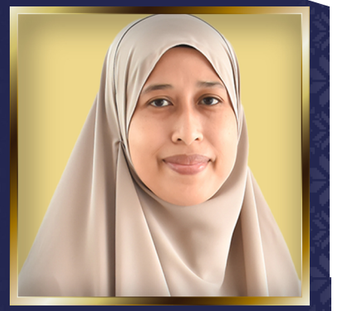
Aturcara ini penting dalam mengerakkan robot untuk menyelesaikan sesuatu masalah. Komponen aturcara divisualkan menggunakan blok menggunakan editor blockly. Oleh itu, pelajar boleh belajar susunan komponen-komponen aturcara yang terlibat secara visual dan melihat hasilnya. Komponen ketiga iakah pemikiran logik iaitu pemikiran kritikal dan analitikal untuk menyelesaikan sesuatu masalah. Pelajar diatur untuk berfikiran secara logik dengan mengalami empat fasa dalam setiap aktiviti AkalBot. Setiap aktiviti dalam AkalBot adalah berdasarkan teori pembelajaran berasaskan pengalaman Kolb yang mengandungi empat fasa iaitu 1) pengalaman konkrit, 2) pemerhatian reflektif, 3) konseptual abstrak dan 4) eksperimen aktif. Pada fasa pengalaman konkrit, pelajar akan diberi panduan langkah demi langkah untuk mengalami kesan penyelesaian awal untuk sesuatu tugasan.

Pada fasa seterusnya iaitu pemerhatian reflektif, pelajar memerhati impak sesuatu logik yang telah diatur. Pada fasa konseptual abstrak, pelajar dikehendaki mengatur semula strategi berdasarkan teknik CT, logik dan pengetahuan aturcara untuk menyelesaikan masalah yang diberikan. Hasil strategi dilarikan pada fasa akhir untuk melihat adakah strategi yang diatur berjaya menyelesaikan masalah melalui pergerakan robot. Komponen robot diperlukan untuk menyokong sesi pembelajaran berasaskan pengalaman iaitu pelajar akan terlibat secara aktif dalam melakukan tugasan dan melihat hasil larian aturcara.

Penggunaan robot membolehkan tugasan yang lebih mencabar diberikan kerana melibatkan kemahiran teknikal. Penggunaan AkalBot dijangka dapat memupuk minat pada pengaturcaraan. Kemahiran pengaturcaraan adalah penting kerana teras teknologi pintar yang memacu Revolusi Perindustrian Ke-4 ialah program komputer. Pelajar akan menggunakan pengaturcaraan melalui tiga cabaran iaitu Permulaan Pengembaraan, Pengembaraan 3 Sahabat dan Cabaran Mencari Senjata.



MALAY LANGUAGE LEARNING APPLICATION FEATURING MOBILE AUGMENTED REALITY FOR FOREIGN SPEAKERS



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Pengarang Bersama :Prof. Dr. Nor Hashimah Jalaluddin, Dr. Lam Meng Chun, Nur Asylah Suwadi, Dr. Junaini Kasdan, Aznur Aisyah Abdullah, Azlan Ahmad, Daing Zairi Ma'arof, Dr. Afifuddin Husairi Mat Jusoh@Hussain, Prof. Dr. Haslina Arshad

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Kolaborator:DBP

RakanBM is an interactive Malay language (BM) learning application featuring mobile Augmented Reality (AR) for foreign speakers. The rakanBM application has novelty features by emphasizing content quality, design quality, interactivity and AR. The rakanBM application enriches BM teaching materials that are still lacking in the integration of: communication, vocabulary, cultural application, vowels and consonants in the medium of mobile phone applications. The application supports student-centered learning technology that provides flexible choices and feedback according to student needs. In terms of content quality, with access at their fingertips, students can study any of the eight topics developed by UKM language experts at any time and this supports student-centered learning. In terms of design quality, rakanBM combine audio and video in an attractive and comfortable form for learning.

In terms of interactivity, rakanBM help students choose the sound of the consonant or vowel they want to learn. Questions that have been answered, of course students want to know the answer immediately, and this is supported by rakanBM who support student-centered learning. In terms of AR technology, students experience the enrichment of the real world with the addition of digital information through the camera lens on a smartphone. The first proptotype of the BM partner based on AR with these three features has been developed and expert views for improvement have been obtained and the results have been published. The version of rakanBM that has been improved based on expert opinion is available on the app store and playstore and the application for copyright has been approved. This version of rakanBM has been evaluated by target students from various countries and obtained positive feedback and the analysis of the rakanBM acceptance model also got positive results. At its peak, on November 3, 2021, RakanBM was officially launched. RakanBM was recognized with a gold award for Teaching and Learning Poster Ideas (TALPI) (2021) and runner-up for the research poster competition, jointly organized by the Ministry of Higher Education and the Language and Library Council (DBP). was also widely disseminated through the UKM news site and the caknaBahasa slot organized by DBP.

Hopefully this innovation in learning the Malay language will benefit Institutions of higher learning at local and abroad, training centers for diplomatic officers as well as primary and secondary school students and can be referred to in published journals. Hopefully rakabBM will be a tool to introduce the Malay language on the international stage.

APLIKASI BELAJAR BAHASA MELAYU BERCIRIKAN AUGMENTASI REALITI MUDAH ALIH UNTUK PENUTUR ASING

RakanBM merupakan aplikasi Interaktif belajar Bahasa Melayu (BM) bercirikan Augmentasi Realiti (AR) mudah alih untuk penutur asing. Aplikasi rakanBM mempunyai ciri novelti dengan menekankan kualiti kandungan, kualiti reka bentuk, interaktiviti dan AR. Aplikasi rakanBM memperkaya bahan pengajaran BM yang masih kurang mengkaji penggabungan: komunikasi, kosa kata, penerapan budaya, vokal dan konsonan dalam medium aplikasi telefon mudah alih. Aplikasi ini menyokong teknologi pembelajaran berpusatkan pelajar yang memberi pilihan yang fleksibel dan maklum balas mengikut keperluan pelajar. Daripada segi kualiti kandungan, dengan akses dihujung jari, pelajar dapat mempelajari mana-mana daripada lapan topik yang dibina oleh pakar bahasa UKM pada bila-bila masa dan ini menyokong pembelajaran berpusatkan pelajar. Daripada segi kualiti reka bentuk, rakanBM mengabungkan audio dan video dalam bentuk menarik dan selesa untu pembelajaran.

Daripada segi interaktiviti, rakanBM membantu pelajar memilih bunyi pada konsonan atau vokal yang ingin dipelajari. Soalan yang telah dijawab, tentu pelajar mahu tahu segera jawapannya, dan ini disokong oleh rakanBM yang menyokong pembelajaran berpusatkan pelajar. Daripada segi teknologi AR, pelajar mengalami pengayaan dunia realiti dengan pertambahan maklumat digital melalui lensa kamera pada telefon pintar. Proptotaip pertama rakan BM berdasarkan AR bersama tiga ciri tadi telah dibangunkan dan pandangan pakar untuk penambahbaikan telah diperloehi dan hasilnya telah diterbitkan. Versi rakanBM yang telah ditambahbaik berdasarkan pandangan pakar boleh didapati di app store dan playstore dan permohonan untuk hakcipta telah diluluskan. Versi rakanBM ini telah dinilai oleh pelajar sasaran daripada pelbagai negara dan memperoleh maklumbalas positif dan analisis model penerimaan rakan BM turut mendapat keputusan yang positif. Kemuncaknya, pada 3 November 2021 rakanBM telah dilancarkan secara rasmi. RakanBM beroleh pengiktirafan dengan anugerah emas untuk Teaching and Learning Poster Ideas (TALPI) (2021) dan naib johan untuk sayembara poster kajian, anjuran bersama Kementerian Pengajian Tinggi dan Dewan Bahasa dan Pustaka (DBP). RakanBM turut disebar luaskan melalui laman berita UKM dan slot caknaBahasa anjuran DBP.

Semoga inovasi pembelajaran bahasa Melayu ini memberi manfaat kepada Institusi pengajian tinggi di dalam dan di luar negara, pusat latihan bagi pegawai diplomat serta pelajar sekolah rendah dan menengah dan dapat dirujuk dalam jurnal yang diterbikan. Semoga rakanBM menjadi wadah untuk memperkenalkan bahasa Melayu di persada antarabangsa.

RAYA CELEBRATION WITH MEMBERS OF THE VIDEO INNOVATION CLUB

Pengarang :Dr. Hadi Affendy Dahlan

Pengarang Bersama :Dr. Nurhidayah Bahar, Dr. Syahanim Mohd Salleh, Ts. Masura Rahmat, Prof. madya Dr. Tengku Siti Meriam Tengku Wook

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On May 28, 2022, at Anjung Digital (FTSM). The Activity "Tautan Mesra VIC" was implemented by the Video Innovation Club (VIC) under the management of Dr. Hadi Affendy bin Dahlan as the program's main advisor, along with the assistance of other advisors namely: Dr Nurhidayah Bahar, Dr Syahanim Mohd Salleh, Puan Masura Rahmat, and Assoc Prof Dr Tengku Siti Meriam Tengku Wook. The planning for this activity is done online. In contrast, the activity is done physically in the Anjung Digital, FTSM, after receiving information that the Movement Control Order (MCO) has been relaxed.

The theme for this program is "Links built, brotherhood forged." This program aims to allow VIC members to develop and assess their capabilities; be friendly with fellow members by entertaining activities while celebrating Hari Raya Aidilfitri. Moreover, this program help gives opportunity to new members to establish good relationships with other invited alumni, collaborators, and industry networks.

Through the implementation of this program, it successfully produces UKM FTSM members who can compete and teach various skills to members, such as how to make a program successful and communicate well. This program is also done in a relaxed and fun manner to reduce the pressure members experienced during the previous MCO.

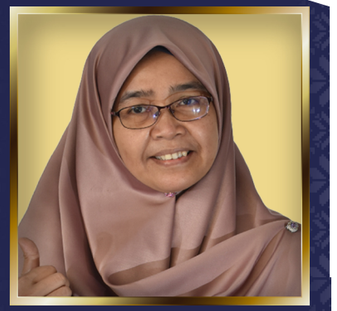
SAMBUTAN RAYA BERSAMA AHLI KELAB VIDEO INOVASI

Pada 28 Mei 2022, di Anjung Digital (FTSM). Satu Aktiviti Tautan Mesra (atau "Milineal Raya VIC") telah dilaksanakan oleh Kelab Video Inovasi (VIC) di bawah pengelolaan Dr Hadi Affendy bin Dahlan selaku penasihat utama program tersebut, berserta dibantu oleh penasihat lain iaitu: Dr Nurhidayah Bahar, Dr Syahanim Mohd Salleh, Puan Masura Rahmat, dan Prof Madya Dr Tengku Siti Meriam Tengku Wook. Perancangan kegiatan ini dilakukan secara dalam talian manakala aktiviti dilakukan secara bersemuka di ruang Anjung Digital, FTSM setelah menerima maklumat Perintah Kawalan Pergerakan (PKP) dilonggarkan.

Tema bagi program ini ialah "Tautan dibina, ukhuwah terjalin". Program ini bertujuan untuk memberikan ahli VIC satu peluang bagi memperkembang dan menilai keupayaan diri; beramah mesra sesama ahli dengan melakukan aktiviti yang menghiburkan sambil menyambut Hari Raya Aidilfitri. Program ini juga bertujuan untuk menyambut kedatangan ahli baru malah memberi peluang kepada ahli untuk menjalin hubungan baik dengan para-alumni, kolaborator dan juga jaringan industri yang dijemput.

Melalui perlaksanaan program ini, impak positif yang terhasil adalah ia berjaya melahirkan warga FTSM UKM yang mampu berdaya saing dan mengajar pelbagai kemahiran kepada ahli seperti cara menjayakan sesebuah program dan juga cara berkomunikasi dengan baik. Program ini juga dilakukan dalam suasana santai dan menyeronokkan bagi mengurangkan tekanan yang telah dialami ahli semasa PKP sebelum ini.

DIGITAL INNOVATION SUMMIT PROGRAM 2022



Pengarang :Dr. Hazura Mohamed
Pengarang Bersama :AJK Projek Tahun Akhir
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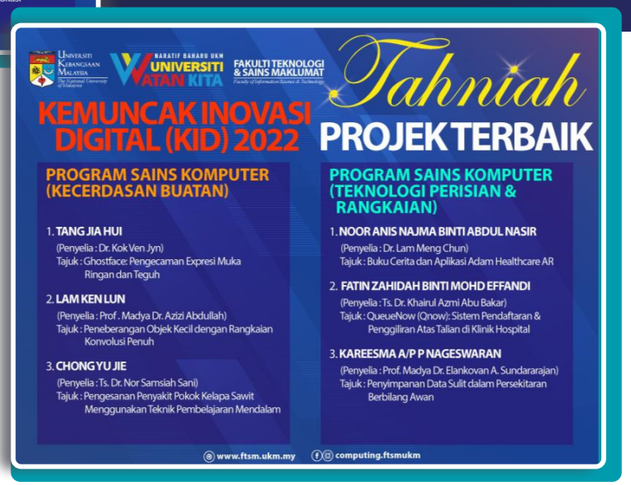
Pusat :Pusat Kajian SOFTAM

The Digital Innovation Carnival (KID) is an annual event recognizing the final year project students of the Faculty of Information Science and Technology (FTSM). KID2022 is held virtually and maintains the KID award to celebrate students who have completed their final year project. The KID2022 is held on July 7, 2022 (Thursday). The main aim of this program is to empower the final year projects by recognizing the excellent results of student efforts and providing a platform for students to highlight their soft skills. The following is a winner list of the 2022 final year project awards, namely the Digital Innovation Award (AID) and the Popular Video Award, according to the study program. Each winner receives a certificate of appreciation and cash (First Place AID: RM200, Second Place AID: RM150, Third Place AID: RM100, and Popular Video: RM100).



PROGRAM KEMUNCAK INOVASI DIGITAL 2022

Karnival Inovasi Digital (KID) merupakan acara tahunan bagi mengiktiraf hasil projek tahun akhir pelajar Fakulti Teknologi dan Sains Maklumat (FTSM). KID2022 diadakan secara maya dan mengekalkan anugerah KID untuk meraikan pelajar yang telah berjaya menamatkan projek tahun akhir mereka. KID2022 diadakan pada 7 Julai 2022 (Khamis). Matlamat utama program ini adalah untuk memperkasakan projek tahun akhir dengan mengiktiraf hasil cemerlang usaha pelajar dan menyediakan platform untuk pelajar menonjolkan kemahiran insaniah mereka. Berikut ialah senarai pemenang anugerah projek tahun akhir 2022 iaitu Anugerah Inovasi Digital (AID) dan Anugerah Video Popular berdasarkan program pengajian. Setiap pemenang menerima sijil penghargaan dan wang tunai (AID Tempat Pertama: RM200, AID Tempat Kedua: RM150, AID Tempat Ketiga: RM100, dan Video Popular: RM100).

CONTINUOUS SOFTWARE QUALITY: THE REJUVENATION ACTION MODEL

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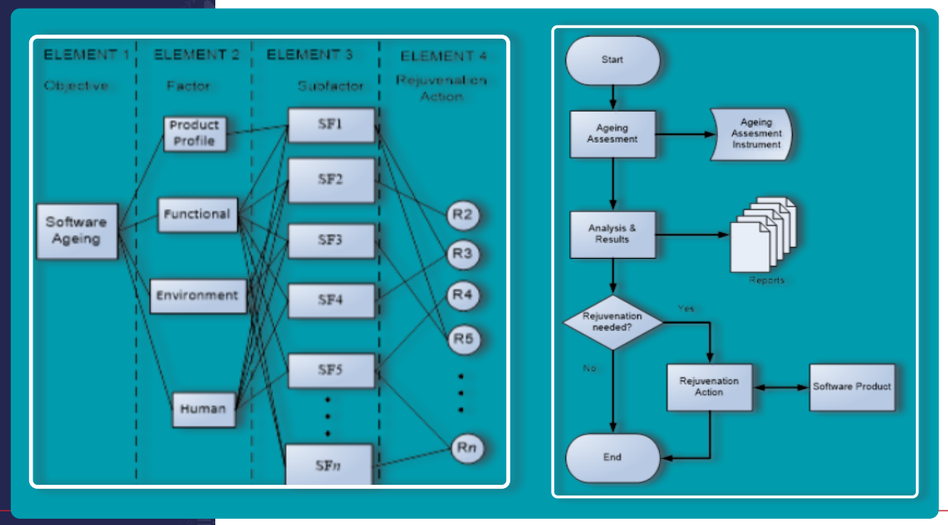
The issue of software aging was introduced more than thirty years ago. Since then, the software community has increasingly accepted its knowledge and concept. Although aging is a natural process that happens to all humans, being aware of its causes may assist slow down the aging process. Like human aging, software aging can be slowed down by identifying factors influencing the process. In this study, software aging occurs when the software loses quality, users become dissatisfied with it, and it becomes unable to adapt to a changing environment. It is defined as when the software's quality standards are no longer acceptable to users, stakeholders, and the environment. The empirical research done to investigate the issues of software aging among software practitioners in Malaysia has discovered factors that influence aging. The finding showed that aging factors could be classified into four main classifications: functional, human, environment, and product profile. This survey also showed that the average lifespan of software was decreasing, falling to between one and two years (30%), four to six years (48%), seven to ten years (15%), and more than fifteen years (5%). It demonstrates that the average software life cycle lasts four-six years, with some just lasting one to three years.

The product profile is the most influential factor affecting the software's aging. The sub-factors related to product profile are the technology used, system fault, improvement based on new requirements, popularity, the acquisition date of purchase, policy, maintenance, and software age. Similarly, the second most influential is functional. Functionality can be classified as software correctness and fault, support system(stability), adaptability, interface, and performance. The third factor is the environment. It consists of sub-factors such as business demands, change, technology demands, adaptability to a new environment, product information, and popularity. The human aspect is the fourth factor that cannot be denied in influencing software aging. The associated sub-factors are business demand and change, support system, improvement based on new requirements, top management instructions, popularity, training, user satisfaction, quality assurance, and maintenance. This study revealed that top management and users contributed much to organizations' decisions to use the software. Based on the findings, we can formulate the aging relation as the following: -

Software aging (p, f, e, h)



where p = product profile, f = functional, e = environment and h = human. Moreover, the rejuvenation actions aim to rejuvenate and restore the aging occurrence in a specific software product. The aging assessment process will distinguish if further action is needed to rejuvenate the software. The proposed rejuvenation actions are identified and executed based on the assessment result and report. In the software quality paradigm, the aging factors are regarded as external variables or software quality attributes related to quality in use.

KUALITI PERISIAN BERTERUSAN : MODELTINDAKANPEREMAJAAN

Isu penuaan perisian telah diperkenalkan lebih tiga puluh tahun yang lalu. Sejak itu, pengetahuan dan konsepnya semakin diterima oleh komuniti perisian. Penuaan perisian adalah fenomena apabila perisian mengalami penurunan dalam kualiti, kepuasan pengguna dan penyesuaiannya dalam persekitaran yang dinamik. Dalam kehidupan manusia, penuaan adalah proses yang tidak dapat dielakkan, tetapi pemahaman tentang puncanya boleh membantu untuk melambatkan proses penuaan tersebut. Seperti penuaan manusia, penuaan perisian boleh diperlahankan dengan mengenal pasti faktor yang mempengaruhinya. Dalam kajian ini, penuaan ditakrifkan sebagai fenomena apabila sesuatu perisian turun nilai kualiti yang tidak diingini oleh pihak berkepentingan, pengguna dan persekitaran. Berdasarkan kajian empirikal yang dilakukan untuk menyiasat isu penuaan perisian dalam kalangan pengamal perisian di Malaysia, mereka telah menemui faktor yang mempengaruhi penuaan. Dapatan kajian menunjukkan bahawa faktor penuaan boleh dikelaskan kepada empat klasifikasi utama: fungsi, manusia, persekitaran dan profil produk. Kajian ini juga mendedahkan bahawa jangka hayat perisian semakin pendek, iaitu antara 1–2 tahun (30%), 4–6 tahun (48%), 7–10 tahun (15%) dan > 15 tahun (5%). Ia menunjukkan bahawa kebanyakan perisian mempunyai kitaran hayat dan umur antara 4–6 tahun dan sesingkat 1–3 tahun.

Faktor utama yang mempengaruhi penuaan perisian adalah profil produk. Sub-faktor yang berkaitan dengan profil produk ialah teknologi yang digunakan, kerosakan sistem, penambahbaikan berdasarkan keperluan baharu, popularitI, tarikh pemerolehan, tarikh pembelian, polisi, penyelenggaraan dan umur perisian. Faktor yang kedua pula adalah fungsian perisian. Kefungsian boleh diklasifikasikan sebagai ketepatan dan kesalahan perisian, sistem sokongan (kestabilan), kebolehsuaian, antara muka dan prestasi. Faktor ketiga ialah persekitaran. Ia terdiri daripada sub-faktor seperti permintaan dan perubahan perniagaan, perubahan teknologi, kesesuaian dengan persekitaran baharu, maklumat produk dan popularitI.

Aspek manusia merupakan faktor keempat yang tidak dapat dinafikan dalam mempengaruhi penuaan perisian. Sub-faktor yang berkaitan ialah permintaan dan perubahan perniagaan, sistem sokongan, penambahbaikan berdasarkan keperluan baharu, arahan pengurusan tertinggi, popularitI, latihan, kepuasan pengguna, jaminan kualiti dan penyelenggaraan. Kajian ini mendedahkan bahawa pengurusan atasan dan pengguna adalah penyumbang utama kepada keputusan ke arah penggunaan sesuatu perisian dalam organisasi.

Berdasarkan penemuan ini, kita boleh merumuskan hubungan penuaan seperti berikut: -

Penuaan perisian (p, f, e, h) di mana p = profil produk, f = fungsian, e = persekitaran dan h = manusia. Tindakan peremajaan bertujuan untuk meremajakan dan memulihkan kembali kejadian penuaan dalam produk perisian tertentu. Proses penilaian penuaan akan mengenal pasti jika tindakan lanjut diperlukan untuk meremajakan perisian. Cadangan tindakan peremajaan boleh dikenal pasti dan dilaksanakan berdasarkan hasil penilaian dan laporan yang diperolehi dalam penilaian ini. Faktor penuaan dianggap sebagai sebahagian daripada atribut kualiti yang berkaitan dengan kualiti dalam penggunaan atau pembolehubah luaran dalam paradigma kualiti perisian.

LEARNING EXPERIENCE MODEL WITH INTEGRATION OF AUGMENTED REALITY AND GAME ELEMENTS (M-BIOP)

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Pengarang Bersama :Prof. Madya Dr. Noraidah Sahari @ Ashaari, Ts. Dr. Siti Fadzilah Mat Noor , Prof. Madya Dr. Mahanem Mat Noor , Dr. Nazatul Aini Abd Majid, Dr. Hadi Affendy Dahlan, Dr. Amelia Natasya Abdul Wahab

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Sekolah Menengah Integrasi Tahfiz Ilmuwan (SMITIN)

One concern in teaching and learning (T&L) research is the lack of student interest in taking Science, Technology, Engineering, and Mathematics (STEM) subjects. STEM subjects are often associated with difficulty in scoring, heavy workload for both students and teachers, and require a big budget to provide the lab materials (Kayan et al., 2022). However, technology has opened the door to help lessen the burden through T&L alternatives method (Criollo et al., 2021; Alwia et al., 2019).

Mobile applications with the integration of augmented reality (AR) and game elements (Gamification) are among the alternatives that can be used to create a good learning experience (Nordin et al., 2022). Augmented reality aims to enhance the user experience with computer-generated input where users can see digital objects in 3-dimensional (3D) form on the screen, mimicking the actual objects in virtual mode. AR features are proven to improve interaction that can be seen in entertainment and social applications such as Snapchat, Google ARCore, and Pokemon Go. Current research uses AR features in learning applications to stimulate two-way communication and enhance the learning experience (Criollo et al., 2021; Alwia et al., 2019; Kelly et al., 2018). Gamification also play an important role in learning since the young generation is considered to be avid players who enjoy playing games and are familiar with the gamification concept (Khlaif et al., 2019).

Many aspects must be considered in designing and developing applications with AR and gamification. These aspects include the use of technology, appropriate pedagogy, content that can be translated through various media. Tthe combination of those three aspects (technology, pedagogy, and content) encourage interaction and offer a good learning experience (Criollo et al., 2021; Alwia et al., 2019; Khlaif et al., 2019).

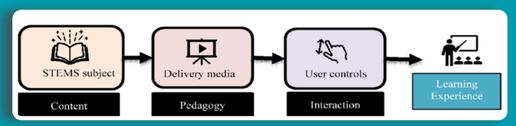

Figure 1: STEM Learning Experience Model
Rajah 1: Model Pengalaman Pembelajaran STEM

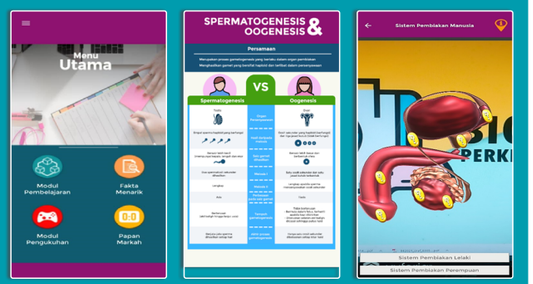

Figure 2: Example of m-BioP interfaces
Rajah 2: Contoh antaramuka aplikasi m-BioP

Many researchers have developed and discussed existing guidelines for designing mobile applications for STEM subjects (Alwia et al., 2019; Han et al., 2017). Some mobile application models focus on factors that influence the design but do not highlight the integration of AR and gamification with the learning experience. Some studies have designed mobile application models with AR and gamification but only evaluate students' learning experiences using usability tests that may not fully represent students' learning experiences (Criollo et al., 2021; Kelly et al., 2018). There is a need to create a model as a guideline for designing mobile applications with AR and gamification for a better learning experience.

Thus, an application has been designed and developed to meet the needs and provide guidelines for the design and development of mobile applications for STEM subjects that offer a better learning experience through the integration of AR and gamification. The learning experience model is designed in advance and validated by experts in the relevant field.

Based on the validated model, the m-BioP application was developed using Unity software and received positive responses based on student evaluations. Figure 1 shows a learning experience model verified by experts with three main elements, namely content, pedagogy, and interaction, that influence the learning experience. While Figure 2 shows an example of the application interface.

MODEL PENGALAMAN PEMBELAJARAN DENGAN INTERGRASI AUGMENSI TERIMBUH DAN ELEMEN PERMAINAN (M-BIOP)

Kebimbangan yang kerap dibincangkan dalam penyelidikan pengajaran dan pembelajaran (P&P) ialah kurangnya minat pelajar untuk mengambil subjek Sains, Teknologi, Kejuruteraan, dan Matematik (STEM). Mata pelajaran STEM sering dikaitkan dengan kesukaran untuk mendapatkan markah, beban tugas yang berat bagi pelajar dan guru dan keperluan bajet yang besar (Kayan et al., 2022). Namun, teknologi telah membuka pintu untuk membantu mengurangkan kesukaran melalui kaedah alternatif P&P (Criollo et al., 2021; Alwia et al., 2019).

Aplikasi mudah alih dengan integrasi realiti terimbuh (AR) dan elemen permainan (Gamifikasi) merupakan antara kaedah alternatif yang boleh digunakan untuk mencipta pengalaman pembelajaran yang baik (Nordin et al., 2022). AR bertujuan untuk meningkatkan pengalaman pengguna dengan input yang dijana komputer. Pengguna boleh melihat objek digital, biasanya dalam bentuk tiga dimensi (3D) pada paparan skrin seperti melihat objek sebenar pada mod maya. Ciri AR terbukti meningkatkan interaksi seperti mana ia kelihatan pada aplikasi hiburan dan sosial seperti Snapchat, Google ARCore dan Pokemon Go. Penyelidikan semasa menggunakan ciri AR dalam aplikasi pembelajaran untuk merangsang komunikasi dua hala dan meningkatkan pengalaman pembelajaran (Criollo et al., 2021; Alwia et al., 2019; Kelly et al., 2018). Gamifikasi juga memainkan peranan penting dalam pembelajaran memandangkan generasi muda dianggap sebagai pemain yang gemar bermain dan gamifikasi menawarkan keseronokan dalam pembelajaran serta dapat meningkatkan pengalaman pembelajaran (Khlaif et al., 2019). Banyak aspek perlu dipertimbang dalam mereka bentuk dan membangun aplikasi AR dan gamifikasi. Ini termasuk penggunaan teknologi, pedagogi yang sesuai. Kandungan topik yang boleh diterjemah dengan jelas melalui teknologi dan gabungan tiga aspek tersebut (teknologi, pedagogi dan kandungan) menggalakkan interaksi dan menawar pengalaman pembelajaran yang baik (Criollo et al., 2021; Alwia et al., 2019; Khlaif et al., 2019).

