

WATER INTAKE TRACKER APPLICATION: I-DRINK

MUHAMMAD ICHSAN QADAFI

HADI AFFENDY DAHLAN

*Fakulti Teknologi & Sains Maklumat, Universiti Kebangsaan Malaysia, 43600 UKM Bangi,
Selang, or Darul Ehsan, Malaysia*

ABSTRACT

This final year project focuses on the development of a water intake application aimed at promoting healthier hydration habits among users. The application is designed to monitor and encourage daily water consumption by providing personalized recommendations based on user-specific parameters such as age, weight, and activity level. Key features include real-time tracking of water intake, reminders to drink water, and visual progress indicators. The project utilized an easy-to-use design approach, incorporating feedback from potential users to enhance functionality and user experience for future improvement. The application was developed using Android Studio IDE and tested using the virtual machine build inside Android Studio. Initial testing demonstrated that the application effectively increased users' daily water intake and awareness of their hydration needs.

Keyword: Water intake tracking, hydration

INTRODUCTION

Background:

Monitoring your body hydration is the key to maintaining good health. Good hydration is one of the most important aspects of the diet, drinking enough liquids to keep the fluid levels in the body topped up helps to ensure that all bodily functions are able to take place as normal. Water in the body is essential for many important processes to take place. From our blood system

carrying essential glucose, oxygen and nutrients to cells, to the kidneys getting rid of waste products we no longer want, fluid in the body is vital to allow these to occur. It also lubricates our joints and eyes, helps our digestive system function and keeps our skin healthy (Popkin, 2010).

Fluid is so important in the body that even when levels drop only slightly, we begin to feel the consequences. Low levels of fluid in the body can cause headaches, feelings of dizziness, lethargy, poor concentration and a dry mouth, it is all caused by dehydration. Over a longer term, dehydration can cause constipation and can be associated with urinary tract infections and the formation of kidney stones. Regular and adequate intakes of fluid can help to address these.

Dehydration, defined as a deficit of total body water, disrupts metabolic processes. It occurs when water loss exceeds intake, often due to exercise, illness, or high temperatures. Mild dehydration can also result from immersion diuresis, posing a risk for divers. A decrease of three to four percent in total body water is generally tolerable, but a five to eight percent loss can cause fatigue and dizziness. Severe dehydration, characterized by a ten percent or greater loss, leads to significant physical and mental deterioration and can be fatal with a fifteen to twenty-five percent loss. Mild dehydration typically causes thirst and discomfort and is usually resolved with oral rehydration. Using apps to track water intake can be an effective solution for individuals struggling to maintain adequate hydration (Heavens et al., 2018).

Objectives:

The objective of this project are as follows:

1. To develop a water intake application with features of: Tracking the water intake taken throughout the day, suggesting the daily intake based on user personal information, reminding user by sending out a notification to remind user to drink, and recording all intakes so user could check and learn from their past intake behaviour
2. To design the application to be user friendly and easy to use even if the user never similar application prior to i-Drink.
3. To validate the acceptance of the application from user perspective by conducting user acceptance test.

By achieving these objectives, I hope it could help people to keep track on their water intake, be hydrated and away from dehydration. I am hoping the user will have enough liquid on their body as much as it is required per day and start their healthy lifestyle that would impact their live now and the future.

Scope:

The project scope is specifically targeted toward be those who seek help in being hydrated and to keep track on the water intake. By offering recommendation to user based on their personal characteristics, the application aims to increase the awareness of the importance of hydration for any ages of users.

Methodology:

In this project, I utilize the waterfall model as the development methodology, which consists of the following phases: Analysis, Design, Implementation, Testing, and Release. Each phase is critical to ensuring the application meets both expectations and requirements.

By following this model, I could follow a disciplined and structured development process, which could deliver a water intake tracking application that effectively meets user needs and provides significant value.

Report Organization:

This technical report is organized into five sections following the introduction: Methodology, Results and Discussion, Conclusion, Acknowledgments, and References. This structure allows for a comprehensive presentation of the application development process, clearly highlighting the objectives and significance of the application.

