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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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# CONTENTS

<b>Preface</b>	<b>iii</b>
<b>Committee</b>	<b>iv</b>
<b>Event Schedule</b>	<b>v</b>
<b>List of Papers</b>	<b>vi-xxiii</b>
<b>Articles</b>	<b>1-278</b>

# 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*

## List of Papers

Article Title	Page
<b>WEB-BASED BLOOD DONATION MANAGEMENT WITH REWARDS SYSTEM</b> Ahmad Syakir Mohd Sakeri and Nadia Abdul Wahab	1
<b>FINAL YEAR PROJECT MANAGEMENT SYSTEM (FMS)</b> Aimuni Nadhrah Yazit and Ros Syamsul Hamid	3
<b>UNIBUKU: UiTM Book Reselling Web Application</b> Anis ‘Aisyah Md Nazri and Mohammad Hafiz bin Ismail	5
<b>STUDENT INTERNSHIP PLACEMENT USING PERSONAL DECISION AID</b> Anis Nabila Azizi and Azmi Abu Seman	7
<b>INTERNSHIP MONITORING AND ASSESSMENT SYSTEM</b> Ezza Liyana Jalaludin and Azmi Abu Seman	9
<b>AR FOR PLANTATION AND AGROTECHNOLOGY AREA AT UITM PERLIS</b> Faizah Ahmad Rodi and Nor Arzami Othman	11
<b>MOBILE APPLICATION FOR COLLEGE LAUNDRY BOOKING SYSTEM IN UITM PERLIS</b> Haizatul Zulaikha Annual and Siti Zulaiha Ahmad	13



<b>SKIN CARE E-COMMERCE MOBILE PLATFORM WITH PRODUCT RECOMMENDATION BASED ON SKIN TYPE</b>	15
Haziq Asyraf Abu Hanifah and Nadia Abdul Wahab	
<b>HEALER – MENTAL HEALTH PERSONAL DECISION AID</b>	17
Huda Nabila Ishak and Norfiza Ibrahim	
<b>VETERINARY CLINIC MANAGEMENT SYSTEM</b>	19
Mas Nur Alya Binti Mohd Yusof and Prof. Madya Ts. Dr. Shukor Sanim Bin Mohd Fauzi	
<b>SOCIAL MARKETPLACE WEB APPLICATION FOR UITM PERLIS STUDENTS</b>	21
Mohamad Azimi Zakariah and Muhammad Nabil Fikri Jamaluddin	
<b>FASTBLOOD: BLOOD DONOR MOBILE APP INTEGRATED WITH QR CODE</b>	23
Muhamad Saifullah Yussri and Nora Yanti Che Jan	
<b>MOBILE APPLICATION FOR HEALTHY SLEEP RECOMMENDATION WITH CALM TECHNOLOGY</b>	25
Muhammad Arif Haikal Meli and Romiza Md. Nor	
<b>ROADMATE: IMPROVING RIDESHARING AND CARPOOLING VIA MOBILE APP</b>	27
Muhammad Farid Muhammad Dahri, Arifah Fasha Rosmani	
<b>FELINERINARY: CAT HEALTH MANAGEMENT APP WITH APPOINTMENT REMINDERS USING PUSH-NOTIFICATION</b>	29
Muhammad Hakimie Azraei Mahzir, Siti Sarah Md. Ilyas	

<b>MOBILE INTERVENTION FOR USED CLOTHING MANAGEMENT WITH GEOLOCATION</b>	31
Muhammad Haziq Anuar, Siti Sarah Md Ilyas	
<b>UITM ARAU BICYCLE RESERVATION APP WITH IMPLEMENTATION OF QR CODES (UBIKE COLLEGE)</b>	33
Muhammad Nur Hakimi Azman, Siti Zulaiha Ahmad	
<b>EASYRENT: A WEB BASED RECOMMENDATION SYSTEM FOR SHOP RENTAL – A CASE STUDY IN JITRA, KEDAH</b>	35
Nur Azlina Ariffin, Nora Yanti Che Jan	
<b>MEDCARE: A WEB-BASED CLINIC APPOINTMENT SYSTEM WITH SHORT MESSAGE SERVICE (SMS) NOTIFICATION</b>	37
Nur Elya Fhazlein Zamri, Mohd Nizam Osman	
<b>FASTPARK MOBILE APPLICATION USING GEOLOCATION</b>	39
Nur Hazmiera Mohd Hazline, Nora Yanti Che Jan	
<b>AN ISLAMIC MULTIMEDIA LEARNING APPLICATION OF MENSTRUATION FOR ADOLESCENT GIRLS</b>	41
Nur Irham Atikah Mohd Rafee @ Sukiman, Aznoora Osman	
<b>FUTSAL BOOKING WEB BASED SYSTEM INTEGRATE WITH TELEGRAM NOTIFICATIONS</b>	43
Nur Izzat Hakim Bin Norazam, Mohd Nizam Bin Osman	
<b>HOUSE RENTAL MANAGEMENT SYSTEM FOR STUDENT IN UITM PERLIS</b>	45
Nur Nadiyah Husna Samsudin, Muhammad Nabil Fikri Jamaluddin,	