Garis panduan sedia ada untuk mereka bentuk aplikasi mudah alih untuk subjek STEM telah dibangunkan dan dibincangkan oleh ramai penyelidik (Alwia et al., 2019; Han et al., 2017). Sesetengah model aplikasi mudah alih memberi tumpuan kepada faktor yang mempengaruhi reka bentuk tetapi tidak mengetengah integrasi AR dan gamaifikasi dengan pengalaman pembelajaran. Beberapa kajian telah mereka bentuk model aplikasi mudah alih dengan AR dan permainan tetapi hanya menilai pengalaman pembelajaran pelajar dengan menggunakan ujian kebolehgunaan yang mungkin tidak menunjukkan keseluruhan pandangan pengalaman pembelajaran pelajar (Criollo et al., 2021; Kelly et al., 2018). Terdapat keperluan untuk mencipta model sebagai garis panduan untuk mereka bentuk aplikasi mudah alih dengan elemen AR dan permainan untuk pengalaman pembelajaran yang lebih baik.

Justeru, Aplikasi m-BioP telah direka bentuk dan dibangun bagi memenuhi keperluan dan menyediakan garis panduan reka bentuk dan pembangunan aplikasi mudah alih bagi mata pelajaran STEM yang menawarkan pengalaman pembelajaran yang lebih baik melalui integrasi AR dan gamifikasi. Model pengalaman pembelajaran direka bentuk terlebih dahulu dan disahkan oleh pakar dalam bidang berkaitan. Berdasarkan model yang telah disah, aplikasi m-BioP dibangun menggunakan perisian Unity dan mendapat respon positif berdasarkan penilaian pelajar. Rajah 1 menunjukkan model pengalaman pembelajaran yang telah disahkan pakar yang mengandungi tiga elemen utama iaitu kandungan, pedagogi dan interaksi yang mempengaruhi pengalaman pembelajaran. Manakala Rajah 2 menunjukkan contoh antaramuka aplikasi m-BioP

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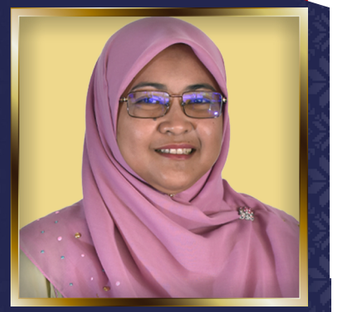
THE 3RD SERVICE SCIENCE SYMPOSIUM



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Pusat :Pusat Kajian SOFTAM

Kolaborator: SESMA, KSRL-UUM

This year, the e-Service Lab (Softam FTSM-UKM), alongside the Knowledge Science Research Lab (KSRL-UUM) and Serviceology Society Malaysia (SESMA), co-organised the 3rd Service Science Symposium. The symposium was held on the 23rd and 24th of August via the Zoom platform was attended by scholars and students from UKM, UUM, Japan Advanced Institute of Science and Technology (JAIST), and the Service Science Society of Taiwan (S3TW). The Service Science Symposium is a biannual knowledge-sharing and research activity event that held its first meeting in 2017. This event envisages active participation from various groups of researchers, lecturers, students, and industries in addressing current issues and research in the service science area. The second symposium was conducted in 2019 at the UUM Sintok campus. Due to the Covid-19 pandemic, the third symposium planned to be conducted in 2021 was put on hold until this year. The theme for this year's symposium is The Future of Service Science Post-Pandemic. The theme focuses on emerging services' future direction, advantages, and sustainability. As we are recovering from Covid-19, the theme fits the current innovations, such as applications that were created to enable society to request and deliver services efficiently and effectively. With the diminishing resources of our world, creativity and innovations are essential for humankind to live sustainably in today's digital societies.

There are three segments in the third symposium. In the first segment, six invited speakers from various backgrounds in service industries presented their insights on current issues and challenges related to service science. Four speakers are scholars from JAIST, UKM, Osaka University, and Liverpool John Moores University, and two are professionals from Roboprenuer Sdn. Bhd and Delaware Consulting Malaysia Sdn. Bhd. In the second segment, a meeting with SESMA and S3TW committee members was conducted to discuss potential programmes that can be organised for future collaboration. Researchers from JAIST also joined this meeting. The third and last segment was a knowledge-sharing session led by Assoc. Prof. Dr. Shirahada from JAIST. At this event, Shirahada san and his two graduate students presented their current work seeking research opportunities and collaboration among the students from UKM, UUM, and JAIST. The 3rd Service Science Symposium was a success despite being held online. We want to take this opportunity to thank everyone involved in organizing this symposium.

SIMPOSIUM SAINS SERVIS KE-3

Tahun ini, makmal e-Servis (Softam FTSM-UKM), dengan kerjasama makmal penyelidikan Sains Pengetahuan (KSRL-UUM) dan Serviceology Society Malaysia (SESMA), telah menganjurkan Simposium Sains Servis ke-3. Simposium yang diadakan pada 23 dan 24 Ogos melalui platform Zoom dihadiri oleh para sarjana dan pelajar dari UKM, UUM, Japan Advanced Institute of Science and Technology (JAIST), dan Service Science Society of Taiwan (S3TW). Simposium Sains Servis ialah acara perkongsian pengetahuan dan aktiviti penyelidikan yang diadakan dua tahun sekali. Simposium pertama telah diadakan pada tahun 2017. Acara ini mensasarkan penyertaan aktif daripada pelbagai kumpulan penyelidik, pensyarah, pelajar, dan industri dalam menangani isu semasa dan penyelidikan dalam bidang sains servis. Simposium kedua telah dijalankan pada tahun 2019 di kampus UUM Sintok. Disebabkan pandemik Covid-19, simposium ketiga yang dirancang dijalankan pada tahun 2021 telah ditangguhkan sehingga tahun ini. Tema simposium tahun ini ialah The Future of Service Science Post-Pandemic. Tema ini memfokus pada hala tuju masa depan, kelebihan dan kemampanan perkhidmatan. Tema tersebut sesuai dengan situasi semasa iaitu ketika negara semakin pulih daripada Covid-19. Kami melihat banyak inovasi, seperti aplikasi yang dicipta untuk membolehkan masyarakat meminta dan menyampaikan perkhidmatan dengan cekap dan berkesan. Dengan sumber dunia kita yang semakin berkurangan, kreativiti dan inovasi adalah penting bagi manusia untuk hidup secara mampan dalam masyarakat digital hari ini.

Terdapat tiga segmen dalam simposium ketiga. Dalam segmen pertama, enam penceramah jemputan daripada pelbagai latar belakang dalam industri perkhidmatan membentangkan pandangan mereka tentang isu semasa dan cabaran berkaitan sains servis. Empat penceramah adalah penyelidik dari JAIST, UKM, Osaka University, dan Liverpool John Moores University, dan dua penceramah adalah profesional dari Roboprenuer Sdn. Bhd dan Delaware Consulting Malaysia Sdn. Bhd. Dalam segmen kedua, satu perjumpaan dengan ahli jawatankuasa SESMA dan S3TW diadakan untuk membincangkan program berpotensi yang boleh dianjurkan pada masa hadapan. Penyelidik dari JAIST turut menyertai perjumpaan ini. Segmen ketiga dan terakhir ialah sesi perkongsian pengetahuan, diketuai oleh Prof. Madya Dr. Shirahada dari JAIST. Pada sesi ini, Shirahada dan dua orang pelajar siswazahnya membentangkan dan berkongsi kajian mereka untuk mencari peluang penyelidikan dan kerjasama dalam kalangan pelajar dari UKM, UUM, dan JAIST. Simposium Sains Servis ketiga telah dijalankan dengan jayanya walaupun diadakan secara dalam talian. Dikesempatan ini kami mengucapkan terima kasih kepada semua yang terlibat sama ada secara langsung atau tidak langsung dalam penganjuran simposium ini.

NON-CONTACT ATTENDANCE AND TEMPERATURE SCREENING SYSTEM USING INTERNET-OF-THINGS

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Pusat :Pusat Kajian SOFTAM

Malaysia has entered the endemic phase after recording an increase in the recovery from the Covid-19 epidemic. Before the start of the pandemic, student attendance at school was recorded manually. However, after moving into the pandemic phase, the method of recording student attendance has changed, where the student's body temperature is also taken. The reason is that a high body temperature is a symptom of the Covid-19 epidemic. This situation has resulted in most schools using digital technology to record student attendance.

Although temperature screening is no longer mandatory after the endemic phase begins, temperature screening is still encouraged to identify unwell students as soon as possible to ensure the safety of teachers and other students. In connection with that, IoT-based Non-Contact Temperature Attendance and Screening System has been developed. The system uses an infrared temperature sensor and a camera connected using a Raspberry Pi. User information is stored in the Amazon DynamoDB database.

During the detection process, the user can see the display of user information such as user ID, name, class, and body temperature, as well as the body temperature category (normal, high, or low), and the notification of successful presence is recorded on the LCD screen. The school can download attendance information and student body temperature if necessary. The diagram below shows the system interface for registered users and successfully recorded attendance and 'normal' body temperature.

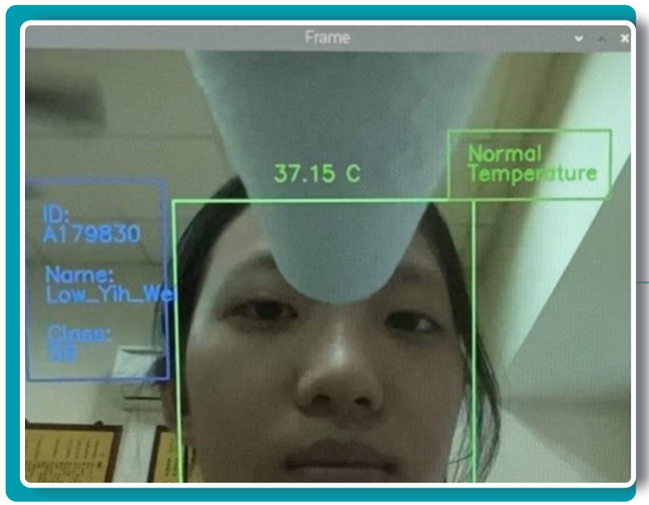
Using this system, student attendance recording can be done automatically, enabling the system to filter individuals potentially infected with Covid-19. Thus, this system can ensure the safety of students and teachers. Integrating the process of recording attendance and temperature simultaneously can also avoid the situation of students forgetting to record their body temperature when attending school. This process also encourages parents to be sensitive to their child's body temperature and not send them to school if their child's temperature is higher than usual

SISTEM KEHADIRAN DAN SARINGAN SUHU TANPA KONTAK BERASASKAN INTERNET PELBAGAI BENDA

Malaysia telah menjejak masuk ke fasa endemik selepas mencatat peningkatan pemulihan wabak Covid-19. Sebelum bermulanya pandemik, kehadiran pelajar ke sekolah direkodkan secara manual. Namun setelah menganjak masuk ke fasa pandemik, kaedah merekod kehadiran pelajar telah berubah yang mana suhu badan pelajar juga diambil. Ini adalah kerana, suhu badan yang tinggi merupakan simptom wabak Covid-19. Situasi ini telah mengakibatkan kebanyakan sekolah menggunakan teknologi digital untuk merekod kehadiran pelajar.

Walaupun saringan suhu tidak lagi diwajibkan setelah fasa endemik bermula, saringan suhu tetap digalakkan untuk mengenal pasti pelajar yang kurang sihat dengan kadar segera bagi menjaga keselamatan para guru serta pelajar yang lain. Sehubungan dengan itu, Sistem Kehadiran dan Saringan Suhu Tanpa Kontak berasaskan IoT telah dibangunkan. Sistem ini menggunakan sensor suhu inframerah dan kamera yang disambung menggunakan Raspberry Pi. Maklumat pengguna disimpan di dalam pangkalan data Amazon DynamoDB.
Semasa proses pengesanan, pengguna dapat melihat paparan maklumat pengguna seperti ID pengguna, nama, kelas, dan suhu badan mereka serta kategori suhu badan (normal, tinggi atau rendah) dan notifikasi kehadiran berjaya direkod pada skrin LCD. Pihak sekolah boleh memuat turun maklumat kehadiran dan suhu badan pelajar sekiranya perlu. Rajah di bawah menunjukkan antara muka sistem untuk pengguna yang berdaftar dan berjaya merekod kehadiran dengan suhu badan yang normal.

Dengan menggunakan sistem ini, perekodan kehadiran pelajar dapat dilakukan secara automatik di samping membolehkan sistem menyaring individu yang berpotensi dijangkiti Covid-19. Justeru, sistem ini dapat memastikan keselamatan pelajar dan guru. Pengintegrasian proses merekod kehadiran dan suhu secara serentak juga boleh mengelakkan situasi pelajar lupa untuk merekodkan suhu badan ketika hadir ke sekolah. Proses ini juga menggalakkan para ibu bapa peka dengan suhu badan anak mereka dan tidak menghantar anak ke sekolah jika didapati suhu anak mereka tinggi daripada normal normal.



Antara muka sistem untuk rekod kehadiran dan suhu badan pengguna

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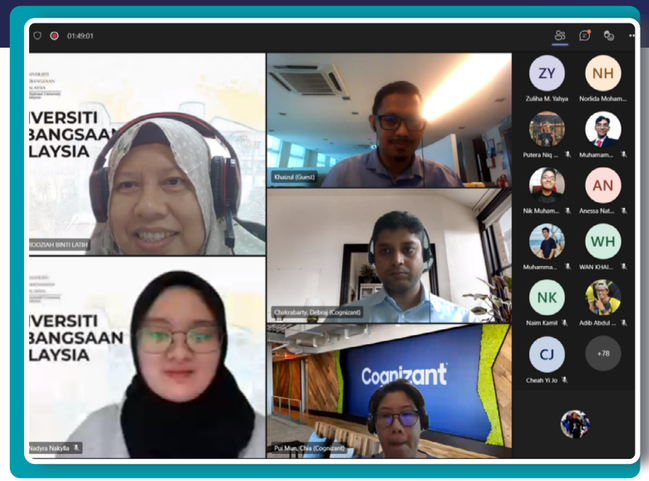
Pusat :Pusat Kajian SOFTAM

A CAREER IN SOFTWARE TESTING

On January 11, 2022, a career webinar titled "A Career in Software Testing" was held. Participation is open to all UKM students. However, most of those who attended were students of the TE3503 Software Testing course, totaling 92 people. The objective of this webinar is to give exposure to students of the Software Testing course about careers as software testers and the importance of testing software. This webinar was held online using the Microsoft Teams platform. This webinar starts at 2.00 pm and ends at 4.00 pm. The session was held entirely in English and the student representative, Miss Nadyra Nakylla, was the facilitator.

Representatives from MSTB (Malaysian Software Testing Board) consisted of Mrs Zuliha, Mr Khaizul, and Ms Norlida. The MSTB is a national body representing industry interests in promoting Software Quality Assurance (SQA) and software testing as core competencies in developing quality IT-dependent products and services. MSTB is a member of the International Software Testing Qualifications Board (ISTQB), an international software testing certification body registered in Belgium. MSTB regulates the accreditation and certification process for Malaysia. The certification program follows the ISTQB syllabus and is built on the best practices and collective testing knowledge from testing practitioners worldwide. Certifications offered by MSTB are such as Certified Tester Foundation Level (CTFL) and Certified Tester Advanced Level (CTAL), which are recognized by all ISTQB member countries.
Representatives from Cognizant consisted of Mrs Chia Pui Mun, Mr Debraj, and Mr Gowtham. Cognizant is one of the largest global professional services companies focusing on digital technology services such as IoT, artificial intelligence, software engineering, and cloud.

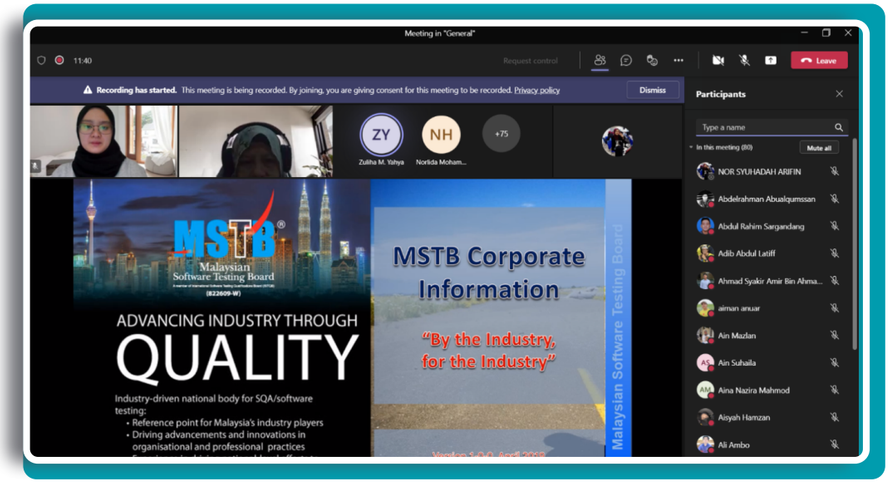


KERJAYA DALAM PENGUJIAN PERISIAN

Pada 11 Januari 2022, satu webinar kerjaya yang bertajuk "A Career in Software Testing" telah diadakan. Penyertaan terbuka kepada semua pelajar UKM. Namun, majoriti yang hadir adalah pelajar kursus TE3503 Pengujian Perisian yang seramai 92 orang. Objektif webinar ini diadakan adalah untuk memberi pendedahan kepada pelajar yang mengambil kursus Pengujian Perisian tentang kerjaya sebagai penguji perisian, dan juga kepentingan membuat pengujian kepada perisian. Webinar ini telah diadakan secara dalam talian menggunakan platform Microsoft Teams, bermula pada jam 2.00 petang dan berakhir pada 4.00 petang. Sesi diadakan sepenuhnya dalam Bahasa Inggeris dan wakil pelajar iaitu Cik Nadyra Nakylla sebagai pemudahcara.

Wakil dari MSTB (Malaysian Software Testing Board) terdiri daripada Puan Zuliha, En. Khaizul dan Pn. Norlida. MSTB ialah sebuah badan kebangsaan yang mewakili kepentingan industri dalam mempromosikan Jaminan Kualiti Perisian (SQA) dan ujian perisian sebagai kecekapan teras dalam pembangunan produk dan perkhidmatan berkualiti yang bergantung kepada IT. MSTB merupakan ahli International Software Testing Qualifications Board (ISTQB), iaitu badan pensijilan pengujian perisian peringkat antarabangsa yang di daftarkan di Belgium. MSTB mengawal selia proses akreditasi dan pensijilan untuk Malaysia. Program pensijilan yang ditawarkan adalah mengikut sukatan pelajaran ISTQB dan dibina berdasarkan amalan terbaik dan pengetahuan ujian kolektif yang disumbangkan oleh pengamal ujian di seluruh dunia. Pensijilan yang ditawarkan oleh MSTB adalah seperti Certified Tester Foundation Level (CTFL) dan Certified Tester Advanced Level (CTAL) yang diiktiraf oleh semua negara ahli ISTQB.

Wakil dari Cognizant pula terdiri daripada Puan Chia Pui Mun, En. Debraj dan En. Gowtham. Cognizant pula merupakan salah satu syarikat perkhidmatan profesional global terbesar yang memfokus kepada perkhidmatan teknologi digital seperti IoT, kecerdasan buatan, kejuruteraan perisian dan awanan.



Pengarang :Dr. Zurina Muda

Pengarang Bersama :Dr. Amirah Ismail, Ts. Dr. Azura Ishak, Ts. Dr. Siti Fadzilah Mat Noor, Prof. Madya Dr. Noraidah Ashaari @ Sahari, Wan Halimah Ismail.

SIG Kelab Multimedia Interaktif (Interactive

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Pusat :Pusat Kajian SOFTAM

Kolaborator: Sekolah Menengah Ibn Khaldun

Kod Projek :TT-2020-013

ICT INTERVENTION IN DIGITAL TEACHING & LEARNING (T&L) FOR SCHOOL TEACHER

The Digital Revolution (4IR) could have a tremendous impact to the education domain. Hence, the implementation of ICT in school education, which is still at a minimum level, needs to be improved. In 2022, the Interactive Multimedia Club (IMeC) took the initiative to carry out ICT interventions by conducting two series of School Digital T&L Digital ICT Infographic Workshops on Saturday, 8 January (Series 1) and 25 June (Series 2) 2022. These workshops are part of the FTSM Community Transformation Fund research grant activity (TT-2020-013) aims to transfer knowledge and technology to the school community.

The workshops were attended by 61 teachers and involved 18 schools, including colleges. In order to meet the eSulam concept by the Malaysian Ministry of Education with a theme: university for the community, these workshops are organized by students from IMeC led by Nor Farzana Syuhadah Kashfullah for Kalsom Isa for series 2. A total of four FTSM lecturers are involved, namely Dr. Zurina Muda and Ts. Dr. Siti Fadzilah Mat Nor acts as the instructors, while Dr. Amirah and Dr. Azura Ishak are the judges for the poster competition. Table 1 shows the brief info of series 1 and 2 that have been carried out.

Workshop series 1 is officiated by the Dean's representative, the Assistant Dean of HEP, Associate Prof. Dr. Suhaila Zainuddin, and series 2 is represented by the Deputy Dean of Research & Innovation, Associate Prof. Dr. Siti Norul Huda Sheikh Abdullah. In contrast, the closing for both series is done by the workshop advisor, Dr. Zurina Muda. Each workshop series is divided into three slots as follows:

Slot 1 is the instructors' theoretical and practical session using Canva and Jamboard.
Slot 2 is a poster competition assignment session in groups facilitated by the students' program committees.
Slot 3 is the poster competition evaluation session by the judges, workshop evaluation, and closing.

ITEMS	SERIES 1/2022	SERIES 2/2022
Workshop date	8 Jan 2022	25 Jun 2022
Program Committee	15 students	17 students
Num. of lecturer	4 lecturers	4 lecturers
Num. of participant	43 teachers	18 teachers
Num. of School	6 schools	10 schools
		2 colleges

Sesi Slot 1 Bersama Pengajar

In conclusion, the overall response of the participants is outstanding, and they suggest to organise a follow-up workshop for other applications and Canva for professionals in the future. The support of all parties, including UKM's HEP and FTSM, is the driving factor to the workshop's success in achieving its objectives and simultaneously contributing to the teachers' community in specific and society in general.

INTERVENSI ICT DALAM PENGAJARAN & PEMBELAJARAN (PDP) DIGITAL UNTUK GURU SEKOLAH

Revolusi Digital (4IR) memberi impak yang besar kepada domain pendidikan. Oleh itu implementasi ICT dalam pendidikan di sekolah yang masih pada tahap minimum perlu ditingkatkan. Pada tahun 2022 ini, Kelab Interaktif Multimedia (Interactive Multimedia Club – IMeC) mengambil inisiatif menjalankan intervensi ICT dengan mengadakan dua siri Bengkel Infografik ICT PdP Digital Sekolah pada Sabtu 8 Januari (Siri 1) dan 25 Jun (Siri 2) 2022. Bengkel ini merupakan aktiviti geran penyelidikan Dana Transformasi Komuniti FTSM (TT-2020-013) bertujuan untuk melaksana pemindahan pengetahuan dan teknologi kepada komuniti sekolah.

Bengkel ini disertai oleh 61 orang guru dengan penglibatan 18 buah sekolah termasuk kolej dan maktab. Sebagai memenuhi konsep eSulam Kementerian Pendidikan Malaysia bertema universiti untuk masyarakat, bengkel ini dianjur oleh mahasiswa/i daripada IMeC yang diketuai oleh Nor Farzana Syuhadah Kashfullah untuk siri 1 dan Umi Kalsom Isa untuk siri 2. Seramai empat pensyarah FTSM terlibat iaitu Dr. Zurina Muda dan Ts. Dr. Siti Fadzilah Mat Nor sebagai pengajar manakala Dr. Amirah dan Dr. Azura Ishak sebagai juri pertandingan poster. Jadual 1 menunjukkan info ringkas siri 1 dan 2 yang telah dijalankan.

Bengkel siri 1 dirasmikan oleh wakil Dekan iaitu Penolong Dekan HEP, Prof. Madya Dr. Suhaila Zainuddin dan siri 2 diwakili oleh Timbalan Dekan Penyelidikan & Inovasi, iaitu Prof. Madya Dr. Siti Norul Huda Sheikh Abdullah, manakala penutup kedua-dua siri dilakukan oleh penasihat bengkel, Dr. Zurina Muda. Setiap siri bengkel dibahagikan kepada tiga slot seperti berikut:
Slot 1 adalah sesi teori dan praktikal mengguna Canva dan Jamboard oleh pengajar
Slot 2 adalah sesi tugasan pertandingan poster secara berkumpulan dengan pemudahcara daripada kalangan mahasiswa/I urusetia program.
Slot 3 adalah sesi penilaian pertandingan poster oleh para juri, penilaian bengkel dan penutup.

Bengkel ini telah memberi pendedahan dan pengalaman baru kepada mahasiswa/i yang terlibat dalam membina keyakinan diri, kemahiran dan kompetensi pelajar. Kemahiran ICT pelajar sebagai fasilitator, kompetensi komunikasi dan kepimpinan dapat digarap agar lebih berdaya saing di samping memberi munafaat kepada komuniti dan masyarakat.

Kesimpulannya, respon peserta secara keseluruhannya adalah cemerlang dan mereka juga mencadangkan bengkel susulan untuk aplikasi lain dan Canva untuk profesional pada masa akan datang diadakan. Sokongan semua pihak termasuk pihak HEP UKM dan FTSM adalah faktor pendorong kejayaan perlaksanaan bengkel sebegini dalam mencapai objektifnya, sekaligus memberi sumbangan kepada komuniti guru khasnya, dan masyarakat amnya.

Poster Bengkel Siri 1

Poster Bengkel Siri 2

PERKARA	SISI 1/2022	SIRI 2/2022
Tarikh Bengkel	8 Jan 2022	25 Jun 2022
Urusetia Program	15 mahasiswa/i	17 mahasiswa/i
Bil. Pensyarah	4 orang	4 orang
Bil. Peserta	43 guru	18 guru
Bil. Sekolah	6 sekolah	10 sekolah
		2 kolej/maktab

VIRTUAL MUSEUM E-COMMERCE (VÃMUSE-C)

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Pengarang Bersama :Prof. Madya Dr. Noraidah Sahari@Ashaari, Ts. Dr. Siti Fadzilah Mat Noor, Dr. Hazura Mohamed, Dr. Noorazean Mohd Ali, Dr Rodziah Latih, Dr. Nor Azan Mat Zin

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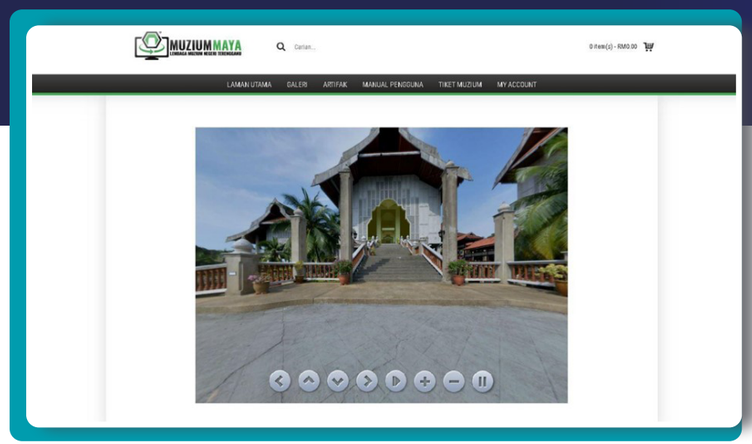
Pusat :Pusat Kajian SOFTAM

The Virtual Museum System E-Commerce, also known as Vãmuse-C is a non-immersive exploration system in the Terengganu State Museum gallery. Visitors can use a touch screen or a mouse to interact with exhibitions and manipulate artifacts. Vãmuse-C specializes in assisting scholars, historians, and students from all over the world in making purchases of historical knowledge and artifacts. The museum curator determines the payment rate for each piece based on its historical value. Visitors may also use a 3D printer to manufacture relics that look just like actual antiquities.

