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# PROCEEDINGS OF JOHOR INTERNATIONAL INNOVATION INVENTION COMPETITION AND SYMPOSIUM 2024 (JIIICaS 2024)



*“Flourish and Nurturing Sustainable  
Innovation for a Prosperous Nation”*

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## **Preface**

**In the name of Allah, the Almighty who gives us the enlightenment, the truth, the knowledge and with regards to Prophet Muhammad (peace be upon him) for guiding us to the straight path. We thank to Allah for giving us guidance and strength to write this e-book.**

**This e-book compiles the extended abstracts that submitted to Johor International Innovation Invention Competition and Symposium 2024 (JIIICaS2024), where JIIICaS2024 is a virtual platform for all creative minds to share and present their invention and innovation. Each abstract gives a brief background on the innovation or project.**

**We hope that this e-book will help the readers to get to know the innovation done by the students and get some ideas to develop future innovation products.**



## Foreword Rector



Assalamualaikum warahmatullahi Wabarakatuh,  
Salam Sejahtera, Salam Malaysia MADANI and  
Salam UiTM Dihatiku.

In the name of Allah, the Most Gracious, the Most  
Merciful.

It is a great honor to welcome you to the Johor  
International Innovation, Invention, Competition, and  
Symposium 2024 (JIIICaS 2024). This event

connects various disciplines, focusing on education and engaging educators,  
students, researchers, and innovators from all walks of life.

Innovation is not just about ideas; it demands perseverance, creativity, and  
determination to turn those ideas into reality. The remarkable projects  
showcased today highlight the dedication and spirit of all participants.  
Initiatives like this not only explore new technologies but also cultivate skills  
and leadership among our youth. At Universiti Teknologi MARA (UiTM) Johor  
Branch, we are fully committed to fostering a dynamic culture of innovation,  
promoting the commercialization of new products, and encouraging  
meaningful collaborations with industry and society.

As we celebrate this event, I would like to extend my heartfelt gratitude to all  
sponsors, judges, the College of Computing, Informatics and Mathematics,  
UiTM Pasir Gudang Campus as the event organizer, as well as to the  
researchers and participants for their hard work in making this event a  
success. Let us continue striving for innovation and excellence. May the  
ideas presented today inspire us and lay the groundwork for future  
achievements.

Thank you.

**Associate Professor Dr. Saunah Zainon**  
**Rector**  
**Universiti Teknologi MARA (UiTM)**  
**Johor Branch**

## **(A-ST043) PERSONAL MANAGEMENT SYSTEM**

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### **ABSTRACT**

In today's fast-paced society, technology has brought people benefits and changed how individuals manage their tasks, schedules, appointments, and finances, where myriad applications can be used. Therefore, the centralised personal management system integrates the three functionalities, a to-do list, calendar, and financial record keeping, decreasing individuals using disparate applications and platforms and helping them stay organised and enhance personal productivity. The to-do list feature provides a structured approach to task management, preventing individuals from missing deadlines because of failing to prioritise tasks and struggling to focus on what truly matters. Moreover, proficiently allocating time is a big challenge for individuals. Therefore, the calendar feature offers a comprehensive and centralised view of an individual's schedule to keep up with their schedules, appointments, and events, avoiding conflicting commitments, missed appointments, and poor time management. It is important to have a financial record-keeping feature to help simplify financial management to achieve their financial goals and make informed decisions about their money, rather than struggling to understand their financial health comprehensively. The system will be developed based on the waterfall process model, utilising Flutter and Firebase. Before proceeding to the deployment phase of the system development, user acceptance testing (UAT) will be conducted among the potential users based on a 5-point Likert scale with three quality dimensions: heuristics, content, and navigation will be assessed. As a result, the proposed system has the potential to help individuals enhance personal productivity, organisation, and decision-making capabilities.

Keywords: Personal Management System, Mobile Applications, To-Do List, Calendar, Financial Record Keeping.

### **1.0 INTRODUCTION**

The Personal Management System is a centralised mobile personal management system integrating three main functions: to-do list, calendar and financial record keeping. The idea of integrating the three main functions was based on the survey results of the questionnaire. The system provides task management capabilities, schedule events, and manage financial transactions.

People often overwhelmingly use multiple applications or platforms for different purposes in isolation, making it difficult to coordinate activities and make informed decisions. The lack of a to-do list and calendar features decreases productivity and poor time management. Users cannot break down tasks into manageable steps,

monitor the progress, stay on track, and manage scheduling conflicts. Furthermore, managing personal finances is challenging without proper record-keeping because it is hard to track spending, gain insights into spending patterns and habits, manage finances and make informed decisions. Therefore, there is a need to develop an application with multiple functions instead of using multiple applications.

