

## eKiosk Pusat Pengajian Diploma Management Application

**Nur Adlina Fareesya Abdul Malek<sup>1</sup>, Nur Adlin Nadiah Azhar<sup>1</sup>, Muhammad Afiq Fakhurrazi<sup>1</sup>, Mariam Abdul Hamid<sup>2\*</sup>**

<sup>1</sup> Department of Information Technology, Centre for Diploma Studies, Universiti Tun Hussein Onn Malaysia, Pagoh Higher Education Hub, 84600, Pagoh, Johor, MALAYSIA

<sup>2</sup> ICT as Enablers, Centre for Diploma Studies, Universiti Tun Hussein Onn Malaysia, Pagoh Higher Education Hub, 84600, Pagoh, Johor, MALAYSIA

\*Corresponding Author: [mariamh@uthm.edu.my](mailto:mariamh@uthm.edu.my)

DOI: <https://doi.org/10.30880/mari.2024.05.02.012>

### Article Info

Received: 1 December 2023

Accepted: 30 April 2024

Available online: 30 June 2024

### Keywords

Application, eKiosk, database, small business

### Abstract

Kiosk refers to a small booth that offers goods and services. It can be operated by humans or electronically. Most everyday tasks are now completed digitally in this era of fast technological advancement. The issue of the most kiosk vendors is they use manual techniques, such as writing in a book, to keep track of all their business activity. Therefore, we have created an application known as eKiosk PPD Management Application as a good concept for this project. The existence of this eKiosk application makes users no longer must bother recording all business activities manually. Therefore, it can save time and cost for users. The targeted users for this project are students from UTHM including business admin and staffs for a kiosk. The project uses a waterfall method which is suitable and simple for eKiosk applications to help refine the concept and create more useful applications. Flutter version 3.10.5 is used as software that generates the codes to control overall programmes and build the interface for users to interact. eKiosk PPD was supported by Firebase as a database. kiosk PPD can calculate the profit, number of products that have been successfully sold and scheduling shifts. After the testing phase was conducted, eKiosk PPD overall have reached the conclusion that this application is user friendly and useful for its intended purpose which helps students to manage business activities digitally. In future, this application can be used by all kiosk owners so that is not wasting time to manage kiosk activities manually. This project will add more features as improvement so that it will be more adaptable and inventive that could help to manage kiosk activities.

## 1. Introduction

A small business that sells goods and services is referred to as a kiosk. [1] A kiosk is also a small, temporary, stand-alone booth used in high-traffic areas for marketing purposes. Kiosks are a low-cost alternative to marketing your business products or services. Kiosks can be operated by humans or electronically. [2] Kiosks can be of various types, which are retail kiosks. For example, toy kiosks, beauty, and health product kiosks, and food kiosks. In this era of rapid technology innovation, most of daily duties have now been carried out online. The problem regarding most kiosk retailers is that they have keep records of all their business activities through manual methods like writing in a book. As a result, as an innovative concept for this project, we have developed an application called eKiosk PPD Management Application. This application system is developed to simplify the

kiosk management system. Students will no longer need to bother manually documenting all business processes. As a result, it can help students to manage kiosk business activities digitally. This project's target users are UTHM students, as well as the kiosk admin and staffs. This application will help students to manage their business tasks like, manage kiosk workers, calculate loss and profit also it helps students to calculate salary for workers by automatically. This application is effective and user friendly to use because students can manage their business activities by using eKiosk PPD Management Application.

Next section will explain about the background of the project proceeded by methodology used in the project. The fourth section will explain about project development followed by result and discussion along with conclusion as the last section of this report.

## 2. Literature Review

A mobile-based application is a type of software programme created specifically for mobile gadgets like a tablet and smartphone. [4] A mobile application is a rapidly expanding field of communication technology and global information due to the convergence of media. A mobile application also one of desirable things because they let users choose what their devices can do. [5] A mobile application is most referred to as an app. A user can download a useful mobile app from an online app store. While some users must pay to download some mobile applications, others can do so for free. Using mobile applications, people can make commercial tasks easier, such as administration in an e-kiosk.