<b>PENANG TRAVEL SERVICE PROVIDER APPLICATION USING GEOFENCING</b>	47
Nurezzatul Husna Ismail, Mohd Nizam Osman	
<b>MOBILE APPLICATION SYSTEM FOR CARDIOVASCULAR DISEASE PATIENT</b>	49
Nurul Azwa Atikah Ahmad Tarmizy, Abdul Hapes Mohammed	
<b>WEB-BASED CARBON FOOTPRINT CALCULATOR FOR BAKERY FOOD WASTE</b>	51
Nurul Fatihah Mohamed Yusof, Romiza Md Nor	
<b>FOOD TRUCK FINDER</b>	53
Qistina Amirah Abdul Hadi, Iman Hazwam Abd Halim	
<b>RESPONSIVE WEB-BASED CAFE FOOD ORDERING SYSTEM USING BOOTSTRAP AND QR CODE</b>	55
Siti Nadzirah Parsikun, Khairul Anwar Sedek	
<b>WHEELS4RENT: A WEB-BASED VEHICLE RENTAL AND MANAGEMENT SYSTEM WITH SHORT MESSAGE SERVICE (SMS) NOTIFICATION</b>	57
Siti Zulaikha Zaidi, Mohd Nizam Osman	
<b>IMPLEMENTATIONS OF QR-CODE FOR BUS TRANSPORT PASS USING MOBILE APPS</b>	59
Wajeedah Hamdzar Hamizan, Norziana Yahya	
<b>DEVELOPING A CATERING SERVICES MOBILE APPLICATION FOR LOCAL COMMUNITY</b>	61
Masturina Binti Azmi, Ts Dr Norziana Binti Yahya	

<b>ON-DEMAND HOME SERVICES USING MOBILE APPS FOR DIGITAL HOUSEHOLDS</b>	63
Sarah Nurhasya Abd Aziz, Norziana Yahya	
<b>FAKE NEWS CLASSIFICATION USING MACHINE LEARNING TECHNIQUES</b>	65
Adib Farhan Ahmad Rashdi and Mohd Nizam Osman	
<b>DATA VISUALIZATION OF FAMILY INCOME AND EXPENSES</b>	67
Aimi Amisha Ahmad Sabri and Mohd Nizam Osman	
<b>DATA VISUALIZATION : CAUSES AND RISK FACTORS OF DEATH</b>	69
Amirah Mohd Yusof and Jiwa Noris Hamid	
<b>DEVELOPING GRAPHICAL VISUALIZATION FOR UNDERSTANDING THE PATTERN OF STUDENTS PERFORMANCE IN EXAM</b>	71
Anisah Rosli and Norfiza Ibrahim	
<b>DIABETES RISK PREDICTION SYSTEM AND DATA VISUALIZATION</b>	73
Azizah Mohamad Imran and Hawa Mohd Ekhsan	
<b>WEB-BASED APPLICATION FOR PLACES RECOMMENDER USING MACHINE LEARNING</b>	75
Farah Nurshaziela, Ruzita Ahmad and Shukor Sanim Mohd Fauzi	
<b>DATA VISUALIZATION OF CHRONIC KIDNEY DISEASE SYMPTOMS</b>	77
Hanif Ikmal Ahmad Akibi and Hawa Mohd Ekhsan	