## 2.0 OBJECTIVE

The primary aim is to design and develop a mobile application system capable of supporting users' needs to stay organized and make informed decisions with different functions, reducing the use of multiple applications and allowing them to manage and prioritize tasks, track tasks' progress, schedule appointments and events, and keep track of their financial transactions effectively.

## 3.0 METHODOLOGY

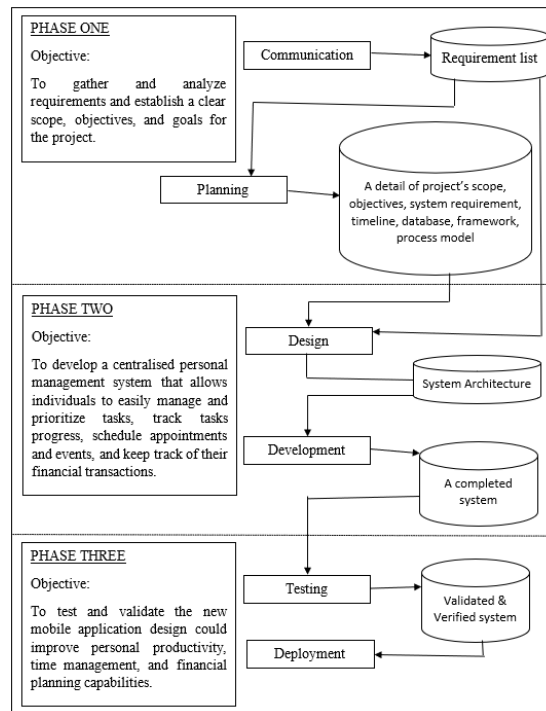


Figure 3.1: Project Framework

Figure 3.1 illustrates the project framework, which consists of three phases with distinct objectives. The first phase involves communication and planning, while the second focuses on design and development. Lastly, the third phase encompasses testing and deployment. During verification and validation activity, the user acceptance testing will involve 30 respondents to test the application based on the 5-point Likert scale with three dimensions: heuristics, content, and navigation will be assessed. Any identified issues or bugs are addressed based on the feedback received, and necessary enhancements are made to refine the application. Once UAT is successful and improvements are implemented, the centralized personal management system will be deployed to the real environment.

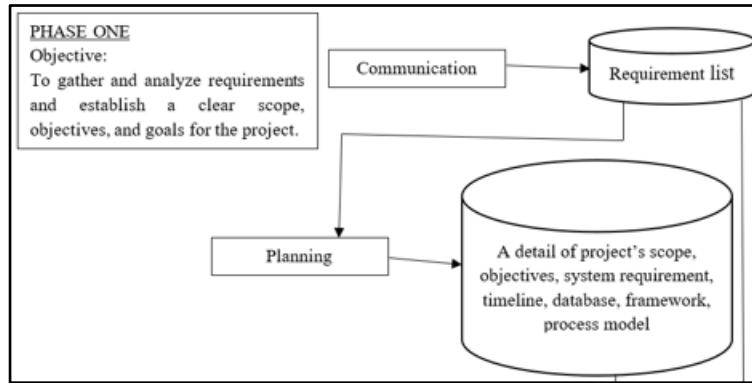


Figure 3:2 Phase One

The first phase of the project framework is the Communication and Planning Phase. This phase focused on gathering and analysing requirements and establishing a clear scope, objectives, and goals for the project. The requirements gathering began with studying existing systems and observing the challenges faced by people today. A comprehensive study of existing systems such as Todoist, Any.do, Google Calendar, and Fast Budget was conducted. A matrix comparison table was prepared to compare the features and functionalities of these systems to have a clear view of the strengths and weaknesses of existing systems. Additionally, understanding the challenges people face today benefited the preparation of the list of features for the respondent to vote. As a result, a list of features was well-prepared in questionnaires for respondents to vote for, and the system's features were based on the results from the questionnaires conducted. The questionnaires asked respondents to vote for desirable features from the well-prepared list of questions to collect user feedback and suggestions, ensuring those features fulfilled individual needs. The gathered requirements were then analysed, considering both functional and non-functional aspects, ensuring the system aligns with the users' productivity and organisation goals.