METHODOLOGY

After consideration, waterfall is believed to be a most suitable method for this project as Waterfall relies on teams following a sequence of steps and never moving forward until the previous phase has been completed. This structure is suited to well-defined requirements and smaller projects with low uncertainty (Royce, 1970). There are 6 main phases in Waterfall Methodology. Below are the explanation of each phases in this methodology:

Specification & Requirement Analysis

First phase is the Specifications & Requirements Gathering and Analysis, it involves collecting and documenting all the project requirements; such as, what is the objective of the project, who are the possible users, the tools and how the application works. This is done to create a detailed requirement specification that will guide me in my project and to visualize how the final outcome of I-Drink project will be.

Design Specification

Next, System Design phase. After finalizing the previous phase. Then, I translate the requirements into an early design of the application of I-Drink, however it will not be detailed but it cover the important aspects of the application. This serve as a blueprint for my development work.

Implementation

During the Implementation phase, start coding based on the design specifications. This involves writing and compiling code to build the I-Drink Application components of the project and integrating them into a cohesive system.

Testing

Then Testing phase focuses on testing that the application works as intended and meets all requirements. This involves conducting various tests to identify and fix any bugs, ensuring the system is reliable and performs well.

Development

In the development phase, the final version is prepared for project submission. This includes fixing all problem that are found in the testing phase.

Final Product Release

Finally, Performing final checks to ensure everything is in place for a successful presentation or demonstration. This includes addressing feedback from the advisor and making any improvements to ensure the project remains functional and meets the desired standards.

RESULTS AND DISCUSSION

Main Menu Interface

The main menu interface has interactive buttons and information cards. The interactive buttons available are “Add” button, “customize intake” and “History” buttons. The information cards that are available are “Goal”, “Consumed”, and “Current/Selected Day”.



Figure 1: i-Drink Main Page

Sidebar Menu

The sidebar menu interface has many buttons. The interactive buttons available are “Home” button to go back to Main Menu Page, “Drink History” to go to History Page, “Drink Report” buttons to go to the Report Page. And “Settings” button to go to setting page.

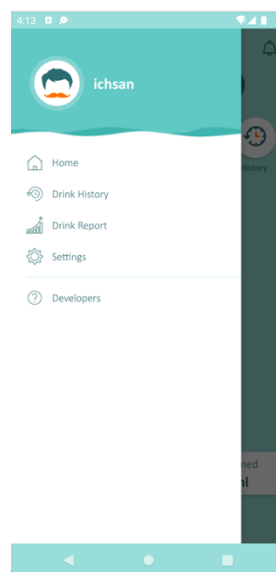


Figure 2: i-Drink Dashboard

Customize Intake Interface

The customize intake interface are filled with many water intake that the user want to select, each selection has unique icon to differentiate the intake taken. However, if the user wish to add their own capacity, they could, they just need to press the customize button and add their own capacity to their preference.



Figure 3: i-Drink Customize intake

History Interface

In the history interface, it lists all the intake history with their capacity and time from the specific date. In this page, user could check their previous intake if they want, and they also could delete the intake if it is wrongly added.

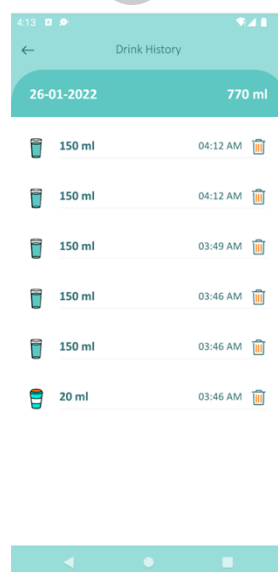


Figure 4: i-Drink History Page

Profile Interface

In Profile, users could add their profile picture if they want. And here they could also change their information if they mistakenly fill it the first time or if it has change. Here users can modify their gender, height, weight and their intake goal. It also has the toggle if they are active or not which will increase the initial goal.