<b>SMART SUPPLY CHAIN MANAGEMENT USING DATA VISUALIZATION</b>	79
Hidayah Hushairi and Jiwa Noris Hamid	
<b>DATA VISUALIZATION OF BLOOD DONATION DURING CORONAVIRUS DISEASE (COVID-19) IN PERLIS</b>	81
Maisarah Aisisa and Khairul Anwar Sedek	
<b>DIABETES PREDICTION USING MACHINE LEARNING</b>	83
Muhammad Adib Mohd Nazri and Mahfudzah Othman	
<b>THE DEVELOPMENT OF DISEASES PREDICTION SYSTEM BASED ON SYMPTOMS</b>	85
Muhammad Faiz Mohd Faisol and Mohd Nizam Osman	
<b>LUNG CANCER PREDICTION USING MACHINE LEARNING TECHNIQUES</b>	87
Muhammad Muhaimin Mohd Fauzi and Mohd Nizam Osman	
<b>OBJECT DETECTION MODEL FOR MANGO LEAF DISEASES</b>	89
Muhammad Norzakwan Mohd Sham and Mohammad Hafiz bin Ismail	
<b>ANALYZING ON HOW FOOD CONSUMPTION CAN AFFECT IN DIABETES</b>	91
Muhammad Saiful Azim Mohd Ariff and Khairul Anwar Sedek	
<b>DASHBOARD : RISK PERCEPTION AND TRAVEL SATISFACTION USING PUBLIC TRANSPORT DURING COVID-19</b>	93
Nafeis Sukaiynah Noor Azli and Jiwa Noris Hamid	

<b>DASHBOARD VISUALIZATION OF MOBILITY COVID-19</b>	95
Noor Syarafana Nordin and Noorfaizalfarid Mohd Noor	
<b>DEVELOPING GRAPHICAL VISUALIZATION FOR ANALYZING STUDENT ADAPTABILITY LEVEL IN ONLINE EDUCATION</b>	97
Nur Balqis Mohd Azuddin and Norziana Yahya	
<b>DATA VISUALIZATION ON STUDENT STRESS LEVEL</b>	99
Nur Syifa Ramzi, Mohammad Hafiz bin Ismail and Tajul Rosli Razak	
<b>DASHBOARD: DATA VISUALIZATION OF COVID-19 CONFIRMED AND DEATHS IN MALAYSIA (COVIM)</b>	101
<b>Nurul Izzati Iddarus, Ruzita Ahmad and Shukor Sanim Mohd Fauzi</b>	
<b>DATA VISUALIZATION OF HUMAN STRESS DETECTION LEVEL</b>	103
Nurul Syahirah Md Saad and Hawa Mohd Ekhsan	
<b>DASHBOARD VISUALIZATION ON RENTAL HOUSE DATA IN PERLIS FOR UITM ARAU STUDENTS</b>	105
Putera Mohd Aliff Bakhtiar Mohd Zahir and Khairul Anwar Sedek	
<b>DATA VISUALIZATION OF HIGHER EDUCATION STUDENTS' PERFORMANCE EVALUATION</b>	107
Siti Nur Syahirah Osman and Hawa Mohd Ekhsan	
<b>FUZZY ANALYTIC HIERARCHY PROCESS TO STUDY THE IMPACTS OF OPEN DISTANCE LEARNING ON UiTM PERLIS STUDENTS</b>	109
Adriana Nazihah Cha Ariff and Norpah Mahat	

<b>FORECASTING UNEMPLOYMENT RATE IN MALAYSIA: COMPARISON BETWEEN ARIMA AND FUZZY TIME SERIES</b>	111
Ahmad Faidhi Amir Faisol and Nur Azriani Mohamad Nor	
<b>STAGNATION POINT FLOW OF NANOFLUIDS OVER STRETCHING/SHRINKING SURFACE WITH HEAT SOURCE/SINK AND CONSTANT WALL TEMPERATURE</b>	113
Aifa Afrina Ahmed Rodzuan, Nur Fatihah Fauzi and Nurizatul Syarfinas Ahmad Bakhtiar	
<b>EVALUATION OF FORECAST PERFORMANCE OF COVID-19 WITH DIFFERENT TIME HORIZONS</b>	115
Amirul Rashid Che Samsol and Azlan Abdul Aziz	
<b>SELECTION THE TYPE OF INVESTMENT IN MALAYSIA USING FUZZY ANALYTIC HIERARCHY PROCESS (AHP)</b>	117
Ardini Athirah Mhd Munawar and Mohd Fazril Izhar Mohd Idris	
<b>PREDICTING STROKE USING ANT COLONY OPTIMIZATION ALGORITHM</b>	119
Azfaruddin Azri and Rizauddin Saian	
<b>STAGNATION POINT FLOW OF HYBRID NANOFLUIDS OVER STRETCHING/SHRINKING SHEET WITH HEAT SOURCE/SINK AND CONSTANT WALL TEMPERATURE</b>	121
Fatin Nur Ayuni Mohd Nor, Nur Fatihah Fauzi and Nurizatul Syarfinas Ahmad Bakhtiar	
<b>ANALYSING THE EFFICIENCY OF LOCAL AND FOREIGN CARS IN MALAYSIA USING DATA ENVELOPMENT ANALYSIS (DEA)</b>	123
Khairul Sanusi Samuil and Anas Fathul Ariffin	