Vãmuse-C allowed online browsing and interaction with galleries and artifacts. Although some museums have developed their virtual museum, Vàmuse-C is the first virtual museum that lets users interact by searching and exploring all nine (9) galleries. Walkthrough techniques have been applied for exploration features to provide visitors with an experience of realism and existence while using the
Users can manipulate 3D artifacts on the screen display using either a touch screen or a mouse. Besides, the collection display can be accessed up to 20% of the entire collection for free, while a payment transaction is necessary to access the detailed artifacts information. The intention of recommending the e-commerce system is not only to make a profit but to assist in funding the costs of continued preservation and conservation of national treasures.



MUZIUM MAYA E-DAGANG (VÃMUSE-C)

Sistem Muzium Maya E-Dagang yang dikenali sebagai Vãmuse-C mengimplementasi teknologi realiti maya bukan imersif di galeri Muzium Negeri Terengganu. Pelawat boleh menggunakan skrin sesentuh atau tetikus untuk berinteraksi dengan pameran serta memanipulasi artifak. Vãmuse-C. Sistem ini memberi manfaat kepada sarjana, ahli sejarah, pelajar, pendidik dan individu yang berminat untuk mempelajari dan mengiktiraf warisan budaya melalui penggunaan ICT. Kadar bayaran setiap artifak dan maklumat ditentukan oleh kurator muzium berdasarkan nilai sejarah. Pelawat juga boleh mengguna pencetak 3D untuk menghasilkan replika peninggalan sejarah yang menyerupai artifak sebenar.

Vãmuse-C membenarkan pengguna menelusur dan berinteraksi dengan galeri dan artifak. Walaupun terdapat beberapa muzium telah membangunkan sistem muzium maya, Vãmuse-C merupakan muzium maya pertama yang membolehkan pengguna berinteraksi dengan meneroka kesemua sembilan (9) buah galeri. Teknik penelusuran (walkthrough) diguna dalam pembangunan ciri penerokaan untuk memberi pengalaman yang lebih realistik kepada pengguna semasa menggunakan sistem. Selain itu, paparan koleksi dapat diakses sehingga 20% daripada keseluruhan koleksi secara percuma, manakala transaksi pembayaran diperlukan untuk mengakses maklumat artifak yang lebih terperinci. Pembangunan fungsi e-dagang ini bukanlah bertujuan untuk mengaut keuntungan, namun adalah bagi membantu menampung kos pemeliharaan dan pemuliharaan khazanah negara secara berterusan.

http://muziummaya.my

USABILITY VS USER EXPERIENCE (UX)

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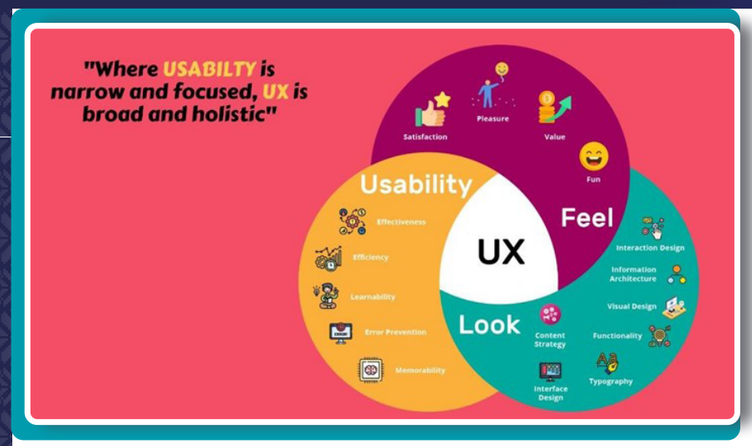
This article discusses the general relationship between usability and user experience (UX). The terms usability and UX are interchangeable but represent different yet related constructs. The diagram below shows the relationship between usability and UX. Usability is one element that describes the instrument's quality aspect. The role of usability in user experience refers to the technical aspects of a system, application, product, or interface. It enables users to obtain five aspects of system development: effectiveness, efficiency, learnability, error prevention, and memorability. Research in human-computer interaction initially focused only on aspects of system usability, which is understood as "the extent to which a particular user can use a product to achieve specific goals such as effectiveness, efficiency, and satisfaction in a particular context of use" (ISO 9241-11 1998).

While UX is more comprehensive and holistic, the usability aspect has a smaller and more focused scope. User experience includes satisfaction, pleasure, fun, and value, including usability. If the research conducted focuses only on the usability aspects, then the system developed will have only a high level of effectiveness and efficiency; that is, it will focus only on the functionality of a system. However, the user experience aspect concentrates on the usability level and the user's fun and emotional experience or excitement. User experience is really about the user's experience when interacting with the system. It is the key to success in developing a system. Essential elements of user experience include interaction design, information architecture, visual design, functionality, usability, typography, interface design, and content strategy. All these elements, including UX, determines that the system produced will not fail. Although there is a difference between the two aspects of usability and UX, the same evaluation method can be used to measure the two aspects.

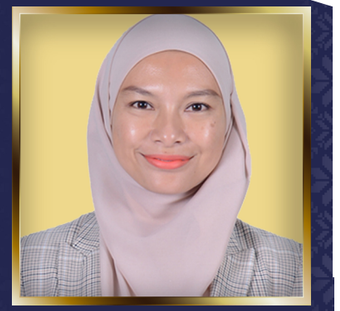


KEBOLEHGUNAAN VS PENGALAMAN PENGGUNA

Artikel ini mengupas secara umum hubung kait di antara kebolehgunaan dan pengalaman pengguna (UX). Terma kebolehgunaan dan pengalaman pengguna digunakan secara bergantian tetapi ia mewakili konstruk yang berbeza. Namun begitu, ianya berkait antara satu sama lain. Gambarajah di bawah menunjukkan hubung kait di antara kebolehgunaan dan pengalaman pengguna. Kebolehgunaan merupakan salah satu elemen yang menghuraikan tentang instrumen aspek kualiti. Peranan kebolehgunaan dalam pengalaman pengguna adalah merujuk pada aspek teknikal sesebuah sistem, aplikasi, produk atau antara muka yang dihasilkan. Ia membenarkan pengguna memperoleh lima aspek yang diterap dalam pembangunan sistem, iaitu keberkesanan, kecekapan, kebolehbelajaran, pencegahan kesilapan dan daya ingatan. Penyelidikan dalam bidang Interaksi Manusia Komputer pada awalnya hanya memberi fokus kepada aspek kebolehgunaan sistem yang dimaksudkan sebagai "sejauh mana produk boleh digunakan oleh pengguna tertentu untuk mencapai matlamat tertentu seperti keberkesanan, kecekapan dan kepuasan dalam konteks penggunaan tertentu" (ISO 9241-11 1998).

Walaupun pengalaman pengguna adalah lebih meluas dan holistik, aspek kebolehgunaan mempunyai skop yang lebih kecil dan terfokus. Aspek pengalaman pengguna adalah kepuasan, keseronokan, kesenangan, dan nilai, termasuk kebolehgunaan. Apabila kajian yang dijalankan hanya memberi fokus pada aspek kebolehgunaan maka sistem yang dibangunkan hanyalah mempunyai tahap keberkesanan dan kecekapan yang tinggi, iaitu hanya memberi penekanan terhadap fungsi pada sesebuah sistem. Namun, aspek pengalaman pengguna pula bukan sekadar memberi fokus kepada tahap kebolehgunaan tetapi lebih kepada pengalaman dan emosi yang menyeronokkan atau keterujaan pengguna. Pengalaman pengguna sebenarnya adalah mengenai pengalaman yang diperoleh daripada proses interaksi di antara pengguna dan sistem. Ia merupakan kunci kejayaan pembangunan sesebuah sistem. Elemen penting dalam pengalaman pengguna ialah reka bentuk interaksi, seni bina maklumat, reka bentuk visual, fungsian, kebolehgunaan, tipografi, reka bentuk antara muka dan strategi kandungan. Semua elemen ini, termasuk UX, menentukan bahawa sistem yang dihasilkan tidak akan gagal. Walaupun terdapat perbezaan antara dua aspek kebolehgunaan dan UX, kaedah penilaian yang sama boleh digunakan untuk mengukur kedua-dua aspek tersebut.

VIDEO INNOVATION CLUB (VIC) ADAPTING TO A VIRTUAL TEAMS IN TIMES OF PANDEMIC



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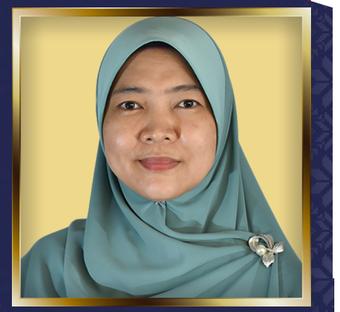
Video Innovation Club (VIC) aims to provide practical exposure to its members, including technical and soft skills in event management. Throughout the years, VIC has actively organized various events including competitions, workshops, talks, and bonding sessions among the members. The COVID-19 pandemic has impacted how VIC members communicate and collaborate, especially during the management of an event. Due to restrictions on gatherings during the pandemic, VIC's members have transformed into a group of individuals that communicate and collaborate together from multiple locations using technology – a virtual team. VIC has utilized various online collaboration tools to work effectively among its members and external stakeholders. The most common online collaboration tools used during the execution of the event are file sharing, instant messaging, cloud storage, and a real-time workspace such as Microsoft Teams. Virtual team has many benefits, such as flexibility for members juggling study and club

However, this approach also has some drawbacks. Communication can be a problem for members who work remotely, resulting in fewer opportunities to meet face to face with each other, planning and monitoring of the events become more complicated, a lack of trust, productivity, and accountability. These drawbacks were evident at the beginning of working virtually. Nevertheless, the members of VIC have demonstrated good spirits to overcome the challenges. The virtual workspace has become a new standard, and members of VIC have learned the lessons and improved themselves to become an effective virtual team by focusing on three main areas: trust, attentiveness, and communication.

KELAB INOVASI VIDEO (VIC) MENGADAPTASI PASUKAN MAYA DALAM MASA PANDEMIK

Kelab Inovasi Video (VIC) berhasrat untuk memberi pendedahan praktikal kepada ahlinya, termasuk kemahiran teknikal dan insaniah dalam pengurusan acara. Sepanjang tahun, VIC telah menganjurkan pelbagai acara secara aktif seperti pertandingan, bengkel, ceramah, dan sesi silaturahim sesama ahli. Pandemik COVID-19 telah menjejaskan cara ahli VIC berkomunikasi dan bekerjasama, terutamanya semasa pengurusan sesuatu acara. Disebabkan sekatan pergerakan semasa pandemik, ahli kelab VIC telah berubah menjadi sekumpulan individu yang bekerja bersama-sama dari pelbagai lokasi menggunakan teknologi komunikasi secara maya. Bukan sahaja di kalangan ahlinya sahaja, malah dengan pihak berkepentingan luar juga. Alat kerjasama dalam talian yang biasa digunakan semasa pelaksanaan adalah perkongsian fail, pemesejan segera, storan awan dan ruang kerja masa nyata, seperti Microsoft Teams. Kerja secara maya mempunyai banyak faedah, antaranya fleksibiliti yang diberi kepada ahli untuk menyulap antara belajar dan keperluan kelab.

Walau bagaimanapun, pendekatan ini juga mempunyai beberapa kelemahan. Komunikasi secara maya boleh mengakibatkan kurang pertemuan sesama ahli, oleh itu perancangan dan pemantauan acara menjadi lebih rumit. Malah kepercayaan, tumpuan, produktiviti dan akauntabiliti antara ahli juga boleh terjejas. Kelemahan ini dapat dilihat pada permulaan bekerja secara maya. Namun begitu, ahli VIC telah menunjukkan semangat yang baik untuk mengatasi kelemahan tersebut. Kini, ruang kerja maya telah menjadi kebiasaan baharu dan ahli VIC telah mengambil iktibar daripada kelemahan tersebut dan mempertingkatkan diri mereka untuk menjadi pasukan maya yang berkesan dengan memberi tumpuan pada tiga bidang utama: kepercayaan, perhatian dan komunikasi.



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MIND THERAPY APPLICATION FOR AN ADULT DEPRESSION

This project received the UKM Translational grant (TR UKM) that started in September 2022 and ended in August 2023. This project will develop a computer-based mind therapy application for adults that will apply several engagement factors which appropriate for them. The aim is to improve the effectiveness of adults' interaction using the therapy system actively in treating depression. It lays under two objectives: to design and develop computerized mind therapy for adults with depression and to evaluate the effectiveness of application in improving the adult's mental health.

Depression is a global health issue under mental illness that includes one of the five aspects of the disease burden in Malaysia. This illness is becoming a worrying polemic with the increasing number of cases every day (World Health Organization 2019). Based on the National Health and Morbidity Survey (NHMS) 2019, almost half a million Malaysians suffer from depression, of which 2.3% are adults (Figure 1). Additionally, this illness increased suicidal behavior from 7.9% (in 2012) to 10% (in 2017) for patients aged 13 and 17 and the second cause of for patients aged 15 and 29.

However, almost 50% of them did not seek any proper treatment, although several effective treatments are available for them. This is due to the constraints of many training sessions, limited medical staff, long waiting lists, financial barriers, and the stigma of psychiatric treatment. Various alternative treatments, including technology-based treatments such as computerized cognitive behavioral therapy (cCBT), are available. Unfortunately, this technology does not consider the user's experience design when interacting on the interface, causing them to be uninterested and disengage from the therapy system. This can affect consumers' deteriorating health and academic, family, and social performance.

Good development of digital intervention should consider the key design principles, which are usability and user experience (Hourcade, 2015). The system fail to achieve effectiveness, efficiency, satisfaction, or good performance if it does not meet the user's needs (Goldberg et al., 2011). User-friendly and user-engaging content can present a user-centered experience from a user's perspective (Richards et a. 2016). In the context of digital intervention, a high level of engagement can positively affect the patient (Clement et al., 2015).

There are eight researchers involved in this project. They are from the Faculty of Information Science and Technology (UKM), Institut Islam Hadhari (UKM), Hospital Canselor Tunku Mukhriz (UKM), Universiti Sains Islam Malaysia, and the Ministry of Health. This project is collaborating with the industry, namely Jabatan Belia dan Sukan Melaka. The outcome of the project, which is a computer-based mind therapy application, can contribute to the empowerment of adult mental health care and improve adult mental health services in Malaysia in the future.

APLIKASI TERAPI MINDA UNTUK KEMURUNGAN BELIA

Penyelidikan ini adalah melalui geran translasi UKM (TR UKM) yang bermula pada September 2022 dan berakhir pada Ogos 2023. Kajian ini akan membangun aplikasi terapi minda berbantu komputer untuk kegunaan belia yang akan menerapkan beberapa faktor keterlibatan yang bersesuaian dengan pengguna belia. Matlamat kajian adalah membantu meningkat keberkesanan interaksi belia menggunakan sistem terapi secara aktif dalam perawatan masalah kemurungan, berdasarkan dua objektif iaitu mereka bentuk dan membangunkan terapi minda berbantu berkomputer (TMBK) untuk kemurungan belia, serta menilai keberkesanan TMBK dalam menambahbaik kesihatan mental golongan belia.

Kemurungan adalah masalah kesihatan global di bawah morbiditi psikiatrik yang termasuk dalam salah satu daripada lima aspek bebanan penyakit di Malaysia. Masalah kesihatan ini menjadi polemik yang membimbangkan dengan peningkatan bilangan kes saban hari (World Health Organization 2019). Berdasarkan statistik Kajian Kesihatan dan Morbiditi Kebangsaan (NHMS) 2019, hampir setengah juta rakyat Malaysia mengalami masalah kemurungan yang mana 2.3% daripadanya adalah populasi dewasa (Rajah 1). Lebih membimbangkan masalah ini membawa kepada peningkatan perlakuan bunuh diri daripada 7.9% (tahun 2012) kepada 10% (tahun 2017) bagi pesakit berumur 13 dan 17 tahun, serta menjadi penyebab kedua kematian bagi pesakit berumur 15 dan 29 tahun.

Namun begitu, hampir 50% daripada mereka tidak mendapatkan sebarang rawatan yang sewajarnya, walaupun beberapa rawatan berkesan tersedia untuk mereka. Ini berikutan kekangan dari segi bilangan sesi latihan kursus yang banyak, tenaga pakar perubatan yang tidak mencukupi, senarai menunggu untuk mendapatkan rawatan yang panjang, halangan kewangan, serta stigma terhadap rawatan psikiatrik. Walaupun sudah terdapat pelbagai kaedah rawatan berasaskan teknologi seperti terapi tingkah laku kognitif berkomputer atau cCBT (Computerized Cognitive Behavioral Theraphy), teknologi ini tidak mengambil kira reka bentuk pengalaman pengguna apabila berinteraksi pada antara muka, menyebabkan mereka tidak berminat untuk meneruskan sistem terapi sehingga tamat. Ini mempengaruhi keberkesanan TMBK yang membawa kepada kemerosotan kesihatan belia, serta memberi kesan kepada prestasi akademik, keluarga, dan sosial mereka.

Pembangunan intervensi digital perlu mengambil kira prinsip utama reka bentuk iaitu kebolehgunaan dan pengalaman pengguna (Hourcade, 2015). Kegagalan antara muka untuk memenuhi keperluan pengguna boleh mengakibatkan pengurangan keberkesanan, kecekapan, kepuasan dan prestasi tugasan (Goldberg et al., 2011). Kandungan yang mesra pengguna dan melibatkan pengguna mampu mempersembahkan pengalaman berpusatkan pengguna daripada perspektif pengguna (Richards et al., 2016). Mengikut konteks intervesi digital, tahap keterlibatan yang tinggi boleh memberi kesan positif kepada pesakit (Clement et al., 2015).

Seramai lapan orang penyelidik yang terlibat dalam penyelidikan ini iaitu penyelidik di Fakulti Teknologi dan Sains Maklumat (UKM), Fakulti Sains Kesihatan (UKM), Universiti Sains Islam Malaysia (USIM) dan Kementerian Kesihatan Malaysia (KKM). Kajian juga menjalankan kerjasama bersama kolaborator industri iaitu Jabatan Belia dan Sukan Negeri Melaka. Hasil kajian iaitu aplikasi terapi minda berbantu komputer yang akan dibangun dapat menyumbang kepada pemerkasaan penjagaan kesihatan mental belia, serta menambahbaik servis kesihatan mental belia di Malaysia pada masa hadapan.

HOW CLOSELY DOES THE LESSON PLAN FOR TTTK1143 ADHERE TO THE STANDARDS STATED BY THE PEMANCAR MODEL?

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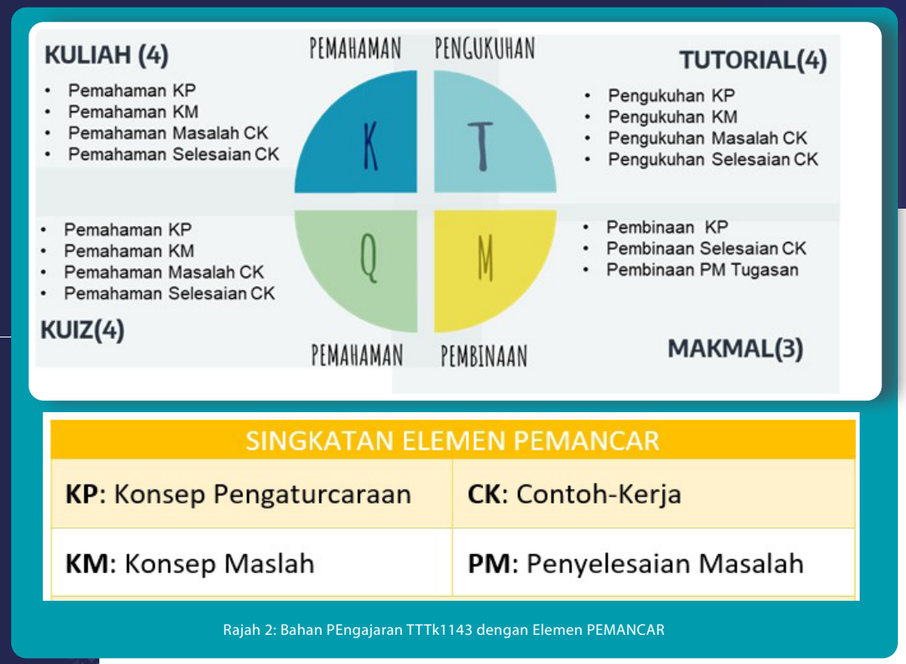
Continuous quality improvement, or CQI, is a type of quality management that promotes a task to be completed more efficiently in the future. CQI is significant in teaching since it evaluates the success of course design, teaching materials, and delivery methods in accomplishing the course's consented learning goals. Therefore, a one-day review workshop for TTTK1143: Program Design and Problem Solving was held on March 7, 2022, in BK5, FTSM. The workshop was attended by TTTK1143 teaching members, which included two lecturers and five IT teachers. A review was conducted to evaluate the teaching materials of TTTK1143 semester 2 session 2020/2021 in accordance with teaching standards based on the PEMANCAR model. PEMANCAR is a teaching model based on cognitive load theory established in 2018. The reviewed teaching materials include lecture materials, quizzes, tutorials, and laboratory assignment questions for five topics of Data

The review is based on the four elements of PEMANCAR (Programming Concept, Problem Concept, Worked-Example, and Problem-solving), as illustrated in Figure 2. Four checklist files are produced (table 1) to facilitate review and analysis using the excel file. The results found that most of the Data Structure topic contains each element of PEMANCAR with a different number. Based on this input, the minimum number of PEMANCAR elements is determined, and the teaching materials are improved based on the results of the CQI analysis.



Rajah 2: Bahan PEngajaran TTTk1143 dengan Elemen PEMANCAR

SEJAUH MANA BAHAN PENGAJARAN TTTK1143 MENGIKUT PIAWAIAN MODEL PEMANCAR?

Peningkatan kualiti berterusan atau CQI ialah pengurusan kualiti yang menggalakkan suatu tugas dilakukan dengan cekap pada masa akan datang. Dalam pengajaran, CQI penting bagi menilai keberkesanan reka bentuk kursus, bahan pengajaran dan kaedah penyampaian ke arah mencapai hasil pembelajaran kursus yang telah dipersetujui. Atas keperluan ini, semakan terhadap kursus TTTK1143: Rekabentuk Aturcara dan Penyelesaian Masalah telah diadakan pada 7 Mac 2022 dalam satu bengkel sehari di bilik BK5, FTSM. Aktiviti telah disertai tujuh ahli pengajaran TTTK1143, terdiri daripada dua orang pensyarah dan lima orang guru IT. Semakan dilakukan bagi menilai bahan pengajaran TTTK1143 semester 2 sesi 2020/2021 selarian dengan piawaian pengajaran berasaskan model PEMANCAR. PEMANCAR adalah model pengajaran berasaskan teori beban kognitif diperkenalkan pada 2018. Semakan bagi melihat setiap bahan pengajaran - bahan kuliah, soalan kuiz, soalan tutorial dan soalan tugasan makmal bagi lima topik Struktur Data iaitu Timbunan, Giliran, Senarai, Pokok dan Geraf. Semakan bagi menilai setiap topik ini mempunyai kaitan dengan empat elemen PEMANCAR (Konsep Pengaturcaraan, Konsep Masalah, Contoh-kerja dan Penyelesaian masalah) dengan setiap bahan menjurus kepada fokus pengaturcaraan yang berbeza (pemahaman, pengukuhan dan pembinaan) seperti yang dinyatakan dalam Rajah 2. Bagi memudahkan semakan dan analisis, sebanyak empat fail senarai semak dihasilkan (rujuk jadual 1) menggunakan fail excel. Hasil semakan mendapati majoriti topik Struktur Data mengandungi setiap elemen PEMANCAR dengan bilangan yang berbeza. Berdasarkan input ini, bilangan minimum bagi elemen PEMANCAR ditetapkan dan seterusnya menambah baik bahan berdasarkan hasil analisis CQI untuk diguna pada sesi pengajaran berikutnya

TOPIK: T6- Stack

Kategori Bahan: (Q) Quiz

	ID Soalan	(1) Jenis Bahan	(2) Bloom	(3) Keywords	(4) HPK	(4) Komponen PEMANCAR	(5) Catatan (catat Nama Masalah, Nama CK, Info lain)
1	s1	MCQ	Remember	what is	(1) Menjelaskan konsep pengaturcaraan	(1) Konsep Pengaturcaraan	
2	s2	MCQ	Understand		(1) Menjelaskan konsep pengaturcaraan	(1) Konsep Pengaturcaraan	
3	s3	T/F	Remember		(1) Menjelaskan konsep pengaturcaraan	(1) Konsep Pengaturcaraan	
4	s4	MCQ	Apply		(1) Menjelaskan konsep pengaturcaraan	(1) Konsep Pengaturcaraan	
5	s5	MCQ	Apply		(2) Mempamer rekabentuk aturcara	(3) Masalah Contoh-Kerja	postfix machine
6	s6	MCQ	Apply		(1) Menjelaskan konsep pengaturcaraan	(1) Konsep Pengaturcaraan	
7	s7	T/F	Understand		(1) Menjelaskan konsep pengaturcaraan	(1) Konsep Pengaturcaraan	
8	s8	T/F	Remember		(2) Mempamer rekabentuk aturcara	(3) Masalah Contoh-Kerja	postfix machine
9	s9	MCQ	Apply		(3) Membina aturcara dunia sebenar	(2) Konsep Masalah	Calculator
10	s10	T/F	Remember		(1) Menjelaskan konsep pengaturcaraan	(1) Konsep Pengaturcaraan	

Rajah 3: Contoh fail Senarai Semakan PEMANCAR untuk Soalan Kuiz

Ahli Bengkel CQI Kursus TTTK1143: Rekabentuk Aturcara & Penyelesaian Masalah Sem 2 sesi 2021/2022

FOSTERING PURE VALUES THROUGH A PUBLIC SERVICE ANNOUNCEMENT VIDEOGRAPHY WORKSHOP PROGRAM

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Kolaborator: Persekutuan Pengakap Malaysia
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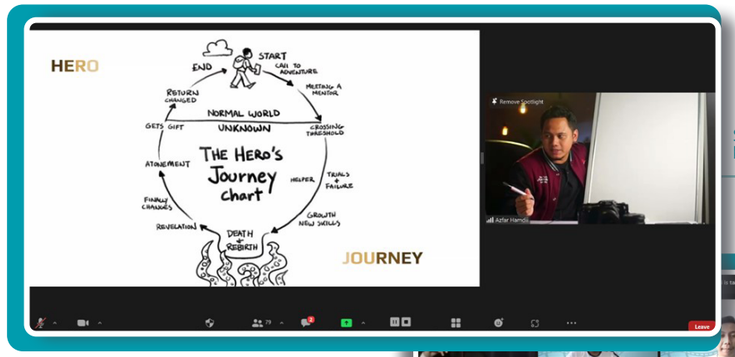
Students are a valuable asset to the country's development. Therefore, students need to have a personality and good skills. To work on the value of these pure soft skills among students, FTSM encourages the involvement of students with their peers through SIG activities in two main annual programs, the UKM Computer Camp and the Digital Challenge. In conjunction with the UKM Computer Camp 2021 program, the VIC club, in collaboration with the Malaysian Scout Federation, has organized a Videography Workshop on 28 and 29 December, 2021. This workshop is conducted online, focusing on producing Public Service Announcement or PSA (Public Service Announcement) videos with the theme "Create to Educate." The workshop aims to strengthen theoretical and practical knowledge related to the knowledge and skills of taking and editing quality videos in producing videos in the form of advice messages among VIC members and participants. This workshop has managed to get 47 participants from youth scout members, high school and university students, and public participation. This workshop has also invited the Director of MTAS Production, Mr. Azfar Hamdi, as a guest speaker, in addition to two presenters from VIC members themselves, namely Muhammad Danish Yusri and Aamar Razziq M. Kamarul. WP Kuala Lumpur Chief Scout Commissioner Datuk Haji Zakran bin Abdul Manan was invited to complete the closing ceremony of the Videography Workshop 2021. The five best community service video results were selected to receive prizes at this closing ceremony. The indirect involvement of VIC members has succeeded in fostering good values with peers and outside individuals in providing knowledge and experience in organizing and running the program. In general, the workshop led by student Nur Sabrina Mohamed Amin succeeded in creating good cooperation and practicing good values in proving one's ability to make the VIC club plan a success and support the agenda of FTSM and UKM.