Mobile-based applications has its own advantages and disadvantages. One of the biggest advantages of mobile-based applications is that they provide users with convenience. Mobile apps provide an efficient way for people to communicate with each other. Whether it's through messaging or video calls, apps make it easy for people to stay in touch with each other. Users can access the app from anywhere, anytime, and on any device. This means that they can complete tasks quickly and efficiently without having to be physically present at a specific location. Mobile apps also offer interesting features and services. [6] For example, apps can be used to automate payment processes, which can save time and energy. The benefits of mobile applications include increased consumer engagement, productivity gains, time savings, and ease of access, while the drawbacks include high costs, small screens, and a constant need for updates.

However, developing a mobile app can be expensive, especially if it requires complex features or integrations. This can make it difficult for small businesses or startups to invest in developing their own app. Mobile apps may pose security risks, such as data breaches or hacking. Users must be cautious about the information they share on mobile apps and ensure that they are using secure networks. Mobile apps can take up a significant amount of storage space on a user's device. This can be a problem for users with limited storage space or older devices with smaller storage capacity.

## 3. Methodology

This application was created using the waterfall software methodology, which is a strict system development procedure with a clear plan and set requirements from the beginning. The figure below shows the waterfall model which can accommodate iteration, it does so indirectly. Once a phase is completed, there exists no room to revisit it over and over to detect any flaws.

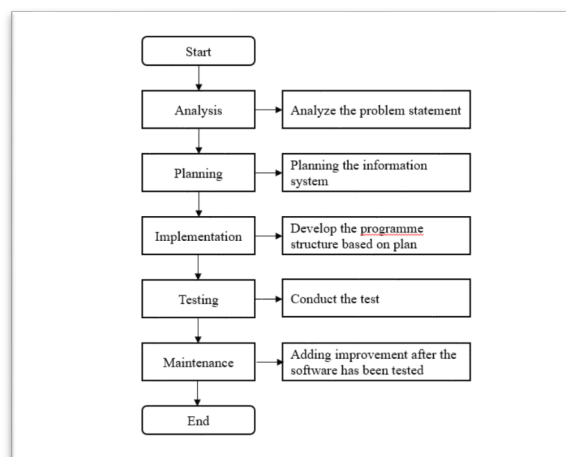


Fig. 1 Waterfall Process Model [3]

### 3.1 Phase in Waterfall Process Model

There are six main phases in the waterfall process model as shown in Fig.1 which are analysis, planning, design, development, testing and maintenance. Each phase is completed before going to the next phase.

#### 3.1.1 Analysis

Before beginning the project design phase, the project's needs must be clarified in detail. To gather information and clarify the requirements needed for the project, a conversation occurred with our supervisor about it. The requirements for any software or applications will also be covered.

#### 3.1.2 Planning

The planning phase, which forms the basis for the whole project, is a crucial part of the waterfall technique. To achieve a thorough grasp of the project's scope, objectives, and needs, extensive analysis and diligent planning are conducted during this stage. This stage deals with choosing the ideas that are valid to the problem or issue that arose and being analyzed. When the ideas are practical and have a realistic solution, then the project can be approved but it is otherwise when the idea is too unrealistic even though the ideas seem to be sensible. A plan for the time is also required to finish this phase and design the system on schedule. The Gantt Chart for the project will be included in a work plan. The Gantt Chart serves as a guide for completing the system development activities.

#### 3.1.3 Design

The modules in the suggested system are specifically based on the user needs once the requirements have been gathered and defined. Additionally, the mobile-based application is developed using a programming language like Dart. During this stage, a flowchart is given to go through the activity and purpose of the suggested application. The system architecture diagram will also be discussed. The Canva tool is used to develop the user interface and database design, which are crucial components of an application. Also, the database design will be discussed using an entity relationship diagram.

#### 3.1.4 Implementation

The implementation phase in the waterfall methodology refers to the stage where the development of the software or application takes place. The application is written with Dart language programming in Flutter. The product will undergo many stages of improvement to make sure that the product will meet the requirements and functionality. This stage is generally the longest phase in Waterfall Methodology. The goal of this step is to convert the design into executable code and make sure the system works as intended.

