



اَبُو سَيِّدِي تَيْكُو لُو كِي مَبَارَا
UNIVERSITI
TEKNOLOGI
MARA



**Uniutama
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Research Exhibition in Mathematics & Computer Sciences (REMACS 4.0)

Abstract **Book**



CS240 - BACHELOR OF INFORMATION TECHNOLOGY (HONS.)

**CS245 - BACHELOR OF COMPUTER SCIENCE (HONS.) DATA
COMMUNICATION & NETWORKING**

CS248 - BACHELOR OF SCIENCE (HONS.) MANAGEMENT MATHEMATICS

**CS251 - BACHELOR OF COMPUTER SCIENCE (HONS.) NETCENTRIC
COMPUTING**

21 July, 2022

Dewan Sri Semarak, UiTM Perlis





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- PN. NORA YANTI CHE JAN

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- EN. ALIF FAISAL IBRAHIM

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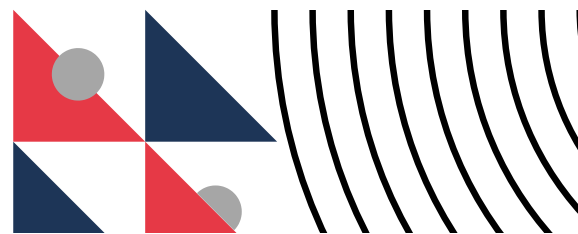
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Penyelaras Penajaan

- DR HUDA ZUHRAH ABD HALIM
- Ts. DR. NORZIANA YAHYA

Penyelaras Promosi

- DR RUZITA AHMAD
- EN. HALIMI AB HALIM



EVENT SCHEDULE

**Video Pitching, Poster & Project
Presentations**
8:30 AM - 12:00 PM

Officiating & Closing Ceremony

**National & Wawasan Setia
Anthems**

Doa Recitation
2:15 - 2:30 PM

**Officiating & Closing Remarks from
Rector of UiTM Perlis**
2:45 - 2:55 PM

**Career Talk by UniUtama
Solutions Sdn Bhd**
Title: Cabaran Kerjaya Dalam Bidang IT
3:00 - 4:00 PM

Registration
8:00 - 8:30 AM

Lunch Break
12:00 - 2:00 PM

**Welcoming Address from
Director of REMACS 4.0**
2:35 - 2:45 PM

REMACS 4.0 Montage
2:55 - 3:00 PM

Awarding of Winners:

- **Best Video Pitching**
- **Best Poster**
- **Best Project Award**

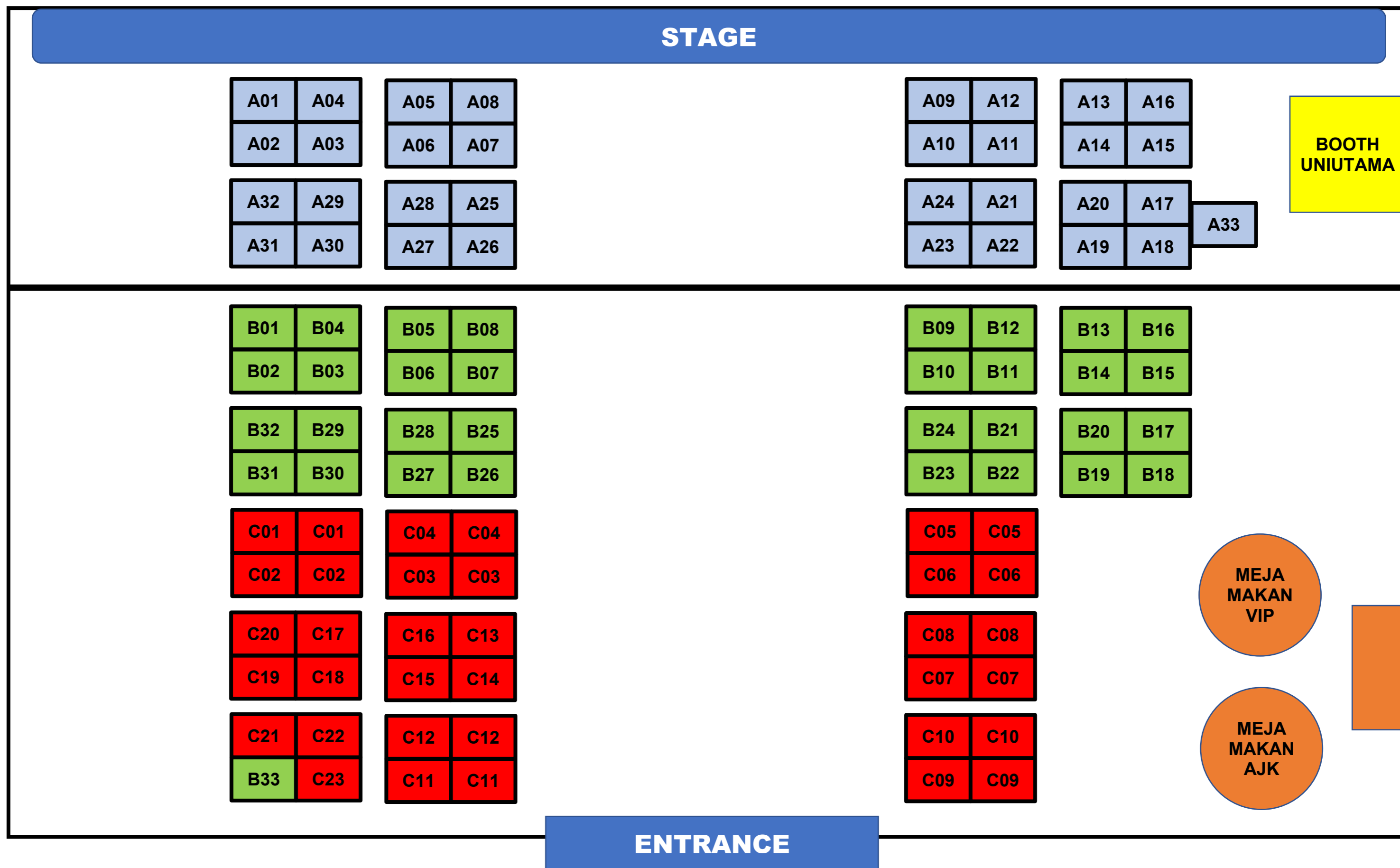
Photo Session

End of Ceremony
4:00 - 4:30 PM



DEWAN SERI SEMARAK TABLE PLAN
FACULTY OF COMPUTER AND MATHEMATICAL SCIENCES
RESEARCH EXHIBITION IN MATHEMATICS AND COMPUTER SCIENCE (REMACS 4.0)
21 JULY 2022 | 8:00 AM – 5:00 PM | DEWAN SERI SEMARAK, UiTM CAWANGAN PERLIS

A01 – A33	CS248
B01 – B33	CS240
C01 – C23	CS245 / CS251



MSP660 – LIST OF TOPICS, EXAMINERS & JUDGES CS248

BOOTH NO.	TOPIC & AUTHORS	EXAMINER	PANEL	JUDGE 1 (VIDEO PITCHING & POSTER)	JUDGE 2 (VIDEO PITCHING & POSTER)
DSS/A01	FUZZY TIME SERIES AND MOVING AVERAGE METHOD TO PREDICT THE CURRENCY EXCHANGE RATE <i>ALIA MAISARAH BINTI MOHD SHUKRI & JASMANI BINTI BIDIN</i>	EN. AZLAN ABDUL AZIZ	PN. NORWAZIAH MAHMUD	DR FADLI FIZARI ABU HASSAN ASARI (FPP)	PN. NURHAFIZA MD SAAD (FSPU)
DSS/A02	PREDICTION OF PARTICULATE MATTER (PM) 2.5 FOR SPATIO-TEMPORAL DATASET USING TIME SERIES MODELS <i>ANIS MUNIRAH BINTI RIZUAN & AZLAN BIN ABDUL AZIZ</i>	PN. NOR AZRIANI MOHAMAD NOR	PN. WAN NURSHAZELIN WAN SHAHIDAN	EN. MOHD FAZLY MOHD RAZALI (FPP)	PN. NOORAZWANI MOHD RAZI (FSPU)
DSS/A03	A COMPARATIVE STUDY OF SIR MODEL AND ARIMA MODEL FOR FORECASTING COVID-19 DEATH CASES <i>FARZANAH BINTI AHMAD SUKRI & BALKIAH BINTI MOKHTAR</i>	PN. NOR HAYATI SHAFII	PN. JASMANI BIDIN	DR NURUL LABANIHUDA ABDULL RAHMAN (FPP)	PN. NOORFATEKAH TALIB (FSPU)
DSS/A04	STUDY ON SMARTPHONE PREFERENCES USING FUZZY AHP <i>FATNIN NADIAH BINTI ARIFFIN & DIANA SIRMAYUNIE BINTI MOHD NASIR</i>	EN. KHAIRU AZLAN ABD AZIZ	PN. BALKIAH MOKHTAR	DR NORHISAM BULOT (FPP)	DR ZULIAHANI AHMAD (FSG)
DSS/A05	RANKING FIVE TOUR PACKAGE IN LANGKAWI ISLAND USING FUZZY AHP <i>KU AUNI DALILI BINTI KU ZAHIRIN & DR HUDA ZUHRAH BINTI AB HALIM & MOHD FAZRIL IZHAR BIN MOHD IDRIS</i>	EN. ANAS FATHUL ARIFFIN	PN. DIANA SIRMAYUNIE MOHD NASIR	PN. SHALIZA AZREEN MOHD ZULKIFLI (FPP)	EN. MOHD SAIFUL AKBAR MOHAMAD SAHAL (FPA)
DSS/A06	MATHEMATICAL APPROACH FOR OPTIMIZING CEMETERY LAYOUT <i>MAYA NURAISHA BINTI MOHD NASIR & IZLEEN BINTI IBRAHIM</i>	PN. WAN NURSHAZELIN WAN SHAHIDAN	CIK KU AZLINA KU AKIL	DR FARAH LINA AZIZAN (FPP)	DR HAFIZAH HAJIMIA (APB)
DSS/A07	AN APPROXIMATE SOLUTION OF SCHRÖDINGER EQUATION USING THE SINE-COSINE FUNCTION METHOD <i>MOHAMAD ARIF FIRDAUS BIN IBRAHIM & TEOH YEONG KIN</i>	DR NURIZATUL SYARFINAS AHMAD BAKHTIAR	DR NUR IZZATI KHAIRUDIN	EN. ABDUL HAFIZ YUSOF (FPP)	DR ZURAIMY ALI (ACIS)