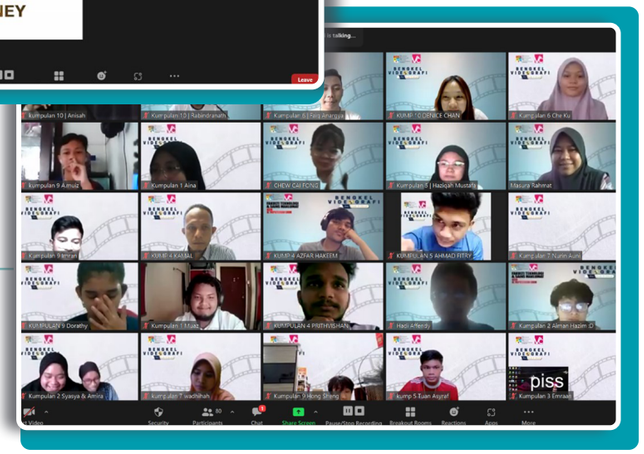
Poster Bengkel Videografi 2021

MEMUPUK NILAI MURNI MELALUI PROGRAM BENGKEL VIDEOGRAFI PESANAN KHIDMAT MASYARAKAT

Mahasiswa adalah aset penting kepada pembangunan negara. Justeru, mahasiswa perlu memiliki personaliti dan mempunyai keterampilan yang baik. Bagi menggarap nilai insaniah murni ini di kalangan mahasiswa, FTSM menggalakkan penglibatan pelajar bersama rakan sebaya melalui aktiviti SIG dalam dua program tahunan utama iaitu Kem Komputeran UKM dan Cabaran Digital. Bersempena program Kem Komputeran UKM 2021, kelab VIC dengan kerjasama Persekutuan Pengakap Malaysia telah menganjur Bengkel Videografi pada 28 dan 29 Disember, 2021. Bengkel ini dilaksana secara dalam talian memfokus kepada penghasilan video Pesanan Khidmat Masyarakat atau PSA (Public Service Announcement) dengan tema "Create to Educate". Bengkel bertujuan mengukuhkan ilmu secara teori dan praktikal, berkaitan pengetahuan dan kemahiran pengambilan dan penyuntingan video yang berkualiti bagi menghasilkan video berbentuk pesanan nasihat di kalangan ahli VIC dan peserta. Bengkel ini telah berjaya mendapat 47 penyertaan daripada ahli pengakap remaja, pelajar menengah, pelajar universiti, dan peserta umum. Bengkel ini juga telah menjemput Pengarah MTAS Production iaitu Encik Azfar Hamdi sebagai penceramah jemputan, di samping dua penyampai daripada ahli VIC sendiri iaitu Muhammad Danish Yusri dan Aamar Razziq M. Kamarul. Ketua Pesuruhjaya Pengakap WP Kuala Lumpur, Datuk Haji Zakran bin Abdul Manan telah dijemput menyempurnakan majlis penutup Bengkel Videografi 2021. Lima hasil video pesanan khidmat masyarakat terbaik telah dipilih menerima hadiah pada majlis penutup ini. Keterlibatan ahli VIC secara tak langsung telah berjaya memupuk nilai murni bersama rakan sebaya dan individu luar dalam memberi ilmu dan pengalaman dalam penganjuran dan pengendalian program. Secara umumnya, bengkel yang diketuai pelajar Nur Sabrina Mohamed Amin berjaya mewujudkan kerjasama baik dan mengamal nilai murni dalam membuktikan keupayaan diri menjayakan rancangan kelab VIC dan menyokong agenda FTSM dan UKM.



Sesi Pengajaran dalam Bengkel Videografi 2021 bersama Wakil Industri



Peserta dan Pelajar Bengkel Videografi 2021

PERSONALISED LEARNING ANALYTICS TO PROMOTE SELF-REGULATED MEANINGFUL LEARNING

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Pusat : Pusat Kajian SOFTAM

Learning analytics involves understanding and optimising students learning by measuring, collecting, analysing and reporting data about students and their learning context. Driven by the availability of extensive data records on students, learning analytics may provide some useful insight not only on how students learn and progress in the evaluation but also to intervene in any problems before they become critical and complex. Personalised learning analytics suggests using intelligent, student-generated data, and analytical models to generate predictions and recommendations on learning activities and tasks based on interest and capability. Customised support that suit students include learning guidance, feedback, learning group, collaborative team, and nature of project topics.

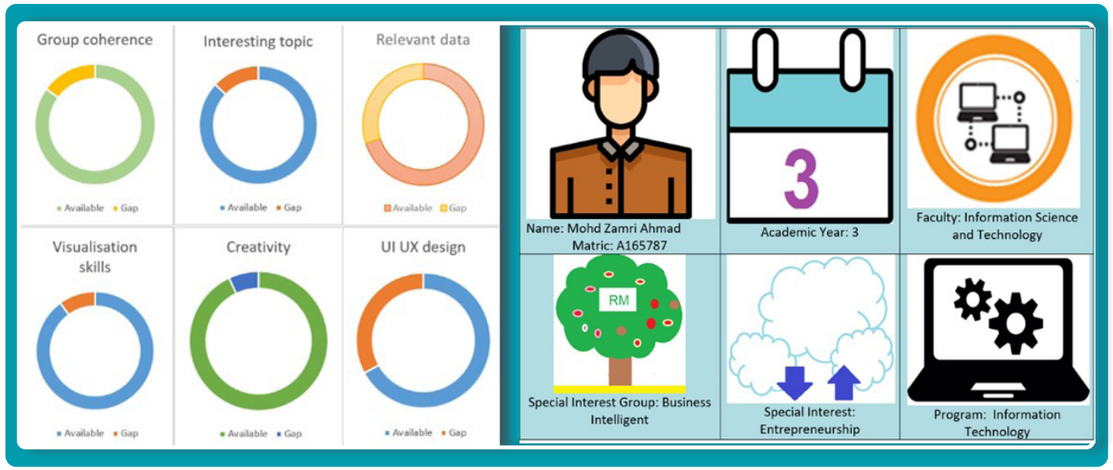
Current learning analytics research does not sufficiently link to learning theory. This research aims to propose the design of personalized learning analytics can be linked to meaningful learning with regard to supporting self-regulated learning. Meaningful learning strategies are focused on deepening the concepts learned and applying them in a real-life context. Learning should be self-regulated to construct knowledge and develop problem-solving skills. The learning content is enriched with techniques to apply active, authentic, constructive, cooperative and goal-based elements.

The self-regulated learning cycle contains three primary components: plan, monitor, and evaluate which allow students to actively interact, control their learning environment, and keep track of their progress. Students organise their learning journey by setting achievable goals to manage their own time and task. To monitor their progress in learning advancement, students need to decide whether they understand the concept correctly and proceed to the next direction within their learning tasks. Given the flexibility in managing their own learning, students are challenged to keep motivated and do the essential role due to uncertainty in evaluating their understanding and peers' knowledge. The analytics intends to inform students regarding learning activities, and learning behavior to support increased awareness and reflection of individual and peer performance

Analisis pembelajaran melibatkan pemahaman dan pengoptimuman pembelajaran pelajar dengan mengukur, mengumpul, menganalisis dan melaporkan data tentang pelajar dan konteks pembelajaran mereka. Didorong oleh ketersediaan rekod data yang luas tentang pelajar, analitik pembelajaran mungkin memberikan beberapa pandangan berguna bukan sahaja tentang cara pelajar belajar dan kemajuan dalam penilaian tetapi juga untuk campur tangan dalam sebarang masalah sebelum ia menjadi kritikal dan kompleks. Analisis pembelajaran yang diperibadikan mencadangkan penggunaan data pintar, data yang dijana pelajar dan model analisis untuk menjana ramalan dan pengesyoran tentang aktiviti dan tugasan pembelajaran berdasarkan minat dan keupayaan. Sokongan tersuai yang sesuai dengan pelajar termasuk bimbingan pembelajaran, maklum balas, kumpulan pembelajaran, pasukan kolaboratif dan sifat topik projek.

Penyelidikan analitik pembelajaran semasa tidak cukup menghubungkan kepada teori pembelajaran. Penyelidikan ini bertujuan untuk mencadangkan reka bentuk analisis pembelajaran yang diperibadikan yang boleh dikaitkan dengan pembelajaran yang bermakna berkaitan dengan menyokong pembelajaran terkawal kendiri. Strategi pembelajaran yang bermakna tertumpu kepada mendalami konsep yang dipelajari dan mengaplikasikannya dalam konteks kehidupan sebenar. Pembelajaran harus dikawal kendiri untuk membina pengetahuan dan membangunkan kemahiran menyelesaikan masalah. Kandungan pembelajaran diperkaya dengan teknik menerapkan elemen aktif, autentik, konstruktif, kooperatif dan berasaskan matlamat.

Kitaran pembelajaran dikawal kendiri mengandungi tiga komponen utama: merancang, memantau dan menilai yang membolehkan pelajar berinteraksi secara aktif, mengawal persekitaran pembelajaran mereka dan menjejaki kemajuan mereka. Pelajar mengatur perjalanan pembelajaran mereka dengan menetapkan matlamat yang boleh dicapai untuk mengurus masa dan tugas mereka sendiri. Untuk memantau kemajuan mereka dalam kemajuan pembelajaran, pelajar perlu memutuskan sama ada mereka memahami konsep dengan betul dan meneruskan ke arah seterusnya dalam tugas pembelajaran mereka. Memandangkan fleksibiliti dalam mengurus pembelajaran mereka sendiri, pelajar dicabar untuk terus bermotivasi dan melakukan peranan penting kerana ketidakpastian dalam menilai pemahaman mereka dan pengetahuan rakan sebaya. Analisis bertujuan untuk memaklumkan pelajar mengenai aktiviti pembelajaran, dan tingkah laku pembelajaran untuk menyokong peningkatan kesedaran dan refleksi prestasi individu dan rakan sebaya.



Pengarang :Nor Syuhadah Arifin dan Hairulliza Mohamad Judi
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Pusat :Pusat Kajian SOFTAM

ZAQIYYAH: MORAL EDUCATION GAME APPLICATION FOR CHILDREN THROUGH LIFE STORIES AND SIMULATION

Children of seven to nine years of school age go through an important journey to develop their potential and understanding of life, including personal development and cognitive and affective abilities. Moral education focuses on opportunities to learn and implement high moral principles, for example, the ethics of association with members of the community, especially parents, neighbours, teachers, and groups that deserve respect. Serious games provide space for children to explore learning in a fun way through everyday life experiences to enhance understanding of the importance of character and implement it personally.

Zaqiyyah's serious game application offers learning through two approaches, namely message delivery and training. The design ensures the game delivers moral messages based on appropriate moral education content and training to improve cognitive and affective performance. There are three main topics in this game: Walking Manners, Inquiring Manners, and Neighborhood Manners. Children learn basic concepts through animated videos and explore life situations through games and quizzes for each topic. Meanwhile, game activities offer interaction options such as Mind Your Manners, Blue Clouds, and Magic Cards.

The Zaqiyyah's game application uses story techniques to teach and entertain children based on the development of characters and stories that can describe manners and personality in everyday life. Story techniques are appropriate for creating experiences that encourage children to apply high moral values, trigger problem-solving skills, and stimulate children to develop appropriate responses in different situations.

Moral values development inculcates children about fundamental human values, including doing good, showing respect, and choosing appropriate speech. The potential of serious games to instill moral values in children is not solely dependent on delivering moral messages because children who know about moral values may not necessarily exhibit that character. Moral education through serious games introduces manners and behavior, including identifying good versus bad behavior. Further, Zaqiyyah's serious game application inspires children about proper behavior through examples and simulations that are appropriate to imitate. Although the reality of life is much more complex, the example shown instills a vital element: the desire to do good.

ZAQIYYAH: APLIKASI PERMAINAN PENDIDIKAN SAHSIAH KANAK-KANAK MELALUI CERITA DAN SIMULASI KEHIDUPAN

Kanak-kanak pada usia persekolahan tujuh hingga sembilan tahun menempuh perjalanan penting untuk membangunkan potensi dan kefahaman tentang kehidupan, termasuk membina peribadi seiring dengan perkembangan keupayaan kognitif dan afektif. Pendidikan sahsiah menumpukan peluang untuk mempelajari dan melaksanakan prinsip moral yang tinggi contohnya etika pergaulan dengan anggota masyarakat, khususnya ibu bapa, jiran tetangga, guru dan golongan yang wajar dihormati. Permainan serius memberi ruang untuk kanak-kanak meneroka bahan pembelajaran secara menyeronokkan melalui pengalaman kehidupan seharian yang boleh mengukuhkan kefahaman tentang kepentingan sahsiah dan melaksanakannya secara peribadi.

Aplikasi permainan serius Zaqiyyah menawarkan pembelajaran melalui dua pendekatan iaitu penyampaian mesej dan latihan. Reka bentuk permainan menekankan mesej sahsiah berdasarkan kandungan pendidikan sahsiah bersesuaian dan latihan bagi meningkatkan prestasi kognitif dan afektif. Terdapat tiga topik utama dalam permainan ini iaitu Adab Berjalan, Adab Bertanya dan Adab Berjiran. Bagi setiap topik, kanak-kanak mempelajari konsep asas melalui video animasi dan meneroka situasi kehidupan melalui permainan dan kuiz. Manakala, aktiviti permainan menawarkan pilihan interaksi seperti Peka Adab, Awan Biru dan Kad Ajaib.

Aplikasi permainan Zaqiyyah menggunakan teknik cerita untuk mengajar dan menghiburkan kanak-kanak berdasarkan pengembangan watak dan kisah yang boleh menghuraikan adab dan sahsiah dalam kehidupan seharian. Teknik cerita bersesuaian untuk mencipta pengalaman yang menggalakkan kanak-kanak untuk menerapkan sahsiah, mencetuskan kemahiran penyelesaian masalah, dan merangsang kanak-kanak untuk membangunkan tindak balas bertepatan dengan sahsiah dalam situasi berbeza.

Pembangunan watak mengajar kanak-kanak tentang nilai asas manusia termasuk berbuat kebaikan, menunjukkan rasa hormat dan memilih ucapan yang bersesuaian. Potensi permainan serius untuk menyemai pendidikan sahsiah kepada kanak-kanak bukan semata-mata bergantung kepada penyampaian mesej nilai moral, kerana kanak-kanak yang mengetahui tentang perkara sahsiah tidak semestinya boleh mempamerkan sahsiah berkenaan. Pendidikan sahsiah melalui permainan serius memperkenalkan adab dan tingkah laku termasuk mengenal pasti tingkah laku yang baik berbanding tingkah laku yang jelek. Selanjutnya, aplikasi permainan serius Zaqiyyah memberi inspirasi kepada kanak-kanak tentang tingkah laku yang betul melalui contoh dan simulasi bersesuaian untuk ditiru. Meskipun realiti kehidupan jauh lebih kompleks, contoh yang dipaparkan menyelitkan elemen penting iaitu keinginan untuk berbuat baik.

LITTLE CALIPH GAME APPLICATION TO EMPOWER THE MORAL VALUES OF PRE-SCHOOL CHILDREN

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Pusat :Pusat Kajian SOFTAM

Preschool children can absorb so much information and learn through their environment. Moreover, children can form their Muslim identity through moral education exposure by learning manners and morals and recognizing exemplary role models. Following the child's playful nature, the serious game integrates entertainment and learning elements to increase interest and involvement in learning. However, the extent to which the entertainment element is balanced with the educational value without children burdened with devices and addicted to games invites concerns from parents and educators.

In the context of Islamic religious principles and practices, the development of serious games that meet moral education has not yet been fully understood. This study aims to identify preschool children's moral education materials that are appropriate to be used as serious games, develop a serious game design that contains moral education, and validate the proposed model through expert evaluation. The study presents a serious game design model that includes character education factors for preschool children and develops a proof of concept in the form of a game prototype.

The production of game applications for this purpose faces several challenges, including identifying learning content and game presentations appropriate for moral education. Game development using an application development cycle must involve planning, development, testing, and implementation. To balance the game and learning features in one game application, the planning and development process requires a framework and design guidelines that help the team game development model moral education games effectively. Developing serious games also apply learning theory that touches on motivational elements and preschool children's performance in the learning process. Game planning and design can lead to a better understanding of the development to produce quality game applications.

APLIKASI PERMAINAN KHALIFAH KECIL BAGI MEMPERKASA SAHSIAH KANAK-KANAK PRA-SEKOLAH

Kanak-kanak prasekolah boleh menyerap begitu banyak maklumat dan belajar melalui persekitaran mereka. Selain itu, kanak-kanak dapat membentuk jati diri muslim melalui pendedahan pendidikan akhlak dengan mempelajari adab dan akhlak serta memahami teladan yang boleh dicontohi. Mengikuti sifat suka bermain kanak-kanak itu, permainan serius itu menyepadukan unsur hiburan dan pembelajaran untuk meningkatkan minat dan penglibatan dalam pembelajaran. Bagaimanapun, sejauh mana unsur hiburan itu seimbang dengan nilai pendidikan tanpa anak dibebani peranti dan ketagih permainan mengundang kebimbangan ibu bapa dan warga pendidik.

Dalam konteks prinsip dan amalan agama Islam, perkembangan permainan serius yang menepati pendidikan akhlak masih belum difahami sepenuhnya. Kajian ini bertujuan untuk mengenal pasti bahan pendidikan moral kanak-kanak prasekolah yang sesuai digunakan sebagai permainan serius, membangunkan model reka bentuk permainan serius yang mengandungi pendidikan moral, dan mengesahkan model yang dicadangkan melalui penilaian pakar. Kajian ini membentangkan model reka bentuk permainan yang serius yang merangkumi faktor pendidikan watak untuk kanak-kanak prasekolah dan membangunkan bukti konsep dalam bentuk prototaip permainan.

Penghasilan aplikasi permainan untuk tujuan ini menghadapi beberapa cabaran, termasuk mengenal pasti kandungan pembelajaran dan persembahan permainan yang sesuai untuk pendidikan moral. Pembangunan permainan menggunakan kitaran pembangunan aplikasi mesti melibatkan perancangan, pembangunan, ujian dan pelaksanaan. Untuk mengimbangi permainan dan ciri pembelajaran dalam satu aplikasi permainan, proses perancangan dan pembangunan memerlukan rangka kerja dan garis panduan reka bentuk yang membantu pembangunan permainan pasukan memodelkan permainan pendidikan moral dengan berkesan. Membangunkan permainan yang serius juga mengaplikasikan teori pembelajaran yang menyentuh elemen motivasi dan prestasi kanak-kanak prasekolah dalam proses pembelajaran. Perancangan dan reka bentuk permainan boleh membawa kepada pemahaman yang lebih baik tentang pembangunan untuk menghasilkan aplikasi permainan yang berkualiti.

BAJA SAWIT MOBILE APPLICATION BASED ON INFOGRAPHIC

Pengarang :Ts. Dr. Azura Ishak

Pengarang Bersama :Ts. Masura Rahmat, Ts. Shahrina Shahrani, Ts. Rohizah Abd Rahman, Ts. Noor Faridatul Ainun Zainal

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Kolaborator :Lembaga Minyak Sawit Malaysia (MPOB)

Kod Projek :MPOB-UKM-2021-004

Pusat :Pejabat Dekan FTSM

The BAJA SAWIT mobile application is an innovation of an infographic-based oil palm fertilization guide developed as a result of collaboration between Universiti Kebangsaan Malaysia (UKM) and Malaysian Palm Oil Board (MPOB) under the MPOB-UKM Endowment Chair grant. This project was led by Ts. Dr. Azura Ishak, IT teacher at Faculty of Information Technology and Science, UKM. This infographic explanation that uses a lot of visual elements aims to make the information presented simple, exciting, and easy to understand by the target group, smallholders. In addition to infographic information on oil palm fertilization, this user-friendly application also provides an additional function of oil palm fertilization records to make it easier for users to save and check them

guide to oil palm fertilization that can be accessed through a mobile application platform (Mobile App) for Android and iOS users involves several development phases, such as requirements, design, development, testing, and evaluation. The results of the evaluation analysis of the application of BAJA SAWIT among smallholders impact the high usability, increase the knowledge of good practices of palm oil fertilization, and are even suitable for use by various age levels, education levels, and palm oil experience of smallholders. Hopefully, this infographic-based BAJA SAWIT application can be easily accessed at your fingertips in line with the development of IR 4.0 technology. It can be used as supporting material to get information on conventionally existing oil palm fertilization. In order to officiate the use of this application, the launch of the BAJA SAWIT mobile application was done by YB Datuk Willie Anak Mongin (Deputy Minister of the Ministry of Plantation Industry and Community) in conjunction with the 2022 National Oil Palm Smallholder National Conference on 20 September 2022, Pullman Hotel, Miri, Sarawak.

Rajah 1: Penggunaan Aplikasi BAJA SAWIT dalam kalangan pekebun kecil

APLIKASI MUDAH ALIH BAJA SAWIT BERASASKAN INFOGRAFIK

Aplikasi mudah alih BAJA SAWIT merupakan satu inovasi panduan pembajaan sawit berasaskan infografik yang dibangunkan hasil kerjasama Universiti Kebangsaan Malaysia (UKM) dan Lembaga Minyak Sawit Malaysia MPOB di bawah geran Kursi Endowmen MPOB-UKM. Projek ini telah diketuai oleh penyelidik Ts. Dr. Azura Ishak, guru IT di Fakulti Teknologi dan Sains Maklumat UKM. Penerangan infografik yang banyak menggunakan elemen visual ini bertujuan menjadikan maklumat yang disampaikan diolah secara ringkas, menarik dan mudah difahami oleh golongan sasaran, pekebun kecil. Selain maklumat infografik pembajaan sawit, aplikasi yang mesra pengguna ini juga menyediakan fungsi tambahan rekod pembajaan sawit bagi memudahkan pengguna menyimpan dan menyemak rekod pembajaan di dalam talian. Panduan digital pembajaan sawit berasaskan infografik yang boleh dicapai melalui platform aplikasi mudah alih (Mobile App) bagi pengguna Android dan iOS melibatkan beberapa proses pembangunan iaitu fasa keperluan, reka bentuk, pembangunan, pengujian dan penilaian. Hasil analisis penilaian penggunaan aplikasi BAJA SAWIT dalam kalangan pekebun kecil ini memberi impak kepada kebolehgunaan yang tinggi, meningkatkan pengetahuan amalan baik pembajaan sawit pekebun malah sesuai digunakan bagi pelbagai peringkat umur, taraf pendidikan dan pengalaman sawit pekebun kecil. Moga aplikasi BAJA SAWIT berasaskan infografik yang boleh diakses hanya di hujung jari ini selaras dengan perkembangan teknologi IR 4.0 dapat dijadikan sebagai bahan sokongan maklumat pembajaan sawit sedia ada secara konvensional. Bagi merasmikan penggunaan aplikasi ini, pelancaran aplikasi mudah alih BAJA SAWIT telah disempurnakan oleh YB Datuk Willie Anak Mongin (Timbalan Menteri Kementerian Perusahaan Perladangan dan Komuniti) sempena Persidangan Kebangsaan Pekebun Kecil Sawit Kebangsaan 2022 pada 20 September 2022, Hotel Pullman, Miri, Sarawak.

Rajah 2: Penyelidik Bersama Pekebun Kecil Sawit

Rajah 3: Pelancaran Aplikasi Baja Sawit oleh YB Datuk Willie Anak Mongin (timbalan Menteri Kementerian Perusahaan Perladangan dan Komuniti)

ELEMENTS OF CREATIVITY AND INNOVATION IN PROMOTING ENVIRONMENTAL SUSTAINABILITY

Pengarang :Ts. Masura Rahmat

Pengarang Bersama :Dr. Nurhidayah Bahar, Dr. Hadi Affendy Dahlan, Dr. Syahanim Mohd Salleh Prof. Madya Dr. Tengku Siti Meriam Tengku Wook

Email : masura@ukm.edu.my

Kolaborator: Perbadanan Filem Nasional) FINAS dan DOESATA

Pusat : Pejabat Dekan FTSM

Once again, the Video Innovation Club (VIC) defied convention by hosting a dual-track competition series for high school and college students and young adults. Starting on April 15 until June 11 of 2022, a video competition was held concentrated on public service announcement messages and innovative products. Theme for this competition was "Love the Earth : We are Saviors". Participants were required to have a firm grasp on video editing and awareness of current environmental concerns. With the aim to advance the community's perspective on environmental sustainability, this competition integrates both innovative and creative components. Moreover, the video could help to raise awareness regarding environment among younger generation. A total of 1,035 participants took part in the competitions, which is a very positive sign of acceptance. There were 422 people, 97 teams competed in the public service announcement message video category, while 99 teams and 613 people (including teachers) competed in the product innovation video category.

An engaging discussion on "The Need of Sustaining Natural Sustainability: Reasons and Solutions to Overcome Flood Disasters" was held before the closing ceremony and results announcement. Dr. Azra Munirah, Senior Lecturer in the Department of Civil Engineering in the Faculty of Civil Engineering and the Built Environment at Universiti Tun Hussien Onn Malaysia, presented some really interesting and useful information.

The participation of expert judges from industry and academic institutions also raised the competition's profile. Members of the jury include Mr. Kamaruza'ain A. Kadir (FINAS), Associate. Professor Dr. Tengku Siti Meriam Tengku Wook, Associate Professor Dr. Jamaluddin Bin Aziz and Dr. Hasrul Hashim from Universiti Kebangsaan Malaysia, Mr. Tabah Syazwan Othman (Doesata), Mr. Muhammad Shaffuan Mustafa (Mshafx Production) , and Mr. Noor Shafiq Nordin (USCI). SMKA JB, Johor, took first place in the public service announcement video category, and Sekolah Kebangsaan Sungai Limau, Kedah, won first place in the product

Rajah 1 : Perkongsian tentang kelestarian alam dari pensyarah jemputan

Rajah 2: Peneraju acara dan forum pada majlis penutup

ELEMEN INOVASI DAN KREATIVITI DALAM MEMUPUK KELESTARIAN ALAM

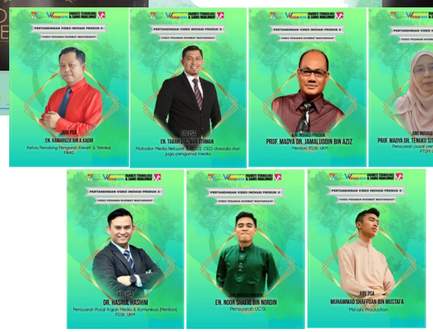
Kelab Inovasi Video (VIC) sekali lagi mencabar kelaziman dengan penganjuran program pertandingan serampang dua mata yang mensasarkan golongan pelajar dan belia sebagai peserta. Pertandingan video pesanan khidmat masyarakat dan video inovasi produk telah berjaya di anjurkan pada 15 April sehingga 11 Jun 2022. Pertandingan kali ini mengangkat tema "Sayangi Bumi : Kita Adalah Penyelamat" yang pastinya memerlukan kemahiran penghasilan video oleh peserta dan kefahaman terhadap isu-isu terkini alam sekitar. Program berbentuk pertandingan ini dapat menggabung jalin elemen inovasi dan kreativiti bagi mengembangkan idea masyarakat terhadap pandangan mereka tentang kelestarian alam. Lebih penting dari itu, kesedaran berkaitan isu penjagaan alam sekitar dapat dipupuk pada generasi muda yang disasarkan melalui medium video. Sambutan yang diterima adalah menggalakkan dengan penglibatan seramai 1,035 peserta bagi kedua-dua pertandingan. Bagi video pesanan khidmat masyarakat, sebanyak 97 kumpulan bertanding iaitu seramai 422 peserta manakala bagi video inovasi produk disertai oleh 613 peserta dari 99 kumpulan termasuk guru pengiring.