#### 3.1.5 Testing

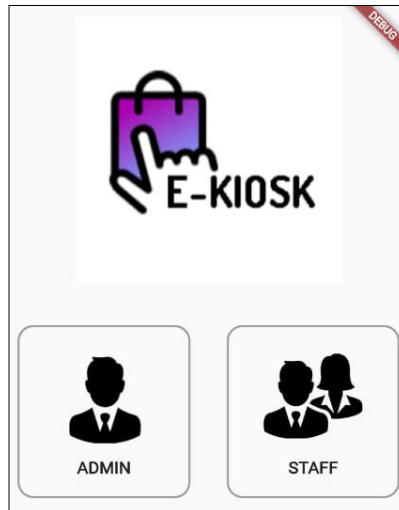
This step involves carefully reviewing the software or application to identify any bugs, faults, or functional issues. This stage will include a presentation of the alpha and beta testing. To ensure that all requirements have been satisfied, a variety of tests will also be used to evaluate the performance of the product. User acceptance testing, system integration, and interface testing will all be evaluated during the subsequent versions.

#### 3.1.6 Maintenance

The maintenance phase is where the stage that occurs after the software or application has been deployed and is in active use. This phase involves actions including locating and fixing errors or bugs, adding improvements or updates in response to user feedback or shifting requirements, and carrying out routine maintenance procedures like backups, security patches, and performance enhancements. Maintaining the operational effectiveness of the programme, resolving problems that crop up after deployment, and consistently enhancing its quality and user happiness are the key objectives of the maintenance phase.

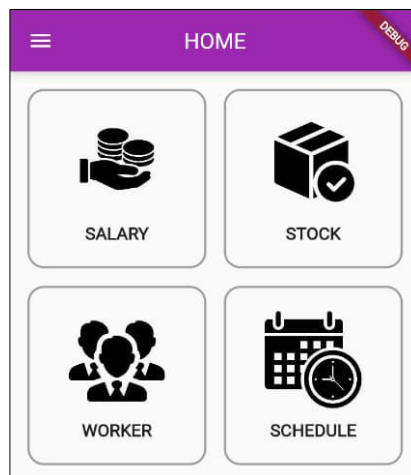
### 4. Result and Discussion

The eKiosk PPD Management Application was developed for helping students in managing their business operations through application without wasting time by jotting down each task manually.



**Fig. 2** eKiosk Interface

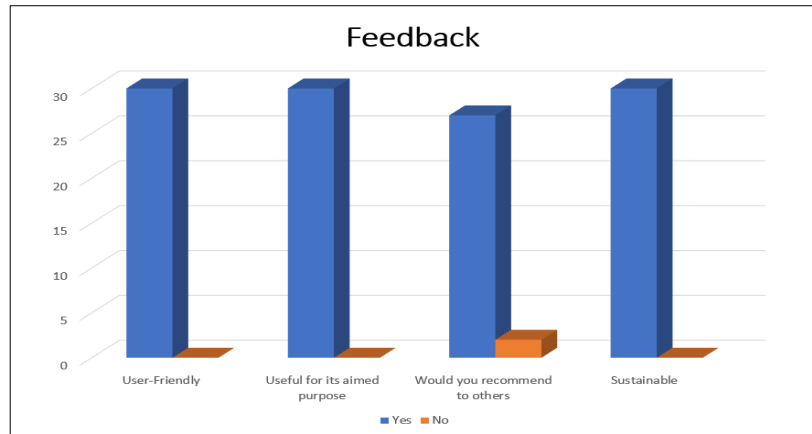
Based on Fig. 2, students will be directed to the page where students can select their position, such as staff or admin then, they able login the application. Additionally, if students are unable to log in, they can register directly by clicking the sign-up option and filling out the required data.