MSP660 – LIST OF TOPICS, EXAMINERS & JUDGES CS248

BOOTH NO.	TOPIC & AUTHORS	EXAMINER	PANEL	JUDGE 1 (VIDEO PITCHING & POSTER)	JUDGE 2 (VIDEO PITCHING & POSTER)
DSS/A08	ESPORT WINNER PREDICTION USING TREE BASED CLASSIFIER <i>MUHAMMAD FARIS DANIAL BIN ANDENAN & BALKIAH BINTI MOKHTAR</i>	PN. RAIHANA ZAINORDIN	PM DR RIZAUDDIN SAIAN	PN. NOOR HAFIZHA MUHAMAD YUSUF (FPP)	DR CHEN JEN EEM (FPP)
DSS/A09	FORECASTING MALAYSIA'S TRADING IN GLOBAL MARKET USING AUTOREGRESSIVE MODEL <i>MUHAMMAD NOR HIDAYAT BIN MOHD JALANI & MOHAMAD NAJIB BIN MOHAMAD FADZIL</i>	PN. BALKIAH MOKHTAR	EN. AZLAN ABDUL AZIZ	DR NURUL FATIHAH ABD LATIP (FPA)	PN. SALAMIAH ZAKARIA (FSG)
DSS/A10	SELECTION OF PRIORITY GROUP TO RECEIVE COVID-19 VACCINE IN MALAYSIA <i>MUHAMMAD RIDHWAN BIN AHMAD AZAHARI & MOHD FAZRIL IZHAR BIN MOHD IDRIS</i>	CIK NOORZILA SHARIF	EN. KHAIRU AZLAN ABD AZIZ	PN. MAJDAH CHULAN (APB)	PN. NOOR HAFIZAH UYUP (FSG)
DSS/A11	AN EVALUATION OF NASYID COMPETITION USING FUZZY EVALUATION METHOD <i>MUHAMMAD YAZWAN AIMAN BIN YAACOB & KHAIRU AZLAN BIN ABD AZIZ</i>	PN. NORWAZIAH MAHMUD	PN. IZLEEN IBRAHIM	PN. SOLIHAH HAJI YAHYA ZIKRI (ACIS)	PN. NOOR SHARIDA BADRI SHAH (FPP)
DSS/A12	THE SUSCEPTIBLE-INFECTED-RECOVERED (SIR) MODEL FOR THE SPREADING OF NEWS IN TWITTER DURING COVID-19 PANDEMIC <i>NIK NOR HAFIZAH BINTI AB HALIM & KU AZLINA BINTI KU AKIL</i>	TEOH YEONG KIN	DR NURIZATUL SYARFINAS AHMAD BAKHTIAR	DR NADHILAH ABDUL PISAL (APB)	EN. MOHD FARIDZ HAJI AHMAD (FSR)
DSS/A13	SELECTION OF A NOTEBOOK FOR ODL BY USING THE FUZZY ANALYTIC HIERARCHY PROCESS (FAHP) METHOD <i>NOR ASYIKIN BINTI AZHAR & NOORZILA BINTI SHARIF</i>	PN. NORPAH MAHAT	EN. MOHAMAD NAJIB MOHAMAD FADZIL	PN. NURHAFIZA MD SAAD (FSPU)	PN. SITI HAJAR MOHMAD SALLEH (FSG)
DSS/A14	ESTIMATING ENERGY DEMAND AND EMISSION FROM THE TRANSPORTATION SECTOR BY USING A MODIFIED ARTIFICIAL BEE COLONY (ABC) ALGORITHM <i>NUR ALIA SOFEA BINTI NORIZALMAN & SITI HAFAWATI BINTI JAMALUDDIN</i>	PM DR RIZAUDDIN SAIAN	TEOH YEONG KIN	PN. NOORAZWANI MOHD RAZI (FSPU)	PN. SHARIFAH NAFISAH SYED ISMAIL (FSG)

MSP660 – LIST OF TOPICS, EXAMINERS & JUDGES CS248

BOOTH NO.	TOPIC & AUTHORS	EXAMINER	PANEL	JUDGE 1 (VIDEO PITCHING & POSTER)	JUDGE 2 (VIDEO PITCHING & POSTER)
DSS/A15	ANALYTIC HIERARCHY PROCESS (AHP) METHOD FOR DETERMINATION OF REASON STUDENTS' UiTM CAWANGAN PERLIS APPLY FOR ZAKAT DISTRIBUTION <i>NUR ALYA BINTI ABU BAKAR ALIAS & WAN NURSHAZELIN BINTI WAN SHAHIDAN</i>	PN. NURIDAWATI BAHAROM	EN. MUHAMAD HASBULLAH MOHD RAZALI	PN. NOORFATEKAH TALIB (FSPU)	PN. ZURAIHAN MOHAMAD (FSPU)
DSS/A16	EVALUATION AND SELECTION OF ONLINE FOOD DELIVERY (OFD) COMPANIES IN PERLIS USING FUZZY ANALYTICAL HIERARCHY PROCESS (AHP) <i>NUR ANIS LIYANA BINTI MUHAMAD ROSLI & ZURINA BINTI KASIM</i>	PN. JASMANI BIDIN	CIK NOORZILA SHARIF	DR ZULIAHANI AHMAD (FSG)	PN. ZULAIHA AHMAD (FPP)
DSS/A17	FORECASTING UNEMPLOYMENT RATE IN MALAYSIA DURING COVID-19 USING BOX-JENKINS MODELS <i>NUR ASYIKIN BINTI ABDUL HALIM & NOR AZRIANI BINTI MOHAMAD NOR</i>	EN. MUHAMAD HASBULLAH MOHD RAZALI	PN. NURIDAWATI BAHAROM	EN. MOHD SAIFUL AKBAR MOHAMAD SAHAL (FPA)	PN. SITI NOORASHIKIN JAMAL (FSG)
DSS/A18	PREDICTION OF FUTURE STOCK PRICE USING RECURRENT NEURAL NETWORK <i>NUR IZZAH ATIRAH BINTI MOHD IKHRAM & NOR HAYATI BINTI SHAFII</i>	EN. MOHAMAD NAJIB MOHAMAD FADZIL	EN. ANAS FATHUL ARIFFIN	DR HAFIZAH HAJIMIA (APB)	PN. SITI NOR DIN (FSG)
DSS/A19	THE SUSCEPTIBLE-INFECTED-RECOVERED (SIR) MODEL FOR THE VITALITY OF ONLINE BUSINESS ON FACEBOOK DURING COVID-19 PANDEMIC <i>NUR LIYANA BINTI MAZLAN & KU AZLINA BINTI KU AKIL</i>	PN. SUZANAWATI ABU HASAN	DR NUR FATIHAH FAUZI	DR ZURAIMY ALI (ACIS)	DR NUR NASULHAH KASIM (FSG)
DSS/A20	APPLICATION OF FUZZY AHP AND FUZZY TOPSIS ON SUPPLIER SELECTION IN RESTAURANTS <i>NUR SAIDATUL FITRAH BINTI SULAIMAN & NORPAH BINTI MAHAT</i>	PN. DIANA SIRMAYUNIE MOHD NASIR	PN. SHARIFAH FHAHRIYAH SYED ABAS	DR CHEN JEN EEM (FPP)	DR MASAYU NORMAN (FSPU)
DSS/A21	PREDICTION OF STUDENTS' PERFORMANCE IN MATHEMATICS SUBJECT USING LOGISTIC REGRESSION <i>NUR SYAKIRAH BINTI ROSLI & NORWAZIAH BINTI MAHMUD</i>	EN. MUHAMAD HASBULLAH MOHD RAZALI	PN. NOR AZRIANI MOHAMAD NOR	PN. SALAMIAH ZAKARIA (FSG)	DR NAZIRAH MD TARMIZI (FSPU)

MSP660 – LIST OF TOPICS, EXAMINERS & JUDGES CS248

BOOTH NO.	TOPIC & AUTHORS	EXAMINER	PANEL	JUDGE 1 (VIDEO PITCHING & POSTER)	JUDGE 2 (VIDEO PITCHING & POSTER)
DSS/A22	EVALUATION OF HOTEL WEBSITES AND DIGITAL SERVICE PROVIDERS USING FUZZY TOPSIS <i>NURFATIAHATHIRAH BINTI RAHMAT & NURIDAWATI BINTI BAHAROM</i>	EN. MOHD FAZRIL IZHAR MOHD IDRIS	PN. NOR HAYATI SHAFII	PN. NOOR HAFIZAH UYUP (FSG)	EN. SHARIR AIZAT KAMARUDDIN (FSG)
DSS/A23	A SPREAD OF COVID-19 IN KEDAH BY USING SIR MODEL <i>NURSHAFIAH BINTI NOOR SHAMSULL KAMAL & DR NURIZATUL SYARFINAS BINTI AHMAD BAKHTIAR</i>	CIK KU AZLINA KU AKIL	PN. SUZANAWATI ABU HASAN	PN. NOOR SHARIDA BADRI SHAH (FPP)	DR ROSYAINI AFINDI ZAMAN (FSG)
DSS/A24	NEW SOLUTIONS OF INITIAL VALUE PROBLEM (IVP) USING PICARD'S ITERATION <i>NURSYAHIRA ATIQA BINTI ZAINAL RASHID & SUZANAWATI BINTI ABU HASAN</i>	DR NUR FATIAH FAUZI	PN. NORPAH MAHAT	EN. MOHD FARIDZ HAJI AHMAD (FSR)	DR ANG LEE SIN (FSG)
DSS/A25	COVID-19 PANDEMIC SIMULATION IN PERAK BY SIR MODEL <i>NURUL ASYIQIN IZZANI BINTI IDRUS & DR NUR FATIAH BINTI FAUZI</i>	PN. SITI SARAH RASELI	PN. SITI HAFAWATI JAMALUDDIN	PN. SITI HAJAR MOHMAD SALLEH (FSG)	SR. DR ERNIEZA SUHANA MOKHTAR (FSPU)
DSS/A26	THE PROPAGATIONS OF SATURATING FEEDBACK MECHANISM COLORECTAL CANCER MATHEMATICAL MODEL <i>NURUL DAYINI BINTI ZULKIFLI & DR NUR IZZATI BINTI KHAIRUDIN</i>	CIK NURUL HIDAYAH AB. RAJI	PN. SITI SARAH RASELI	PN. SHARIFAH NAFISAH SYED ISMAIL (FSG)	PN. ZAMZILA ERDAWATI ZAINOL (FSG)
DSS/A27	EFFECT OF CARBON NANOTUBES IN ALIGNED MAGNETOHYDRODYNAMIC MIXED CONVECTION FLOW OF NANOFLUIDS THROUGH AN INCLINED PLATE <i>NURUL SAMIHA BINTI MOHD SHAHABUDIN & NURUL HIDAYAH BINTI AB. RAJI</i>	DR HUDA ZUHRAH AB HALIM	EN. MOHD HALIMI AB HAMID	PN. ZURAIHAN MOHAMAD (FSPU)	CIK HUZAIFAH A HAMID (APB)
DSS/A28	SUPPLIER SELECTION FOR MOBILE PHONE SPARE PARTS USING FUZZY PROMETHEE <i>NURUL SHAHADAH BINTI AHMAD SAIRI & RAIHANA BINTI ZAINORDIN</i>	PN. SHARIFAH FHAHRIYAH SYED ABAS	EN. MOHD FAZRIL IZHAR MOHD IDRIS	PN. ZULAIHA AHMAD (FPP)	EN. SAMSURI MOHD SALLEH (FSPU)

MSP660 – LIST OF TOPICS, EXAMINERS & JUDGES CS248

BOOTH NO.	TOPIC & AUTHORS	EXAMINER	PANEL	JUDGE 1 (VIDEO PITCHING & POSTER)	JUDGE 2 (VIDEO PITCHING & POSTER)
DSS/A29	PREDICTING STROKE OCCURRENCE USING ANT COLONY OPTIMIZATION <i>NURUL SHAMIMI BINTI SHAHIDAN & PM DR RIZAUDDIN BIN SAIAN</i>	PN. SITI HAFAWATI JAMALUDDIN	DR HUDA ZUHRAH AB HALIM	PN. SITI NOORASHIKIN JAMAL (FSG)	DR FAIEZAH HASHIM (FSG)
DSS/A30	APPLICATION OF FUZZY TOPSIS FOR DECISION MAKING IN SELECTION FOR POVERTY AMONG UiTM PERLIS STUDENTS DUE TO COVID-19 PANDEMIC <i>NURULAIN NABILAH BINTI MUHAMAD FAUZUKI & SHARIFAH FHAHRIYAH BINTI SYED ABAS</i>	EN. MOHD HALIMI AB HAMID	PN. ZURINA KASIM	PN. SITI NOR DIN (FSG)	DR MARJAN MOHD NOOR (FP)
DSS/A31	THE MOST PREFERRED TREATMENT FOR COVID-19 PATIENTS TO REDUCE THE INFECTION SYMPTOMS <i>SARAH BINTI MOHD YUSOFF & SITI FATIMAH BINTI ABD RAHMAN</i>	PN. IZLEEN IBRAHIM	PN. RAIHANA ZAINORDIN	DR NUR NASULHAH KASIM (FSG)	PN. NORSHIMAH ABDUL RAHMAN (FP)
DSS/A32	EVALUATION OF THE BEST E-COMMERCE WEBSITES IN MALAYSIA USING FUZZY AHP <i>UMAIRAH NAJWA BINTI ZAIB & SITI NOR NADRAH BINTI MUHAMAD & MOHD HALIMI BIN AB HAMID</i>	PN. ZURINA KASIM	EN. ANAS FATHUL ARIFFIN	DR MASAYU NORMAN (FSPU)	PN. NURWAHIDA FUAD (FPP)
DSS/A33	THE CONSTRUCTION OF QUARTIC BEZIER CURVE WITH C1 CONTINUITY <i>WAN NUR ASHILAH SHAMIAH BINTI WAN MUHAMMAD SHAFAWI & SITI SARAH BINTI RASELI</i>	DR NUR IZZATI KHAIRUDIN	CIK NURUL HIDAYAH AB. RAJI	DR NAZIRAH MD TARMIZI (FSPU)	DR FADLI FIZARI ABU HASSAN ASARI (FPP)

