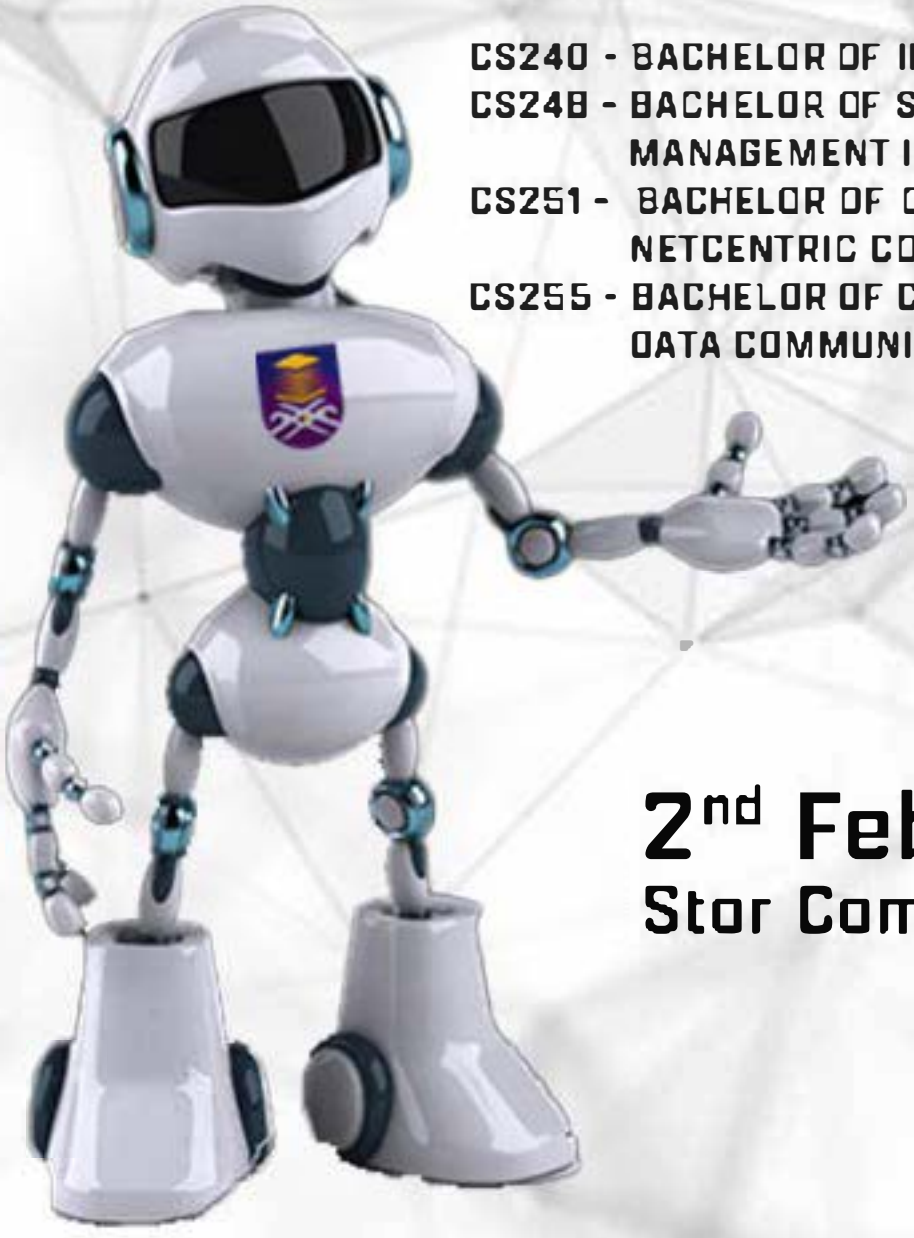
UNIVERSITI TEKNOLOGI MARA
Perlis Branch
Arau Campus

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

2nd Februory 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)

Editors
Rafiza Ruslan, Mohamad Najib Mohamad Fadzil, Noorfaizalfaird Mohd Nor, Mohammad Hafiz bin Ismail

e ISBN: 978-629-97934-0-3

Perpustakaan Negara Malaysia

Published by

MOHAMMAD HAFIZ BIN ISMAIL
Universiti Teknologi MARA
02600 Arau, Perlis
Tel: +604 988 2028

https://fskmperlis.uitm.edu.my/remacs50/

CONTENTS

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.

