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RESEARCH EXHIBITION IN MATHEMATICS & COMPUTER SCIENCES

# REMACS 5.0

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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

**2<sup>nd</sup> February 2023**  
**Stor Complex, UiTM Perlis**

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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 5<sup>th</sup> 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

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RESEARCH EXHIBITION IN MATHEMATICS & COMPUTER SCIENCES  
**REMACS 5.0**

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# WATER LEVEL MONITORING USING WIFI

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## **Abstract**

Water is an essential resource for all living species, including humans. Water also utilized in several applications, including irrigation, industrial activities, and energy generation Today, a huge section of the world's population lacks access to clean water for drinking, cooking, and other household purposes. To solve these difficulties, researchers throughout the world resorted to Internet-of-Things (IoT) technology to effectively monitor water levels, identify leaks, and refill tanks as needed. IoT water level monitoring is the process of measuring and recording water levels in a specific area, such as a lake, tanks, or dam, using IoT technology. Sensors in IoT-enabled water level monitoring systems collect data and transfer it to a central location where it may be evaluated and utilized to better manage water supplies. IoT-enabled technologies can help decision-makers respond rapidly to changes in water levels and make more educated water management decisions by gathering real-time data and giving records. This technology may potentially allow users to monitor themselves from anywhere using their smartphones.

*Keywords: IoT, Ultrasonic Sensor, RSSI, Microcontroller, Water Level Monitoring*

## **1. Introduction**

The purpose of this article is to explore the goal and scope of a water level monitoring system that uses WIFI technology. The system's goal is to remotely monitor and track the water level in a specified region and offer users with real-time data. The system's scope includes the design and construction of a wireless sensor network capable of measuring water levels, transmitting data through WIFI, and storing the data in a database for subsequent analysis. The system has a wide range of applications, including flood warning systems, irrigation control, and water resource management. The system is intended to be low-cost, simple to instal and operate, and capable of producing accurate and trustworthy data.

## **2. Methodology**

Data were collected from self-observation. The system is comprised of a wireless sensor network capable of sensing the water level in a given area and transmitting the data to a central server through WIFI. Ultrasonic sensors monitor water level by producing sound waves that bounce off the surface of the water and return to the sensor. The time it takes sound waves to travel to and from the water's surface is used to compute the water level. A microprocessor is also included in the system, which analyses data from the ultrasonic sensors and delivers it to the central server through WIFI. The system is intended to be low-cost, simple to instal and operate, and capable of producing accurate and dependable data. The Blynk App can show data as an indicator, which may be used to monitor in real time. During the signal strength test, the router's WIFI will transmit the signal to the microcontroller, and the microcontroller will move to the distance that has been pre-set. There is also an obstacle test to see whether the signal strength can pass through an obstacle.

## **3. Results and Discussion**

Based on the data acquired during testing, it is obvious that the feature of water level monitoring through WIFI is a success, as all of the components perform as expected. The amount of water in the tank was highly precise in real time, allowing Blynk applications to monitor it. For the signal strength testing, there are two scenarios, each with a different distance to evaluate how strong the WIFI signal is. There are two scenarios for measuring signal strength: open area and area with obstacles, and each scenario has a certain distance to evaluate how much signal strength of WIFI there is. One of the scenarios included an obstacle test, the findings of which differed from the results for the open space. The results demonstrate that the signal strength was lower in the obstruction area than in the open area. The conclusion is that the water level monitoring system using WIFI technology is a useful and efficient solution for water level monitoring. It can be easily implemented, and it provides accurate and reliable data in real-time. It's also easy to use and maintain, this system can be adapted to different scenarios and can be a valuable tool for water management.

#### 4. Novelty of Research/ Product

There have been a number of research that have investigated Internet of Things is be implemented in the traditional water level monitoring method (Santra, 2017). Previous studies on water level monitoring using smart phone techniques (Sulaimn Ambu Saidi , Hamed ALabri, Salim AL Azwani, & Azan Ali AL-Shaibani, 2021) (Nishimitha, Kotari, Shetty, Shetty, & G, 2019). Previous research on the ESP 8266 and how the ESP 8266 works in real-world water level monitoring (Sachio & Noertjahyana, 2018). There are some studies that employ the same strategy as this research using a different wireless technology (Sulaimn Ambu Saidi , Hamed ALabri, Salim AL Azwani, & Azan Ali AL-Shaibani, 2021). Finally, there have also been a several research on Wireless Sensor Network on water level monitoring (Li, Cheng, Gong, & Yan, 2021) (Lukas, Aditya Tanumihardja, & Gunawan, 2015).

#### REFERENCE LIST

- Li, X., Cheng, X., Gong, P., & Yan, K. (2021). Design and Implementation of a Wireless Sensor Network-Based. *Sensor*, 1706.
- Lukas, Aditya Tanumihardja, W., & Gunawan, E. (2015). On the Application of IoT: Monitoring of Troughs. *2015 IEEE Conference on Wireless Sensors*, 58-62.
- Nishimitha, Kotari, D., Shetty, P., Shetty, S., & G, S. (2019). Water Tank Monitoring System. *International Journal of Engineering Research & Technology*, 1-4.
- Sachio, S., & Noertjahyana, A. (2018). IoT Based Water Level Control System. *The 2018 Technology Innovation Management and Engineering Science International Conference*, 1-5.
- Santra, M. (2017). Smart Wireless water level Monitoring & Pump controlling. *International Journal of Advances in Scientific Research and Engineering*, 186-196.
- Sulaimn Ambu Saidi , S., Hamed ALabri, K., Salim AL Azwani, I., & Azan Ali AL-Shaibani, S. (2021). Arduino Based Smart Phone Liquid Level Monitoring System. *International Journal of Engineering Research and Applications*, 41-45.

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