CSP650 – LIST OF TOPICS, EXAMINERS & JUDGES CS240

BOOTH NO.	TOPIC & AUTHORS	EXAMINER 1	EXAMINER 2	JUDGE 1 (VIDEO PITCHING & POSTER)	JUDGE 2 (VIDEO PITCHING & POSTER)
DSS/B01	UNUSED MEDICINE DONATION SYSTEM <i>NURUL 'AIN BINTI MAT ZAM & DR RUZITA BINTI AHMAD & PROF. MADYA TS. DR SHUKOR SANIM BIN MOHD FAUZI</i>	PN. RAFIZA RUSLAN	EN. ALIF FAISAL IBRAHIM	DR NAZIRAH MD TARMIZI (FSPU)	EN. MOHD FAZLY MOHD RAZALI (FPP)
DSS/B02	AN AUTOMATED SANITIZATION REMINDER AND SCHEDULING VIA MOBILE APPLICATION FOR SMALL MANUFACTURING INDUSTRY <i>NURUL AMIRAH BINTI ZAMZURI & DR TAJUL ROSLI BIN RAZAK</i>	EN. MOHAMMAD HAFIZ BIN ISMAIL	DR AZNOORA OSMAN	EN. SHARIR AIZAT KAMARUDDIN (FSG)	DR NURUL LABANIHUDA ABDULL RAHMAN (FPP)
DSS/B03	E-STICKER FOR COLLEGE EVENT <i>MUHAMMAD IQBAL BIN ISKAK & Ts. HAWA BINTI MOHD EKHSAN</i>	DR ARIFAH FASHA ROSMANI	PN. NORA YANTI CHE JAN	DR ROSYAINI AFINDI ZAMAN (FSG)	DR NORHISAM BULOT (FPP)
DSS/B04	DESIGNING THE INTERACTIVE WEB BASED SYSTEM FOR E-QUIZ LEARNING FOR THE PRESCHOOL STUDENTS <i>ANIS BINTI ROSLAN & DR TAJUL ROSLI BIN RAZAK</i>	EN. JIWA NORIS HAMID	Ts. DR SITI ZULAIHA AHMAD	DR ANG LEE SIN (FSG)	PN. SHALIZA AZREEN MOHD ZULKIFLI (FPP)
DSS/B05	MOBILE FOOD ORDERING APPLICATION FOR CAFETERIAS IN UNIVERSITY <i>SYAMIMI BINTI ZAKARIA & Ts. DR NORZIANA BINTI YAHYA</i>	Ts. HAWA MOHD EKHSAN	EN. MOHAMMAD HAFIZ ISMAIL	SR. DR ERNIEZA SUHANA MOKHTAR (FSPU)	DR FARAH LINA AZIZAN (FPP)
DSS/B06	MILITARY'S ASSETS EXPENDITURE DASHBOARD <i>NOR HAISYAM FITRI BIN ROSLI & DR NORFIZA BINTI IBRAHIM</i>	DR AHMAD YUSRI DAK	EN. AZMI ABU SEMAN	PN. ZAMZILA ERDAWATI ZAINOL (FSG)	EN. ABDUL HAFIZ YUSOF (FPP)
DSS/B07	ONLINE DRIVING SCHOOL MANAGEMENT SYSTEM WITH REMINDER NOTIFICATION <i>NIK NURUL SIMAA BINTI NIK AMER & Ts. DR SITI ZULAIHA BINTI AHMAD & NORA YANTI CHE JAN</i>	Ts. DR NORZIANA YAHYA	EN. NOR ARZAMI OTHMAN	CIK HUZAIFAH A HAMID (APB)	PN. NOOR HAFIZHA MUHAMAD YUSUF (FPP)

CSP650 – LIST OF TOPICS, EXAMINERS & JUDGES CS240

BOOTH NO.	TOPIC & AUTHORS	EXAMINER 1	EXAMINER 2	JUDGE 1 (VIDEO PITCHING & POSTER)	JUDGE 2 (VIDEO PITCHING & POSTER)
DSS/B08	TRENDING YOUTUBE VIDEO STATISTIC USING MACHINE LEARNING LANGUAGE <i>NIK HAFIFI BIN MAMAT & NIZAM BIN OSMAN</i>	DR KHAIRUL ANWAR SEDEK	Ts. NOORFAIZALFARID MOHD NOOR	EN. SAMSURI MOHD SALLEH (FSPU)	DR NURUL FATIAH ABD LATIP (FPA)
DSS/B09	PRENATAL CARE RECORD SYSTEM <i>SYAFIQAH ADIBAH BINTI ARBAIN & SITI SARAH BINTI MD ILYAS</i>	EN. JIWA NORIS HAMID	EN. AZMI ABU SEMAN	DR FAIEZAH HASHIM (FSG)	PN. MAJDAH CHULAN (APB)
DSS/B10	DEVELOPING A WEB-BASED ONLINE ORDERING FOR HOMEMADE FOOD ENTREPRENEUR <i>NURFARAH WAHIDAH BINTI MOHAMAD & Ts. DR NORZIANA BINTI YAHYA</i>	EN. AZMI ABU SEMAN	DR TAJUL ROSLI RAZAK	DR MARJAN MOHD NOOR (FP)	PN. SOLIAH HAJI YAHYA ZIKRI (ACIS)
DSS/B11	DONATION SYSTEM FOR CHARITY ORGANIZATION <i>NURUL FARHANA ASYIQIN BINTI MOHD JAMLI & AZMI ABU BIN SEMAN & DR KHAIRUL ANWAR BINTI SEDEK</i>	DR NADIA ABDUL WAHAB	DR NORFIZA IBRAHIM	PN. NORSHIMAH ABDUL RAHMAN (FP)	DR NADHILAH ABDUL PISAL (APB)
DSS/B12	DOCUMENT MANAGEMENT SYSTEM <i>NURUL JANNAH BINTI SA'ADAT & Ts. NOORFAIZALFARID BIN MOHD NOOR</i>	PN. MAHFUDZAH OTHMAN	EN. ABDUL HAPES MOHAMMED	PN. NURWAHIDA FUAD (FPP)	PN. NURHAFIZA MD SAAD (FSPU)
DSS/B13	WEB-BASED GAMIFIED MATHEMATICAL LEARNING FOR SPECIAL EDUCATION SCHOOL <i>MOHAMAD ISLAHUDDIN BIN ABDUL MALEK & MOHD NIZAM BIN OSMAN</i>	DR ARIFAH FASHA ROSMANI	Ts. DR SITI ZULAIHA AHMAD	DR FADLI FIZARI ABU HASSAN ASARI (FPP)	PN. NOORAZWANI MOHD RAZI (FSPU)
DSS/B14	REDUCTION FOOD WASTE THROUGH ONLINE FOOD DONATION SYSTEM <i>NUR SYAZWANI BINTI OTHMAN & DR NADIA BINTI ABDUL WAHAB</i>	PROF. MADYA Ts. DR SHUKOR SANIM MOHD FAUZI	DR NORFIZA IBRAHIM	EN. MOHD FAZLY MOHD RAZALI (FPP)	PN. NOORFATEKAH TALIB (FSPU)

CSP650 – LIST OF TOPICS, EXAMINERS & JUDGES CS240

BOOTH NO.	TOPIC & AUTHORS	EXAMINER 1	EXAMINER 2	JUDGE 1 (VIDEO PITCHING & POSTER)	JUDGE 2 (VIDEO PITCHING & POSTER)
DSS/B15	SMART ORCHID PLANT MONITORING SYSTEM USING IOT <i>NOR IZZATI AUNI BINTI MOHD JASNI & DR NADIA BINTI ABDUL WAHAB</i>	EN. ALIF FAISAL IBRAHIM	EN. ROS SYAMSUL HAMID	DR NURUL LABANIHUDA ABDULL RAHMAN (FPP)	DR ZULIAHANI AHMAD (FSG)
DSS/B16	DEVELOPMENT OF FITNESS TRACKER MOBILE APP FOR CALISTHENICS EXERCISE <i>AIMAN HARITH BIN ZAHARUDIN & MUHAMMAD NABIL FIKRI BIN JAMALUDDIN</i>	EN. ALIF FAISAL IBRAHIM	DR AZNOORA OSMAN	DR NORHISAM BULOT (FPP)	EN. MOHD SAIFUL AKBAR MOHAMAD SAHAL (FPA)
DSS/B17	PROLEXIA : LEARNING APPLICATION FOR DYSLEXIA USING VOICE RECOGNITION TECHNOLOGY <i>MUHAMMAD IKHMAL HAKIM BIN MOHAMAD YUSRI & DR AZNOORA BINTI OSMAN & DR NADIA BINTI ABDUL WAHAB</i>	DR ARIFAH FASHA ROSMANI	EN. NOR ARZAMI OTHMAN	PN. SHALIZA AZREEN MOHD ZULKIFLI (FPP)	DR HAFIZAH HAJIMIA (APB)
DSS/B18	DATA VISUALIZATION AND ANALYSIS OF PREMIER LEAGUE STATS IN ENGLAND <i>MOHAMMAD HAMZAH BIN OTHMAN JAMA & DR KHAIRUL ANWAR BIN SEDEK</i>	EN. ALIF FAISAL IBRAHIM	EN. MOHD NIZAM OSMAN	DR FARAH LINA AZIZAN (FPP)	DR ZURAIMY ALI (ACIS)
DSS/B19	PROPERTY AND VIOLENT CRIME DASHBOARD <i>MUHAMMAD AMIRUL HUSAINI BIN ASHAM & DR KHAIRUL ANWAR BIN SEDEK</i>	Ts. DR NORZIANA YAHYA	PN. HANISAH AHMAD	EN. ABDUL HAFIZ YUSOF (FPP)	DR CHEN JEN EEM (FPP)
DSS/B20	E-LEARNING : LET'S CLASSIFY ANIMAL <i>KHALEDA RAFIEKA BINTI KHAILMI & NOR ARZAMI BIN OTHMAN</i>	Ts. HAWA MOHD EKHSAN	PN. NORA YANTI CHE JAN	PN. NOOR HAFIZHA MUHAMAD YUSUF (FPP)	PN. SALAMIAH ZAKARIA (FSG)
DSS/B21	COLOUR IDENTIFICATION FOR CHILDREN WITH AUTISM USING DISCRETE TRIAL TRAINING (DTT) <i>NOR AIRANEEDY BINTI MAZLAN & ROMIZA BINTI MD NOR & SAKINAH BINTI IDRIS & HUZAIFAH BINTI A HAMID & Ts. DR SITI ZULAIHA AHMAD</i>	DR RUZITA AHMAD	PN. RAFIZA RUSLAN	DR NURUL FATIHAH ABD LATIP (FPA)	PN. NOOR HAFIZAH UYUP (FSG)