**APPLICATION OF VANILLA LONG SHORT-TERM MEMORY NETWORKS (LSTM) AND AUTO-REGRESSIVE INTEGRATED MOVING AVERAGE (ARIMA) ON EXCHANGE RATE FORECASTING** 125

Mysarah Haslan and Nor Hayati Shafii

**RANKING THE EFFECTIVE PREVENTION MEASURES AGAINST COVID-19 BY USING FUZZY AHP METHOD** 127

Nur Afifah Zabidi and Teoh Yeong Kin

**A NUMERICAL STUDY ON A HIV TRANSMISSION MATHEMATICAL MODEL** 129

Nur Izyan Hasna Suhaili, Nur Izzati Khairudin and Nurizatul Syarfinas Ahmad Bakhtiar

**APPLICATION OF FUZZY DELPHI ON THE FACTOR INFLUENCING BUYING BEHAVIOUR FOR ORGANIC FOOD** 131

Nur Syafiqah Abdul Rashid and Mohd Halimi Ab Hamid

**THE USE OF TRAPEZOIDAL RULE TO APPROXIMATE THE VOLUME OF CLOUDS OF SOIL AT GUNUNG PERLIS TAMAN NEGERI PERLIS** 133

Nur' Afaf Zahiah Khairulfahmi, Mohamad Najib Mohamad Fadzil and Zaki Ahmad Dahlan

**THE USE OF TRAPEZOIDAL RULE TO APPROXIMATE THE VOLUME OF CLOUDS OF SOIL AT GUNUNG PERLIS TAMAN NEGERI PERLIS** 135

Nur' Afaf Zahiah Khairulfahmi, Mohamad Najib Mohamad Fadzil and Zaki Ahmad Dahlan

**AN APPROACH OF FUZZY AHP TO ANALYZE THE FACTORS OF DOMESTIC VIOLENCE AMONG WOMEN IN MALAYSIA** 137

Nurain Syahirah Mahusin and Norpah Mahat



<b>THE USE OF SIMPSON’S RULE TO APPROXIMATE THE VOLUME OF CLODS OF SOIL AT GUNUNG PERLIS, TAMAN NEGERI PERLIS</b>	139
Nurliyana Najwa Husaini Failos, Mohamad Najib Mohamad Fadzil and Zaki Ahmad Dahlan	
<b>FACTORS INFLUENCING THE SELECTION OF HALAL PRODUCTS AMONG PERLIS COMMUNITY USING FUZZY AHP</b>	141
Nurul Asyqin Abu Bakar and Siti Nor Nadrah Muhamad	
<b>ANALYSING ON INFLUENCING FACTORS OF STUDENTS’ CAREER CHOICE USING FUZZY ANALYTIC HIERARCHY PROCESS (FAHP)</b>	143
Salsabila Saimuddi and Khairu Azlan Abd Aziz	
<b>APPLICATION OF FUZZY AHP ON THE SELECTION OF ONLINE SHOPPING PLATFORM IN MALAYSIA</b>	145
Siti Nurmaisarah Zakaria and Khairu Azlan Abd Aziz	
<b>CLASSIFICATION OF DIABETIC PATIENTS WITH IMBALANCED CLASS DISTRIBUTION BY USING A COST-SENSITIVE FOREST ALGORITHM</b>	147
Umami Asyiqin Che Muhammad and Muhammad Hasbullah Mohd Razali	
<b>A FUZZY CONJOINT ANALYSIS APPROACH FOR EVALUATING CREDIT CARD SERVICES: A CASE STUDY OF MALAYAN BANK</b>	149
Umami Umira Mohd Akhir and Zurina Kasim	
<b>SELECTION THE BEST TYPE OF INVESTMENT IN MALAYSIA USING FUZZY TOPSIS</b>	151
Muhamad Aizat Iman Roslan and Fazril Izhar Mohd Idris	

