
RESEARCH EXHIBITION IN MATHEMATICS & COMPUTER SCIENCES

REMACS 5.0



CS240 - BACHELOR OF INFORMATION TECHNOLOGY [HONS.]
CS248 - BACHELOR OF SCIENCES [HONS.]
MANAGEMENT IN MATHEMATICS
CS251 - BACHELOR OF COMPUTER SCIENCE [HONS]
NETCENTRIC COMPUTING
CS255 - BACHELOR OF COMPUTER SCIENCE [HONS]
DATA COMMUNICATION & NETWORKING

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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.



RESEARCH EXHIBITION IN MATHEMATICS & COMPUTER SCIENCES
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
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PENANG TRAVEL SERVICE PROVIDER APPLICATION USING GEOFENCING

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Abstract

Penang Travel Service Provider Application is a tourism application that is developed to ease the work of travelers or backpackers. This mobile application is integrated with geofencing technology that enables users or travelers to detect attractions around them in specific areas. Alongside with the technology integrated, this mobile application has a few functionality such as enabling users to book a hotel, make vehicle reservation, buying ticket through a directed link to its own website also consist of an information booth inside the application which makes it a multifunctional mobile app. This application is being developed based on Android platform as the operational system which requires Android developing software which is Android Studio. Firebase also has been used. The development of this mobile application has been done using Agile as its methodology. A total of 30 respondents from Penang conducted a user acceptance test using a questionnaire. While another 10 respondents also in the same group had been conducted an interview. Results of evaluation have found that almost all respondents are satisfied with the criteria of the mobile application included in. Therefore, this mobile application could be helpful for travelers and backpackers who plan to travel to Penang as its functionality and features would give benefits to them.

Keywords: mobile application, geofencing, User Acceptance, Penang

1. Introduction

The primary objective of this project is to build and construct a travel service provider application that will make it simpler for tourists who want to travel to Penang to plan their vacations. To put it more succinctly, there are essentially three goals to be accomplished with this project. To begin, the creation of an application system for travel service providers that makes use of mobile applications. Second, integrating mobile applications with geofencing technology so that users may decide what kinds of attractions are in their immediate vicinity. And last, to conduct user acceptance testing on mobile applications in order to assess how well they are received.

2. Methodology

The development of this mobile application has been done using Agile as its methodology. A questionnaire was used to examine 30 respondents from Penang using user acceptance test. This project's main goal is to make visiting and staying in Penang easier for tourists, hence most of the responses will be taken on the spot at Penang. Due to this, the testing was done in several tourist spots in Penang, including Street Art Georgetown and Padang Kota Penang. The tester should also be a foreigner or non-Penangite. Respondents must be briefed on the testing goal and project before answering the questionnaire. The respondent will then receive an Android phone with the Penang App apk installed. Respondents were not given a time limit to use the app, but they should be familiar with its features. After that, they will fill out the questionnaire.

3. Results and Discussion

The questionnaire covers user interface satisfaction, application usability, and usefulness and ease of use. After utilising the app, respondents receive the questionnaire to obtain their data. The poll found that respondents liked how this application used geofencing technologies. The outcome showed that the app is easy to use and can help tourists plan trips. 30 respondents completed a questionnaire-based user acceptance test. The study found that most respondents are satisfied with the mobile app's requirements. Thus, travellers and backpackers visiting Penang could benefit from utilising this smartphone app due to its features and functionality, making it easy to use. In conclusion, a Geofencing-integrated app can help many tourists plan their trips. They will also find their desired attractions, speeding up the process. This app also helps travellers learn more about Penang.

4. Novelty of Research / Product

There are few researches made by previous work which study about how geofencing has been used into some commercial industries, or particularly those intended for tourism, highlighting the work of geofencing in real life use. Previous research on how geofencing is used for dynamic B2B marketing in a variety of industries, and competitive strategies have been widely utilised. Common examples of a geofencing marketing strategy are location-based push notifications and customized messages/alerts sent by a software application to a user entering/exiting a digital fence (Garcia, 2022). There are also several research on the work of geofencing. The paper proposes the concept of a geofence market, in which providers may sell their geofences and users can find and subscribe to geofences that are interesting and relevant to their current location (Qayum & Sohail, 2016). However, there has not any research about how the geofencing could deliver in tourism sector which will be implemented in a such easy travel application that could ease the travelers. Therefore, the main focus of this research is to identify how the development of tourism application integrated with geofencing will help user in planning their trip. All in all, the research aims to contribute to the Penang tourism sector that an improvement should be done in line with technological developments.

5. Conclusion

In conclusion, the development of an application that is integrated with Geofencing can facilitate the trip planning processes of a great number of tourists and travelers. They will also be able to find the attractions that they were looking for, which will make the process far less time consuming. In addition, by making use of this application as a travel companion, users, and especially travelers, will be able to get further knowledge of Penang.

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