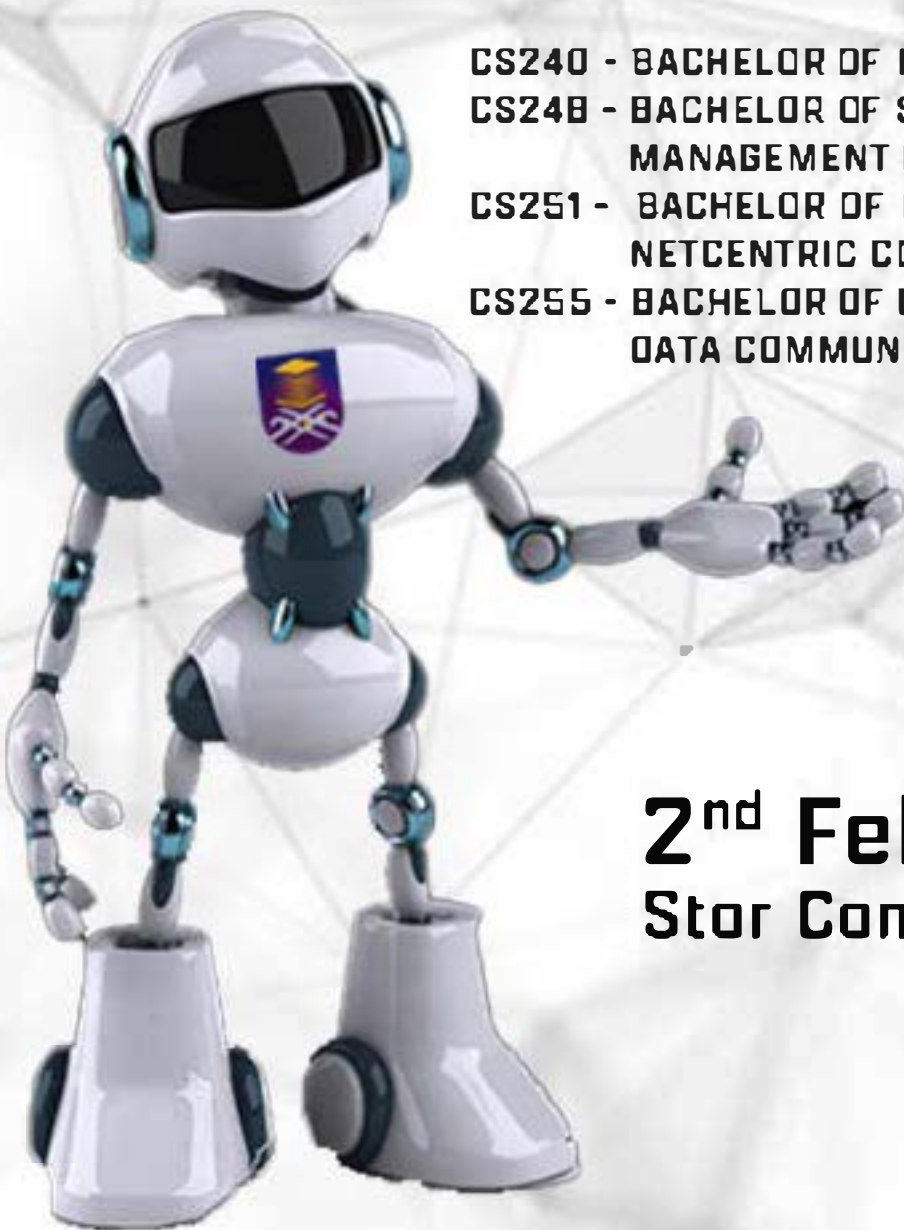

RESEARCH EXHIBITION IN MATHEMATICS & COMPUTER SCIENCES

REMACS 5.0



CS240 - BACHELOR OF INFORMATION TECHNOLOGY [HONS.]
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2nd February 2023
Stor Complex, UiTM Perlis

Organized by:
College of Computing, Informatics and Media
Universiti Teknologi MARA Perlis Branch

**Research Exhibition in Mathematics and Computer Sciences
(REMACS 5.0)**

Research Exhibition in Mathematics and Computer Sciences (REMACS 5.0)

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Preface

It is with great pleasure that we present this extended abstract book, titled "The 5th Research Exhibition in Mathematics and Computer Sciences (REMACS 5.0)". This book is a collection of research work in the fields of Computer Science and Mathematics, contributed by the final year students from Universiti Teknologi MARA, Perlis Branch. The aim of this book is to showcase the diversity and depth of research in these two interrelated fields.

Mathematics and Computer Science are two fields that have seen tremendous growth and advancement in recent years. With the rise of new technologies and the increasing demand for data-driven solutions, researchers in these fields have been working hard to develop new theories, algorithms, and models that can help solve some of the most pressing problems of our time. This book is a testament to their hard work and dedication.

The abstracts in this book cover a wide range of topics, including algebra, analysis, logic, computer architecture, algorithms, artificial intelligence, machine learning, computer network, netcentric computing and many more. The work presented here is both theoretical and practical, and has the potential to impact many areas of society, from finance and healthcare to education and security.