CSP650 – LIST OF TOPICS, EXAMINERS & JUDGES CS240

BOOTH NO.	TOPIC & AUTHORS	EXAMINER 1	EXAMINER 2	JUDGE 1 (VIDEO PITCHING & POSTER)	JUDGE 2 (VIDEO PITCHING & POSTER)
DSS/B22	INDOOR CARBON DIOXIDE MONITORING SYSTEM TO MANAGE SPREAD OF COVID-19 WITH ECO FEEDBACK TECHNOLOGY <i>AHMAD UZAIR BIN AZUKA & ROMIZA BINTI MD NOR & HUZAIFAH BINTI A HAMID</i>	DR NADIA ABDUL WAHAB	DR NORFIZA IBRAHIM	PN. MAJDAH CHULAN (APB)	PN. NOOR SHARIDA BADRI SHAH (FPP)
DSS/B23	WEB-BASED APPLICATION OF LOAN ELIGIBILITY VERIFICATION FOR NO CREDIT USERS BY USING POWER BI <i>SYAWALINA BINTI MUHAMAD SHUKRI & DR RUZITA BINTI AHMAD & PROF. MADYA Ts. DR SHUKOR SANIM BIN MOHD FAUZI</i>	DR KHAIRUL ANWAR SEDEK	EN. ABDUL HAPES MOHAMMED	PN. SOLIHAH HAJI YAHYA ZIKRI (ACIS)	EN. MOHD FARIDZ HAJI AHMAD (FSR)
DSS/B24	TEXTUAL INFORMATION ANALYSIS ON USER'S EMOTION IN SOCIAL MEDIA USING RECURRENT NEURAL NETWORK TECHNIQUE <i>AHMAD DANIAL BIN MUSANA & MUHAMMAD NABIL FIKRI BIN JAMALUDDIN</i>	EN. MOHAMMAD HAFIZ ISMAIL	DR ZULFIKRI PAIDI	DR NADHILAH ABDUL PISAL (APB)	PN. SITI HAJAR MOHMAD SALLEH (FSG)
DSS/B25	GLOBAL WARMING INDICATOR DASHBOARD <i>MOHAMMAD ASRIE RAFIZIE BIN MOHAMAD APINI & DR NORFIZA BINTI IBRAHIM</i>	Ts. DR NORZIANA YAHYA	EN. MOHD NIZAM OSMAN	PN. NURHAFIZA MD SAAD (FSPU)	PN. SHARIFAH NAFISAH SYED ISMAIL (FSG)
DSS/B26	FOOD RECIPE RECOMMENDER SYSTEM <i>SITI NORAMIRAH BINTI IBRAHIM & NOR ARZAMI BIN OTHMAN</i>	EN. JIWA NORIS BIN HAMID	EN. MUHAMMAD NABIL FIKRI JAMALUDDIN	PN. NOORAZWANI MOHD RAZI (FSPU)	PN. ZURAIHAN MOHAMAD (FSPU)
DSS/B27	RESTAURANT AND CAFÉ RECOMMENDER SYSTEM FOR TOURIST <i>AHMAD TASNIM BIN MUHAMAD AZLAN & NOR ARZAMI BIN OTHMAN</i>	PN. HANISAH AHMAD	Ts. DR ABIDAH HJ MAT TAIB	PN. NOORFATEKAH TALIB (FSPU)	PN. ZULAIHA AHMAD (FPP)
DSS/B28	DEVELOPING GRAPHICAL VISUALIZATION FOR UNDERSTANDING THE PATTERN OF MOVIE STREAMING ON IFLIX IN MALAYSIA <i>NOORSYAHIRAH BINTI NASRI & Ts. DR NORZIANA BINTI YAHYA</i>	CIK SITI SARAH MD ILYAS	EN. ABDUL HAPES MOHAMMED	DR ZULIAHANI AHMAD (FSG)	PN. SITI NOORASHIKIN JAMAL (FSG)

CSP650 – LIST OF TOPICS, EXAMINERS & JUDGES CS240

BOOTH NO.	TOPIC & AUTHORS	EXAMINER 1	EXAMINER 2	JUDGE 1 (VIDEO PITCHING & POSTER)	JUDGE 2 (VIDEO PITCHING & POSTER)
DSS/B29	COMPUTER VISION FOR HAND SIGNAL COMMUNICATION USING MORSE CODE <i>MUHAMMAD ASYRAF BIN MOHD KHAZAAI & MUHAMMAD NABIL FIKRI BIN JAMALUDDIN</i>	EN. MOHAMMAD HAFIZ ISMAIL	EN. NOR ARZAMI OTHMAN	EN. MOHD SAIFUL AKBAR MOHAMAD SAHAL (FPA)	PN. SITI NOR DIN (FSG)
DSS/B30	VISUALIZING UNDERPRIVILEGED HOTSPOTS IN KELANTAN <i>NUR FARAHIZAH BINTI MD SAUPI & PROF. MADYA Ts. DR SHUKOR SANIM BIN MOHD FAUZI & DR RUZITA BINTI AHMAD</i>	DR KHAIRUL ANWAR SEDEK	PN. MAHFUDZAH OTHMAN	DR HAFIZAH HAJIMIA (APB)	DR NUR NASULHAH KASIM (FSG)
DSS/B31	DIABETES HEALTH RECORD SYSTEM WITH DATA VISUALIZATION <i>NURUL SAJDAHANY BINTI JOHARI & SITI SARAH BINTI MD ILYAS</i>	Ts. HAWA MOHD EKHSAN	DR NADIA ABDUL WAHAB	DR ZURAIMY ALI (ACIS)	DR MASAYU NORMAN (FSPU)
DSS/B32	MALAYSIAN SIGN LANGUAGE DETECTION CAMERA <i>MOHAMMED SYAFIQ BIN AFFANDY & DR RUZITA BINTI AHMAD & PROF. MADYA Ts. DR SHUKOR SANIM BIN MOHD FAUZI</i>	EN. MUHAMMAD NABIL FIKRI JAMALUDDIN	CIK SITI SARAH MD ILYAS	DR CHEN JEN EEM (FPP)	DR HAFIZAH HAJIMIA (APB)
DSS/B33	DATA VISUALIZATION ON OCCUPATIONAL ACCIDENT IN MALAYSIA <i>MOHD ASRI BIN ATAN & DR AZNOORA BINTI OSMAN</i>	EN. MOHAMMAD HAFIZ ISMAIL	PN. MAHFUDZAH OTHMAN	PN. SALAMIAH ZAKARIA (FSG)	EN. SHARIR AIZAT KAMARUDDIN (FSG)

CSP650 – LIST OF TOPICS, EXAMINERS & JUDGES CS245

BOOTH NO.	TOPIC & AUTHORS	EXAMINER 1	EXAMINER 2	JUDGE 1 (VIDEO PITCHING & POSTER)	JUDGE 2 (VIDEO PITCHING & POSTER)
DSS/C01	SMART AGRICULTURE MONITORING SYSTEM FOR HARUMANIS USING LORA TECHNOLOGY IN UITM PERLIS <i>AHMAD NAZIM BIN AHMAD RUSLI & RAFIZA BINTI RUSLAN & NOR AZIRA BINTI MOHD RADZI</i>	DR AHMAD YUSRI DAK	EN. ROS SYAMSUL HAMID	PN. NOOR HAFIZAH UYUP (FSG)	EN. SHARIR AIZAT KAMARUDDIN (FSG)
DSS/C02	IOT BASED DISTANCE DETECTION SYSTEM WITH RINGING NOTIFICATION USING BLYNK APPLICATION <i>FARAH NAJIHAH BINTI MOHAMAD KAMAL & RASHIDAH BINTI RAMLE</i>	DR RUZITA AHMAD	PN. ROMIZA MD NOR	PN. NOOR SHARIDA BADRI SHAH (FPP)	DR ROSYAINI AFINDI ZAMAN (FSG)
DSS/C03	REMOTE PATIENT MONITORING SYSTEM BASED ON AUTOMATION OXYMETER READING <i>MUHAMMAD AKMAL BIN MOHD TAQAYUDDIN & IMAN HAZWAM BIN ABD HALIM</i>	EN. ROS SYAMSUL HAMID	CIK SITI SARAH MD ILYAS	EN. MOHD FARIDZ HAJI AHMAD (FSR)	DR ANG LEE SIN (FSG)
DSS/C04	IMPLEMENTING LORA NETWORK FOR SMART CITY <i>MUHAMMAD ALIF NAJMI BIN AHMAD TARMIZI & RAFIZA BINTI RUSLAN & NOR ALIFAH BINTI ROSAIDI</i>	DR AHMAD YUSRI DAK	PN. RASHIDAH RAMLE	PN. SITI HAJAR MOHMAD SALLEH (FSG)	SR. DR ERNIEZA SUHANA MOKHTAR (FSPU)
DSS/C05	HOME INTRUDER DETECTION SYSTEM USING LORA TECHNOLOGY <i>MUHAMMAD AMEEN BIN AHAMAD KHAMARUDDIN & ROS SYAMSUL BIN HAMID</i>	PN. RASHIDAH RAMLE	EN. MOHD FARIS MOHD FUZI	PN. SHARIFAH NAFISAH SYED ISMAIL (FSG)	PN. ZAMZILA ERDAWATI ZAINOL (FSG)
DSS/C06	HOME INTRUDER DETECTION SYSTEM USING ARDUINO <i>MUHAMMAD AMIRUL HAFIZ BIN MAT HUSSIN & RAFIZA BINTI RUSLAN</i>	EN. MOHD NIZAM OSMAN	EN. ABDUL HAPES MOHAMMED	PN. ZURAIHAN MOHAMAD (FSPU)	CIK HUZAIFAH A HAMID (APB)
DSS/C07	IOT BASED HEART RATE EMERGENCY ALERT SYSTEM FOR PERSONS WITH DISABILITIES <i>NUR AFIQAH BINTI JABARUDIN & ROS SYAMSUL BIN HAMID</i>	PN. HANISAH AHMAD	DR ARIFAH FASHA ROSMANI	PN. ZULAIHA AHMAD (FPP)	EN. SAMSURI MOHD SALLEH (FSPU)

CSP650 – LIST OF TOPICS, EXAMINERS & JUDGES CS245 & CS251

BOOTH NO.	TOPIC & AUTHORS	EXAMINER 1	EXAMINER 2	JUDGE 1 (VIDEO PITCHING & POSTER)	JUDGE 2 (VIDEO PITCHING & POSTER)
DSS/C08	DETECTING BRUTE FORCE ATTACK AND ANALYZING NETWORK TRAFFIC USING WIRESHARK <i>NUR KHAIRA BINTI AHMAD SHAH & Ts. DR ABIDAH BINTI HAJI MAT TAIB & NOR AZIRA BINTI MOHD RADZI</i>	EN. MUHAMAD ARIF HASHIM	EN. MOHD FARIS MOHD FUZI	PN. SITI NOORASHIKIN JAMAL (FSG)	DR FAIEZAH HASHIM (FSG)
DSS/C09	WI-FI HOME AUTOMATION SYSTEM PROTOTYPE FOR ELDERLY AND DISABLED PEOPLE <i>NURFATNIN HADFINA BINTI MOHD HADAFI & RASHIDAH BINTI RAMLE</i>	PN. NORA YANTI CHE JAN	DR AZNOORA OSMAN	PN. SITI NOR DIN (FSG)	DR MARJAN MOHD NOOR (FP)
DSS/C10	PASSWORD STRENGTH DETECTION OF IOT DEVICES <i>NURUL NAJIHAH YUSRA BINTI ZOLKARNAIN & NURZAID BIN MUHD ZAIN</i>	DR RUZITA AHMAD	EN. MUHAMAD ARIF HASHIM	DR NUR NASULHAH KASIM (FSG)	PN. NORSHIMAH ABDUL RAHMAN (FP)
DSS/C11	MONITORING SYSTEM USING ESP8266 NODEMCU FOR CHILI PLANTING <i>MUHAMMAD FAKRUL RIZUAN BIN AZMAN & NURZAID BIN MUHD ZAIN</i>	Ts. NOORFAIZALFARID MOHD NOOR	PN. HANISAH AHMAD	DR MASAYU NORMAN (FSPU)	PN. NURWAHIDA FUAD (FPP)
DSS/C12	FLOOD WARNING AND MONITORING SYSTEM USING NODEMCU TECHNOLOGY <i>MUHAMMAD LUQMAN BIN ZULKIFLI & NURZAID BIN MUHD ZAIN</i>	Ts. NOORFAIZALFARID MOHD NOOR	EN. ALIF FAISAL IBRAHIM	DR NAZIRAH MD TARMIZI (FSPU)	DR FADLI FIZARI ABU HASSAN ASARI (FPP)

