
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
REMACS 5.0

MASK AWARE: IOT FOR FACEMASK DETECTION AND MONITORING

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Abstract

Coronavirus disease (COVID-19) is an infectious disease caused by the SARS-CoV-2 virus. Most people infected with the virus will experience mild to moderate respiratory illness and recover without requiring special treatment. This pandemic unexpectedly broke out in 2019 and has seriously affected the whole world. COVID-19 has infected more than 500 million people worldwide and caused over 6 million deaths. Malaysia has entered the endemic phase, the wearing of facemasks is not mandatory in public but still encouraged while using public transports such as bus, train, taxis, airplane, e-hailing vehicles as well as in hospital and medical institutions. Awareness is diminished as some places do not require the wearing of face masks. The government has given flexibility and no longer imposes actions on individuals. Therefore, the purpose of this study is to provide a way to give some awareness of the requirement for a face mask when handling with high-risk groups. This project will detect a mask by adjusting the mask to cover the mouth, nose, and chin. If no face mask is detected or not being worn properly, a message will be displayed to notify the person and a notification via Telegram will be sent to the authorize people. By having this project, the spread can be reduced, and we can be vigilant.

Keywords: COVID, Facemask, Awareness

1. Introduction

After the new Coronavirus disease (COVID-19) case spread rapidly in Wuhan-China in December 2019, World Health Organization (WHO) confirmed that this is a dangerous virus which can be spread from humans to humans through droplets and airborne. As for prevention, wearing a facemask is essential while going outside or meeting others. Older people with chronic illnesses are more likely to develop serious illness. Anyone can get sick with COVID-19 and become seriously ill or die at any age. Malaysia has entered the endemic phase, the wearing of facemasks is not mandatory in public but still encouraged while using public transports such as bus, train, taxis, airplane, e-hailing vehicles as well as in hospital and medical institutions.

2. Methodology

As for prevention, wearing a face mask is essential while going outside or meeting others. Therefore, the purpose of this study is to provide a way to give some awareness of the requirement for a facemask by developing Mask Aware, IoT for facemask detection and monitoring. This project uses ESP32 cam, Arduino, Ultrasonic sensor, and LCD. The ESP32 cam was attached to the Arduino uno.

3. Result and Discussion

In this project, before scanning their face mask, the user must stand distance with Mask Aware with the user must be 35-60cm from the camera. The value for Mask Aware detects the proper facemask is 80% and above. In addition, the lcd also displays messages to come closer or take a step back and red led on Mask Aware will on to keep users notice that they are not wearing properly. The result gained shows that the successful percent detect on facemask. Lastly, Functionality and User Acceptance Testing (UAT) is done at the end of the project phase to know the strengths and weakness of this project. From

the tests performed, all the hardware used are functioning well and from the UAT feedback result, mostly respondents involved were satisfied with Mask Aware.

4. Novelty

Research finding there have been several research that have develop on facemask detection. But this Mask Aware come out with display LCD that can notify the user and can be monitor by owner. The ESP32 cam must connected to Wi-Fi. Once connected, use the IP address on browser. It can simply type the IP address for monitor the camera.

5. Conclusion

To conclude, the facemask detection is an IoT based project that was proposed to detect the face with or without facemask. The ESP32 cam used to detect facemask and sent to Arduino, while Arduino as the microcontroller to request and receive data from the ESP32 cam. Lcd on the Mask Aware display the output to notice the user.

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