We hope that this book will serve as a valuable resource for future students in the fields of Mathematics and Computer Science. We also hope that it will inspire more students to pursue innovative and groundbreaking research in these two fields. Finally, we would like to express our gratitude to all the contributors for their hard work and dedication, without which this book would not have been possible.



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REMACS 5.0

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EVENT SCHEDULE

8:00 – 8:30 am

- Registration

8:00 am – 12:00 pm

- FYP Project Presentation

12:00 - 2:00pm

- Lunch Break

2:15 – 2:35 pm

- National & Wawasan Setia Anthems
- Doa Recitation

2:35 – 2:45 pm

- Welcoming Address by Director of REMACS 5.0

2:45 – 2:55 pm

- Officiating & Closing Remarks from Rector of UiTM Perlis

2:55 – 3:00 pm

- REMACS 5.0 Montage

3:00 – 4:00 pm

- Awarding of Winners:
 - Best Poster
 - Best Project Award

- Photo Session

- End of Ceremony

Dress Code: Formal / Corporate

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EXTENDED ABSTRACTS

RESEARCH EXHIBITION IN MATHEMATICS & COMPUTER SCIENCES
REMACS 5.0

FASTPARK MOBILE APPLICATION USING GEOLOCATION

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Abstract

FastPark Mobile Application is an application that is developed to display the vacant or available parking area. This FastPark Mobile Application integrates geolocation which will show the user parking area that they search. The purpose of the FastPark Mobile Application is to help or assist drivers in finding a vacant parking area. Furthermore, in this application user can also reserve a slot in that parking area. This application will also help the drivers in reducing their time spent in finding vacant parking area. As such, the drivers save their energy and will help reduce the traffic congestion in the parking area. The development of the FastPark Mobile Application is using the System Development Life Cycle (SDLC) by implementing the waterfall model as the methodology. A user acceptance testing based on Technology Acceptance Model (TAM) was conducted with 30 participants from age 18 – 54 years old and above to see the acceptance of the system. The test has two parts, the first part was demographic question, and the second part was divided into four components and consisted of 12 questions. The result obtained from the testing was positively accepted by most of the participants. Therefore, the proposed system has been proven to be beneficial to the drivers and can also motivate other developers to help contribute to more future projects to help the drivers in finding a vacant parking area easily.

Keywords: application, user acceptance, parking, participants, finding

1. Introduction

Parking management systems are an essential part of the whole parking process for both parking operators and parking users. The objective of the application is to develop an android-based parking mobile application in Kuala Perlis that integrated with geolocation. The application also allows mobile phone users to view the parking area using geolocation and reserve a spot for people or tourists. This application involves two main users which are user and administrator. The user and administrator are required to register and login into the account first to have access in the system. The administrator is also able to add, update, and delete all the data of parking slot and area in the application. Therefore, the application focuses more on to suggest the user the area or location using the geolocation features.

2. Methodology

The initial step is to use the Waterfall Model approach which puts the entire project development process to be divided into separate phases such as Planning, Analysis, Design, Implementation, Testing, and Documentation. The requirement analysis phase is the earliest which requires the conduct of an initial investigation, identification of project requirements, and literature review from publications, and journals. This phase is followed by the project design phase which is determined with the sitemap used to provide a clear view of the project structure before sketching the mobile application interfaces using Microsoft Words. Then, the development phase is carried out which involves writing using program code through Android Studio in producing the mobile application and data storage in Firebase. The testing phase was conducted with User Acceptance Testing (UAT) to evaluate 30 participants who tested this mobile application. All information is documented in the last phase, which is the documentation phase.

3. Results and Discussion

The responses of 30 participants were evaluated through a User Acceptance Testing (UAT) that prompted them to determine a scale of 1-5 for 12 questions about the acceptance of using the FastPark Mobile Application. According to Zone (2019), user acceptance testing is often the very last type of testing that a piece of software is subjected to. This occurs after integration testing, end-to-end testing, and every other type of testing that is necessary for the piece of software being tested. The scale results determined if the application is perceived ease of use, perceived usefulness, attitude and intention to use the application. The limitation of the application is that it only stands on the Android platform, very dependent on the Internet connection and the user only able to book a parking place and does not support any form of payment. There are also suggestions from participants such as providing a page inside the envisioned mobile application where users may check the status of their reservations. It could be simpler for users to understand in this way if their reservation will be approved or not. Also, a few of the people who responded have suggested informing the admin of the mobile application whenever a user makes a reservation for parking.

4. Novelty of Research / Product

Through the FastPark Mobile Application, user can use the application to see which areas or locations offer parking, as well as the cost. The application should automatically display the location of the available parking place, and users must first sign into the app before utilizing it. Also, this parking mobile application will enable to make more efficient use of available spaces by controlling vehicle access at key entrances. FastPark Mobile Application has been able to execute its task in such a way that users can view the parking area that available with empty parking slot. It is also can make user easily make a reservation of the parking. The user may also easily make a reservation for the parking spot using this feature. The system also provides evidence, based on the assessments, that the newly implemented system has been given positive feedback. In point of fact, this may be of assistance to users in reducing the amount of time they spend waiting to make a reservation.

5. Conclusion

In conclusion, all the objective that had been set up for this mobile application have been successfully achieved. The FastPark Mobile Application using Geolocation was an application intended to help people save their time while find a parking area to book the parking slot in a certain area.

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