<b>ONLINE EMPLOYMENT PLATFORM SELECTION BY USING FUZZY ANALYTIC HIERARCHY PROCESS</b>	153
Muhammad Iqbal Muhamidi and Mohd Halimi Ab Hamid	
<b>TOURIST TRIP DESIGN PROBLEM WITH USER PREFERENCE AND POPULARITY: A CASE STUDY OF LANGKAWI ISLAND</b>	155
Nabilah binti Anuar Ahmad and Huda Zuhrah Ab. Halim	
<b>ANALYZING FACTORS AFFECTING TO E-LEARNING SUCCESS BY FUZZY ANALYTIC HIERARCHY PROCESS (FAHP)</b>	157
Nor Syahazlin Mohd Zaki and Jasmani Bidin	
<b>EARLY DIABETES RISK PREDICTION USING ANT COLONY OPTIMIZATION ALGORITHM</b>	159
Nur Aisyatul Husna Ahmad Yusri and Rizauddin Saian	
<b>COMPARISON BETWEEN ARIMA MODEL AND FUZZY TIME SERIES: FORECASTING ENDEMIC COVID-19 CASES IN MALAYSIA</b>	161
Nur Atikah Mohd Razali and Nor Azriani Mohamad Nor	
<b>ANALYSING STUDENTS' PERCEPTIONS OF ONLINE MATHEMATICS LEARNING</b>	163
Nur Izza Hazwani Azali Azman and Zurina Kasim	
<b>Reconstruction the Rational Quadratic Bezier Curve Using Properties of Rational Quadratic Bezier and Segmentation</b>	165
Nur Nabilla Azmi and Siti Sarah Raseli	
<b>ANALYSING INFLUENTIAL FACTORS IN UNIVERSITY SELECTION USING FUZZY TOPSIS</b>	167
Nurul Athilah Azaman and Jasmani Bidin	

**NUMBER OF STAFF OPTIMIZATION OF TOLLMAN SCHEDULING WITH INTEGER LINEAR PROGRAMMING** 169

Nurul Athirah Syuhadah Ruslan and Diana Sirmayunie Mohd Nasir

**A FUZZY PROMETHEE APPROACH FOR CHOOSING THE MOST PREFERABLE HEALTH INSURANCE COMPANIES** 171

Nurul Qistina Mohd Kamal and Raihana Zainordin

**THE NUMBER OF EMPLOYED PEOPLE AND TOURIST ARRIVAL IN MALAYSIA USING ARIMA AND FUZZY TIME SERIES MODEL: PRE, DURING AND POST COVID-19** 173

Siti Norashikin Roslan and Siti Fatimah Abd Rahman

**THE PREFERRED SOCIAL NETWORKING SITE (SNS) FOR INFORMATION DISSEMINATION AMONG UiTM STUDENTS USING FUZZY AHP METHOD** 175