Satu perkongsian menarik bertajuk "Kepentingan Menjaga Kelestarian Alam : Punca dan Cara Mengatasi Bencana Banjir" telah diadakan sebelum majlis penutup dan pengumuman keputusan. Perkongsian hebat ini disampaikan oleh Dr Azra Munirah pensyarah Kanan daripada Jabatan Kejuruteraan Awam, Fakulti Kejuruteraan Awam dan Alam Bina, Universiti Tun Hussien Onn Malaysia. Penglibatan juri profesional dari industri dan institusi pengajian tinggi juga menyumbang kepada prestij pertandingan. Juri-juri yang terlibat adalah En. Kamaruza'ain A. Kadir (FINAS), Profesor Madya Dr Tengku Siti Meriam Tengku Wook, Dr Hasrul Hashim dan Profesor Madya Dr. Jamaluddin Bin Aziz dari Universiti Kebangsaan Malaysia, En. Tabah Syazwan Othman (Doesata), En. Muhammad Shaffuan Mustafa (Mshafx Production) dan En. Noor Shafiq bin Nordin (USCI). Kategori video pesanan khidmat masyarakat telah dimenangi oleh SMKA JB, Johor manakala juara bagi video inovasi produk pula disandang oleh Sekolah Kebangsaan Sungai Limau. Kedah.

Pada pemerhatian penulis sebagai penasihat, program ini secara tidak langsung dapat menerapkan sikap kesedaran menyayangi alam sekitar kepada para peserta justeru, dapat menyampaikan kesedaran ini melalui medium video kepada masyarakat luar. Selain itu, program ini juga memberi faedah kepada ahli kelab VIC yang terlibat melalui penerapan pelbagai sikap positif, kreatif dan berdaya bersaing melalui penglibatan mereka dalam menjayakan program ini.

Rajah 3: Juara kategori video inovasi produk

Rajah 4: Juara kategori video pesanan khidmat masyarakat



Rajah 5 : Barisan juri profesional yang terlibat dalam penjurian

SPONSORSHIP STRATEGY TO SUPPORT VIC PROGRAMME

Pengarang : Ts. Masura Rahmat




Pengarang Bersama : Dr. Nurhidayah Bahar, Dr. Hadi Affendy Dahlan, Dr. Syahanim Mohd Salleh Prof. Madya Dr. Tengku Siti Meriam Tengku Wook

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Pusat : Pejabat Dekan FTSM

A programme requires a lot of preparation including planning, content creation, and sponsorship. Without sponsorship, the goals of a programme hardly achieved. Based on past experiences, Video Club (VIC) has had a hard time executing its impactful programmes without sponsorship. Thus, with the help of club advisors, VIC members have come up with a strategy to allow individuals or companies to sponsor a small amount of money in ensuring success in the programme. This strategy has made it easier to market and spread the word about these small sponsorship lots. VIC has utilized the small sponsorship lot strategy in two impactful programmes namely the Kem Komputeran UKM in 2021 and the Public Service Announcement Video Competition and the Product Innovation Video under the Digital Challenge Program in 2022. VIC has successfully raised a significant amount of cash to get start the programmes by getting sponsorship as low as RM50. Offer as such advertising sponsor's products and services on posters at the closing ceremony has attracted companies to sponsor multiple small sponsorship lot. All in all, the competition has obtained 50 small sponsorship lots and the Videography and Photography Workshop at the UKM Computer Camp obtained 47 small sponsorship. The strategy provides the avenue for VIC members to seek sponsorship by identifying potential sponsors in an effective way. More importantly, VIC offers the opportunity for students to communicate effectively with external parties. The sponsorship was sent to the UKM treasurer's account before it could be moved and used for the programme. There's no doubt that this small sponsorship lot has helped VIC members to start a programme, especially those that involve money generation

Rajah 1 : Poster lot tajaan bagi program pertandingan video

STRATEGI LOT TAJAAN MENYOKONG PENJANAAN DALAM PROGRAM VIC

Kejayaan sesuatu program memerlukan banyak persediaan bukan sahaja dari segi perancangan, pengisian dan pelaksanaan, malah penajaan juga menjadi satu keutamaan. Tanpa sokongan penajaan yang baik, sesuatu organisasi sukar melaksanakan matlamat yang diharapkan bagi sesuatu program. Kelab Video (VIC) telah melalui detik sukar mengendalikan program berimpak tanpa tajaan sebelum ini. Justeru, ahli dengan sokongan penasihat telah merancang plan strategi lot tajaan dalam skala yang lebih kecil bagi membolehkan lebih ramai penaja secara individu mahupun syarikat berpeluang untuk bersama-sama terlibat menjayakan program. Lot tajaan yang kecil ini lebih mudah untuk dipasarkan dan diketengahkan kepada khalayak. Strategi ini berhasil melalui dua program berimpak VIC iaitu Kem Komputeran UKM pada tahun 2021 dan Pertandingan Video Pesanan Khidmat Masyarakat dan Video Inovasi Produk di bawah Program Cabaran Digital pada tahun 2022. Melalui lot tajaan serendah RM50 mampu meningkatkan penjanaan dan menampung pelaksanaan program. Gandaan lot tajaan seperti minimum 4 lot pula akan membuka peluang penaja mempromosikan produk dan perkhidmatan mereka di majlis penutup melalui poster yang disediakan. VIC berjaya mendapatkan 50 lot tajaan bagi menyokong program pertandingan manakala 47 lot tajaan Bengkel Videografi dan Fotografi bagi Kem Komputeran UKM. Strategi ini juga membolehkan pecahan tugasan diagihkan kepada setiap ahli VIC bagi memastikan mereka memperoleh kemahiran berkomunikasi secara efektif dengan bakal penaja. Lebih penting dari itu, VIC dapat membekalkan pengalaman kepada pelajar dalam memberi nilai tambah bagi meningkatkan kemahiran interpersonal mereka. Semua tajaan akan disalurkan ke akaun bendahari UKM sebelum boleh dipindahkan dan digunakan bagi program VIC. Tidak dapat dinafikan juga, strategi lot tajaan ini dapat mengurangkan keresahan pelajar untuk melaksanakan sesuatu program lebih-lebih lagi yang berkaitan penjanaan kewangan.

Rajah 2 : Poster penaja lot yang di tayangkan semasa majlis akhir

PERTANDINGAN ROBOMASTER SECARA BERSEMUKA SEMPENA MINGGU CABARAN DIGITAL 2022

Pengarang : Ts. Noor Faridatul Ainun Zainal

Pengarang Bersama : Dr. Afzan Adam, Dr. Nor Samsiah Sani, Prof. Madya Ts. Dr. Abdul Hadi Abd Rahman

Email : faridatul@ukm.edu.my

Pusat : Pusat Kajian CAIT

In accordance with the instructions by the Malaysian Ministry of Health (KKM), April 2022 is an endemic transition phase, and the Government has reduced some SOPs. SIG Arvis has taken this opportunity to hold a face-to-face Artificial Intelligent Robotic Programming (AIRP) competition in conjunction with the FTSM, UKM Digital Challenge Week. Some of the AIRP robotics workshops and competitions that Arvis has organized in 2020 and 2021 are less popular because the programs are held online. Robotics education or robotics competitions can be done online through simulation applications. However, the participation obtained during those two years is decreasing. This is due to the constraints of home computer specifications that cannot accommodate the necessary software requirements, and the interest and motivation of students decrease when robotic hardware is not in front of them and in their hands.

After getting permission from UKM, the AIRP 2022 Competition was held face-to-face using robomaster. Arvis has complied with several conditions set by the university for the competition to run smoothly. This competition was held at Smart Anjung, FTSM, on 8 June 2022. There are eight groups from four local universities that have sent participants, namely UKM (2 groups), UPM (3 groups), UTM (2 groups) and UTeM (1 group), where each group consisting of three undergraduate students. This competition was also attended by representatives from robotics companies appointed as competition judges, Ir. Dzulfarqeish from Jazro Robotic Academy and Mr Muhammad Fahmi Mat from Creative Edutainment Robot. The involvement of judges from the industry in this program benefits both the participants and the university. Among the benefits obtained is the collaboration and a close relationship between the industry and SIG Arvis for future programs.

Through this program, students can improve programming skills, and interest in robotics can be enhanced where it is compatible with the era of Industrial Revolution 4.0. This program can also hone creative and innovative problem-solving skills in addition to training students to work together in a team to solve the challenges provided. In addition, this program also has an impact on the university. This program can produce graduates who are knowledgeable in robotics and bring the name of the university in strengthening and supporting the Government's intentions by producing graduates who can develop their knowledge through the invention, design, assembly, and operation of robots.

PERTANDINGAN ROBOMASTER SECARA BERSEMUKA SEMPENA MINGGU CABARAN DIGITAL 2022

Selaras dengan arahan oleh pihak Kementerian Kesihatan Malaysia (KKM), April 2022 adalah merupakan fasa peralihan endemik dan beberapa SOP telah dilonggarkan oleh Kerajaan. SIG Arvis telah mengambil peluang ini untuk mengadakan pertandingan Artificial Intelligent Robotic Programming (AIRP) secara bersemuka sempena Minggu Cabaran Digital FTSM, UKM. Beberapa bengkel robotik dan pertandingan AIRP yang telah dianjurkan oleh Arvis pada tahun 2020 dan 2021 kurang mendapat sambutan kerana program tersebut diadakan secara dalam talian. Pendidikan robotik atau pertandingan robotik boleh dilakukan secara dalam talian melalui aplikasi simulasi yang tersedia. Walau bagaimanapun, penyertaan yang diperoleh selama dua tahu tersebut semakin berkurangan. Perkara ini berlaku adalah kerana kekangan spesifikasi komputer di rumah yang tidak dapat menampung keperluan perisian yang diperlukan, dan minat serta motivasi pelajar menurun apabila perkakasan robotik tidak berada di depan dan di tangan mereka.

Setelah mendapat kebenaran daripada UKM, Pertandingan AIRP 2022 diadakan secara bersemuka dengan menggunakan robomaster. Arvis telah mematuhi beberapa syarat yang ditetapkan oleh pihak universiti agar pertandingan berjalan lancar. Pertandingan ni diadakan di Smart Anjung, FTSM pada 8 Jun 2022. Terdapat lapan kumpulan daripada empat universiti tempatan telah menghantar peserta iaitu UKM (2 kumpulan), UPM (3 kumpulan), UTM (2 kumpulan) dan UTeM (1 kumpulan) di mana setiap kumpulan terdiri daripada tiga orang pelajar prasiswazah. Pertandingan ini turut dihadiri oleh beberapa wakil dari syarikat robotik yang telah dilantik menjadi juri pertandingan iaitu Ir. Dzulfarqeish dari Jazro Robotic Academy dan En. Muhammad Fahmi Mat dari Creative Edutainment Robot. Penglibatan juri dari industri di dalam program ini memberi manfaat kepada peserta dan juga universiti. Antara manfaat yang diperolehi adalah berlakunya kerjasama dan terjalin hubungan erat antara pihak industri dengan SIG Arvis untuk program akan datang.

Melalui program ini, pelajar dapat meningkatkan kemahiran pengaturcaraan dan minat terhadap robotik di mana ia bersesuaian dengan era Revolusi Industri 4.0. Program ini juga dapat mengasah kemahiran penyelesaian masalah secara kreatif dan inovatif di samping melatih pelajar bekerjasama dalam satu pasukan untuk menyelesaikan cabaran yang disediakan. Selain memberi impak kepada pelajar, program ini juga memberi impak kepada universiti. Program ini dapat melahirkan graduan yang berpengetahuan dalam robotik dan membawa nama universiti dalam mengukuhkan dan menyokong hasrat Kerajaan dengan melahirkan graduan yang dapat mengembangkan pengetahuan mereka melalu ciptaan, reka bentuk, pemasangan dan pengendalian robot.

MEMPERKASA NILAI DIRI PELAJAR MELALUI KHIDMAT KOMUNITI

Pengarang :Ts. Noor Faridatul Ainun Zainal

Pengarang Bersama :Dr. Afzan Adam, Dr. Nor Samsiah Sani, Prof. Madya Ts. Dr. Abdul Hadi Abd Rahman

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Pusat :Pusat Kajian CAIT

Community service is community work that is done as a group and has a goal and purpose that gives a positive impact on a specific community. Through this community service, students can practice a healthy lifestyle, instil good values , and form strong personalities such as cooperation and helping each other. SIG Arvis held a mutual aid activity at Taman Tasik Cempaka, Bangi in May 28 2022. This program is held half a day with the attendance of 24 students only due to the current situation where learning at UKM is online. Most of the students are still at their respective homes, far from UKM. The small number of students does not discourage those who are there to continue to provide community service to the people of Bangi.

Taman Tasik Cempaka is a well-known leisure spot for the residents of Bandar Baru Bangi. Various facilities are provided here that make it easy for Bangi residents to do leisure activities such as jogging, throwing ball, playing badminton casually, hanging out with family and friends and various other activities. Due to Covid-19, the Government has made a Movement Control Order (MCO) since 2020 where Bangi citizens can no longer go out for recreation in this park. However, Taman Tasik Cempaka is under the management of the Kajang Municipal Council (MPKj). Students need to deal with MPKj first before the program can run. Some locations and the condition of the historical plaques in Taman Tasik Cempaka look dirty and neglected. The presence of these Arvis students helped to some extent, clean the lounge where the floor and table chairs were too dirty, clean the history boards full of bird and lizard excrement and collect visible trash.

The MPKj has approved this program, and they very much welcome this kind of programs. The Programs allow students to improve their management, social, and communication skills. This program can foster awareness of the environment and concern for the community. Indirectly, this program can raise the name of UKM in the eyes of the people of Bangi as a university that produces patriotic, caring and responsible graduates for the local community especially.

Khidmat komuniti ialah kerja-kerja kemasyarakatan yang dilakukan secara berkumpulan dan mempunyai matlamat dan tujuan yang memberikan impak yang positif kepada komuniti tertentu. Melalui khidmat komuniti ini, pelajar dapat mengamalkan gaya hidup sihat dan menanam nilai-nilai murni serta membentuk keperibadian yang tinggi seperti kerjasama dan bantu membantu antara satu sama lain. SIG Arvis telah mengadakan aktiviti gotong royong di Taman Tasik Cempaka, Bangi pada 28 Mei 2022. Program ini dijalankan separuh hari dengan kehadiran 24 orang pelajar sahaja disebabkan keadaan semasa di mana pembelajaran di UKM secara dalam talian. Kebanyakan pelajar masih berada di rumah masing-masing yang jauh dari UKM. Jumlah pelajar yang tidak ramai ini tidak mematahkan semangat mereka yang ada untuk terus memberi khidmat komuniti kepada warga Bangi.

Taman Tasik Cempaka adalah tempah riadah yang terkenal bagi warga Bandar Baru Bangi. Pelbagai kemudahan disediakan disini yang memudahkan warga Bangi untuk melakukan aktiviti riadah seperti berjoging, bermain bola, bermain badminton secara santai, lepak-lepak santai bersama keluarga dan kawan-kawan dan pelbagai aktiviti lain. Disebabkan Covid-19, Kerajaan telah membuat Perintah Kawalan Pergerakan (PKP) sejak tahun 2020 di mana warga Bangi tidak lagi boleh keluar beriadah di taman ini. Walaupun Taman Tasik Cempaka adalah di bawah kelolaan Majlis Perbandaran Kajang (MPKj). Pelajar perlu berurusan dengan pihak MPKj terlebih dahulu sebelum program dapat dijalankan. Terdapat beberapa lokasi dan keadaan papan-papan sejarah yang ada di Taman Tasik Cempaka kelihatan kotor dan uzur. Kehadiran pelajar Arvis ini sedikit sebanyak membantu membersihkan ruangan santai di mana lantai dan kerusi meja yang ada terlalu kotor, membersihkan papan-papan sejarah yang penuh dengan najis-najis burung dan cicak serta mengutip sampah sarap yang kelihatan.

Program ini telah mendapat kelulusan dari MPKj dan mereka sangat mengalu-alukan program seperti ini diadakan. Program seperti ini memberi peluang kepada pelajar untuk meningkatkan kemahiran pengurusan, sosial, dan komunikasi. Melalui program ini juga, sikap kesedaran terhadap alam sekitar dan keprihatinan terhadap komuniti dapat dipupuk. Secara tidak langsung, program ini dapat menaikkan nama UKM di mata warga Bangi sebagai universiti yang melahirkan graduan yang patriotik, prihatin dan bertanggungjawab terhadap masyarakat setempat terutamanya.

FUN CYBERSAFE : SHARING CYBER ISSUES WITH TEENAGERS IN AN INTERACTIVE WAY

Pengarang :Ts. Shahrina Shahrani

Pengarang Bersama : Prof. Madya Dr. Suhaila Zainuddin, Dr. Kauthar Mohd Daud, Prof. Madya Dr. Zulaiha Ali Othman

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Nowadays, the use of the Internet is becoming more and more widespread and has a significant impact on everyday life. All information is easily accessible. Various virtual activities can be carried out without boundaries or constraints. However, surfing cyberspace without control, awareness, and ethical practices will contribute to a variety of negative outcomes, such as social problems and cybercrime. As a result, users and society are impacted. Teenagers are among the groups that are easily influenced by things that feel unique and unusual. They are extremely curious and eager to try new things. They must be exposed to and aware of cyber issues to avoid bad things. Fun Cybersafe is a program for sharing cyber issues that takes place during School@UKM week 2021 and involves teenagers aged 12 to 17 years.

The program's main objective is to provide exposure related to cyber issues and cybercrimes that often occur, the risks and tips when surfing cyberspace, as well as ways and methods of a solution if facing problems or cyber threats. In addition, this program aims to provide social welfare services and knowledge sharing from SIG students to the participants.

The program is in the form of an interactive workshop conducted online using the Zoom platform. The program reveals three modules of cyber issues that are popular among teenagers, namely online game addiction, cyberbullying, and social media. This program involves a total of 25 participants. The attendees are divided into six groups and assigned to six breakout rooms. Each group is handled by three facilitators who are members of SIG. Each breakout room starts simultaneously, and two groups begin with the same module title. The time allotted for each module is 40 minutes, including introduction, slide presentation, video display, and reinforcement session. The reinforcement session for each module is in the form of an interactive quiz using Kahoot, Quizizz, and role-play. This session also involves two-way interaction between the facilitator and the participants, where the participants share their opinions, views, and experiences related to the module studied. Participants will remain in their respective breakout rooms to ensure the program is smooth and uninterrupted.

Facilitators play the role of moving from one breakout room to another breakout room and continue the program with their module title in that group. Overall, this program had a very positive impact on the participants and SIG students involved. The program successfully exposed cyber issues and threats to the participants. The participants were also exposed to tips to avoid becoming a victim in the cyber world and ethics when surfing the cyber world. In addition, this program indirectly improves the self-confidence and communication skills of SIG students who act as facilitators who need interaction with participants and the program committee to ensure that this program is interactive and successfully implemented.

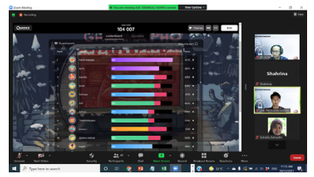
FUN CYBERSAFE : PERKONGSIAN ISU SIBER SECARA INTERAKTIF KEPADA REMAJA

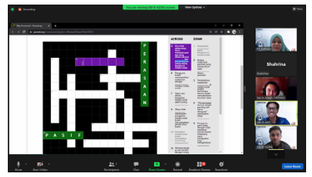
Pada masa kini, penggunaan Internet semakin meluas dan memberi impak yang ketara dalam kehidupan seharian. Segala maklumat boleh dicapai dengan mudah. Pelbagai aktiviti maya boleh dijalankan tanpa sempadan dan batasan. Namun, tanpa kawalan, kesedaran, dan amalan beretika ketika melayari alam siber akan menyumbang kepada pelbagai perkara negatif seperti masalah sosial, dan jenayah siber yang akan menjejaskan pengguna dan masyarakat. Remaja adalah antara golongan yang mudah terpengaruh dengan perkara yang dirasakan unik dan luar biasa. Mereka mempunyai rasa ingin tahu yang sangat tinggi dan ingin mencuba. Justeru, mereka perlu didedahkan dan peka dengan isu siber bagi mengelak perkara yang tidak baik. Fun Cybersafe merupakan program perkongsian isu siber yang dijalankan pada minggu Sekolah@UKM 2021 dan melibatkan peserta dari kalangan remaja berumur 12 hingga 17 tahun.

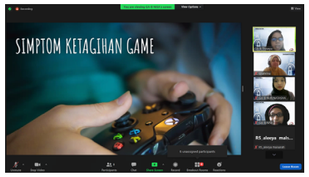
Objektif utama program ini adalah untuk memberi pendedahan berkaitan isu siber dan jenayah siber yang sering berlaku, risiko dan tips melayari alam siber serta cara dan kaedah penyelesaian sekiranya berhadapan dengan ancaman siber. Selain itu, program ini bertujuan memberi khidmat kebajikan sosial dan perkongsian ilmu daripada pelajar SIG kepada peserta yang terlibat.

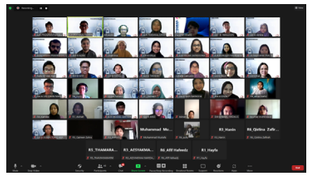
Program adalah berbentuk bengkel interaktif yang dijalankan secara dalam talian menggunakan platform Zoom. Program mendedahkan tiga modul isu siber yang popular di kalangan remaja iaitu ketagihan permainan dalam talian, buli siber, dan media sosial. Seramai 25 orang peserta terlibat dalam program ini. Peserta dibahagikan kepada enam kumpulan dan diasingkan kepada enam breakout room. Setiap kumpulan dikendalikan oleh tiga orang fasilitator di kalangan ahli SIG. Setiap breakout room bermula serentak, dan dua kumpulan bermula dengan tajuk modul yang sama. Masa yang diperuntukkan untuk setiap modul ialah 40 minit, merangkumi pengenalan, pembentangan slaid, paparan video dan sesi pengukuhan. Sesi pengukuhan bagi setiap modul adalah dalam bentuk kuiz interaktif menggunakan Kahoot, Quizizz, dan lakon peranan. Sesi ini juga melibatkan interaksi dua hala antara fasilitator dan peserta, di mana peserta berkongsi pendapat, pandangan, dan pengalaman berkaitan modul yang dipelajari.

Peserta akan kekal di breakout room masing-masing bagi memastikan program berjalan lancar dan tidak terganggu. Fasilitator memainkan peranan untuk berpindah dari satu breakout room ke breakout room yang lain dan meneruskan program dengan tajuk modul mereka dalam kumpulan seterusnya. Secara keseluruhannya, program ini memberi impak yang sangat positif kepada peserta dan pelajar SIG yang terlibat. Program berjaya mendedahkan isu dan ancaman siber kepada peserta. Para peserta juga didedahkan dengan tip mengelak menjadi mangsa di alam siber dan etika ketika melayari alam siber. Selain itu, program ini secara tidak langsung meningkatkan keyakinan diri dan kemahiran komunikasi pelajar SIG yang berperanan sebagai fasilitator yang memerlukan interaksi bersama peserta serta jawatankuasa program dalam memastikan program ini interaktif dan berjaya dilaksanakan.









Pengarang :Mohd Syazwan Baharuddin

Pengarang : Nurul Saadah binti Ahmad, Siti Norhafizah Ahmad Tarmidzi

Kolaborasi :Pusat Kajian Teknologi Kecerdasan Buatan, Pusat Kajian Teknologi & Pengurusan Perisian, Pusat Kajian Keselamatan Siber Fakulti Teknologi dan Sains Maklumat.

Jabatan Perubatan Kecemasan, Fakulti Perubatan; Sekretariat Penyelidikan & Inovasi/ Pusat Penyelidikan Bukit Fraser, Fakulti Sains dan Teknologi.

RESEARCH OFFICERS NATIONAL SYMPOSIUM (REONS)

The 1st Research Officers National Symposium (ReONS) was successfully held on 29-30 August 2022. It was a hybrid mode symposium that used both virtual mode on the Zoom platform and physical mode at the Rashdan Baba Mini Auditorium, TNCPI Building, Universiti Putra Malaysia. This first-ever national level symposium is a collaboration between all associations/clubs/representatives of the Research Officer Scheme (Q) from all Research Universities in Malaysia (UPM, UKM, UM, UTM and USM). This collaborative effort was initiated by the UPM Research Officers Association (namely UPM Researchers) with the involvement of UPM as the host. This symposium's main goal is to provide a platform for research officers to share their knowledge, experience and scientific findings while also fostering scientific networking among research officers from Malaysian research universities.

This annual symposium will be hosted in turn by each participating university. The fields or scope included in this symposium are Applied Science, Pure Science, Engineering, Medical & Veterinary, Social Science, IT & Computer Science, Research Management & others. This inclusive research field/scope are chosen to ensure that all research officers can participate, contribute and benefit from it. The UKM has been given the role as Exhibition and Logistic Committee, headed by Siti Norhafizah binti Ahmad Tarmidzi (FST) with others committees - Roslena binti Md. Zaini (FKAB), Dr. Siti Aminah binti Bahari (IPI), Mohd Syazwan bin Baharuddin (FTSM), Nurul Saadah binti Ahmad and Mohd Hairul Nizam Harun (Faculty of Medicine).

This ReONS Symposium is the beginning of a very meaningful collaboration for all Research Officers at Research Universities (RU) in Malaysia which serving as a platform and catalyst for scientific collaboration among research officers. Previously, there was no dedicated platform that brought together all Q scheme research officers all over Research Universities in Malaysia. In line with the ReONS theme this year, "Empowering and Inspiring Research Officer at Research Universities to become Renowned Scientist', this symposium was successfully meet its aim whereby it introduce and promote the research results and expertise of Research Officers to all participants and dignify their contribution in the world of scientific research and research management. This symposium was also discuss the aspirations and career direction of Q scheme research officers at Research Universities.

A total of 186 participants (including presenters) participated in this symposium. A total of two keynotes and five plenary sessions, and 71 oral presentation slots were presented. Seven of the presentation slots were from UKM. From UKM Research Officer group, we would like to congratulate Ts. Mr. Mohd Faiz Mat Saad from System Biology Institute (INBIOSIS) who has been selected as the best presenter with research title "Sooty Mould Disease Caused by Cladosporium Cladosporioides on Gardenia Jasminoides (PSB03). Hopefully the group of UKM research officers can continue to excel, serving high-quality research services with full ethics in supporting UKM's aspirations.

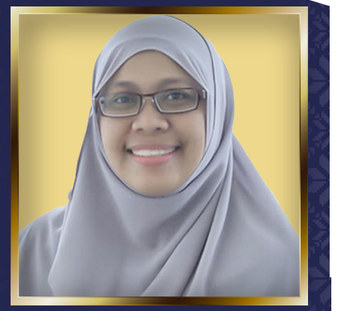
1st Research Officers National Symposium (ReONS) merupakan persidangan kebangsaan yang telah diadakan pada 29-30 Ogos 2022 secara hibrid mod maya di pelantar Zoom dan mod fizikal di Mini Auditorium Rashdan Baba, Bangunan TNCPI, Universiti Putra Malaysia. Simposium yang julung kalinya diadakan ini merupakan kerjasama di antara semua persatuan/kelab/perwakilan Skim Pegawai Penyelidik (Q) dari kesemua Universiti Penyelidikan di Malaysia (UPM, UKM, UM, UTM dan USM). Usaha kerjasama ini telah dimulakan oleh Persatuan Pegawai Penyelidk UPM (Penyelidik UPM) dengan penglibatan UPM sebagai tuan rumah. Tujuan utama simposium ini diadakan adalah untuk menyediakan satu platform bagi pegawai penyelidik mempromosikan hasil penyelidikan dan kepakaran masing-masing serta menjalinkan kerjasama saintifik antara pegawai penyelidik di Universiti Penyelidikan di Malaysia.

Simposium tahunan ini akan dihos secara bergilir oleh setiap universiti yang terlibat. Bidang atau skop yang termasuk dalam simposium ini adalah Applied Science, Pure Science, Engineering, Medical & Veterinary, Social Science, IT & Computer Science, Research Management & others. Bidang/skop penyelidikan yang inklusif ini bagi memastikan semua pegawai penyelidik dapat turut serta menyumbang dan mendapat manfaat daripadanya. Pihak UKM telah diberi peranan sebagai Jawatankuasa Pameran dan Logistik yang diketuai oleh Siti Norhafizah binti Ahmad Tarmidzi (FST) dan bersama AJK lain iaitu Roslena binti Md. Zaini (FKAB), Dr. Siti Aminah binti Bahari (IPI), Mohd Syazwan bin Baharuddin (FTSM), Nurul Saadah binti Ahmad dan Mohd Hairul Nizam Harun (Fakulti Perubatan).