CSP650 – LIST OF TOPICS, EXAMINERS & JUDGES CS245

BOOTH NO.	TOPIC & AUTHORS	EXAMINER 1	EXAMINER 2	JUDGE 1 (VIDEO PITCHING & POSTER)	JUDGE 2 (VIDEO PITCHING & POSTER)
DSS/C13	GEOFENCING BASED STAFF ATTENDANCE TRACKING SYSTEM USING MOBILE APPLICATION <i>ILHAM SYAHMIN BINTI NASRUDDIN & MOHD NIZAM BIN OSMAN</i>	Ts. DR SITI ZULAIHA AHMAD	DR ZULFIKRI PAIDI	EN. SHARIR AIZAT KAMARUDDIN (FSG)	EN. MOHD FAZLY MOHD RAZALI (FPP)
DSS/C14	PERFORMANCE ANALYSIS OF WORMHOLE ATTACK ON DYNAMIC SOURCE ROUTING (DSR) IN MANET <i>MUAZ ADIB AZFAR BIN AZHAR & DR AHMAD YUSRI BIN DAK</i>	EN. IMAN HAZWAM ABD HALIM	EN. MOHD FARIS MOHD FUZI	DR ROSYAINI AFINDI ZAMAN (FSG)	DR NURUL LABANIHUDA ABDULL RAHMAN (FPP)
DSS/C15	DETECTING KEYLOGGER WITH DUMMY KEYBOARDS AND MULTIPLE LAYOUTS <i>MUHAMMAD FAIZ HAZIM BIN ABDUL RAHMAN & Ts. DR ABIDAH BINTI HAJI MAT TAIB & NOR ALIFAH BINTI ROSAIDI</i>	EN. IMAN HAZWAM ABD HALIM	EN. MUHAMAD ARIF HASHIM	DR ANG LEE SIN (FSG)	DR NORHISAM BULOT (FPP)
DSS/C16	PERFORMANCE EVALUATION OF BLACKHOLE AND SELECTIVE FORWARDING ATTACK ON AODV IN MANET <i>MUHAMMAD IDHAM BIN PADIL & DR AHMAD YUSRI BIN DAK</i>	EN. NURZAID MUHD ZAIN	EN. IMAN HAZWAM ABD HALIM	SR. DR ERNIEZA SUHANA MOKHTAR (FSPU)	PN. SHALIZA AZREEN MOHD ZULKIFLI (FPP)
DSS/C17	INSIGHT INTO MALWARE ANALYSIS CLASSIFICATION OF RANSOMWARE USING MACHINE LEARNING SVM <i>MUHAMMAD IKMAL BIN IHSAN & MOHD FARIS BIN MOHD FUZI</i>	EN. MUHAMAD ARIF HASHIM	PN. RAFIZA RUSLAN	PN. ZAMZILA ERDAWATI ZAINOL (FSG)	DR FARAH LINA AZIZAN (FPP)
DSS/C18	CAR LICENSE PLATE RECOGNITION SYSTEM USING RECURRENT NEURAL NETWORK (RNN) <i>NUR FARAHANA BINTI MAHMUD & DR ZULFIKRI BIN PAIDI</i>	PN. HANISAH AHMAD	PN. MAHFUDZAH OTHMAN	CIK HUZAIFAH A HAMID (APB)	EN. ABDUL HAFIZ YUSOF (FPP)
DSS/C19	SOCIAL DISTANCING MEASURING SYSTEM USING BLUETOOTH LOW ENERGY <i>NUR IRDINA NADIRA BINTI MOHD DZAHIR & ROS SYAMSUL BIN HAMID</i>	PN. RASHIDAH RAMLE	EN. NURZAID MUHD ZAIN	EN. SAMSURI MOHD SALLEH (FSPU)	PN. NOOR HAFIZHA MUHAMAD YUSUF (FPP)

CSP650 – LIST OF TOPICS, EXAMINERS & JUDGES CS245 & CS251

BOOTH NO.	TOPIC & AUTHORS	EXAMINER 1	EXAMINER 2	JUDGE 1 (VIDEO PITCHING & POSTER)	JUDGE 2 (VIDEO PITCHING & POSTER)
DSS/C20	HANDWRITTEN CHARACTER RECOGNITION FOR ONLINE LEARNING BY USING RECURRENT NEURAL NETWORK <i>NUR NABILAH SHAFIQAH BINTI ROSLI & DR ZULFIKRI BIN PAIDI</i>	EN. MUHAMMAD NABIL FIKRI JAMALUDDIN	DR TAJUL ROSLI RAZAK	DR FAIEZAH HASHIM (FSG)	DR NURUL FATIHAH ABD LATIP (FPA)
DSS/C21	IMPLEMENTATION OF BLOCKCHAIN TECHNOLOGY IN UITM VOTING SYSTEM <i>NURRIZA SYAFIQAH BINTI MOHD ROZALI & MUHAMAD ARIF BIN HASHIM</i>	DR ZULFIKRI PAIDI	Ts. DR ABIDAH HJ MAT TAIB	DR MARJAN MOHD NOOR (FP)	PN. MAJDAH CHULAN (APB)
DSS/C22	STATIC ANALYSIS OF MALWARE BEHAVIORAL DETECTION USING DECISION TREE MACHINE LEARNING <i>SYAMIR BIN MOHD SHAHIRUDIN & MOHD FARIS BIN MOHD FUZI</i>	EN. NURZAID MUHD ZAIN	Ts. DR ABIDAH HJ MAT TAIB	PN. NORSHIMAH ABDUL RAHMAN (FP)	PN. SOLIHAH HAJI YAHYA ZIKRI (ACIS)
DSS/C23	SCHOOL VISITOR MANAGEMENT MOBILE APPLICATION <i>MUHAMMAD RAIS HELMI BIN MD ARIS & NURZAID BIN MUHD ZAIN</i>	PN. ROMIZA MD NOR	Ts. NOORFAIZALFARID MOHD NOOR	PN. NURWAHIDA FUAD (FPP)	DR NADHILAH ABDUL PISAL (APB)

Web-Based Application of the Unused Medicine Donation System (Medonate)

Nurul 'Ain Mat Zam¹, Ruzita Ahmad², Shukor Sanim Mohd Fauzi³

¹*ainmatzam@gmail.com*

²*ruzitaahmad@uitm.edu.my*

³*shukorsanim@uitm.edu.my*

ABSTRACT

Improper disposal of unused medicines that are highly practiced in the community is clearly inappropriate action since there are needy people desperate to prescribe medications due to their personal health conditions. This relates to the waste of worth that the government of Malaysia needs to face every year because people are still unaware of the Return Your Medicine Program that was established by the Ministry of Health. In order to overcome the problems, the donation of unused medicines is the appropriate solution. Accordingly, this research goal was to identify the criteria of a web-based application for unused medicine donation system, construct a web-based application for unused medicine donation using Adobe Dreamweaver, and evaluate the proposed model based on the functionality and usability testing. Medonate is used by the stakeholders which are pharmaceuticals, hospitals, NGOs, and individuals or donors in monitoring and controlling the management of unused medicine. HTTP, PHP, and MySQL programming languages have been used along with System Development Life Cycle (SDLC) Waterfall Model to develop the system. This project evaluation was done by using usability and functionality testing focusing on three groups which are potential donors, NGOs, and medical staff. As a result, users agree that this system is understandable and appropriate for society because of the clarity and easefulness of Medonate. It is hoped that Medonate is useful and brings benefits to increase awareness of the public in terms of improper disposal, wastage of pharmaceuticals, and limited access of people from rural places to get medicines.

Keywords: Web-based application, Unused medicines, Donation, Return, Medonate

Langkawi Ferry Document Management System

Nurul Jannah Sa'adat¹, Noorfaizalfarid Mohd Noor²

¹2019423798@student.uitm.edu.my

²nfaizalf@uitm.edu.my

ABSTRACT

Document Management System is a software solution that digitizes, tags, approves and completes certain duties with these documents. The purpose of this project is to develop a Langkawi Ferry Document Management System that will help users fulfil their requirements and manage documents in a structured manner. Accordingly, this study aims to develop a web-based system for the Langkawi Ferry Document Management System and evaluate the functionality and usability of the document management system for Langkawi Ferry. Then, the problem statement in this project is that document management is done manually which causes every transaction that will be done to be slow. For the methodology, a waterfall model was selected. The Waterfall Approach is the first SDLC Model to be widely used in Software Engineering to ensure project success. The contribution of this study has found that a document management system is important to every organization. Furthermore, the system can increase productivity because this system helps to add the information for documents more efficiently. This system was evaluated using functional testing and user acceptance testing. This evaluates conducted on users and experts from the ferry Langkawi department. As a result, users agree that Langkawi Ferry Document Management System is very useful and helpful to manage the document.

Keywords: Document Management System, problem statement, functionality and usability, methodology

EatPlace: Restaurant and Café Recommender System for Tourist

Ahmad Tasnim Muhamad Azlan¹, Nor Arzami Othman²

¹*ahmadtasnimmuhamadazlan@gmail.com*

²*arzami@uitm.edu.my*

ABSTRACT

Food tourism describes activities that allow visitors to try food and drinks that are unique to culture of certain ethnic or race. It includes values of the food to the history, culture and the environment of the country as well as tasting food and drink from different regions of the world. Recommender systems in this project, programmes that provide recommendations to users based on a set of criteria in finding restaurant or café. Tourist keep continue facing difficulty to decide where they wanted to have a meal in a foreign country. Therefore, this project aims to develop mobile application EatPlace: Restaurant and café recommendation system for tourist and evaluate the mobile application using functionality testing and user acceptance test. The location of the study focused on North-East district, Penang. The method used in this project is content based filtering for the recommender system in finding restaurant and café. It is a sort of recommender system that makes predictions what user would like based on past activity. Through the analysis of UAT, this project achieve objective and most participant would prefer using mobile application integrated with Google Maps to recommend a restaurant and café based on filtering preference than opening a browser to type and search a place to eat as tourist. Future recommendation for this project would have filters for halal and non-halal food and easier for Muslim users to identify the status of the restaurant.

Keywords: Recommender system, Food tourism, Restaurant, Content based filtering

Prolexia: Learning Application for Dyslexia Using Voice Recognition Technology

Ikhmal Hakim Yusri¹, Aznoora Osman²

¹*ikhmahakim4g@gmail.com*

²*aznoora@uitm.edu.my*

ABSTRACT

Dyslexia is a type of learning disability that affects reading ability among children where they usually have trouble to recognize and to pronounce letters and words. This difficulty stems from confusion to recognize some alphabets that have similar shape such as b and d, m and w, n and u, and p and q. Therefore, in this study, a web-based learning application called Prolexia was developed by integrating it with Voice Recognition Technology. Prolexia aims to reduce confusion of alphabets. The principles used to design it is a combination of both Multisensory and Structured Literacy approach. In multisensory approach, it combines multiple senses such as visual, auditory, motion and tactile while Structured Literacy defines stages of learning from phonics to alphabets, and to words. Voice Recognition Technology was embedded in Prolexia to detect and determine the pronunciation of words by learners. The learners will repeat the word sound provided by the learning module and use the Voice Recognition Technology to learn its pronunciation until they can say it correctly. This implementation would help the dyslexic learners to improve their word recognition and pronunciation ability, hence their reading ability. Heuristics Evaluation was conducted with three specially trained teachers from Persatuan Disleksia Malaysia and three Computer Science lecturers from Universiti Teknologi Mara Perlis Branch. Findings showed the experts agreed that Prolexia is useful in helping dyslexic children to overcome their reading difficulty.