Siti Nuraisyah Syafiqah Abdullah and Noorzila Sharif

**MATHEMATICAL MODELLING ANALYSIS OF DIET PLANNING FOR THALASSEMIA PATIENTS** 177

Siti Sarah Md Zulkifli and Siti Nor Nadrah Muhamad

**RANKING FIVE MODELS OF LAPTOPS USING FUZZY PROMETHEE** 179

Wan Nur Syahirah Wan Muhammad Sukardi and Raihana Zainordin

**PREDICTION OF BREAST CANCER DISEASE USING MACHINE LEARNING APPROACH** 181

Wan Nashua Amira and Nor Hayati Shafii

<b>HEAT SOURCE AND CONSTANT WALL TEMPERATURE OF MHD FERROFLUIDS ON EXPONENTIALLY STRETCHING AND SHRINKING SURFACE UNDER STAGNATION POINT REGION</b>	183
Natasya Syafina Ismail, Nurizatul Syarfinas Ahmad Bakhtiar and Nur Fatihah Fauzi	
<b>WEB-BASED UITM BOOK STORE MANAGEMENT SYSTEM INTEGRATED WITH WHATSAPP API AND GOOGLE SERVICES</b>	185
Amir Imran Ahmad and Mohd Nizam Osman	
<b>FACIAL EXPRESSION RECOGNITION USING DEEP LEARNING TECHNIQUES</b>	187
Azal Anas Azlan and Muhamad Arif Hashim	
<b>ANALYSIS ON RANSOMWARE CHARACTERISTICS USING STATIC ANALYSIS METHOD</b>	189
Maryam Adreena Mohd Mokhtaruddeen and Mohd Faris Mohd Fuzi	
<b>WEB-BASED JEWELRY MANAGEMENT SYSTEM USING WEB SCRAPPING</b>	191
Mohd Irfan Hafizi Bin Fakhrurrazi, Ts. Noorfaizalfarid bin Mohd Noor	
<b>EMPLOYEE ATTENDANCE SYSTEM USING FLUTTER</b>	193
Muhamad Faiz Akmal Bin Mohamad Noor and Sir Alif Faisal Ibrahim	
<b>STAFF RESIDENT COLLEGE (SRK) REPORT MANAGEMENT SYSTEM USING FLUTTER</b>	195
Muhammad ‘Atif Abdul Rahim and Ahmad Yusri Dak	
<b>UiTM PRIHATIN DONATION SYSTEM USING A RESPONSIVE WEB DESIGN APPROACH</b>	197
Muhammad Aiman Bin Rosli and Zulfikri Paidi	

<b>FOOD COURT MANAGEMENT SYSTEM</b>	199
Muhammad Alif Rusyaidi Bin Abdul Rashid and Alif Faisal Bin Ibrahim	
<b>INVENTORY MANAGEMENT SYSTEM FOR SMEs IN KULIM</b>	201
Muhammad Bilal Hakim Bin Azmi and Muhammad Nabil Fikri Bin Jamaluddin	
<b>FINAL YEAR PROJECT SUPERVISOR ACCEPTANCE SYSTEM (FYPSA)</b>	203
Muhammad Fikri Bin Mohd Firdaus and Ros Syamsul Hamid	
<b>UiTM ARAU STUDENT ORIENTATION APPLICATION EXTENDED ABSTRACT</b>	205
Muhammad Hafiz Bin Ghazali and Nurzaid Mohd Zain	
<b>VOAS: VETERINARY ONLINE APPOINTMENT BOOKING SYSTEM</b>	207
Muhammad Harith Bin Mokhtar and Arifah Fasha Binti Rosmani	
<b>ZAKAT MANAGEMENT SYSTEM WITH ELECTRONIC MAIL</b>	209
Muhammad Najmi bin Othman and Noorfaizalfarid bin Mohd Noor	
<b>PINEAPPLE DISEASE DETECTION SYSTEM USING MOBILENETV2 MODEL</b>	211
Muhammad Nu'man Hakim Abdul Aziz and Iman Hazwam Abd Halim	
<b>FIGHTING FISH IDENTIFICATION USING DEEP LEARNING</b>	213
Muhammad NurSyafiq and Mohammad Hafiz bin Ismail	
<b>C++ RUSH: INTERACTIVE GAME IN LEARNING COMPUTER LANGUAGE FOR NOVICE</b>	215
Muhammad Salman Hakim bin Shaiful Nizam and Arifah Fasha binti Rosmani	

<b>E-EXAMINATION SYSTEM FOR ANSWERING OBJECTIVE AND SUBJECTIVE QUESTIONS</b>	217
Muhammad Yasir Zulfikri and Nurzaid Muhd Zain	
<b>SPORT FACILITIES AND EQUIPMENT BOOKING SYSTEM FOR UITM PERLIS</b>	219
Musfira Mohd Azmir and Nurzaid Muhd Zain	
<b>ONLINE HOSPITAL APPOINTMENT CARD WITH QR CODE</b>	221
Nabilatulwidad Binti Abdul Mueiz and Mahfudzah Binti Othman	
<b>MYBUKU PINK MOBILE APPLICATION USING ANDROID</b>	223
NorHafizah Ayob, Mohammad Hafiz bin Ismail and Tajul Rosli Razak	
<b>MOBILE APPLICATION FOR ORDERING FOOD FROM UITM ARAU CAMPUS CAFETERIA</b>	225
Norsyuhana binti Noordin and Nurzaid Mohd Zain	
<b>UITM WEB PRACTICAL LOGBOOK SYSTEM</b>	227
Nur Arifa Najiha Bt Ahmad Zawawi and Mahfudzah Bt Othman	
<b>BLOOD BANK MANAGEMENT SYSTEM</b>	229
Nur Syamimi Izzati Binti Zulkifli and Ros Syamsul Bin Hamid	
<b>WEB-BASED FOR UiTM ARAU FOOD ORDER</b>	231
Nur Zahirah Izzati binti Mohd Zahir and Zulfikri Paidi	