ReONS merupakan satu permulaan kerjasama yang sangat bermakna kepada semua Pegawai Penyelidik di Universiti Penyelidikan (UP) di Malaysia yang menjadi pentas dan pemangkin kerjasama saintifik dalam kalangan pegawai penyelidik. Sebelum ini, tiada platform khusus yang menyatukan semua pegawai penyelidik skim Q di Universiti Penyelidikan di Malaysia. Selari dengan tema ReONS kali ini Empowering and Inspiring Research Officer at Research Universities to become Renowned Scientist, symposium ini bakal memperkenalkan dan mempromosi hasil penyelidikan dan kepakaran Pegawai Penyelidik kepada semua peserta serta memartabatkan sumbangan mereka dalam dunia penyelidikan saintifik dan pengurusan penyelidikan. Simposium ini juga akan membincangkan aspirasi dan halatuju kerjaya pegawai penyelidik skim Q di Universiti Penyelidikan.

Seramai 186 peserta (termasuk pembentang) telah menyertai simposium ini. Sebanyak dua ucaptama, lima sidang pleno, dan 71 slot pembentangan oral telah dibentang. Tujuh daripada slot pembentangan adalah daripada UKM dan salah seorang pembentang daripada UKM juga telah terpilih sebagai Pembentang terbaik. Daripada kumpulan Pegawai Penyelidik UKM, kami ingin mengucapkan tahniah kepada Ts. En Mohd Faiz Mat Saad dari Institut Biologi Sistem (INBIOSIS) yang telah terpilih sebagai pembentang terbaik dengan tajuk penyelidikannya "Penyakit Acuan Jelaga Disebabkan oleh Cladosporium Cladosporioides pada Gardenia Jasminoides (PSB03). Semoga kumpulan Pegawai Penyelidik UKM dapat meneruskan kecemerlangan, memberikan perkhidmatan bermutu dan berkualiti tinggi dengan penuh etika dalam mendukung aspirasi UKM.

LEAN: TO KNOW YOU IS TO LOVE YOU.



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Kod Projek :GGPM-2019-065

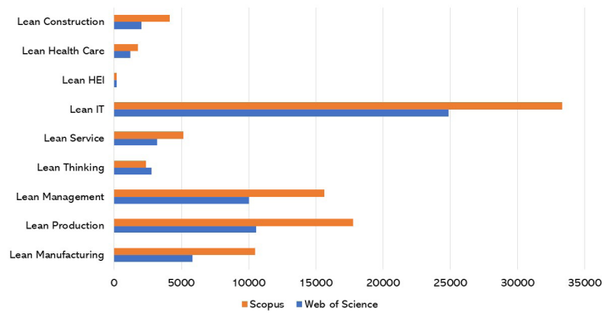
Pusat :Keselamatan SIBER

Lean Manufacturing, Lean Production, Lean Thinking, Lean Services and Lean Manufacturing are well-known terms among researchers and global industry players, including Malaysia. Other notable keywords are Lean HEI, Lean UT, Lean Construction, and Lean Health Care. Furthermore, the term lean in information security is considered a new context in the current digital era. The terms Lean Production System and Lean Manufacturing System are utilised frequently in academic research. The second term following the term lean refers to the applied domain of lean, such as manufacturing, service, IT, construction, and health care. Figure 1 depicts the distribution of lean-related publications from 1970 to 2022 based on a reputable database.

Toyota Production System (TPS) successfully implemented lean to maintain competitiveness through the post-World War II economic crisis. TPS has positioned itself as the top organisation due to this achievement. This has raised interest in researching TPS in order to apply lean to other organisations. As a result, a quality engineer named John Krafcik was inspired to implement lean in 1988. TPS is referred to as lean or lean production, both popularised by Womack J.P.

TPS and lean focused on waste elimination from an organisation. The history of TPS proves that TPS has remained competitive without increasing the product's price, despite confronting challenging circumstances. TPS searches for the production process from the customer's perspective by determining customer requirements. This procedure is known as value identification. The value flow mapping towards the process identifies Value-Added-Activity and Non-Value-Added-Activity from a customer perspective. Non-Value-Added-Activity is considered waste or 'Muda' in Japanese, and must be eliminated. An effective process of lean improves quality and production while reducing operation costs. The Toyota Engineer, Taiichi Ohno, stated the waste that must be eliminated: overproduction, waiting, inventory, and defects. Later, researchers included waste such as non-utilised people and resistance to change.

Is lean relevant today and in the future? Figure 1 indicates that lean has spread beyond manufacturing to IT and management. Lean has been fully adopted by stakeholders to improve supply chain efficiency. Lean has attracted the attention of researchers in reputable publications. Therefore, the research and development linked to lean and its implementation has been conducted continuously. That is the beautiful moment when love blossoms



Rajah 1 Taburan jumlah Penerbitan Berkaitan Kejat
Figure 1: Total Distribution of Lean-Related Publications

KEJAT: TAK KENAL MAKA TAK CINTA.

Istilah kejat mungkin agak janggal didengar oleh para penyelidik atau kalangan industri. Namun, "Lean Manufacturing", "Lean Production", "Lean Thinking", "Lean Service", "Lean Management" adalah antara istilah yang sudah popular dalam kalangan para penyelidik dan industri peringkat global termasuklah Malaysia. Selain itu, "Lean HEI", "Lean IT", "Lean Construction", "Lean Health Care" juga adalah antara kata kunci popular dalam kalangan penyelidik masa kini. Kejat dalam keselamatan maklumat adalah antara konteks baharu yang semakin mendapat perhatian dalam era digitalisasi kini. Kejat adalah istilah dalam Bahasa Melayu bagi "Lean" dan sering diguna dalam bidang penyelidikan bagi merujuk kepada Sistem Pengeluaran Kejat atau Sistem Pembuatan Kejat. Frasa kedua selepas terma "lean" seperti "manufacturing", "service", "IT", "construction", "health care" adalah merujuk kepada domain di mana falsafah kejat diaplikasi. Rajah 1 berikut menunjukkan taburan jumlah penerbitan berkaitan kejat mengikut pangkalan data penerbitan tersohor dunia dalam tempoh 1970-2022.

Kejat mula didominasi dalam bidang pembuatan khususnya pembuatan automotif iaitu selepas syarikat automatif gergasi Jepun, Sistem Pengeluaran Toyota (TPS) berjaya beradaptasi untuk kekal kompetitif dalam kegawatan ekonomi yang dasyat selepas Perang Dunia Kedua. Kejayaan TPS berinovasi telah menjadikannya sebagai organisasi tumpuan dan menarik minat beberapa individu untuk mengkaji TPS supaya amalan TPS dapat diadopsi oleh organisasi lain. Justeru, TPS telah menginspirasi kepada lahirnya kejat di mana istilah kejat diperkenal buat pertama kalinya pada tahun 1988 oleh seorang jurutera kualiti iaitu John Krafcik bagi menggambar sistem pengeluaran organisasi Toyota yang mengguna sumber yang kurang bagi penghasilan produknya berbanding pengeluaran berskala besar oleh Ford Motor. TPS juga kerap dikenali sebagai kejat atau pengeluaran kejat di mana kedua istilah ini dipopularkan oleh Womack J.P di dalam kedua-dua buah bukunya iaitu "The Machine That Changed The World" dan "Lean Thinking".

Secara amnya, kedua-dua TPS dan kejat memfokus kepada konsep penyingkiran pembaziran dalam proses organisasi. Sejarah TPS telah membuktikan bahawa TPS mampu berdaya saing tanpa perlu menaik harga barangan pada saat genting dan sukar. Kos bahan meningkat sedangkan kemampuan membeli pelanggan adalah rendah pada masa itu. TPS mengkaji proses pengeluaran daripada perspektif pelanggan dengan mengenal pasti apa yang pelanggan mahu. Proses ini juga disebut mengenal pasti nilai. Oleh yang demikian, Aktiviti- Nilai-Tambah (Value-Added-Activity) dan Aktiviti-Tanpa-Nilai-Tambah (Non-Value-Added-Activity) daripada perspektif pelanggan dikenalpasti melalui Pemetaan Aliran Nilai terhadap proses. Aktiviti-Tanpa-Nilai-Tambah ini dikenali sebagai pembaziran atau 'Muda' dalam bahasa Jepun dan perlu disingkir. Implikasinya, kecekapan proses meningkat begitu juga dengan kualiti produk dan produktiviti selain mengurangi kos operasi. Taiichi Ohno, iaitu Jurutera Toyota telah menggaris tujuh jenis pembaziran yang perlu disingkir iaitu pembaziran pengeluaran lebih (overproduction), menunggu (waiting), gerakan (motion), penghantaran (transportation), pemprosesan lebih (overprocessing), stok (inventory) dan kecacatan (defect). Tenaga manusia yang tidak diguna sepenuhnya (non-utilized people) dan penentangan terhadap perubahan (resistance to change) adalah antara jenis pembaziran yang kemudiannya ditambah oleh penyelidik lain.

Adakah falsafah kejat ini masih relevan, diperlukan pada masa kini dan masa hadapan? Data pada Rajah 1 menunjukkan bahawa falsafah kejat bukan hanya diadopsi dalam industri pembuatan, malah telah berkembang secara meluas kepada domain industri lain terutamanya IT, dan pengurusan. IT dan pengurusan adalah antara domain yang mendapat perhatian tinggi seiring dengan perkembangan era digitalisasi dan I4.0 kini. Penambahbaikan proses dalam organisasi yang dilakukan secara berterusan melalui penyingkiran Aktiviti-Tanpa-Nilai bukan sahaja dapat meningkatkan kecekapan operasi malah menjadikan organisasi terus kompetitf walau dalam situasi ekonomi yang kurang mendokong. Kecekapan proses di sepanjang rantaian bekalan organisasi meningkat melalui amalan falsafah kejat yang dibudayakan secara menyeluruh meliputi semua pemegang taruh. Manfaat unggul falsafah kejat telah meraih perhatian para penyelidik dalam platform penerbitan tersohor untuk terus melakukan penyelidikan dan pembangunan berkaitan kejat, dan mengembangkan implementasinya bagi manfaat sejagat. Begitulah istimewanya apabila cinta mula mekar.

POEM RECITAL ENTITLED 'WATAN YANG MERDEKA' AT THE CELEBRATION OF MALAYSIAN INDEPENDENCE DAY AT UNIVERSITY LEVEL

Pengarang :Ts. Dr. Ibrahim Mohamed
Pengarang Bersama :Dr. Nurhidayah Bahar
Email :ibrahim@ukm.edu.my
Pusat :Pusat Kajian SOFTAM

Universiti Kebangsaan Malaysia (UKM) has held a concert called 'Lantera Tanah Airku' on the 30th August 2022 at Dataran Panggung Seni, UKM, to celebrate the 56th Malaysian Independence Day at the university level as an effort to increase the appreciation of the meaning of independence. There were a variety of performances during the celebration, including a video presentation, pantomime, and poem recital. A poem entitled "Watan yang Merdeka" was recited by Ts. Dr. Ibrahim Mohamed and Dr. Nurhidayah Bahar from the Faculty of Information Science & Technology (FTSM) during the concert. This poem was written by Ts. Dr. Ibrahim Mohamed himself on 22nd August 2022. The lesson from this poem is that freedom is not only physically free but freeing your mind from negative thoughts and emotions. However, the value of religion and nation must be upheld at all costs. The performance was shown live on UKM's official Facebook account and later uploaded on YouTube.

WATAN YANG MERDEKA

Watan yang merdeka!
Tiba masa untuk kita bertanya
Benarkah kita watan yang merdeka?
Dalam kabus sejuk kemerdekaan negara
Kita dibuai omongan dan fatamorgana.

Watan yang merdeka!
Adakah kita mempunyai jiwa yang merdeka?
Menyahut teriakan Merdeka! Merdeka! Merdeka!
Gembira hingga terleka
Diri teraba-raba maksud merdeka.

Watan yang merdeka!
Adakah cukup semangat berkobar-kobar?
Hanya bijak berkata besar
Pak politikus ramai yang tersasar
Marhaen hidup bertambah gusar.

Watan yang merdeka!
Adakah jati diri berpaksi tanah air Malaysia tidak penting?
Bila hidup berkiblatkan negara asing
Watan hebat dikesamping

Watan yang merdeka!
Dimanakah bijak pandai kita?
Membantu mengharungi taufan dan gelora
Buanglah sifat ego dan membangga
Hanya kepada Tuhan kita menjadi hamba.

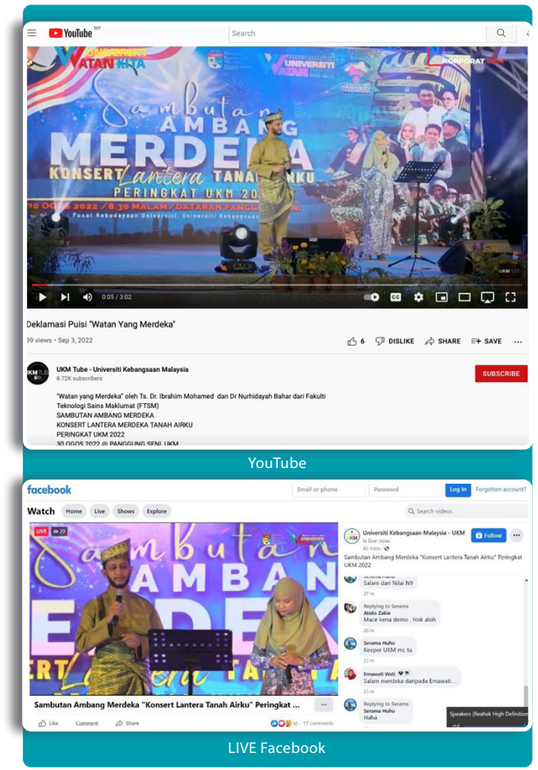
Watan yang merdeka!
Adakah kita terluka dengan bingkisan ini?
Watan dengan jati diri
Tak tercalar tekad untuk terus mendaki
Teguran dan nasihat dijadikan penguat diri.

Watan yang merdeka!
Marilah kita mewarnakan
Lakaran kehidupan watan
Dengan warna-warni keceriaan
Jalur Gemilang berkibaran
Bebas warga bertebaran
Rukun Negara diamalkan.

Hasil Nukilan-
Ibrahim Mohamed

DEKLAMASI SAJAK 'WATAN YANG MERDEKA' DI MALAM SAMBUTAN AMBANG MERDEKA PERINGKAT UNIVERSITI

Universiti Kebangsaan Malaysia (UKM) telah mengadakan konsert bertajuk 'Lantera Tanah Airku' pada 30hb Ogos 2022 bertempat di Dataran Panggung Seni, UKM bagi menyambut Hari Kemerdekaan Malaysia ke-56 peringkat universiti sebagai usaha meningkatkan penghayatan erti sebuah kemerdekaan. Terdapat pelbagai persembahan disajikan kepada pengunjung di malam sambutan hari kemerdekaan tersebut antaranya adalah persembahan video, pantomim dan deklamasi sajak. Sajak bertajuk "Watan yang Merdeka" telah dideklamasikan oleh Ts. Dr Ibrahim Mohamed dan Dr Nurhidayah Bahar dari Fakulti Teknologi & Sains Maklumat (FTSM) semasa konsert tersebut. Puisi ini telah ditulis sendiri oleh Ts. Dr. Ibrahim Mohamed pada 22hb Ogos 2022. Pengajaran daripada puisi ini adalah merdeka bukan sekadar bebas secara fizikal tetapi minda juga mesti dibebaskan. Namun acuannya perlulah ada iaitu nilai agama dan bangsa. Persembahan ini telah ditayangkan secara langsung di akaun Facebook rasmi UKM dan kemudiannya dimuat naik di YouTube.



SENARAI PENERIMA GERAN 2022

Nama Geran	Skim Geran Penyelidikan Fundamental (FRGS)
Tajuk Projek	Agile Software Cost Estimation Model Based on Particle Swarm Optimization Approach
Ketua Projek	Prof. Madya Dr. Zulkefli Mansor
Tempoh	01/09/2022 -31/08/2024
Pusat Kajian	Pusat Kajian Teknologi & Pengurusan Perisian (SOFTAM)
Jenis Penyelidikan	Fundamental
Katakunci	Artificial Intelligence, Meta Heuristics, Cost Estimation, Software Management, Agile
Sinopsis	It is essential to make sure the accuracy of cost estimating results in order to avoid project failure, especially in Agile methodology due to shortening process, fewer efforts, and quick implementation. Due to that, various methods such as machine learning techniques have been used to make sure estimating project costs are accurate, however, satisfactory results are yet to be achieved due to difficulties to find the most optimized required project cost parameters. Therefore, this proposal examines the potential of investigating a meta-heuristic optimization algorithm i.e., particle swarm optimization (PSO) as a population-based stochastic search method to minimize the estimated project & rsquos cost by optimizing parameters of the project cost such as user stories, complexity, project duration, and others with an aim to improve cost accuracy which is close to actual cost. In order to achieve this aim, three objectives are outlined: (i) to determine project cost parameters for agile software cost estimation (ii) to employ a PSO algorithm in optimizing project cost parameters for agile software cost estimation, and (iii) to propose an algorithmic model based on a PSO algorithm. Project methodology consists of (i) the design of an agile cost estimation parameter that adopted PSO approach. (ii) implement the proposed algorithm for agile software cost estimation, (iii) Performance characterization, and (iv) compare results to decide which is having minimum project cost parameter. The novelty in this research will contribute to the frontiers of fundamentals in agile software cost estimation. Hence, this research proposes an algorithmic model based on a mathematical algorithm as a function of a number of the major project cost by adapting the PSO technique to tune the parameters in minimizing the cost. The findings contribute to the Quintuple Helix model that embraces the k-economy in software development projects as highlighted by the government.

SENARAI PENERIMA GERAN 2022

Nama Geran	Skim Geran Penyelidikan Fundamental (FRGS)
Tajuk Projek	Cultural based approach in Collaborative Online Learning Model to increase teacher-parent engagement in Malaysian schools
Ketua Projek	Prof. Madya Dr. Dalbir Singh
Tempoh	1/9/2022 - 31/08/2025
Pusat Kajian	Pusat Kajian Teknologi & Pengurusan Perisian (SOFTAM)
Jenis Penyelidikan	Fundamental
Katakunci	Collaborative Online Learning, Cultural based Approach, Malaysian Schools
Sinopsis	Collaborative learning has been utilised throughout the years to deliver educational content for various levels of students in schools. Previously, less emphasis was given toward online mode of support as the conventional method exists. However, as schools across Malaysia closed in response to the Covid-19 pandemic, students from various levels experienced a severe disruption to their learning process. Though most schools quickly began offering some online learning, there have been growing concerns about the effects of this unprecedented shift. In addition, such paradigm shift has also witnessed parent; significant role in ensuring the effective delivery of educational content through online platforms. In such a situation, parents were expected to support the learning process. Although various strategies and best practices exist globally, the engagement between students, parents, teachers, and relevant stakeholders towards collaborative online learning is crucial. Based on relevant previous studies, engagement towards online learning is highly influenced by the user's cultural background, especially Malaysia, as it is an incredibly diverse country containing many different ethnicities, languages and religions. Thus, the proposed study aims to investigate and formulate a novel collaborative online support model based on a cultural-based approach. It applies a mixed-method approach that employs questionnaires, focus group discussions, and expert review sessions. The results from this method will be analysed to formulate the proposed model. A preliminary study has conducted a comparative review based on strategies and best practices in Malaysia and various countries. Initial findings divulge that cultural background influences the teacher-parent engagement towards collaborative online learning provided by the school and relevant authorities. Such results are also aligned with the applicant's previous related research study in interaction design, especially on user engagement (FRGS/1/2016/ICT01/UKM/02/2). Therefore, findings from the proposed study could improve the quality of learning in Malaysian schools, in line with SDG4, KEGA3 and 4IR.

SENARAI PENERIMA GERAN 2022

Nama Geran	Skim Geran Penyelidikan Fundamental (FRGS)
Tajuk Projek	Enhanced Harmony Search Algorithm to Optimize Recurrent Neural Network for Detecting Misinformation Content Embedded with Fake Hadith on Social Networks
Ketua Projek	Prof. Madya Dr. Mohd Zakree Ahmad Nazri
Tempoh	1/9/2022 - 31/08/2025
Pusat Kajian	Pusat Kajian Teknologi Kecerdasan Buatan (CAIT)
Jenis Penyelidikan	Fundamental
Katakunci	Recurrent Neural Network, Harmony Search Algorithm, Fake Hadith, Social Media, Misinformation, Rumor
Sinopsis	Identifying aspects in fake hadith within a social networks (SN) without aspect clues is complicated. A deep contextualized word representation is required to overcome limited explicit cues for inference. Thus, this research proposed a Recursive Neural Network (RNN) because it has the advantage of capturing contextual information. However, parameter tuning is a crucial step of RNN, affecting classification accuracy and learning time. Harmony Search Algorithm (HSA) has not been applied in this domain but the issue with the HSA-based method is slow convergence. A new heuristic for HSA (coded as nHSA) is needed because the number of features with a high correlation with particular hadith is small. Moreover, nHSA needs to select a subset of salient features optimal for classification. The main research question is "how to enhance the nHSA in optimizing RNN parameters and selecting salient text features?";. Therefore, the objectives are 1) To construct a new misinformation detection dataset with embedded fake hadith and falsified Islamic traditions for training; 2.) To integrate the harmony search algorithm with knowledge base structure that improves the selection of salient text features for fake hadith detection, and 3.) To enhance the harmony search algorithm with heuristics and mechanism that improves the initialization and improvisation processes in HSA for optimizing RNN parameters. Therefore, the research methodology consists of three phases: i) Development of new misinformation content embedded with fake hadith dataset; ii) Design and development of a new variant of HSA; iii) Optimizing RNN using the nHSA, improvisation and evaluation of the developed methods. The contributions of this research will be on the new variant of HSA that optimizes RNN and selects salient textual features for misinformation detection with embedded fake hadith. This work will benefit cyber security and in line with the National Key Result Area and 12th-Malaysian plan.

SENARAI PENERIMA GERAN 2022

Nama Geran	Skim Geran Penyelidikan Fundamental (FRGS)
Tajuk Projek	Deep Multilayer Quaternion Trace Transform Network for High-Accuracy Material Texture Classification
Ketua Projek	Prof. Madya Dr. Mohammad Faidzul Nasrudin
Tempoh	1/9/2022 - 31/08/2025
Pusat Kajian	Pusat Kajian Teknologi Kecerdasan Buatan (CAIT)
Jenis Penyelidikan	Fundamental
Katakunci	Trace Transform, Deep Learning, Material Texture Classification, Quaternion
Sinopsis	Texture classification is a challenging problem in many image processing applications. It has been used in many applications such as industrial inspection, image retrieval, medical imaging, and remote sensing. While Convolutional Neural Networks (CNNs) achieved reasonable success for image classification, material texture classification remains a complex problem since textures usually do not contain enough information regarding object shape. Besides that, textures regularly exhibit large intra-class and inter-class variability. The currently recorded classification accuracy of challenging material texture datasets is modest compared to 99.9% in common datasets. Since CNNs process images are in the spatial domain, whereas spectral analyses, like in the Trace Transform, process images in the frequency domain, these models have different characteristics that suit textures. The Trace Transform features extractor can produce thousands of features that can be used to classify and recognize objects and textures. These features are robust and invariant to affine transforms, such as rotation, scaling, and slanting. However, manually finding the right features by a feature-engineered approach is tedious. Up to this point, it only runs in grayscale values. Therefore, this research proposes 1) Trace Transform feature learning using a Deep Learning approach to address the features extraction complexity; 2) Quaternion method to process color data as a hypercomplex number to preserve the vertical relationship between the features and the horizontal relationship in color channels. This approach is named the Quaternion Trace Transform Network (QTTN). This project will improve the fundamental architecture of TTN to be stacked into multiple layers. Several challenging material texture datasets will be used for experiments, namely, KTHTIPS2, FMD, and DTD, captured in controlled, wild, and uncontrolled environments. The main outcome of this work is the novel QTTN. The QTTN will benefit the deep learning community greatly as it can be implemented to solve problems in other domains.

SENARAI PENERIMA GERAN 2022

Nama Geran	Skim Geran Penyelidikan Fundamental (FRGS)
Tajuk Projek	An Ensemble Multimodal Decision Analytics Approach for Collaborative Pandemic Surveillance Model
Ketua Projek	Prof. Madya Dr. Suhaila Zainudin
Tempoh	1/9/2022 - 31/08/2025
Pusat Kajian	Pusat Kajian Teknologi Kecerdasan Buatan (CAIT)
Jenis Penyelidikan	Fundamental
Katakunci	Multimodal, Decision Analytics, Surveillance, Ensemble
Sinopsis	A challenge during the pandemic is ensuring optimal surveillance coordination and real-time decision-making. Decision analytics uses multimodal data such as text, images, structured databases, and human experts for the collaborative model. Recent studies employ specific design schemes and feature fusion strategies to ensemble the multiple decision models. Problems in developing this model are; to design the appropriate domain-based scheme, formulation fusion and metrics, and algorithm for uncertainties in data modalities. Existing schemes attempt to suit different domains; goals and mostly use homogenous data from the domain. This study proposes a new ensemble decision analytics approach for the collaborative pandemic surveillance model. The objectives are to design a new scheme for multimodal pandemic data, formulate unique features fusion and metrics for collaborative decision, and develop an ensemble machine learning algorithm for an accurate collaborative decision model based on the new scheme and feature fusion formulation. The study starts with the analysis of existing decision analytics schemes and the design of the new scheme. The multimodal pandemic data from open databases such as images, climate, clinical database, and daily release reports will be retrieved and preprocessed. We identify the relevant features and data at this stage and formulate a new fusion strategy and metrics. The project shall develop suitable decision analytics algorithms for the pandemic collaborative surveillance model. The expected outcomes are the collaborative surveillance model that discovers meaningful associations of factors within the data fusions, predicts the areas with the highest risk for spill-over, and determines factors that influence the critical individual behaviour promoting spill-over for known and novel pathogens. The study will benefit the governments national health policy in efficiently managing resources to ensure the control and mitigation over pandemic spread, identify interventions to reduce risk, and improve monitoring and surveillance.

SENARAI PENERIMA GERAN 2022

Nama Geran	Skim Geran Penyelidikan Fundamental (FRGS)
Tajuk Projek	A New Hybrid Deep Learning Method for Sentiment Analysis Model Based on Convolutional Neural Network (CNN) and Long Short-Term Memory (LSTM)
Ketua Projek	Prof. Madya Dr. Mohd Ridzwan Yaakub
Tempoh	1/9/2022 - 31/08/2025
Pusat Kajian	Pusat Kajian Teknologi Kecerdasan Buatan (CAIT)
Jenis Penyelidikan	Fundamental
Katakunci	Sentiment Analysis; Online Social Networks; Data Analytics; Deep Learning; Machine Learning; Sentimen
Sinopsis	Word embedding (WE) and machine learning (ML) methods are widely used in sentiment analysis (SA) for feature extraction and sentiment classification tasks. However, WE has limitations as it ignore sentiment information in texts and need a large corpus of texts for training and generating exact vectors, which causes low classification accuracy. Thus, existing ML methods face challenges to providing better SA results due to their limitations; being dependent on human effort for labeling, long-term activity, limited effectiveness, leading to conversational and unstructured text. Recently, deep learning (DL) has been extensively applied in SA, although each DL methodology has its own set of benefits and drawbacks. Thus, combining the two methods is offered as a way of incorporating the benefits of SA and DL while also addressing some of the disadvantages of individual methods. Then, the volume of unanalyzed reviews makes evaluating issues challenging for users due to the insufficient sentiment score model. This study proposes a new method based on Word2Vec and GloVe that enhances the performance of WE approach that are more suitable for SA. After that, a new model of DL based on LSTM and CNN will be developed to improve sentiment classification performance. Finally, this study will develop a new formulation of sentiment score based on the model of frequent and infrequent product features. Our proposed work will involve several steps; collecting data sets, text preprocessing, feature representation based on Word2Vec and GloVe, classification of sentiment based on a new hybrid DL model, sentiment score feature model development, and performance evaluation. The expected output is where there will be a new model for sentiment classification and evaluating the sentiment score. Appropriate social media analysis will benefit not just the government, but also academia, society, and industry in obtaining accurate information from the Internet, particularly social media.