COMMITTEE

PATRON

- PROF. MADYA Ts. DR SHUKOR SANIM MOHD FAUZI

ADVISORS

- Ts. DR SITI ZULAIHA AHMAD
- PN SUZANAWATI ABU HASAN
- PN NORA YANTI CHE JAN

PROGRAMME DIRECTOR

- EN MUHAMAD ARIF HASHIM

PROGRAMME DEPUTY DIRECTOR

- DR NURIZATUL SYARFINAS AHMAD BAKHTIAR

SECRETARY

- PN SITI SARAH RASELI
- CIK SITI SARAH MD ILYAS

TRESURER

- PN NORPAH MAHAT

PROMOTION

- PROF. MADYA DR RIZAUDDIN SAIAN
- DR RUZITA AHMAD
- PN NORWAZIAH MAHMUD

EXHIBITION

- DR AZNOORA OSMAN
- EN MOHAMAD HAFIZ ISMAIL
- EN ROS SYAMSUL HAMID
- PN RAIHANA ZAINORDIN
- DR HUDA ZUHRAH AB.HALIM

REGISTRATION COORDINATORS

- Ts. DR ABIDAH HJ MAT TAIB
- DR NUR FATIHAH FAUZI
- PN NOR HAYATI SHAFII
- PN WAN NURSHAZELIN WAN SHAHIDAN

TECHNICAL & LOGISTIC

- EN MOHD FARIS MOHD FUZI
- EN IMAN HAZWAM ABD HALIM
- EN MOHD FAZRIL IZHAR MOHD IDRIS
- EN MOHD HASBULLAH MOHD RAZALI

EVENT MGT & PROTOCOL

- PN ROMIZA MD NOR
- EN ABDUL HAPES MOHAMMED
- PN DIANA SIRMAYUNIE MOHD NASIR

CERTIFICATE

- EN ALIF FAISAL IBRAHIM
- EN HALIMI AB HALIM

PROGRAMME BOOK

- PN RAFIZA RUSLAN
- EN MOHAMAD NAJIB MOHAMAD FADZIL
- Ts. NOORFAIZALFARID MOHD NOOR

BANQUET

- CIK KU AZLINA KU AKIL
- DR NUR IZZATI KHAIRUDIN

RESEARCH EXHIBITION IN MATHEMATICS & COMPUTER SCIENCES
REMACS 5.0

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

List of Papers

RESEARCH EXHIBITION IN MATHEMATICS & COMPUTER SCIENCES

REMACS 5.0

EXTENDED ABSTRACTS

STUDENT ATTENDANCE REGISTRATION SYSTEM USING QR CODE FOR TUITION CENTRE

Nur Farizah Ishak and Zulfikri Paidi
College of Computing, Informatics and Media, Universiti Teknologi MARA Perlis Branch, Malaysia

Abstract

Systems for recording student attendance are important for managing and monitoring individuals inside organisations, such as educational institutions, in order to maximise students' academic performance. However, the majority of small organisation, including tuition centres, continue to use a manual attendance system. This system is prone to mistakes, and it can lead to fraud when students sign for absent classmates on the attendance list and disrupting the class. A web-based student attendance system that records attendance using QR Code was developed to address these problems. According to the survey being done, the developed system was able to automatically enter students' attendance records into the database with the proper student id and the web application's network performance did not go over the acceptable response time. Thus, utilizing QR Codes to quickly and accurately register student attendance data can lessen the administrative workload at tuition centre.