Keywords: Dyslexia, Learning difficulty, Multisensory, Structured literacy, Voice recognition

Malaysian Sign Language Detection by Image System (MSLDI)

Mohammed Syafiq Affandy¹, Ruzita Ahmad², Shukor Sanim Mohd Fauzi³

¹*2019311739@student.uitm.edu.my*

²*ruzitaahmad@uitm.edu.my*

³*shukorsanim@uitm.edu.my*

ABSTRACT

Hand gestures are one of the nonverbal communication methods used in sign language. It is most used to communicate among deaf people who have hearing or speech problems, as well as with normal people. Many developers around the world have created various sign language systems, but they are neither flexible nor cost-effective for end users. As a result, this study introduced software that presents a system capable of automatically recognizing sign language to assist deaf people in communicating more effectively with each other or with normal people. The objectives of this study consist of to identify the criteria of the sign language of detection by image, to construct the sign language detection by image based on Deep Learning application and to evaluate the functionality of the proposed model. The system will benefit to deaf people and normal people because they will not need to use an interpreter to communicate with each other through online conversation. This project was developed by using research framework methodology. There are four phases involve which are Theoretical Study, Exploratory Study, Design and Development and Evaluation of MSLDI system. To measure the useful of Malaysian Sign Language Detection by Image System (MSLDI), Usability Testing and Functionality Testing were conducted to evaluate the system. Furthermore, findings shows that MSLDI still weak on recognizing the hand gesture that perform by different user. For feature work, the accuracy for the detection needs to be improvise on recognizing the hand gesture.

Keywords: Hand gesture, Malaysian sign language, Image detection

College Event Management System

Muhammad Iqbal Iskak¹, Hawa Mohd Ekhsan²

¹*2019563735@student.uitm.edu.my*

²*hawame@uitm.edu.my*

ABSTRACT

Difficulty in registering for an event in college is a common problem faced by college residents. Having to collect physical stickers and keeping it safe is hard for students who are busy in their daily life. QR Code technology was an idea that can be implemented in this system as a registration method which help students to register for an event more quickly. Therefore, the objective of this project is to develop a web system called College Event Management System to read QR Code from students and manage all events in a database and to evaluate the effectiveness of the mobile application using Functionality Test and User Acceptance Test (UAT). Development methodology used in this project is Waterfall Model. It includes five phases which are requirement analysis phase, design phase, development phase, testing phase and documentation phase. The results from the test conducted shows that majority of the respondents are neutral in using College Event Management System. Some recommendation that can be done to improve the system is to create a profile for student to check on their registered events. Future works for this research is to create a mobile application that can be integrated with the system to enable user to have easier access to the system.

Keywords: Event, QR Code, Waterfall model, Register, Management system

Online Driving School Management System with Whatsapp Reminder Notification

Nik Nurul Simaa Nik Amer¹, Siti Zulaiha Ahmad², Nora Yanti Che Jan³

¹*niknurulsima123@gmail.com*

²*sitizulaiha@uitm.edu.my*

³*noray084@uitm.edu.my*

ABSTRACT

Efficiency of driving schools in managing will reduce the waste of manpower and information resources. Existing web applications usually provide incomplete information about the instructor, such as personal pictures, and it does not provide a proper platform for communication between instructors and students. The purpose of this study to address the issue of identifying suitable instructors who meet the preferred criteria and designing a web-based system for Online Driving School Management Systems with Whatapps Reminder Notification. The target users of the system are instructors, staff, and students. Integrated with the Whatapps reminder notifications can alert users to upcoming classes and ensure it delivered successful. Then, six phases in the System Development Life Cycle (SDLC) Waterfall Model were adapted as its development methodology. The principles of user-first, tools are the best friend, and separation of modules are applied to make the development of modern web-based applications more systematic. Functional testing and User Acceptance Test (UAT) was conducted to evaluate the system. According to the results of the UAT analysis, the category of attitude (ATT) and intention to use (BI) has the highest means score, which is 4.59. Meanwhile, all data sets succeeded in the functionality testing. As a result of the research, a web-based Online Driving School Management System with Whatapps Reminder Notifications was managed to establish.

Keywords: Driving school, SDLC, UAT, WhatsApp

Smart Orchid Plant Monitoring System with IoT

Nor Izzati Auni Mohd Jasni¹, Nadia Abdul Wahab²

¹*niaty72@gmail.com*

²*nadiawahab@uitm.edu.my*

ABSTRACT

The Internet of Things (IoT) is becoming a phenomenon in the world of technology. It allows various devices to interact with each other through internet connection. IoT has been utilized in various industries, including agricultural. This technology also has a great potential in assisting Moth Orchid (*Phalaenopsis*) farming. The growth of the Moth Orchid is influenced by environmental factors such as temperature and humidity. If these factors are not monitored properly, it will affect the growth of the orchid plant. Therefore, the aim of this research is to design and develop a smart monitoring orchid plant using an IoT system. This system can monitor the current temperature and humidity and give a notification to the users if the temperature and humidity is not at the optimal condition. The Software Development Life Cycle (SDLC) with waterfall model has been chosen as the methodology for this study. This model consists of five phases including analysis, design, implementation, testing, and documentation. Functionality testing, IoT testing, and usability testing were conducted during the study to evaluate the system. Functionality Testing was done to ensure that all modules in the system are functioning effectively and efficiently. Usability Testing was conducted with thirty (30) users (Orchid Farmers and Agrotechnology Undergraduates) to investigate the usability aspect of this system. The result indicates that most of the users agreed that the system is useful and has a good information and interface quality. The suggestions from the users were also taken into consideration. In conclusion, this research has achieved the objectives which are to design, develop and evaluate a Smart Orchid Plant Monitoring with IoT System.

Keywords: IoT, Moth orchid, Waterfall model

Reducing Food Waste an Online Food Donation System

Nur Syazwani Othman¹, Nadia Abdul Wahab²

¹*syazwaniothman21@gmail.com*

²*nadia.abdwahab@uitm.edu.my*

ABSTRACT

This research aims to design and develop an online food donation system with the intention to reduce food waste. This system will assist society to donate food effectively and efficiently. In addition, individuals who need food, can visit this system, and send details and requests for the food donation. This research also aims to evaluate the web-based food donation system through Functionality Test and User Acceptance Test. The waterfall model was utilized as the methodology of this study. The waterfall model consists of five phases including requirement, design, implementation, verification, and documentation. The development of this system was done by using PHP programming languages and MySQL. The functionality testing was conducted to ensure that all these system's functions are working properly. The User Acceptance Testing has been conducted to measure this system in term of ease of use, usefulness, attitude, and intention to use. Among the participants that involved in this testing are the community and volunteers from non-governmental organization (NGO) from Tanah Merah, Kelantan. Results from the User Acceptance Test shows that most participants agree that the system is eased to use, useful for them. The participants also show a positive attitude towards the system and most of them has intention to use this system in the future. In conclusion, this research has achieved its objective which are to design, develop and evaluate a food donation system to reduce food waste.

Keywords: Food donation, Waterfall model, User Acceptance Test

A Web-Based Ordering Application for Homemade Food Entrepreneur

Nurfarah Wahidah Mohamad¹, Norziana Yahya²

¹*nrarahwhdh23@gmail.com*

²*norzianayahya@uitm.edu.my*

ABSTRACT

The fast advancement of information technology had an impact on many parts of life, including ordering. A web-based ordering application implemented for homemade food entrepreneurs is one method to better assist customers and entrepreneurs in ordering homemade food. This is an ordering tool that can help customers and entrepreneurs purchase and sell more efficiently. Accordingly, the goal of this study is to design and develop A Web-based Ordering Application for Homemade Food Entrepreneurs known as Ladys Classic. Appropriate development approaches have been employed to use the Waterfall Model as a guideline for developing web-based applications. A Web-based Ordering Application for Homemade Food Entrepreneurs has been developed using three interface design principles which are simple is the best, consistency and colour palette and imagery. Ladys Classic was developed using a Bootstrap framework and also PHP with a MySQL database. It was evaluated by passing out a questionnaire that consisted of respondents from different backgrounds, which contained questions from the User Acceptance Test (UAT), and a functionality test also was conducted. The findings found that the average responder strongly agreed that the Lady's Classic application is particularly useful for ordering homemade food. Therefore, the development of Ladys Classic is important as it can make the order progress quicker by just filling out the order form. Customers and entrepreneurs of homemade food indirectly can get benefit from this application because customers find the purchasing and selling process more exciting because they are able to buy from anywhere by simply surfing the web.

Keywords: Ordering homemade food, Entrepreneur, Ladys classic, Waterfall model, User Acceptance Test

Mobile Application: A Smart Sanitization Monitor for Workplace

Nurul Amirah Zamzuri¹, Tajul Rosli Razak²

¹*nurulamirahzamzuri@gmail.com*

²*tajulrosli@uitm.edu.my*

ABSTRACT

Workplace is like our second home to our community where they will take note about the safety and hygiene. It can also be a major source of disease transmission, including Covid-19 epidemics globally. Due to COVID-19 concerns, workplace hygiene has been taken seriously, and in order to avoid the workplace from becoming a hotspot for disease transmission, all organizations must constantly sanitize and disinfect their workplaces. The difficulty is that it is easy to neglect the significance of routinely cleaning and disinfecting the environment. The goal of this project is to develop a mobile application called SaniTracker to record and save sanitizing activity data. This research study is implemented Software Development Life Cycle (SDLC) with waterfall model for this mobile application development and Quick Response (QR) code is imbedded as method. Accordingly, mobile user experience (UX) key design principles are implemented during the development process including finger friendly tap targets, legible text content, visible interface element and self-evident navigation. Functionality testing and user acceptance testing is the evaluation applied in this research study by the workers. A significant finding from this research is that users are familiar with the QR code feature for recording sanitization activities, and many respondents stated that the SaniTracker mobile application can make this process easier for them because they have used it before. Ultimately, this project is beneficial and useful for all users since it can record sanitization activity data as proof that sanitization action has been taken and protect all firms from government penalties.

Keywords: Workplace area, Sanitization, Hygiene, Disinfect, QR code, Mobile application

Food Recipe Recommender System

Siti Noramirah Ibrahim¹, Nor Arzami Othman²

¹*amirahibrahim07@gmail.com*

²*arzami@uitm.edu.my*

ABSTRACT

Food refers to any material that taken by humans to give nutritional support to their body. Every type of food must have a recipe on how to cook it. Today, there are various culinary applications or websites that can be used to search recipes based on a term, such as the name of a food item or the style of cuisine. But the problem is, people need to expand an effort towards planning their daily menu. Those problem were faced by everyone who has a huge responsibility and role in the family. This project objectives are to design and develop a food recipe recommender system using collaborative filtering technique. This project focused on all people, especially for the housewives. This project was done to help the housewives in preparing the food for their family. The research methodology that been used in this project was Waterfall Model, which have six phases, which is planning phase, analysis phase, design phase, development phase, testing phase, and system maintenance and documentation phase. Moreover, the development of the design and user interface was using the PHP framework. The database of the system was using SQLite3. The evaluation of the project was using User Acceptance Test (UAT) and functionality testing. The findings indicated that by using the system, it helps the user to learn about new recipes that can be serve to the family and friends. To conclude, by learning new recipe can also improve their cooking skills.

Keywords: Food recipes, Waterfall model, User Acceptance Test, Functionality testing

Food Ordering Mobile Application for Cafeterias in Campus

Syamimi Zakaria¹, Norziana Yahya²

¹*syazakaria1999@gmail.com*

²*norzianayahya@uitm.edu.my*

ABSTRACT

The development is now accelerating especially when it involves technology. Such development became more aggressive when the world was hit by a pandemic. The online Food Ordering Mobile Application for Cafeterias in Campus is proposed to simplify the existing food ordering process. The proposed system is provided the users an interfaces as well as menu options that can facilitate both the administrator and students. The system designed for both administrator and students that enable them to get the notification from students' orders so that they will not missing it. Other than that, students can choose more than one item to make an order also can view order details while for administrator they can manage order from student also can update new menus at their café. Other features in this food ordering mobile application for cafeterias in campus are, both user which administrator and students can communicate each other in chats page. In developing the mobile application, a suitable development methodology has been implemented using Waterfall Model as guideline. The Waterfall Model has different phases in development such as analysis, design, implementation, testing, deployment, and review. The food ordering mobile application for cafeterias in campus has been designed using three principles which are navigation intuitive, legible text content and hand position controls it has been developed using Android Studio with Firebase as a database. It was evaluated by distributing questionnaires to 30 respondents which contained questions from usability testing. Functionally test was conducted using test script. The test result revealed that the mobile application platform is suitable to use but needs to be refined and improved.