SENARAI PENERIMA GERAN 2022

Nama Geran	Skim Geran Penyelidikan Fundamental (FRGS)
Tajuk Projek	A Multi-Swarm Particle Swarm Optimization Algorithm for Feature Selection in Drug Review based on Medical Sentiment Lexicon Analysis
Ketua Projek	Prof. Dr. Azuraliza Abu Bakar
Tempoh	1/9/2022 - 31/08/2024
Pusat Kajian	Pusat Kajian Teknologi Kecerdasan Buatan (CAIT)
Jenis Penyelidikan	Fundamental
Katakunci	Multi swarm particle swarm optimization, Sentiment analysis, Medical drug, Convergence
Sinopsis	In sentiment analysis, the high dimensionality of features vector is a key problem that decrease the accuracy of sentiment classification in obtaining the optimum subset of features. Various techniques have been suggested for feature selection, including metaheuristic approaches, such as the Multi-Swarm Particle Swarm Optimization, Multi Objective Artificial Bee Colony, Ant colony optimization (ACO), Penguin Search Optimization and Particle Swarm Optimization (PSO). These techniques have produced good results in obtaining optimum feature subset. However, the PSO are more attractive and get more attention from the feature selection community because of the simplicity of the algorithm that provide fast converting speed and are proven to be an effective feature selection. The premature convergence is one of the PSO drawbacks when involved high-dimensional feature selection. Though Multi Swarm Topology (MSPSO) is useful when involved the selection of high-dimensional features. Nevertheless, the MSPSO has the limitation on the speed convergence. This study proposes a new approach that incorporate the MSPSO in an elite learning with adaptive strategies to obtain the optimum subset of features. Our proposed solution will involve several stages of data collection, text pre-processing, keyword feature extraction from drug reviews, classification of drugs sentiments and performance evaluation on the sentiment classification. The output of this research will be a new enhanced method that identified and differentiate some drugs effect on users. Sentiment based drugs analysis is an important field in medicine to make the public aware on a drug usage whether it can have a positive or negative impact on user. Universities is the main provider for the drug effect usage into the Quintuple Helix Model. This knowledge will be used as a guidance for the government to revise a medical policies related to safe drug usage and use to monitor the supplement and demands on the drug distribution.

SENARAI PENERIMA GERAN 2022

Nama Geran	Skim Geran Penyelidikan Fundamental (FRGS)
Tajuk Projek	3D Virtual Avatars Reconstruction from 2D Images using the improved Generative Adversarial Network (GAN) with Attention Mechanism and Landmark Detection Mechanism
Ketua Projek	Dr. Tan Siok Yee
Tempoh	1/9/2022 - 31/08/2024
Pusat Kajian	Pusat Kajian Teknologi Kecerdasan Buatan (CAIT)
Jenis Penyelidikan	Fundamental
Katakunci	Generative Adversarial Network (GAN), Landmark Detection Mechanism, Attention Mechanism, Photorealis
Sinopsis	3D virtual avatars can be generated through reconstruction of facial expressions from 2D images. Previous studies use Generative Adversarial Network (GAN) to reconstruct 3D virtual avatars from 2D images as its ability to generate 3D models from 2D images. However, the reconstruction faced issues to achieve photorealism. This is due to the occlusion problems in facial expression reconstruction. Besides, issues caused by reconstruction from extreme 3D head poses and facial expressions are still unsolved. Therefore, the objective of this research is to integrate attention mechanism into GAN to overcome the occlusion problems. Moreover, this research aims to reconstruct 3D virtual avatars from extreme head poses and facial expressions 2D images by integrating landmark detection mechanism into GAN. The research methodology begins with integrating the attention mechanism into GAN to remove the occlusion regions. Then, integrate the landmark detection mechanism into GAN to track extreme head poses and facial expressions. These two mechanisms will then be combined as a complete GAN framework. Lastly, the Facial Expression Cognitive (FEC) accuracy (%) will be used to evaluate the attention mechanism to measure the presence of occlusions objects. Moreover, Normalized Mean Error (NME, %) will be used to evaluate the landmark detection mechanism to compare the landmark locations. Then, the combined GAN framework with attention mechanism and landmark detection mechanism will be evaluated by validating the similarity between the output images with the ground-truth images by using metrics including Peak-Signal-To-Noise-Ratio (PSNR), Structural Similarity Index (SSIM) and Mean Square Error (MSE). This improved GAN has the potential in other applications especially in 3D reconstruction. The result of the research will contribute to the advancement of the development of 3D virtual avatars and this is significant as they become more prevalent in virtual reality. It will support the roadmap of 4IR which are VR, AR and AI in Malaysia.

SENARAI PENERIMA GERAN 2022

Nama Geran	Skim Geran Penyelidikan Fundamental (FRGS)
Tajuk Projek	Software Defined Internet of Things (SDIoT) Virtual Sensor Network Algorithm for Addressing Interoperability Issues
Ketua Projek	Dr. Azana Hafizah Mohd Aman
Tempoh	1/9/2022 - 31/08/2025
Pusat Kajian	Pusat Kajian Keselamatan Siber (CYBER)
Jenis Penyelidikan	Fundamental
Katakunci	soft sensors, internet of things, digital twins, network virtualization
Sinopsis	Internet of Things (IoT) Sensors enable most of the smart services like smart city, smart home etc. These devices are designed to be constrained with low power, cost and computation. They support specialized stacks instead of IP communication stack, needed to achieve interoperability over the Internet. This leads to many isolated and vendor-locked IoT deployments that cannot interoperate and be centrally managed. Researchers are working on solving the problem of interoperability at different layers of the IoT stack by redesigning the IP protocol to conform to these devices, but few researchers are looking at Software Defined Network (SDN) approach for IoT devices in the Cloud and Fog/edge to address the interoperability issues. The main objective of this research is to identify the critical functions of constrained devices to design and develop software based IoT sensor model. A software-defined sensor is expected to abstract the functions of a real device but would not be physically constrained. The proposed model and supporting algorithm shall emulate a physical device and network as software instance on the Cloud. The software instances would then leverage the computation abilities of the Cloud to achieve interoperability by employing TCP/IP communication stack. The algorithm would also cater to more advanced IP protocols like device discovery and device management. This work aims to derive a comprehensive literature review, develop a model of the virtual device and the interoperability algorithms for performance evaluation in CloudSim simulator. The expected output of this project is new model and algorithm that enables a physical IoT device and its network to be represented as an interoperable software-defined IP based network. Software-defined networks shall reduce the complexity and cost of IoT devices and accelerate IoT adoption. The output of this project can also contribute to developing Malaysian IoT interoperability standards.

SENARAI PENERIMA GERAN 2022

Nama Geran	Skim Geran Penyelidikan Fundamental (FRGS)
Tajuk Projek	An Adaptive Successive Interference Mitigation Technique Based on Zero-Forcing for an Efficient Real-Time Internet of Things (IoT) Network
Ketua Projek	Prof. Madya Dr. Rosilah Hassan
Tempoh	1/9/2022 - 31/08/2024
Pusat Kajian	Pusat Kajian Keselamatan Siber (CYBER)
Jenis Penyelidikan	Fundamental
Katakunci	Interference mitigation, Internet of Things (IoT), Signal-to-Interference & Noise Ratio (SINR), The
Sinopsis	In Internet of Things (IoT) based sensors that are connected with industrial machines and tools provides industries with greater system integration in terms of automation and optimization. Therefore, the real-time sensor's data transmission in a multi-signal transmission network has been a serious concern. The issue of bandwidth enhancement is the main concern in IoT network; however, low data rate and delay are caused due to the interferences among various sensor's during data communication. The conventional interference mitigation schemes mainly focus on a single interferer signal; however, this work focuses on eliminating multiple interferer sensor's signals. This work objective is to improve interference mitigation technique for an effective IoT multi-signal transmission; therefore, it is essential to identify the key factors with the impact and shortcoming of successive interference mitigation algorithms based on state-of-the-art researches. The idea is to propose a Successive Interference Cancellation (SIC) technique with an adaptive approach based on zero-forcing, provided that the first useful signal is successfully detected from a specific sensor. The methodology of the proposed technique should focus on a low complex mitigation approach based on higher interference and noise-based signals. It is achieved by the receiver decoding the stronger signal first, subtracting it from the combined signal and then decoding the difference as the weaker signal and bringing interference to zero. The output of this work would help to increase the Signal-to-Interference; Noise Ratio (SINR), higher transmission data rate, and minimum transmission delay to design an effective real-time IoT multi-signal transmission sensor network. It can be implemented in the Industrial Internet of Things (IIoT) based network and can be substantial for Industrial Revolution 4.0, which encompasses IIoT and smart manufacturing, marries physical production and operations with smart digital technology, and big data to create a more holistic and better-connected ecosystem for industries.

SENARAI PENERIMA GERAN 2022

Nama Geran	Skim Geran Penyelidikan Fundamental (FRGS)
Tajuk Projek	A New Lightweight Authentication and Key Establishment Scheme for 6LoWPAN-based Wireless Sensor Networks
Ketua Projek	Prof. Madya Dr. Elankovan A Sundararajan
Tempoh	1/9/2022 - 31/08/2024
Pusat Kajian	Pusat Kajian Teknologi & Pengurusan Perisian (SOFTAM)
Jenis Penyelidikan	Fundamental
Katakunci	6LoWPAN, authentication, key agreement, WSN
Sinopsis	Nodes based on Low Energy Wireless Personal Area Networks(6LoWPANs) are used for various applications in domains such as the military, healthcare monitoring, and smart homes. However, the openness of public wireless channels in Wireless sensor Networks (WSNs) makes it susceptible to various attacks. Therefore, a secure authentication mechanism is vital. 6LoWPANs require an authentication scheme to verify the authenticity of nodes for reliable communication. In order to encrypt future communications, the nodes establish a session key. However, the traditional WSNs authentication mechanisms approach results in a high overhead due to low memory and processing capabilities. Thus, several symmetric cryptographic and public key-based authentication schemes were proposed to address these issues. However, those solutions still have limitations, including:1) Large communication and computational overhead,2) Lack of mobility,3) Insecure against some known attacks. A lightweight authentication and key establishment schemes for 6LoWPAN are critical. Therefore, our research objectives are 1) To propose an authentication-based symmetric key management scheme in the WSN domain without compromising security credentials while reducing communication and computation overhead for 6LoWPAN devices. 2). To develop a suitable method to support mobility. 3)To design an automated lightweight encryption algorithm. There are four main phases of the research methodology:1) To analyze the related work. 2)To design and implement a secure and lightweight protocol for 6LoWPAN that supports mobility in WSN, 3) To simulate the protocol using the Cooja simulator, and 4) To evaluate the protocol's performance. Formal and informal security analysis using Automated Internet Security Protocol and Application Verification (AVISPA) will be undertaken on the protocol. The logical correctness of the scheme will be proved using Burrows-Abadi-Needham Logical Analysis (BAN). We expect to produce a new lightweight authentication and key establishment protocol that will increase the security of 6LoWPAN devices. Hence, improvement in the performance of applications such as device-to-device networks for remote patient monitoring in hospitals smart healthcare system.

SENARAI PENERIMA GERAN 2022

Nama Geran	Skim Geran Penyelidikan Fundamental (FRGS)
Tajuk Projek	Keberkesanan Pakej Rangsangan Ekonomi dalam Pembangunan PKSHerba Halal Menurut Model `Resource-Based View`
Ketua Projek	Dr. Nurhidayah Bahar
Tempoh	1/9/2022 - 31/08/2024
Pusat Kajian	Pusat Kajian Teknologi & Pengurusan Perisian (SOFTAM)
Jenis Penyelidikan	Fundamental
Katakunci	pakej rangsangan ekonomi, perusahaan kecil dan sederhana, industri herbahalal, pandangan berasaskan
Sinopsis	Sepanjang tempoh pandemik COVID-19, diikuti dengan kejadian banjir besar pada hujung tahun 2021, kebanyakan PKS di Malaysia telah terjejas teruk dari segi logistik dan operasi perniagaan. Ini menyebabkan masalah dalam aliran tunai dan lain-lain sumber perniagaan, yang kemudiannya boleh membawa kepada kegagalan PKS tersebut. Dalam situasi krisis ini, kerajaan telah menawarkan pelbagai bentuk bantuan melalui beberapa pakej rangsangan ekonomi untuk membantu memulihkan prestasi PKS. Jumlah keseluruhan pakej-pakej tersebut kini menghampiri RM600 bilion, merangkumi bantuan tunai dan bukan-tunai seperti subsidi upah, moratorium, diskaun bil utiliti dan sewa premis, latihan pemerkasaan kemahiran teknologi, geran perniagaan, pinjaman dan sebagainya. Walau bagaimanapun, sehingga kini tiada kajian terperinci yang telah dijalankan untuk mengukur keberkesanan pelbagai pakej rangsangan tersebut. Dari perspektif keusahawanan, satu kajian empirikal sangat diperlukan untuk mengetahui bentuk bantuan manakah yang paling berkesan dalam memperkasakan prestasi PKS di Malaysia.Kajian ini memfokus kepada PKS industri herba halal kerana potensinya sebagai salah satu sektor yang boleh dikembangkan di peringkat antarabangsa, seterusnya membantu memulihkan pembangunan negara selepas dilanda krisis ekonomi. Industri herba halal juga kini memainkan peranan yang besar dalam amalan penjagaan diri rakyat Malaysia sewaktu negara sedang menempuh krisis kesihatan. Objektif utama kajian ialah untuk mengukur kesan pakej rangsangan ekonomi ke atas prestasi PKS herba halal dalam situasi pemulihan ekonomi. Kerangka teoretikal "Resource-Based View" dijadikan asas untuk membangunkan hipotesis, sementara kaedah kuantitatif Pemodelan Persamaan Struktural (Structural Equation Modeling) dipilih bagi menguji kesahan setiap hipotesis. Instrumen soal-selidik akan dibangunkan berpandukan sorotan karya, sementara pensampelan adalah dengan menggunakan kaedah bola salji (snowball sampling) berdasarkan pangkalan data agensi-agensi seperti Jabatan Pertanian, Institut Penyelidikan Hutan Malaysia dan Lembaga Pemasaran Pertanian Persekutuan. Hasil kajian ini dijangka dapat memantapkan polisi kerajaan untuk industri herba dan sektor kesihatan negara, serta meningkatkan pencapaian usahawan PKS dalam sektor-sektor berkaitan dan membantu merealisasikan Dasar Keusahawanan Negara di bawah agenda Wawasan Kemakmuran Bersama 2030.

SENARAI PENERIMA GERAN 2022

Nama Geran	Geran Galakan Penyelidik Muda (GGPM)
Tajuk Projek	Emotion Intensity Classification Model for Facebook Diabetes Community
Ketua Projek	Dr. Wandeep Kaur Ratan Singh
Tempoh	1/10/2022 - 30/09/2024
Pusat Kajian	Pusat Kajian Teknologi Kecerdasan Buatan (CAIT)
Jenis Penyelidikan	Fundamental
Katakunci	emotion classification, Facebook, intensity polarity
Sinopsis	The evolution of social media platforms has created a niche for users to increasingly turn to such sites to share and exchange health-related information. Facebook is one of the largest social networking sites and has only encouraged such exchange thus mounting to a sheer amount of data hidden within the unstructured text. This research aims to propose an emotion intensity classification model to classify data collected from the diabetes community within Facebook. Here this research would like to consider Facebook reaction behaviour to classify emotion intensity accordingly. The reaction icons serve to help users convey both positive and negative emotions which could help better understand users' emotions on Facebook. A better understanding of emotion and proper classification of emotion intensity amongst the diabetes community on Facebook would help the community better understand the state of mind of its users which will help communities better understand mental health state of patients. Studies in the past have looked to analyze the use of this behaviour and how they impact sales, however, the attempt made in this research is to convert those numbers to an intensity which could be used to classify emotion better thus providing a better understanding of the state of mind of users

SENARAI PENERIMA GERAN 2022

Nama Geran	Geran Universiti Penyelidikan (GUP)
Tajuk Projek	Real-time Remote Collaborative Augmented Reality Interaction Technique with Embodiment for Smartphone-based Tele-education
Ketua Projek	Dr. Lam Meng Chun
Tempoh	1/10/2022 - 30/09/2024
Pusat Kajian	Pusat Kajian Teknologi Kecerdasan Buatan (CAIT)
Jenis Penyelidikan	Fundamental
Katakunci	Collaborative Augmented Reality, embodiment, Interaction Technique
Kolaborasi	Rakan Industri: GOLD IT ENTERPRISE
Sinopsis	Collaborative learning in Collaborative Augmented Reality (CAR) environments has been getting the attention of researchers as a distance learning medium. However, CAR lacks the ability to communicate nonverbally. Virtual embodiments are increasingly being investigated in augmented reality (AR), where virtual representations can be seen and to allow nonverbal communication. Meanwhile, the conventional Collaborative Augmented Reality Interaction Technique (CARIT) only allows users to manipulate the virtual object and communicate with each other like in a phone call. Embodiment cues such as the direction pointing, expression feedback, eye gaze direction etc., were commonly embedded in head-mounted device AR but not in smartphone-based AR. Because of the limited screen size and available sensors to detect human movement, incorporating embodiment into a smartphone-based AR platform is challenging. Besides, emotion representation is useful to inform the collaborator of the user's current emotion reaction (e.g. they are understood or confused) which has not been incorporated in the CARIT. Therefore, the objective of this research is to construct a model of CARIT and develop the CARIT with embodiment (user location and emotion) cues in smartphone-based AR for tele-education. Chemistry experiment learning has been selected as a case study because of the danger and the cost of chemical substance. The research methodology includes elements identification phase on the CARIT, embodiment and the remote learning, constructing the CARIT model, developing the CARIT based on the model and evaluating the developed CARIT in the final phase. The expected output is a newly designed CARIT with embodiment cues in smartphone-based AR which is applied in a remote learning. The CARIT can supplement the current pedagogical materials with added contextual experiences. It allows students to do the chemistry experiment in a safer environment and learn remotely. This research is associated with the Malaysia Education Blueprint, Industry4WRD and Shared Prosperity Vision policy.

SENARAI PENERIMA GERAN 2022

Nama Geran	Geran Universiti Penyelidikan (GUP)
Tajuk Projek	Multimodal Deep Neural Networks (DNN) for Fake Property Listings Prediction based on Multi-source Data Fusion
Ketua Projek	Dr. Nor Samsiah Sani
Tempoh	1/10/2022 - 30/09/2024
Pusat Kajian	Pusat Kajian Teknologi Kecerdasan Buatan (CAIT)
Jenis Penyelidikan	Fundamental
Katakunci	deep neural networks, data fusion, real estate, fake, fraud
Kolaborasi	Rakan Industri: Faizal Bin Abd Kadir
Sinopsis	In recent years, media coverage has focused on market irregularities and frauds. In the real estate market, frauds are widespread due to the absence of stringent legislation. Real estate agencies can enter the market without much regulation. Agencies publish unreal or unavailable housing listings for a low price to attract uninformed new customers. This causes customer dissatisfaction and makes finding a living property difficult and time-consuming. Genuine, scam-free advertising is essential. Systems that detect fake listings and increase authenticity and transparency are in high demand. Predicting fake property listings is crucial but neglected. A deep neural networks (DNN) is a subset of artificial intelligence that uses artificial neural networks. The advent of the DNN method and data fusion enable fake news data exploration and knowledge extraction. Hence, this study proposes a multimodal deep neural networks (MDNN) for predicting fake property listings by integrating data and knowledge from several sources, known as multi-source data fusion (MDF). This project has three objectives: i) To construct a property listings data fusion framework; (ii) To develop an MDNN based on MDF to predict property listings; and (iii) To derive an equation for predicting property listings based on the MDNN. The study has five phases: (i) data extraction from multiple property listing websites; (ii) data preprocessing; (iii) the development of feature fusion for MDF in predicting fake property listings; (iv) the development of the MDNN model for classifying property listing; and (v) formulating an equation for the fake property listing classification. The development of an intelligent fake property listing model among Malaysians may thus help improve fake property listing intervention and help the government develop a policy that will benefit Malaysia economically and socially. Consequently, it will deliver new intelligence technologies to battle fake listings and educate our community on online safety, including adding warnings.

SENARAI PENERIMA GERAN 2022

Nama Geran	Geran Universiti Penyelidikan (GUP)
Tajuk Projek	Building Blocks of Information Security Governance Framework
Ketua Projek	Dr. Umi Asma' Mokhtar
Tempoh	1/10/2022 - 30/09/2024
Pusat Kajian	Pusat Kajian Keselamatan Siber (CYBER)
Jenis Penyelidikan	Applied (problem solving)
Katakunci	Information Security, Strategic Information, Framework, Governance
Kolaborasi	Rakan Kerajaan: Chief Government Security Office
Sinopsis	Information security has become a significant issue for businesses and communities in digital transformation, business model changes, cyber threats, and compliance requirements. As massive data breaches continue to make headlines, organisations of all sizes are focusing their efforts on information security. However, before an organisation can put security policies and procedures in place, they need a well-crafted information governance framework to manage valuable data and minimise risk appropriately. There are many threats against information but some of the most important ones are related to compromising confidentiality, integrity, and availability (CIA). There is constantly an avalanche of threats trying to compromise the information's CIA.These come from a wide spectrum of threat sources, including external attacks like malicious attacks from the Internet; internal attacks from disgruntled employees; internal attacks from errors made by employees; or physical attacks like theft. If these threats and attacks are realised, they can cause severe risks and potentially cripple a company. The study on information security evolved when many specialists realised that technology alone could not guarantee the protection of information. In previous studies, organisations have disregarded human vulnerabilities as a leading cause of security breaches, focusing instead on technical controls/technological remedies. Whereas the exploitation of cyber security, human and technical vulnerabilities leads to security incidents and information breaches. Therefore, this study aims to identify the main dimensions of information security strategies and develop a building blocks model of information security governance framework. This study uses a qualitative approach such as Delphi, interviews, observations, and document analysis for collecting data. The CGSO will validate the framework through experts and case studies. Following the Dasar Keselamatan dan Ketenteraman Awam (DKKA) 2019 and the National Cyber Security Policy, the expected outcomes are to strengthen the organisation, critical services, manage information security per standards, and increase public confidence in Government services.

SENARAI PENERIMA GERAN 2022

Nama Geran	Geran Kursi Endowmen MPOB-UKM
Tajuk Projek	Model Pembelajaran dalam Talian Mampan untuk Pekebun Kecil Kelapa Sawit Berdasarkan Pendekatan Berasaskan Budaya Bagi Meningkatkan Keterlibatan dan Komitmen Generasi Milenial
Ketua Projek	Prof. Madya Dr. Dalbir Singh
Tempoh	1/9/2022 - 31/08/2023
Pusat Kajian	Pusat Kajian Teknologi & Pengurusan Perisian (SOFTAM)
Jenis Penyelidikan	Fundamental
Katakunci	Pembelajaran dalam Talian, Budaya, Generasi Milenial
Sinopsis	Pembelajaran dalam talian telah lama diimplementasikan dalam sistem pendidikan pertanian di Malaysia, namun keterlibatan dan komitmen generasi milenial terhadap sektor pertanian masih lagi lemah walaupun pelbagai peluang perniagaan dan pekerjaan baharu di sektor pertanian yang telah wujud. Tambahan, isu ini ketara untuk generasi milenial yang bakal menjadi pelapis kepada pekebun kecil kelapa sawit kini yang hampir tempoh persaraan. Jika isu ini dibiarkan berlarutan, ia boleh menjejas rangkaian pengeluran makanan di Malaysia, terutama untuk industri yang berasaskan kelapa sawit. Berdasarkan kajian lepas, reka bentuk antara muka memainkan peranan yang penting bagi menggalakkan keterlibatan dan komitmen generasi milenial terhadap pembelajaran dalam talian. Tambahan pula, faktor utama kegagalan keterlibatan dan komitmen generasi milenial terhadap pembelajaran dalam talian adalah disebabkan oleh reka bentuk antara muka yang lemah. Kajian lepas juga menyatakan bahawa keterlibatan dan komitmen adalah berkait rapat dengan latar belakang budaya generasi milenial. Selain itu, kekurangan garis panduan yang berdasarkan pendekatan berasaskan budaya yang khusus terutamanya untuk sektor pertanian di Malaysia menjadi kekangan untuk pembangunan antara muka yang lebih efektif dan efisyen bagi meningkatkan keterlibatan dan komitmen generasi milenial. Oleh yang demikian, elemen budaya harus dititikberatkan. Objektif kajian ini adalah untuk mengenal pasti ciri-ciri budaya pelajar generasi milenial di Malaysia berdasarkan kepada analisis model budaya Hofstede yang akan membentuk model pembelajaran dalam talian mampan berdasarkan pendekatan berasaskan budaya bagi meningkatkan keterlibatan dan komitmen generasi milenial terhadap sektor pertanian. Bagi menjayakan penyelidikan ini, empat fasa utama telah dikenal pasti. Fasa pertama bertujuan untuk mengenalpasti ciri-ciri budaya generasi milenial untuk sektor pertanian melalui analisis model budaya Hofstede. Fasa kedua bertujuan untuk mengenalpasti elemen antara muka platform pembelajaran dalam talian yang sesuai untuk generasi milenial untuk diaplikasikan bagi sektor pertanian. Fasa ketiga melibatkan pembangunan model yang dicadangkan. Fasa keempat memfokuskan kepada pengesahan dan penambahbaikan model yang dicadangkan menerusi penilaian pakar. Di akhir kajian ini, sebuah model pembelajaran dalam talian mampan berdasarkan pendekatan berasaskan budaya yang mengandungi faktor kejayaan kritikal dan garis panduan bersesuaian untuk sektor pertanian, terutamanya pekebun kecil kelapa sawit di Malaysia. Maka, model cadangan ini boleh dijadikan sebagai panduan kepada pembangun antara muka yang dapat meningkatkan keterlibatan dan komitmen pelajar generasi milenial terhadap pembelajaran dalam talian untuk sektor pertanian di Malaysia. Di samping itu, diharapkan generasi milenial boleh mempelajari pendekatan terkini secara mampan yang berkaitan penanaman kelapa sawit dan menceburi peluang lain untuk mempelbagaikan sumber pendapatan sebagai pekebun kecil kepala sawit melalui pembelajaran dalam talian mampan yang berdasarkan pendekatan berasaskan budaya.

SENARAI PENERIMA GERAN 2022

Nama Geran	ARB Innovation Sdn Bhd
Tajuk Projek	Optimized Monitoring Farming Conditions using Virtual Reality Immersive Approach
Ketua Projek	Dr. Azrulhizam Shapi'i
Tempoh	1/3/2022 - 28/02/2025
Pusat Kajian	Pusat Kajian Teknologi Kecerdasan Buatan (CAIT)
Jenis Penyelidikan	Fundamental
Katakunci	Immersive, smart farming, dashboard
Kolaborasi	Rakan Industri: ARB Innovation Sdn Bhd
Sinopsis	As the average of farmers age is increasing and lack of young labor, new strategies are in urgent need to save the production of agriculture. Virtual reality (VR) technology has integrated a number of sciences and technology and widely applied in various fields like entertainment, gaming, military, education, industry. Various applications to use VR to boost agriculture have been a hot topic including virtual agriculture, virtual plants, virtual inspection, etc. This research tried to combine the virtual reality to Malaysian agriculture to solve the labor problem and proposed a structure based on the typical farming case in Malaysia. We will be using VR to visualize data in a dashboard for remote monitoring and Data Analytics to study and derive trends from the data. That means visually displayed data on the screen will be much easier to digest than the same data written into a 15 or 20-page report. Not only will it be consumed faster, but it will also be understood more thoroughly, leading to better decision-making. Furthermore, we will discuss the possibility and limitation of applying VR to Malaysian agriculture by analyzing the efficiency, cost and social effect.