<b>MASK AWARE: IOT FOR FACEMASK DETECTION AND MONITORING</b>	233
Siti Nurfatim Binti Mohtar and Aznoora Osman	
<b>IOT-BASED FLOWER GARDEN CARE SYSTEM USING ESP8266 WIFI MODULE AND TELEGRAM APPLICATION</b>	235
Syahida Atirah Binti Che Omar and Rashidah Binti Ramle	
<b>UITM STUDENT’S ATTENDANCE SYSTEM BASED ON BIOMETRIC FINGERPRINT WITH IoT IMPLEMENTATION</b>	237
Wan Muhammad Rahimi bin Wan Fadzli and Abidah Hj Mat Taib	
<b>CORN LEAF DISEASE DETECTION SYSTEM USING CONVOLUTIONAL NEURAL NETWORK</b>	239
Wan Nurul Izzah Binti Abd Hadi and Iman Hazwam Abdul Halim	
<b>HOMENETSEC: ENHANCING HOME NETWORK SECURITY BY SURICATA INTRUSION DETECTION SYSTEM USING RASPBERRY PI</b>	241
Ahmad Shariff and Abidah Hj Mat Taib	
<b>MALWARE DETECTION IN WINDOWS USING DEEP LEARNING CLASSIFICATION APPROACH</b>	243
Aishah Anuar and Mohd Faris Mohd Fuzi	
<b>E-VOTING SYSTEM PROJECT IN LARAVEL BASED ON WEB-BASED APPLICATION</b>	245
Anis Natasha Zahimi and Ros Syamsul Hamid	
<b>WATER LEVEL MONITORING USING WIFI</b>	247
Azizie Azizan and Iman Hazwam Abd Halim	

<b>FACE SKETCH RECOGNITION SYSTEM USING CLOUD-BASED DEEP LEARNING</b>	249
Faiz Elmie Shah Izahar Shah and Muhamad Arif Hashim	
<b>AN ENHANCEMENT OF SMART TRAFFIC LIGHT IN LORA NETWORK FOR SMALL SCALE AREA</b>	251
Lutfi Hadi Azizul Adry and Rafiza Ruslan	
<b>REMOTE CONTROL DESKTOP SYSTEM</b>	253
Muhammad Akmal Idlan Hissamuddin and Ros Syamsul Hamid	
<b>IoT-Based Smart Chili Farm Monitoring Using Arduino and GSM Module</b>	255
Muhammad Baihaqi Bakar and Rashidah Ramle	
<b>IMAGE AUTHENTICATION SYSTEM USING DEEP LEARNING</b>	257
Muhammad Faisal Amer Faudzli and Muhamad Arif Hashim	
<b>NETWORK AUTOMATIONS ON ACCESS CONTROL LIST (ACL) FOR MULTIVENDOR DEVICES USING ANSIBLE AND NAPALM IN GNS3</b>	259
Muhammad Haziq Ikhmal Suhaimi and Rafiza Ruslan	
<b>PERFORMANCE ANALYSIS OF HTTP FLOODING ATTACK AT APPLICATION LAYER IN MOBILE AD-HOC NETWORK (MANET)</b>	261
Muhammad Hilmi Hafizi Muhamad and Ahmad Yusri Bin Dak	
<b>PERFORMANCE ANALYSIS OF DOS ATTACK AT MAC LAYER IN WLAN</b>	263
Muhammad Naufal Abdul Rahim and Ahmad Yusri Dak	