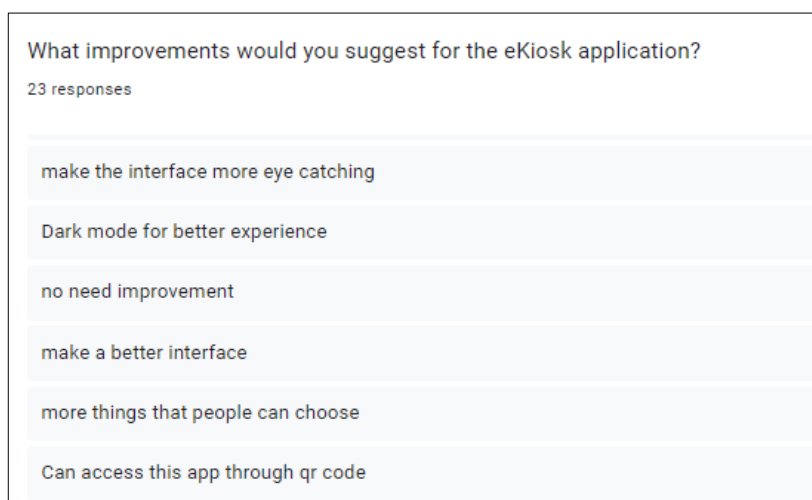
**Fig. 3:** Admin Page

Fig.3 displays the admin page with all the buttons needed for managing kiosk business activities. Admin may choose either managing stock, workers, salaries, or schedules. The table showing the wages of the workers will appear after the user clicks the salary button. Furthermore, when an administrator clicks the stock button, all of the stocks that are in stock are displayed, and they able to add, modify, or delete stocks. The buttons labelled "worker" and "schedule" will show the employee's information's and shift schedule, as well.

Google Forms was used survey tool for the eKiosk application to gather feedback from students. The main objective of this survey is to gather opinions and suggestions from users regarding the usability and functionality eKiosk application. However, some improvement can be made in the future according to the results of the questionnaire. The user response, improvement and suggestion regarding this project is shown at Fig. 5 and Fig.6.



**Fig. 4** Feedback via Google Form



**Fig.5** Improvement suggestion

Overall, respondents from Fig. 4 and Fig. 5 shown to have reached the conclusion that this project is user friendly and useful for its intended purpose. An opinion question also was asked regarding the project which is if the respondent approves of the concept of the eKiosk application and any subsequent improvements. Most respondents said that they like the idea of the eKiosk application. Furthermore, certain respondents suggest adding notifications for worker so that this project would be accepted and implemented. This project was mainly focused on the output that generated from the prototype. The software had reached as intended purpose which easier for workers to manage kiosk by using eKiosk application.

## 5. Conclusion

In conclusion, the objective of developing an application that uses UTHM kiosks was accomplished by developing a new application that can provide numerous advantages for admin and workers. Through the testing, this project was proven to reach the expected outcome which fulfilled the objective of this project. As for the future improvements, a few recommendations such as adding notifications and creating dark mode features would be considered in the project to develop a better application for students to handle kiosk business tasks efficiently.

## Acknowledgement

The authors would like to thank the Centre for Diploma Studies, Universiti Tun Hussein Onn Malaysia for its support.

## Conflict of Interest

The authors declare that there is no conflict of interests regarding the publication of the paper.

## Author Contribution

The author confirms sole responsibility for the following: study conception and design, data collection, analysis and interpretation of results, and manuscript preparation.

## References

- [1] Business Concept Team. "Kiosk - Meaning, Importance & Example". Mba SKOOL. Retrieved from <https://www.mbaskool.com/business-concepts/marketing-and-strategy-terms/11159-kiosk.html> [accessed 2020].
- [2] W. Kenton. "What Is a Kiosk? Definition in Retail, History, Types, and Risks." Investopedia. <https://www.investopedia.com/terms/k/kiosk.asp> [accessed 2023].
- [3] E. Pawan. "Using Waterfall Method to Design Information System of SPMI STIMIK Sepuluh Nopember Jayapura." International Journal of Computer and Information System (IJCIS). <http://www.ijcis.net/index.php/ijcis/article/view/29/33> [accessed 2021].
- [4] K. Hanna. "Mobile App." WhatIs.com. <https://www.techtarget.com/whatis/definition/mobile-app> [accessed 2023].
- [5] M. Rouse. "Mobile Application." techopedia. <https://www.techopedia.com/definition/2953/mobile-application-mobile-app> [accessed 2020]
- [6] S. Gustec. "13 benefits of mobile apps for business You need to know." Decode. <https://decode.agency/article/benefits-mobile-apps-business/> [accessed 2021]