Keywords: Food ordering mobile application, Food, Food ordering, Mobile application, Campus

Development of Fitness Tracker Mobile Application for Calisthenics Exercise

Aiman Harith Zaharudin¹, Muhammad Nabil Fikri Jamaluddin²

¹*harith1384@gmail.com*

²*nabilfikri@uitm.edu.my*

ABSTRACT

Mobile applications for businesses, education, social networks, and especially on fitness and exercise in health industries are being developed at a faster rate thanks to the rising millions of consumers that utilize mobile applications. Calisthenics is exercising in which the person's body weight is the only source of resistance. The CalisFit application is a mobile tool that assists users in managing their calisthenics exercises routines. The aim of this research is to design and develop a fitness tracker mobile application for calisthenics exercises. This application includes data on calisthenics exercises and calorie loss based on the exercise. This application also included a notification for the user to view the information such as a daily reminder to do the exercise and some knowledge about calisthenics for the users. Waterfall model has been adapted as the methodology of this study. This research methodology will be split into three sections. Mobile application requirements, mobile application design and development, and testing. The result from the User Acceptance Test (UAT) indicates that most of the users agree that CalisFit application is useful, information quality and interface quality. In conclusion, The CalisFit application will therefore assist all users by providing many benefits to those who require knowledge about calisthenics exercise such as athletes and people to build their body, depending on the features and capabilities it offers.

Keywords: Calisthenics, Mobile application, UAT testing, Waterfall model

An Interactive E-Quiz English Learning for Preschool Children in Rural Areas

Anis Roslan¹, Tajul Rosli Razak²

¹*anisbtrosan@gmail.com*

²*tajulrosli@uitm.edu.my*

ABSTRACT

E-Quiz Systems is a system that take the place of manual methods, which are paperless traditional ways that have been employed in rural preschools. This research is an interactive web-based system that will help children and teachers in learning and teaching of English language in rural areas. This research aims to inspire preschool children in rural areas to learn English language while also allowing teachers to assess their children knowledge levels through interactive web-based systems. Using the interactive multimedia principles which are diverse media and navigation with interaction, a web-based application system is designed as a medium to show e-quiz questions, videos English learning as references on the system's homepage. An E-Quiz System is developed as the interactive quiz English learning using interactive multimedia principles. In addition, this project was tested through functionality and usability testing. From the findings it has been discovered that this project can gain interest children in learning English and ease the teacher to monitor the progress of children with the score that has been put into the E-Quiz System.

Keywords: E-Quiz system, English, Web-based, Preschool, Rural, Interactive, principles

Mobile Application for Animal Classification using Interactive Multimedia

Khaleda Rafieka Khailmi¹, Nor Arzami Othman²

¹*khaledarafieka99@gmail.com*

²*arzami@uitm.edu.my*

ABSTRACT

Information technology's quick advancement has had an impact on many facets of society, including science education. However, traditional learning teaching strategies continue to employ in primary schools, particularly in the subject of science. Classification here is defined as the arrangement of objects such as organisms, ideas, or information into groups. Hence, this application entitled is Mobile Application for Animal Classification Using Interactive Multimedia designed and developed as a teaching and learning aid in learning Science Classification of Animal topic. The interaction design lifecycle model had been implemented in the development of this application. This educational tool is meant to support the learning and teaching processes through the use of diverse media, such as instructional video resources for elementary and primary school children. Multimedia components will increase learning interest, particularly for science subjects that call for reading, comprehension and memorization. The ADDIE model has different phases in development such as analysis, design, develop, implement, and finally evaluate. This mobile application evaluated with Expert Review by distributing questionnaires to one expert and including questions for 33 respondents from User Acceptance Test (UAT). The result of Expert Review shows that the Interactive Multimedia-Based Mobile Application is suitable to use but needs to be refined and improved. The results of the UAT showed that the mobile application in the context of science education is generally efficient and helpful, especially for primary school students and teachers. In conclusion, the results indicate that the Interactive Multimedia-Based Mobile Application is interesting and valuable for students in improving subject science especially for animal classification, as it is an important part of the science learning.

Keywords: Mobile application primary, Science, Animal, Education, Classification

Mobile Donation Application for Charity Organization

Nurul Farhana Asyiqin Mohd Jamli¹, Azmi Abu Seman², Khairul Anwar Sedek³

¹*asyiqinfarhana39@gmail.com*

²*azmi384@uitm.edu.my*

³*khairulanwar@uitm.edu.my*

ABSTRACT

A donation is a gift of funds channelled to a charity organization to help it achieve its goals without any return. Furthermore, some charity organization still update and manage data from the donors using a spreadsheet and papers. A web application has been used by certain organisations to improve the procedure. In this study, community care application can help charity organizations manage donations such as clothes, food baskets and loved ones in the community. Moreover, this project proposes is to design and develop a mobile donation application for charity organization and to evaluate the application using functionality testing and user acceptance test. This project also uses the waterfall model to develop the mobile application and it consists of five phases which is requirement analysis phase, designing phase, development phase, testing phase and project documentation. The evaluation has been conducted by using user acceptance test and functionality testing. The result is user can organise all information on the donors and recipients of aid using the donation application. All information of them can be protected to prevent fraudulent activity. Finally, the user may quickly record the details utilising the mobile application after developing this contribution system.

Keywords: Community care application, Mobile application, Donor, Recipient, Donation

Textual Information Analysis on User's Emotion in Social Media using Machine Learning Technique

Ahmad Danial bin Musana¹, Muhammad Nabil Fikri bin Jamaluddin²

¹*danielnan999@gmail.com*

²*nabilfikri@uitm.edu.my*

ABSTRACT

The world has been shocked by Covid-19 and it has caused various human emotions posted on social media due to many aspects such as vaccination, number of daily Covid-19 cases and many more. This project is about analysis on user's emotion based on textual information in social media using machine learning techniques. The objectives of this project is to develop classification model of analyzing user's emotion based on textual information, to compare the accuracy of each machine learning technique and to test the classification performance of developed model using evaluation metrics. This machine learning techniques applied includes Artificial Neural Network (ANN) and Naïve Bayes. The project also contains comparison of machine learning technique and three type of data split for testing and evaluation metrics is used to check the precision, recall and F1 – Score. Testing result shows that, the NB model outperform ANN with 59% accuracy.

Keywords: Text analysis, Text mining, Machine learning, Evaluation metrics, NLP, NLTK

Indoor Carbon Dioxide Monitoring System to Manage Spread of COVID-19 with Eco Feedback

Ahmad Uzair Azuka¹, Romiza Md Nor², Huzaifah A Hamid³

¹*ahmaduzair642@gmail.com*

²*romiza@uitm.edu.my*

³*huzaifahhamid@uitm.edu.my*

ABSTRACT

Due to the COVID-19 pandemic that is plaguing the world, breathing clean air has become the top priority in protecting oneself against the deadly virus. However, high concentration of Carbon Dioxide (CO₂) and temperature level in indoor spaces increases the risk of spreading the virus, especially if the spaces have poor ventilation. Therefore, in this study, indoor carbon dioxide monitoring system was developed to monitor the concentration of CO₂ and temperature level using sensor to manage the spread of COVID-19 in indoor spaces such as rooms, classrooms and office via mobile application. When CO₂ and temperature level is high, this application visualizes and notifies users using eco feedback principles design. Eco feedback is a technique that provides feedback on individual or group activities to lessen the harmful impact on the environment. The eco feedback principles used in designing this mobile application user interface are attractiveness, clear information, object metaphor and living creatures. The sensor and mobile application that developed was tested using functionality testing and usability testing based on eco feedback evaluation principles which are clarity, emotion, effectiveness and preference. The evaluation was conducted using two types of evaluation which are online evaluation and field trial testing. It was found that the application is successfully able to visualize the data value of carbon dioxide, temperature and trend of gas in mobile application is achieved. It encourages user to change behavior to release concentration of CO₂ by opening fan and windows also physical distance from the warning displayed of notification sent to their mobile application.

Keywords: Carbon Dioxide (CO₂), Eco feedback principles, Concentration, Visualize, Notification, Change behavior

Global Warming Indicator Dashboard

Mohammad Asrie Rafizie Mohamad Apini¹, Norfiza Ibrahim²

¹*asrie.rafi.ar@gmail.com*

²*norfiza@uitm.edu.my*

ABSTRACT

Global warming is a silent threat to the Earth, flora and fauna, and humans due to its slow effect on the global average temperature. Even though global warming has been an issue for a long time, some people do not believe that global warming is a real phenomenon or just have been ignorant toward any global warming issues. The objectives of this study are to create a dashboard and spread awareness about global warming to the public so that the public have awareness in reducing global warming by starting to take care of the environment. The research process that was used in this study has four phases which are Planning, Analysis, Development and Testing. In the Testing Phase, the participant will participate in User Acceptance Testing to gain the opinion of the dashboard's users. User Acceptance Test has collected 50 responses from 50 different participants to answer the Perceived Ease of Use (PEU), Perceived Usefulness (PU), Attitude (ATT) and Intention of Use (IU). Feedback from the participants was used to create a refinement for the Global Warming Indicator Dashboard. The result of this refinement is a much more user friendly where the user who can't understand English language can still use the Global Warming Indicator Dashboard. There are also some recommendations of the project as tips for the next researcher who want to continue this study.

Keywords: Data visualisation, Global warming, Power BI, Dashboard, Global warming awareness

Data Visualization on Top Highest Grossing Movie in Hollywood Using Python

Mohamad Islahuddin Abdul Malek¹, Mohd Nizam Osman²

¹*islahuddinmalek@gmail.com*

²*nizamos@gmail.com*

ABSTRACT

Data visualization on movies with the top highest quotes in Hollywood is a visualization technique based on secondary data about movie quotes in Hollywood. The goal of this secondary data visualization is to study current film flow patterns because recording companies can use descriptive analysis to make judgments about film production in terms of quality, appeal and genre that can appeal to audiences. The second problem is that the rankings shown from the site still use the current manual which does not have the latest information or the latest rankings from the latest movies. Therefore, data visualization on Hollywood movies with the highest citations using python is proposed to address the problem issue. This prototype will help users analyse or find Hollywood movies with easy positioning using this method. In addition, users can also view multi -pattern graphs by using this prototype by year or type of data to be studied for example by year or type of film genre. In addition, this prototype methodology consists of three phases, project framework, system development and evaluation phase. Then, a consumer acceptance test was conducted with 30 respondents to determine the effectiveness in film collection in the Hollywood ranking count. Visualizing the top highest grossing movies in Hollywood using Python is positively accepted by most of the public to make the effectiveness of grossing movies in Hollywood ranking count more effective and efficient. Thus, by using this system, user can check the grossing movies in Hollywood ranking count more easily with Python without involving less accurate data.

Keywords: Movie, Hollywood, Python, Data visualization, User Acceptance Test (UAT)

Data Visualization of English Premier League Open Data Using Interactive Dashboard

Mohammad Hamzah Othman Jama¹, Khairul Anwar Sedek²

¹*hokaizohamzah@gmail.com*

²*khairulanwarsedek@uitm.edu.com*

ABSTRACT

Football is one of the most popular sports in the world, with thousands of amateurs and professional players participating each day. As a result, it's predictable to create a massive amount of data. Through today's modern data-driven world, it's important to identify the best, most self-explanatory manner to present data, so that visual patterns may be formed that relate to the underlying available data. This project proposes an interactive visualization dashboard for analysing football data and discovering patterns, connections, and ideas. This project utilizes data from the English Premier League to demonstrate the utility of the selected technique, which is aimed at non-visualization professionals.

Keywords: English Premier League, Data visualization, Dashboard, Microsoft Power BI, Usability testing

Data Visualization on Occupational Accident in Malaysia

Mohd Asri Atan¹, Aznoora Binti Osman²

¹*asrikedah97@gmail.com*

²*aznoora@uitm.edu.my*

ABSTRACT

Accident Workplace issues include total of death, total of accidents, total permanent disability, and total non-permanent disability. The objective consists of developing data visualizations based on Organization Safety and Health information, analyses the factors that contribute to workplace Accidents, and the frequency of employee and employer daily routine also evaluate the data visualization using user acceptance test. The dataset was extracted from Portal Organization safety and health Malaysia Portal, then loaded and transformed into Power BI application for dashboard visualization. It can be explained even more clearly by displaying visuals. As a result, it can raise awareness of a good Standard Operating Procedure (SOP). Data analytics using data visualization is a suitable tool because it helps students to understand how to reduce the number of accidents at work habits through visualization of their working routine.