<b>SMART IRRIGATION SYSTEM USING LORA-BASED IOT DEVICE</b>	265
Muhammad Nizamuddin Abd Muttalib and Iman Hazwam Abd Halim	
<b>ANDROID MALWARE DETECTION USING DEEP LEARNING CLASSIFICATION APPROACH</b>	267
Nur Amirah Amri and Mohd Faris Mohd Fuzi	
<b>STUDENT ATTENDANCE REGISTRATION SYSTEM USING QR CODE FOR TUITION CENTRE</b>	269
Nur Farizah Ishak and Zulfikri Paidi	
<b>STUDENT ATTENDANCE SYSTEM USING FACIAL RECOGNITION BASED ON DEEP LEARNING</b>	271
Syahila Aina Haris and Zulfikri Paidi	
<b>REDUCING DOS ATTACKS BY RUNNING MULTI INSTANCES OF NGINX WEB-SERVER IN DOCKER USING SHELL SCRIPT</b>	273
Ismail Arif M. Zulkepli and Abidah Mat Taib, Nor Alifah Rosaidi	
<b>SMART CHICKEN FEEDER SYSTEM USING NODE MCU ESP8266</b>	275
Ilham Syahmin Nasruddin and Mohd Nizam Osman	
<b>REMOTE MONITORING AND CONTROLLING OF LIGHTS USING IOT</b>	277
Nurul Najihah Yusra Zolkarnain, Nurzaid Muhd Zain and Mahfudzah binti Othman	



# EXTENDED ABSTRACTS

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

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# WEB-BASED BLOOD DONATION MANAGEMENT WITH REWARDS SYSTEM

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## **Abstract**

The title of this study is “Web-Based Blood Donation Management with Rewards System”. This study aims to design and develop a web-based system which has the ability to effectively and efficiently manage blood donation and rewards for every donor. This study utilizes the Software Development Life Cycle (SDLC) with the Waterfall Model as its methodology. The methodology consists of five phases which are analysis, design, implementation, testing, and documentation. To evaluate the study, Functionality Testing and User Experience Test (UXT) have been conducted. Functionality testing have been used to ensure that every function in this mobile application is working well. The UXT aims to evaluate users’ experience while using the system and it was performed with XX participants. UXT focuses on the attractiveness, perspicuity, efficiency, dependability, stimulation and novelty of a system. In conclusion, this research and development has achieved its objectives which are designing, developing, and evaluating a web-based blood donation management with rewards system.

*Keywords: donor, medical staff, current health system, UEQ*

## **1. Introduction**

The lack of blood supply is a problem that is always faced by the health authorities, especially the major government hospitals. This is because the surrounding community is not concerned about this problem which results in the health authorities being forced to ask or make a drastic initiative to overcome the problem. Therefore, a system has been developed to solve this problem which is web-based blood donation with rewards system. In addition, the implementation of this system uses a reward system that can inspire the interest of users or society to donate blood.

## **2. Methodology**

Testing of the user experience is used to acquire the data (UXT). The User Experience Questionnaire (UEQ) is consisting of 26 questions, and each question is represented by a question that has the opposite value of what it asks. Donors and healthcare professionals or administrators in their 30s and 40s are the target ages for this UEQ. After finishing an attempt to use the Web-based Blood Donation with Reward System, respondents were given ten minutes to answer the questionnaire.

## **3. Results and Discussion**

From the results of a questionnaire conducted consisting of donors and medical staff aged 22 to 40, the system is very good to implement into the current health system. The scales on the questionnaire give a full picture of how the user feels. Among the aspects that measures is attractiveness, perspicuity, efficiency, dependability, stimulation and novelty of the system. The UEQ consists of a seven-point Likert scale and twenty-six items representing the main characteristic. The benchmarking scale was measured, analysed, and recorded. The results describe that attractiveness was above average, perspicuity was below, efficiency and dependability along with stimulation was excellent benchmark and lastly for novelty was above average.

#### **4. Novelty of Research / Product**

Today, blood donation is critical for saving lives, and the demand is steadily growing. Blood donation has the potential to save countless lives. It is a key aspect of global healthcare. It concerns medical treatment as a survival and life-saving treatment, as well as treatment phlebotomy as a major medical technique (Collins., 2021). There is some research that has been done on the importance of blood to humans including research from (World Health Organization, 2022). Ensure that the blood supply is always available, and a productive system should be developed to avoid the problem of lack of blood supply. Therefore, there is not a system developed by using reward features to attract more donors to donate blood. Overall, the project aims to contribute to a scientific web-based application that will assist users in donating blood and will allow administrators or medical personnel to monitor the system.

#### **5. Conclusion**

In conclusion, the web-based blood donation with rewards system provides reward features that can encourage users to donate blood regularly by offering health-based rewards given to donors. With this system in place, the country's blood supply will not be cut off and it will constantly increase over time.

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