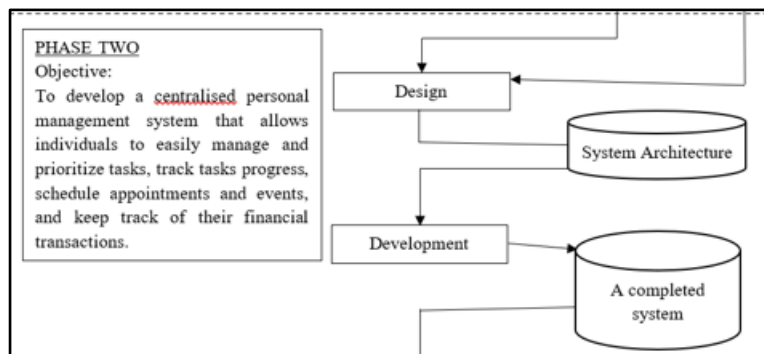


Figure 2: Phase Two

The second phase of our project framework is the Design and Development Phase. It aims to develop a centralised personal management system that enhanced personal productivity and organisation by providing features allowing individuals to easily manage and prioritise tasks, track task progress, schedule appointments and events, and keep track of their financial transactions. It focused on providing diagrams and prototypes to have a clear view of how the system works, how the interfaces look like and how the features and functionality will be performed, developing the system components and functionalities according to the designed diagrams and prototypes,

and conducting unit testing, integration testing, and system testing to ensure functionality and quality. This phase provided detailed architecture, user interface design, test cases, and reports. In the design phase, detailed system architecture and user interface design are created by providing use case diagrams, use case descriptions, class diagrams, and user interface of the application based on the requirements gathered in the previous phase. The designs focused on creating a user-friendly and intuitive personal management application interface.

The project proceeded to the development phase after establishing the diagrams. The development phase involved implementing the system components, functionalities, and database integration according to the diagrams and user interface using the tools, framework, and database defined in the previous phase. This includes building the necessary software modules, integrating the calendar, to-do list, and financial record-keeping features, and integrating with a database for data management. In the development phase, unit testing and integration testing are also conducted. By conducting testing, test cases were defined to validate the application's behaviour. Unit testing is conducted to ensure the correctness and functionality of the developed modules, followed by integration testing to validate the seamless integration of multiple modules.

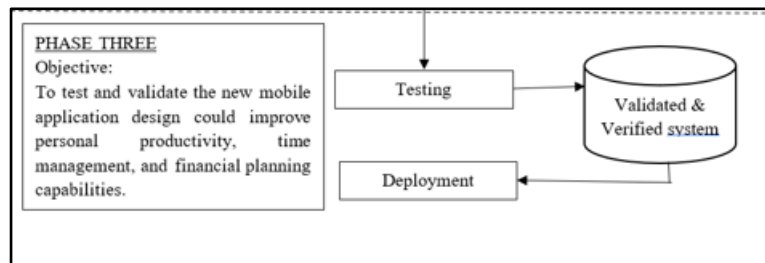


Figure 3.3: Phase Three

The final phase of the project framework is the Testing and Deployment Phase. This phase aims to test and validate the design of the personal management system and assess its potential to improve personal productivity, time management, and financial planning capabilities. The testing phase involved system testing and User Acceptance Testing (UAT). System testing is performed to test the complete integrated system's behaviour, performance, and functionality. Throughout this phase, the application is ensured it meets the defined requirements and quality standards. During the UAT, 30 potential respondents are invited to test the application and provide feedback on its usability, functionality, and performance through questionnaires to analyse and evaluate whether respondents were satisfied with the system requirements, design consistency, and application navigation using questionnaires. Any identified issues or bugs are addressed based on the feedback received, and necessary enhancements are made to refine the application. Once the application has successfully undergone UAT and all necessary improvements have been implemented, the centralised personal management system was deployed to the real environment.

## 4.0 RESULTS

The UAT is conducted before the system's deployment to test and validate the developed system meets its requirements and identifies potential issues. Due to the

system being suitable for any individual, 30 students and staff will be selected as respondents. The UAT will be conducted in the school lab, and the respondents will be required to access the application and answer the questionnaire shown in Figure 4.1 with three quality dimensions: heuristics, content, and navigation will be assessed. Any identified issues or bugs are addressed based on the feedback received, and necessary enhancements are made to refine the application.

## **5.0 CONCLUSION**

In conclusion, developing a centralized personal management system integrates a to-do list, calendar, and financial record-keeping functionalities to provide a solution to using multiple applications and managing their tasks, schedules, and finances efficiently. The system aims to enhance productivity and facilitate informed decision-making. It will be developed based on the waterfall process model, utilising Flutter and Firebase. The UAT will be conducted, three quality dimensions will be assessed, and amendments will be based on feedback before deployment. As a result, the proposed system has the potential to help individuals enhance personal productivity, organisation, and decision-making capabilities.