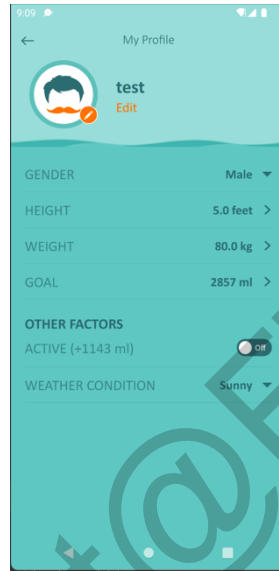


Figure 5: i-Drink Profile Page

Alarm Interface

In alarm, user are provide with two options of alarm settings, which are automatic and manual. In automatic, the user only need to set their wake-up and bed time so the system will not push notification outside this range time, and the user could set their prefer interval so the reminder will be send every set interval time. For manual reminders, user could add their own specific time of the day and could set what day that reminder should be.

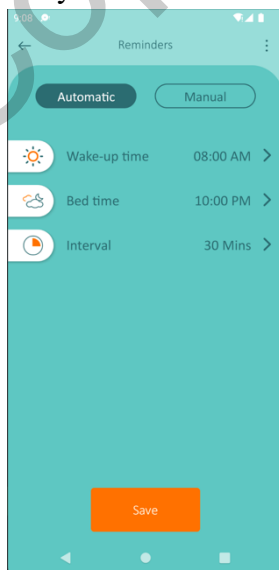


Figure: 6 i-Drink Auto Alarm Page

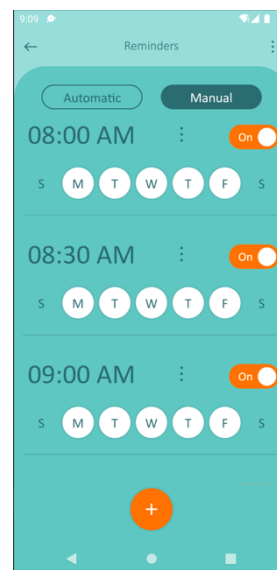


Figure 7: i-Drink Auto Manual Page

Usability Testing

Usability Testing was conducted in order to get more feedback regarding the application and its function, to know the good and the bad, and for the future improvement, user testing were conducted. in this process, I manage to get 10 testers to test for the application.

After the test, questions were asked to the tester. 8 question regarding the application, questions are the following:

No.	Question	Score
1	How easy was it for you to understand the applications functions? Is it user-friendly?	5/5
2	Did the app meet your expectations in terms of functionality and features?	5/5
3	How do you find the design and layout of the app, was it easy to navigate throughout the application?	4.8.5
4	Were there any features or parts of the app that were difficult to use or understand?	5/5
5	How useful do you find the application for its intended purpose?	5/5
6	If you were the type of person that often get de-hydrated, would you download the app?	5/5
7	Do you have any suggestions for how the application could be improved?*	*
8	On a scale of 1 to 10, how satisfied are you with the app overall?	9.4/10

Table 1

* One of the testers suggest that it would be more fun if the application has the ability to add friend and challenge them to be the person who drink the most or meet specific target of the day.

These questions help to understand the strengths and weaknesses of the prototype and provide valuable insights for further development.

The test results indicated that most participants quickly understood the application's functions and features, and easily navigated through it, suggesting strong user's approval of the interface and design. However, one participant suggested that adding a feature to allow friends to compete in meeting daily water intake targets would make the application more enjoyable. This feedback could be addressed through further optimization to enhance the application's usability.

CONCLUSION

Based on the above discussion, this final project proposes a mobile application that offers water intake tracking. In short, this mobile application system will operate on two things, as a tracker and reminder. The system will track the water intake that has been inputted by the user throughout the day and remind the at a specific time of the day to taka or drink water to fulfill their target.

However, there are still some areas that can be improved in the project, such as adding cloud saving for the user to access their data in different devices, to add more selection of water, and to add challenges like the participant suggested. In the future, I plan to continue to improve the system and add more functions and services to meet changing needs.

Lastly, throughout this project the objectives that were stated above are believed to be successfully achieved.

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Muhammad Ichsan Qadafi (A172920)

Dr. Hadi Affendy Dahlan

Fakulti Teknologi dan Sains Maklumat

Universiti Kebangsaan Malaysia

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