SENARAI PENERIMA GERAN 2022

Nama Geran	Geran Petronas Research Sdn. Bhd.
Tajuk Projek	Development of Field Service Management Workflow App for Realwear Smart Glass (FSMWear)
Ketua Projek	Prof. Dr. Haslina Arshad
Tempoh	1/10/2022 - 30/09/2023
Pusat Kajian	Pusat Kajian Teknologi Kecerdasan Buatan (CAIT)
Jenis Penyelidikan	Applied (problem solving)
Katakunci	Field Service Management, RealWear Smart Glass, Augmented Reality, Human Computer Interface
Kolaborator	Rakan GLC: PETRONAS Research Sdn. Bhd
Sinopsis	Projek ini memberikan sokongan dana untuk pembelian peralatan/platform dan bayaran kursus kemahiran kepada pelajar tahun akhir prasiswazah bagi membantu pembangunan projek pelajar. Selain kemahiran teknikal, projek ini juga membuka ruang bagi pelajar meningkatkan kemahiran komunikasi dengan menyertai pertandingan inovasi seperti KNovasi anjuran UKM [2]. Aplikasi dan peralatan pintar siber yang dibangunkan akan mempunyai nilai komersial. Selain itu hasrat MCCA untuk mendidik pengguna teknologi siber dapat juga disalurkan melalui projek aplikasi yang akan dibangunkan [1].

SENARAI PENERIMA GERAN 2022

Nama Geran	Kaizen Zone Resources
Tajuk Projek	Pembangunan Pelantar Pembelajaran Senseiku.com Berinteraktif
Ketua Projek	Prof. Madya Dr. Nurhizam Safie Mohd Satar
Tempoh	1/9/2022 - 31/08/2023
Pusat Kajian	Pusat Kajian Teknologi & Pengurusan Perisian (SOFTAM)
Jenis Penyelidikan	Applied (problem solving)
Katakunci	e-learning, LMS
Kolaborasi	Rakan Industri: Kaizen Zone Resources
Sinopsis	Revolusi Industri 4.0 telah membawa perubahan dalam pelaksanaan pembelajaran konvensional kepada pengintegrasian kemahiran Teknologi Maklumat dan Komunikasi (TMK) dalam Pengajaran dan Pemudahcaraan. Tambahan pula, pandemik COVID-19 telah mempergiatkan penggunaan TMK dengan memasukan elemen gamifikasi. Gamifikasi atau & gamification' - pendekatan yang menggunakan kaedah permainan dalam proses pengajaran dan pembelajaran (P&P), akan menjadikan proses P&P lebih menarik, interaktif serta mengasyikkan (engaging). Kekurangan aplikasi TMK dalam industri telah mendorong projek penyelidikan ini dimulakan. Oleh itu, platform e-pembelajaran senseiku.com merupakan pelantar e-learning yang menggunakan prinsip gamifikasi di dalam semua kandungan yang ditawarkan. Dengan ada penggunaan gamifikasi, pengalaman pembelajaran yang berinovatif dapat digunakan di semua peringkat umur. Projek ini menjurus kepada pembinaan satu portal e-pembelajaran yang berasaskan pendekatan gamifikasi berpusat. Laman senseiku.com adalah antara keberhasilan utama projek penyelidikan ini.

SENARAI PENERIMA GERAN 2022

Nama Geran	Malaysia Cyber Consumer Association (MCCA)
Tajuk Projek	Projek Tahun Akhir Prasiswazah: Pembangunan Aplikasi Dan Peralatan Pintar Internet Benda
Ketua Projek	Dr. Azana Hafizah Mohd Aman
Tempoh	3/12/2022 - 2/12/2023
Pusat Kajian	Pusat Kajian Keselamatan Siber (CYBER)
Jenis Penyelidikan	Applied (problem solving)
Katakunci	Aplikasi mudah alih, Peralatan pintar, Internet benda
Kolaborator	Rakan Pertubuhan/NGO: Malaysia Cyber Consumer Association (MCCA)
Sinopsis	Projek ini memberikan sokongan dana untuk pembelian peralatan/platform dan bayaran kursus kemahiran kepada pelajar tahun akhir prasiswazah bagi membantu pembangunan projek pelajar. Selain kemahiran teknikal, projek ini juga membuka ruang bagi pelajar meningkatkan kemahiran komunikasi dengan menyertai pertandingan inovasi seperti KNovasi anjuran UKM [2]. Aplikasi dan peralatan pintar siber yang dibangunkan akan mempunyai nilai komersial. Selain itu hasrat MCCA untuk mendidik pengguna teknologi siber dapat juga disalurkan melalui projek aplikasi yang akan dibangunkan [1].

SENARAI PENERIMA GERAN 2022

Nama Geran	The Sumitomo Foundation
Tajuk Projek	The Socio-technical and Lean Approach Towards Effective and Safe Health Information Systems: the Japanese and Malaysian Experience
Ketua Projek	Prof. Madya Dr. Maryati Mohd. Yusof
Tempoh	1/4/2022 - 31/03/2023
Pusat Kajian	Pusat Kajian Teknologi & Pengurusan Perisian (SOFTAM)
Jenis Penyelidikan	Fundamental
Katakunci	Health Information Systems, evaluation, business process management, effectiveness, patient safety,
Sinopsis	Despite HIS advancement, its stakeholders (purchasers, patients, and physicians) experience familiar levels of disappointment associated with system development problems, patient safety and socio-technical factors. HIS failures are mainly caused by the mismatch between HIS, work patterns, and settings of healthcare, which results in barriers to HIS adoption and fit for purpose. HIS problems, challenges, and failures are highly evident, prevalent, costly, harmful, and fatal. Evaluation of HIS in clinical practices can provide input for further and future system development. The purpose of the research is twofold. First, given the commonly reported failure of HIS adoption and the importance of evaluation in assessing this problem, this research aims to identify and evaluate the most critical factors of HIS adoption, as well as their subsequent impact on HIS delivery such as effectiveness and patient safety. Second, the research also seeks to identify the best practices, lessons learned, and improvements for the development of future HIS.

SENARAI PENERIMA GERAN 2022

Nama Geran	PV ENVIRONMENT EQUIPMENT SDN BHD
Tajuk Projek	Sistem Pintar Pengesanan Tumpahan Minyak dan Kimia Dari Laut dari Aktiviti Persisiran Pantai Johor Dalam Menggunakan Teknologi Dron
Ketua Projek	Prof. Madya Dr. Nurhizam Safie Mohd Satar
Tempoh	13/12/2022 - 12/12/2023
Pusat Kajian	Pusat Kajian Teknologi & Pengurusan Perisian (SOFTAM)
Jenis Penyelidikan	Applied (problem solving)
Katakunci	SISTEM PINTAR, TEKNOLOGI DRON, TUMPAHAN MINYAK DAN KIMIA, KOMPUTERAN AWAN
Kolaborator	Rakan Industri: PV Environment Equipment Sdn Bhd
Sinopsis	Selat Johor atau Selat Tebrau merupakan selat yang menjadi sempadan di antara Malaysia dan Singapura. Selat ini merupakan laluan sempit trafik perkapalan yang sibuk di selatan Semenanjung Malaysia, aliran trafik perkapalan akan menghala keluar ke Selat Melaka. Perlanggaran di antara vessell boleh mengakibatkan insiden tumpahan minyak di kawasan berkenaan. Selain itu, kemungkinan terdapat aktiviti tidak sah seperti pembuangan minyak ke laut oleh pihak tidak bertanggungjawab. Ini menyebabkan pencemaran kepada alam sekitar, gangguan keseimbangan eko-sistem marin, kerosakan hutan paya bakau; selain membataskan aktiviti sosio-ekonomi seperti punca pendapatan para nelayan tradisional, pantai sebagai pusat pelancongan dan rekreasi dan merosakan kawasan ternak sangkar ikan. Apabila insiden ini berlaku, pesisir pantai yang akan tercemar perlu dikesan dengan pantas menggunakan sistem pintar. Pada masa ini; kaedah manual seperti laporan nelayan atau rondaan penguatkuasa digunakan. Malaysia, Singapura dan Indonesia merupakan tiga negara yang menggunakan laluan strategik ini. Penentuan dari mana sumber tumpahan minyak adalah penting bagi mengenalpasti pihak tidak bertanggungjawab (vessel berkenaan), jika melibatkan pembuangan secara haram minyak ke laut, supaya boleh dihadapkan ke mahkamah. Pembangunan sistem pintar pengesanan tumpahan minyak diperlukan dalam memastikan punca dan trajektori tumpahan minyak. Sistem pintar berasas IoT, business intelligence, teknologi awan dan kenderaan udara tanpa pemandu (UAV), iaitu dron yang dilengkapi teknologi cahaya infra-merah dapat mengenalpasti serta mengemaskini maklumat kepada pengguna berkaitan sasaran dan ketepatan lokasi pencemaran berdasarkan faktor-faktor trajektori seperti arah ombak dan arah angin. Sistem ini dapat membantu pihak berkuasa seperti Jabatan Laut, Jabatan Alam Sekitar, Agensi Penguatkuasa Maritim Malaysia (APMM) dan kontraktor pembersihan tumpahan minyak menyelesaikan operasi; insiden pencemaran minyak dengan pantas, cekap dan optimum

SENARAI PENERIMA GERAN 2022

Nama Geran	Geran Translasi UKM (TR-UKM)
Tajuk Projek	Terapi Minda Belia Sihat Berbantu Komputer
Ketua Projek	Dr. Siti Fadzilah Mat Noor
Tempoh	1/9/2022 - 31/08/2023
Pusat Kajian	Pusat Kajian Teknologi & Pengurusan Perisian (SOFTAM)
Jenis Penyelidikan	Applied (problem solving)
Katakunci	Terapi Minda, Berbantu Komputer, Keterlibatan, Kemurungan, Belia.
Kolaborator	Rakan Kerajaan: Jabatan Belia & Sukan Negeri Melaka
Sinopsis	Morbiditi psikiatrik adalah salah satu daripada lima aspek bebanan penyakit yang menjadi cabaran sosial dan ekonomi utama di Malaysia. Kemurungan yang merupakan morbiditi psikiatrik mencatatkan peratusan tertinggi (33.7%) berbanding masalah mental yang lain. Statistik terkini berdasarkan Kajian Kesihatan dan Morbiditi Kebangsaan (NHMS) 2019 menunjukkan hampir setengah juta rakyat Malaysia mengalami masalah kemurungan (2.3% adalah populasi dewasa), dengan hanya segelintir daripadanya menerima rawatan secara bersemuka. Ini kerana terdapat kekangan dari segi bilangan sesi latihan kursus yang banyak, tenaga pakar perubatan yang tidak mencukupi, senarai menunggu untuk mendapatkan rawatan yang panjang, halangan kewangan, serta stigma terhadap rawatan psikiatrik. Terapi minda berbantu komputer (TMBK) didapati berupaya merawat masalah kemurungan belia dengan cekap dan menangani kekangan bagi rawatan konvensional. Kajian menunjukkan TMBK memberi kesan yang sama seperti rawatan bersemuka dalam mengurangkan simptom kemurungan belia. Walau bagaimanapun, reka bentuk pengalaman pengguna pada sistem sedia ada diabaikan menyebabkan pengguna tidak berminat dan tidak terus kekal menggunakan sistem terapi. Ini mempengaruhi keberkesanan TMBK yang membawa kepada kemerosotan kesihatan belia, serta memberi kesan kepada prestasi akademik, keluarga, dan sosial mereka. Kajian ini bertujuan membangunkan aplikasi terapi minda berbantu komputer berdasarkan model keterlibatan cCBT untuk kemurungan daripada hasil kajian terdahulu penyelidik (FRGS/1/2019/ICT04/UKM/02/1) sebagai asas dalam pembangunan aplikasi untuk kegunaan belia. Sehubungan itu, dua objektif digariskan untuk meningkatkan keberkesanan TMBK, iaitu mereka bentuk dan membangunkan terapi minda berbantu berkomputer untuk kemurungan belia, serta menilai keberkesanan TMBK dalam menambahbaik kesihatan mental golongan belia. Metodologi pembangunan kajian terdiri daripada tiga fasa iaitu reka bentuk antara muka dan pembangunan TMBK yang mengandungi aktiviti dan modul terapi minda, pengujian kebolehgunaan melibatkan pakar, dan implementasi pengujian akhir bersama pengguna sasaran. Hasil kajian iaitu aplikasi TMBK dapat menyumbang kepada pemerkasaan penjagaan kesihatan mental belia, serta menambahbaik servis kesihatan mental belia di Malaysia pada masa hadapan. Kajian ini juga boleh menyumbang kepada kaedah baharu dalam intervensi berkomputer.

SENARAI PENERIMA GERAN 2022

Nama Geran	Geran Translasi UKM (TR-UKM)
Tajuk Projek	MFRAccess: Mobile Face Recognition Based Smart Libraryâ ™s Visitor Access System
Ketua Projek	Dr. Tan Siok Yee
Tempoh	1/9/2022 - 31/08/2023
Pusat Kajian	Pusat Kajian Teknologi Kecerdasan Buatan (CAIT)
Jenis Penyelidikan	Applied (problem solving)
Katakunci	Library Visitor Access, Face Authentication, Face Recognition, Entrance Control
Kolaborator	Rakan Industri: SAVVY TECHCO SOLUTION
Sinopsis	Library security required an efficient visitor access system to provide a secure environment to the library staff, library resources, and library users. Currently, library visitor access systems are based on a manual registration process in which a security guard verifies an individual visitor's identification, or visitors enter library buildings using their access card. However, as the number of visitors grows, these current visitor access control become ineffective. In addition, paper-based or access card-based visitor access systems in libraries cannot record personal information and cannot keep track of visitors. Face recognition is a biometric method of identifying people based on their facial traits. Face recognition technology has been included into many mobile devices as a security feature to verify the user's access to the device. Therefore, this research aims to develop a mobile face recognition based smart library's visitor access system. The system is divided into three different modules; mobile user application, mobile admin application, and admin web-based portal. Visitor download the user application from Google Play (Android) or App Store (iOS). Visitor register their account using user application and library's staff will scan the visitor's face using the admin application during the first visitation only. Facial recognition technology employed in the admin application to identify visitors via mobile camera. Admin application will sound an alarm when a visitor's face is not recognized. Library's authority can view and track the visitor's information through admin web-based portal. The methodology to produce the module is essentially in three phases: development, implementation and testing. Industry collaborator will responsible for data collection and the user testing questionnaire to evaluate the system. The output of this research is expected to significantly boost library's visitor access efficiency. This project is also an effort to succeed in the Industrial Revolution 4.0 Roadmap in the field of smart building and iOT.

SENARAI PENERIMA GERAN 2022

Nama Geran	Geran Translasi UKM (TR-UKM)
Tajuk Projek	A self-regulated learning system to improve Al-Quran learning for the visually impaired people
Ketua Projek	Dr. Dahlila Putri Dahnil Sikumbang
Tempoh	1/9/2022 - 31/08/2023
Pusat Kajian	Pusat Kajian Teknologi & Pengurusan Perisian (SOFTAM)
Jenis Penyelidikan	Applied (problem solving)
Katakunci	Self regulated learning, Braille, Arabic Alphabets
Kolaborator	Rakan Pertubuhan/NGO: PERSATUAN ORANG-ORANGCACATPENGLIHATANISLAM MALAYSIA (PERTIS)
Sinopsis	The education for disabled people are limited despite the vast technological advancement. The tools are not utilized for their benefit and learning process and are still conducted conventionally. This include the challenging Al-Quran learning for the visually impaired which requires them to learn the braille literacy focusing on Arabic language. The introduction to Arabic alphabets and special characters is the first process in learning Al-Quran, printed in braille codes. This method highly depends on the teacher's availability and expertise in Al-Quran and braille literacy. Teachers must also be present physically to teach the students which is the main drawback in the current learning process. There is no ICT tool to assist learning while classes are conducted in large numbers and only available in certain education centres, normally in city. Therefore, this research aims to create an independent learning platform for the visually impaired students to learn the fundamental of Al-Quran braille. The self-regulated learning system enables student to acquire the basic knowledge within their own pace at the comfort of their chosen locations. The system consists of an assistive device and a mobile application that enable students to train repetitively and personalize to their individual's learning. The self-regulated assistive device is developed in three phases: development, testing and implementation. The system requirement analysis was performed prior to this study and a prototype was validated in the user acceptance phase. This research will produce a self-regulated assistive system that will benefit the blind community in providing a better tool to learn Al-Quran Braille that is in line with SDG4 objective for inclusion of disabled in education

Majlis Persaraan
AHLI PUSAT KAJIAN SOFTAM
.:: 28 JUN 2022 ::.
PUAN HAZILAH MOHD AMIN DAN DR YUZITA YAACOB

Bismillahirahmanirohim, Assalamualaikum dan selamat tengahari kepada semua ahli Pusat Softam yang hadir pada majlis ini.
Yang diraikan hari ini Puan Hazilah Mohd Amin dan Dr Yuzita Yaacob yang kami kasihi.

Harum sungguh bunga melati,
kembang setangkai di waktu pagi,
sedih jua rasa di hati,
Hazilah dan Yuzita akan bersara pergi.

Seperti yang kita ketahui, Puan Hazilah dan Dr Yuzita telah bertugas dan menghabiskan usia mereka yang lama sebagai warga UKM, spesifiknya di FTSM ini. Sudah tentu UKM dan FTSM sudah sebati dengan jiwa mereka. Terlalu banyak sumbangan dan kenangan yang pastinya kami dari pihak Softam akan merasa kehilangan selepas persaraan mereka ini.

Saya pasti rakan-rakan Softam semua mempunyai kenangan indah bersama Puan Hazilah dan Dr Yuzita atau lebih suka dikenali sebagai Jujie, selama berkhidmat di UKM. Puan Hazilah yang saya kenali merupakan seorang staf akademik dan rakan yang begitu lemah lembut bicaranya. Sentiasa merendah diri dalam apa jua keadaan. Namun begitu beliau sentiasa komited dalam segala tugasan yang ditanggungjawabkan sebagai staf akademik UKM.
Dr Yuzita Yaacob pula seorang yang ramah, sentiasa tersenyum menyapa mesra apabila bertemu. Saya sering bersua dengan beliau sejak saya masih bergelar pelajar siswazah (Doktor Falsafah) di FTSM dan beliau mesra menegur saya walau di mana kami bertemu. Dr Yuzita menitip salam beliau kepada semua rakan Softam dan beliau mohon maaf kerana tidak dapat hadir dalam majlis ini. Beliau juga memohon maaf sekiranya ada salah dan silap sepanjang mengenali beliau. Pastinya saya dan rakan-rakan semua akan merindui anda berdua nanti.

Jangan pergi terlalu lama,
Segala kerisauan selesai sudah,
Suka duka dilewati Bersama,
Menjalin kenangan yang amat indah.

Kalau ada sumur di ladang,
Boleh kita menumpang mandi,
Kalau ada umur yang panjang,
Boleh kita berjumpa lagi.

Akhir sekali saya bagi pihak rakan-rakan softam mendoakan semoga Dr Yuzita dan Puan Hazilah diberikan kesihatan yang baik selepas bersara. Seribu maaf kami pohon sekiranya selama ini ada yang terkasar bahasa dan perbuatan serta menyinggung perasaan, ampun dan maaf dipinta. Saya doakan semoga masa persaraan dapat diraikan bersama keluarga tercinta dengan bahagia dan diberkati Allah selamanya. Selamat bersara dan salam perpisahan kepada anda berdua, Dr Yuzita dan Puan Hazilah.
Wassalam dan Terima kasih.

Daripada
Prof. Madya Dr. Jamaiah Yahaya
Pengerusi
Pusat kajian SOFTAM

Puan Hazilah Mohd Amin

Saya dilahirkan pada 21 Mac 1965 di Muar, Johor dan merupakan anak ketiga dalam keluarga 8 beradik. Saya mendapat pendidikan awal di Sekolah Kebangsaan King George V Ampangan dan kemudiannya melanjutkan pendidikan peringkat menengah di SMK King George V. Setelah lulus Sijil Pelajaran Malaysia, saya mendapat tawaran melanjutkan pelajaran di Australia. Sekembali ke Malaysia, berbekalkan ijazah Bachelor of Science (Hons) dalam bidang matematik dari University of Adelaide, South Australia, saya mula berkhidmat sebagai pengajar di Kolej MARA Seremban. Kemudian, saya melanjutkan pengajian Master of Business Administration program Ohio University di UiTM Shah Alam.

Saya mula berkhidmat di UKM pada 5 April 1997 di Jabatan Sains & Pengurusan Sistem, Fakulti Teknologi dan Sains Maklumat, Universiti Kebangsaan Malaysia. Sebelum persaraan saya bertugas sebagai Pensyarah Kanan Universiti DS52 di Pusat Kajian Teknologi dan Pengurusan Perisian (SOFTAM), FTSM, UKM. Saya bersara daripada Perkhidmatan UKM mulai 6 Mei 2022, setelah berkhidmat selama 25 tahun dan 1 bulan.

Saya ingin merakamkan ucapan setinggi-tinggi penghargaan dan terima kasih kepada semua warga FTSM iaitu pengurusan fakulti, staf pentadbiran, teknikal dan akademik atas kerjasama erat, sokongan padu dan bantuan yang telah diberikan kepada saya sepanjang tempoh perkhidmatan. Saya juga mengambil kesempatan ini untuk memohon ribuan ampun dan maaf di atas segala kesilapan, kelemahan, keterlanjuran perbuatan dan kekurangan saya sepanjang berkhidmat di FTSM. Saya berdoa agar FTSM akan terus maju dan semoga semua warganya diberikan kesihatan yang baik serta rezeki yang luas dan berkat.

Dr. Yuzita Yaacob

yuzitayaacob.blogspot.com

Dr Yuzita mendapat pendidikan di peringkat sekolah menengah di Sekolah Seri Puteri, Kuala Lumpur. Kemudian melanjutkan pelajaran ke Amerika Syarikat dan memperoleh Ijazah Sarjana Muda Sains Komputer dan Matematik. Beliau meneruskan pengajian sarjana muda sehingga berjaya memperolehi Sarjana dalam Matematik (minor dalam Sains Komputer) dari San Houston State University, Texas, Amerika Syarikat. Seterusnya, Dr Yuzita berjaya memperoleh Ijazah Doktor Falsafah Kejuruteraan (Algebra Komputer) di UIAM dan The University of New Mexico, Albuquerque, New Mexico, Amerika Syarikat.

Dalam bidang kerjaya, Dr Yuzita memulakan kerjayanya sebagai Pensyarah di UITM pada 1990-1992, dan kemudian di UIAM dari 1993 hingga 1995. Akhirnya, beliau meneruskan perkhidmatannya di Universiti Kebangsaan Malaysia sebagai Pensyarah Kanan pada 2 Januari 1996 sehingga bersara kerana masalah kesihatan pada 3 September 2022.

Sempena persaraan beliau, Dr Yuzita ingin berkongsi dua pantun yang disampaikan oleh YBhg. Prof Dato' Encik Ts. Dr Mohd Ekhwan bin Hj. Toruman (Naib Canselor UKM) dan Dato' Dr Syed Kamarudin Sadakkuthula (Pendaftar UKM):

Tuai padi tinggal Jerami,
Mega petang amat redup,
Dunia persaraan puan alami,
Moga tenang hadapi hidup.

Amat ketara pucuk santan,
Rasa segar tepian titi,
Selamat bersara ufuk ingatan,
Mekar jasa di taman bakti.

Akhir kata, Dr Yuzita ingin merakamkan setinggi-tinggi penghargaan dari lubuk hati kepada YBhg Prof Dato' Naib Canselor, UKM, YBhg Dato' Pendaftar UKM atas semua pertolongan dan bantuan sepanjang perkhidmatan dan juga kepada semua rakan-rakan yang dikasihi atas kasih sayang serta sokongan selama ini. Semoga Allah memberikan rahmat dan keampunanNya kepada kita semua. Amin.

Prof. Madya Dr. Mohamad Shanudin Zakaria

Saya dilahirkan pada 6hb September 1962 di Kampong Jerangau, sebuah kampung di pendalaman Kelantan. Saya memulakan alam persekolahan pada tahun 1969 di SRJK(I) Tanah Merah, Kelantan dan merupakan kohort terakhir yang mengikuti sekolah aliran Inggeris sebelum dimansuhkan pada tahun 1970. Setelah menduduki dan lulus peperiksaan Malaysian Certificate of Education (MCE) pada tahun 1979 di Sekolah Menengah Teknik Kuantan, saya mendapat tawaran melanjutkan pelajaran di Northrop University, California dalam bidang Sains Komputer. Setelah pulang berbekalkan ijazah BSc Computer Science dan MSc Computer Science, pada bulan April 1986, saya dilantik menjadi pensyarah di Pusat Pengajian Kuantitatif (PPK) UKM. Pada tahun 1990, saya menyambung pengajian peringkat PhD di University of Reading, UK dan memperolehi ijazah pada tahun 1994. Sekembali ke UKM, saya dilantik sebagai Pensyarah di Fakulti Teknologi dan Sains Maklumat pada bulan Oktober 1994 sehingga bersara, kemudian diselikan dengan pinjaman ke UKM Graduate School of Business dan Pusat Teknologi Maklumat selama 7 tahun. Disepanjang perkhidmatan, saya telah menjawat beberapa jawatan pentadbiran di fakulti seperti Penyelaras siswazah, dan ketua jabatan dan pusat. Manakala diperingkat universiti, sebagai penyelaras di Pusat Teknologi Maklumat, Pengarah Pusat Teknologi Maklumat dan keahlian ko-op senat. Di samping itu, saya terlibat dalam pembangunan beberapa sistem perusahaan dalam dan luar UKM seperti C-HEts dan MyMOMS. Perkhidmatan terakhir saya adalah sebagai saksi pakar satu litigasi antara Kerajaan Malaysia dan Prestariang SKIN Sdn. Bhd di Mahkamah Tinggi.

Pengalaman Manis di UKM

Keakraban dan esprit de corps di FTSM disepanjang perkhidmatan saya. Dari mula berkhidmat di PPK higga di FTSM, senior membimbing junior adalah satu lumrah. Bilik rehat di fakulti adalah satu ruang cendekiawan yang tidak pernah sunyi. Saya terkenang zaman Shaharir Mohd Zain, Najib Rafee, arwah Kamaruzaman Matharsah, Tengku Mohd, Mohammed Yussof, Razak Hamdan dan ramai lagi senior yang membantu membuka minda pensyarah muda dalam pelbagai bidang ilmu. Ia ibarat Bayt al-Hikmah. Saya masih ingat, suatu masa dahulu, Millipede Corner di Alson Klana merupakan ruang untuk kumpulan kami dihujung minggu.

Keakraban ini juga boleh dilihat dari hubungan antara ahli akademik dan bukan akademik di fakulti, antara pensyarah, dan juga antara pensyarah dan pelajar. Ia ibarat aur dengan tebing.

Kekentalan jalinan ini semasa di FTSM adalah satu sebab pensyarah senior dan alumni masih berhubung. Semasa saya terlantar di hospital kerana abdominal aortic aneurysm (AAA), alumni dari tahun 1980an mengunjungi dan berhubung dengan saya melalui "whatsapp". Walaupun pahit kerana pembedahan namun kenangan pertemuan dengan anak-anak murid saya sentiasa menggembirakan hati.

Banyak peristiwa manis sepanjang di UKM tetapi espirit de corps paling terserlah.

Ucapan dan Harapan

Saya dengan penuh takzim dan ikhlas ingin mengambil kesempatan ini untuk mengucapkan ribuan terima kasih kepada seluruh warga FTSM yang telah banyak menyokong dan membantu disepanjang tempoh perkhidmatan saya di UKM. Hanya Allah yang dapat membalas jasa anda semua. Sebagai hambaNya, kita adalah manusia yang lemah. Jutaan ampun dan maaf saya pohonkan atas segala kesilapan, kelemahan, keterlanjuran perbuatan dan kata-kata yang telah menyinggung perasaan dan hati sesiapa sahaja sama ada secara sedar atau tidak sedar di sepanjang perkhidmatan saya. Saya berdoa semoga ALLAH S.W.T. dengan Rahmatnya melindungi kita serta mencurahkan taufiq dan hidayah agar FTSM akan terus maju dan semoga semua warganya diberikan kesihatan yang baik serta rezeki yang luas dan berkat.

Selamat maju jaya dalam petualangan anda semua. Aamiin.

Pengarang bersama
Encik Mohdamad Syazwan Baharuddin

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ISSN 2710-7329