Keywords*: QR Code, tuition centre, attendance, web-based student attendance system*

1. Introduction

Most tuition centres that in this country work are operating some system manually including student attendance system that can be prone to error and time consuming. Moreover, manual attendance system is not practical in this pandemic era of COVID-19 where sharing pen can cause virus spread among students. Afterwards, automated systems have been developed to come up with many alternatives for to solve these issues including QR Code. The aim of this project is to develop a web-based attendance registration system for tuition centre using QR Code to store student attendance into a database. This project then analyses the usability and network performance testing of the system after recording student attendance in Oren Bestari Tuition Centre in Manjung, Perak.

2. Methodology

Data were collected after administrators and students of the tuition centre try the developed web-based attendance registration system. Student is asked to sign up to automatically generate their QR Code before login into the system where QR Code is displayed. They then scan it through built-in webcam of administrator laptop. Once their attendance is recorded, a pop-up message of 'Attendance Recorded!' will appear on screen. Each student id will automatically add into database with time and date they arrived. The performance of the system then evaluated with different number of users and average response time (ms).

3. Results and Discussion

The web-based attendance registration system has been tested by network performance and usability testing. Network performance testing is implemented to this project to collect the response time (ms) of each page to obtain the average response time (ms). The result of average response time (ms) is then being analysed in a form of graph with different number of users entering the system of 10, 20 and 30 users. Usability testing is then carried out by distributing a set of questionnaires in google form among students and administrators of the tuition centre as respondents to evaluate the developed web-based attendance registration system. The result from usability testing shows that all student's data are successfully added into database after their QR Code is scanned to record attendance in the system.

Besides, most of the respondents strongly agree with 66.7% that this developed system saves more time compared to previous manual system.

4. Novelty of Research / Product

Numbers of studies have been carried out to record attendance using QR Code system. As stated by Stupina, Anistratenko, and Pazina (2021) project, they generate QR Code from web application and scanned using mobile application method by using both applications to complete their project in developing attendance system. Previous study also being done by Patel et al. (2019) where they develop smart student attendance system using QR Code to generate QR Code using API from teacher module. The system using both web and mobile application to store data in MySQL database when a student scans QR code. This project has several similarities to this project. Besides, an attendance system developed by Wei et al. (2017), which they generate and scan QR Code from mobile application. Lastly there's have also been several projects on QR Code for attendance system (Almutairi, Alkandari & Alkandari, 2017; Sengupta et al., 2017).

5. Conclusion

It can be concluded that this project has achieved its objective to develop a web-based attendance system using QR code to record student attendance in tuition centre and the average response time did not exceed the limit of 1000 ms which is an acceptable average response time for web applications.

REFERENCE LIST

Almutairi, N. M., Alkandari, A., & Alkandari, M. (2017). QR-Code for smartphone : An implementation of recording & calculating. Journal of Advanced Computer Science and Technology Research, 7(4), 1–20. https://www.researchgate.net/publication/326625230_QR-Code_for_Smartphone_An_Implementation_of_Recording_Calculating_Attendance

Patel, A., Joseph, A., Survase, S., & Nair, R. (2019). Smart student attendance system using QR code. 2nd International Conference on Advances in Science & Technology (ICAST-2019). https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3370769

Sengupta, I., Jain, N., Shah, S., Jain, H., & Chandrani, A. (2020). Scandence : QR Code based attendance management system. International Research Journal of Engineering and Technology (IRJET), 7(4), 3823–3833. chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.irjet.net/archives/V7/i4/IRJET-V7I4745.pdf

Stupina, M. V, Anistratenko, K. V, & Pazina, L. O. (2021). Using the QR code as a means of automating the process of accounting for attendance at educational classes. Journal of Physics: Conference Series. https://doi.org/10.1088/1742-6596/2131/2/022077

Wei, X., Manori, A., Devnath, N., Pasi, N., & Kumar, V. (2017). QR code based smart attendance system. International Journal of Smart Business and Technology, 5(1), 1–10. https://doi.org/10.21742/ijsbt.2017.5.1.01.

Research Exhibition in Mathematics and Computer Sciences: REMACS 5.0

e ISBN 978-629-97934-0-3