Keywords: Total of death, Total of accidents, Total permanent disability, Total non-permanent disability

Property and Violent Crimes Data Analysis Using an Analytical Dashboard.

Muhammad Amirul Husaini Asham¹, Khairul Anwar Sedek²

¹*amirulhusaini22@gmail.com*

²*khairulanwarsedek@uitm.edu.my*

ABSTRACT

One of the main reasons a person commits a crime is the narrowness of life. However, this is not the best way to get on with life. A crime is an illegal activity or action for which people can be punished by law. Our country, Malaysia, does not have such a crime dashboard that people can view it and play with the data. The only report that people can review about crimes is the yearly report by The Department of Statistic Malaysia, but users cannot interact with it like a dashboard. With the current techniques, data visualization is presented by 2-dimension graph only. Using 2-dimensional graphs makes it hard for the users to get the full overview of the data. It is hard to see the trend of crime using that technique. The objective of this project is to analyze the requirements for data analysis of property and violent crime cases in Malaysia, design and develop analytical dashboard based on property and violent crime cases in Malaysia, and to evaluate the analytical dashboard for analysis of trends in property and violent crime cases in Malaysia. The dashboard prototype has been developed using Balsamiq wireframe in order to give an overview of the web application interfaces. The data dashboard has been developed using Microsoft Power BI which allows users to search for data, convert, visualize, and share the reports and dashboards that users create with other users in the same or different departments or organizations, as well as the general public. The end result of this project is creating a data dashboard that can be accessed by end-users like the public and for practitioners who may use this report of the project to develop similar projects. The usability testing from users has been conducted to ensure the objectives of this project will be achieved.

Keywords: Crimes, Data analysis, Analytical dashboard, Balsamiq, Microsoft Power BI, Usability testing

Computer Vision for Hand Signal Communication with Mediapipe and Support Vector Machine (SVM)

Muhammad Asyraf Mohd Khazaai¹, Muhammad Nabil Fikri Jamaluddin²

¹*asyrafkhazaai7@gmail.com*

²*nabifikri@uitm.edu.my*

ABSTRACT

This study utilized machine learning to design and assess the accuracy of computer vision for hand signal communication. The machine learning techniques used in this study include classification approaches that use Support Vector Machine (SVM) for picture categorization of hand gestures. In this research, Python, Artificial Neural Networks, Scikit-learn, and Mediapipe were also employed. This project will benefit handicapped persons who have communication challenges, or, to put it another way, people who have speech disorders. Regular individuals, as we all know, may say whatever they want and others will understand them; however, persons with speech disorders will find it difficult to communicate with normal people because they are unable to utilize their voice in the same manner that others do. As a result, the primary goal of this project is to make it easier for disabled and non-disabled individuals to communicate with one another.

Keywords: Hand signal communication, Computer vision, Machine learning, Python, Neural networks

Data Visualization on Trending Youtube Statistic Using Machine Learning

Nik Hafifi Mamat¹, Mohd Nizam Osman²

¹*nhafifi11@gmail.com*

²*mohdnizam@uitm.edu.my*

ABSTRACT

YouTube is a free video hosting Internet site that permits participants to keep and offer video content material. YouTube helps videos that constitute capability content that has content material that would come to be famous in a tremendously short time known as trends. YouTube Trends videos assist visitors see what is going on YouTube and across the world. Trends aim to function compelling videos through a wide variety of audiences. However, there are numerous issues faced through content creators. Among them is that content creators cannot recognize the types of videos that visitors like in YouTube. Content creators need to expect the amount of YouTube's viewing capabilities to assist them come up with ideas or create videos that have content recognizing the types of movies that visitors want to watch. To overcome this problem, a technique was carried out on this study through visualizing records from YouTube trending statistics. This studies additionally assists content creators through growing data visualizations that examine the information of streaming videos that represent records in machine learning. The goal of this study will assist content creators examine and combine records to identify factors influencing the popularity of YouTube videos, which can be now famous and visualize the data for their YouTube videos. In this project, a dataset of YouTube trending videos taken from the kaggle website will be incorporated into Jupyter Notebook for data analysis and will be displayed via Voila to the website. The project use three phases in the methodology which is project initialization, system formulation and evaluation. For the findings and analysis, this project has used the user acceptance test (UAT) method which has 11 questions that have been answered by 30 respondents. Results obtained from UAT, this prototype was accepted by the majority of respondents for Data Visualization on Trending YouTube Statistic using Machine Learning. Hence, this project helps the content creator knows how to design their content for their video based on the factor influence of the YouTube trending videos.

Keywords: Content creators, Data Visualizations, YouTube trending videos, User Acceptance Test (UAT)

Developing Graphical Visualization for Understanding the Pattern of Movie Streaming on iflix in Malaysia

Noorsyahirah Nasri¹, Norziana Yahya²

¹*noorsyahirahnasri@gmail.com*

²*norzianayahya@uitm.edu.my*

ABSTRACT

Thanks to recent improvements in digital technology, movie streaming has become more adaptable and accessible to a wider variety of people. Having an accurate and timely projection of box-office demand is crucial when it comes to planning and making decisions in this industry. If the movie's trend can be precisely predicted and analyzed, better decisions about release dates, marketing strategies, and costs can be made. Because the data is provided in dataset format, it is likely to include a large amount of information, making it difficult for certain individuals to interpret and comprehend the material based on their own viewpoint. Data visualization is required to gain a better understanding of the facts surrounding the movie streaming pattern. As a result, this project was planned to create a graphical visualization dashboard using Microsoft Power BI for analyzing movie streaming patterns, which was divided into four phases: planning, analysis, development, and implementation. This initiative enables related parties to better understand the movie streaming patterns on iflix, particularly in Malaysia and make better future decisions. This project used Python as a programming language and Anaconda as a platform to analyses the pattern of movie streaming on iflix in Malaysia and display the data using a Microsoft Power BI dashboard. The significance of this undertaking will have a beneficial effect on society as a whole. Having visual presentations make statistical data analysis on the movie streaming pattern more readily accessible and participatory for the general audience, this project may help individuals better comprehend statistical data analysis on the movie streaming pattern. The findings of this project allow decision maker to see the pattern of movie streaming on iflix in Malaysia using a Microsoft Power BI dashboard.

Keywords: Data visualization, Microsoft Power BI, iflix, Movie pattern

Colour Identification for Children with Autism using Discrete Trial Training (DTT)

Nor Airaneey Mazlan¹, Romiza Md Nor², Siti Zulaiha Ahamad³, Sakinah Idris⁴, Huzaifah A Hamid⁵

¹*airaneeymazlan@gmail.com*

²*romiza@uitm.edu.my*

³*sitizulaiha@uitm.edu.my*

⁴*sakinah66@uitm.edu.my*

huzaifahhamid@uitm.edu.my

ABSTRACT

Autism spectrum disorders (ASD) is a neurological and development disorder that causes a difficulty with social communication, restricted interest and repetitive behaviour. Identifying colour can improve their social communication which also assists with language development. The aim of this project is to design and develop the colour identification mobile applications (ColorID) and to visualise their score performance. This project implements discrete trial training (DTT) technique which is a process that is done repeatedly until they can identify colours by following five principles which are antecedent, prompt, response, consequences, and inter-trial interval. Besides that, empathic design is also applied and analysed to understand autistic children by conducting observation and interviewing psychologists to understand their needs Empathic design is analysed to gather six design guidelines for in the design of ColorID which are appearance, effectiveness, understandable, ease of use, satisfaction and efficiency. The evaluation has been conducted to content experts and teachers to measure the usefulness and satisfaction. From observation, it shows that autistic children easily identify colour with visual objects rather than texts. Autistic children with high functioning well interact with the drag and drop of the coloured object during interaction with ColorID. The score performance of colour identification activities was visualised into real-time charts. Overall, ColorID allows parents and teachers to view and monitor the performance of children in the score section provided. Users are also satisfied and agree that ColorID is useful for autism children.

Keywords: Autism spectrum disorder, Discrete trial training, Empathic design, Mobile applications, User interface guideline, Performance visualisation

Military Asset Expenditure Dashboard

Nor Haisyam Fitri Rosli¹, Norfiza Binti Ibrahim²

¹*haisyam5334@gmail.com*

²*norfiza@uitm.edu.my*

ABSTRACT

The overview of this project will show how to prepare the military assets expenditure dashboard from planning to testing. Spending on diversity of assets in the military can further strengthen a country's defence. Currently, the military assets management in some countries is not balanced with other important needs in the country. In spending the allocation for the purchase of military assets, a country needs to have clear guidelines. The main objective of this study is to provide visualisation of Military Assets Expenditure by countries. The following objectives are outlined to support the aim of the project are to identify data requirements that need to be used to visualise Military Assets Expenditure by countries, to design and develop a visualisation dashboard for Military Assets Expenditure, and to evaluate the proposed visualisation dashboard through User Acceptance Test. Research methodology that is used to achieve the Military's Assets Expenditure Dashboard consists of four phases which are Planning, Analysis, Development and Testing. To make the process of developing the dashboard run smoothly, restructured the raw dataset of Military's Asset Expenditure. The first thing that needs to be done before performing the data visualisation is to identify a suitable type to implement into the Military's Asset Expenditure dashboard. The user interface design on the Figma will be a guide to create the dashboard using Power Bi. The dashboard was created according to the data of the Military's Assets Expenditure. After that, the Military's Assets Expenditure dashboard is constructed. ETL is an important part of the implementation of the Military's Assets Expenditure Dashboard. The first step by creating the dashboard data visualisation is by extracting the data. The dashboard will load the data and transform it into graphical data using a visualisation tool. This phase requires a user testing activity to achieve the third objective, which is to evaluate the performance of the proposed dashboard interface based on the data analysis and visualisation results. There are 50 respondents including military officers who will perform UAT to test the Military's Assets Expenditure dashboard. The results show that the Military Asset Expenditure Dashboard is a decent dashboard with some refinement. Most respondents also agree that the dashboard is useful and verified the goal to identify the efficiency and effectiveness of Military Asset Expenditure Dashboard.

Keywords: Military, Military asset, Dashboard, Expenditure, Countries, Data visualisation, Power BI

Visualizing Underprivilege Hotspots in Kelantan

Nur Farahizah Md Saupi¹, Shukor Sanim Mohd Fauzi², Ruzita Ahmad³

¹*nurfarahizah@gmail.com*

²*shukorsanim@uitm.edu.my*

³*ruzitaahmad@uitm.edu.my*

ABSTRACT

Despite Malaysia's phenomenal economic growth and fantastic progress in reducing poverty, pockets of poverty still exist in some areas. When macro data is insufficient to provide explicit knowledge of the existence of poverty, micro data can be used to investigate pockets of poverty. This research identifies pockets of poverty throughout the East States in Malaysia. The state of Kelantan was chosen for this investigation. This paper aims to identify the suitable classification techniques for visualizing the accuracy of underprivileged hotspots in Kelantan, develop the suitable classification techniques and visualize the output of visualization of underprivileged hotspots in Kelantan on the Choropleth map. This study's findings will aid public and charitable organizations in locating underprivileged families in Kelantan. The Majlis Agama Islam Kelantan (MAIK) data is used in this study. These findings are critical for generating suitable policy orientation in addressing poverty by focusing on the right group. The Hotspot Analysis Tools Technique was used in this study to offer the visualization of Kelantan's Underprivilege Hotspots.

Keywords: Visualization underprivileged hotspots, Choropleth map, Hotspot analysis, Poverty

UrSugar: Diabetes Management Record System with Data Visualization

Nurul Sajdahany Johari¹, Siti Sarah Md Ilyas²

¹*sajdahanyjohari@gmail.com*

²*sarahilyas@uitm.edu.my*

ABSTRACT

In Malaysia, most of the healthcare facilities are still dependent on paper-based record system. Ursugar Diabetes Management Record System with Data Visualization is a web application to assist diabetics patients and medical staff in managing health record. Following a visit or appointment at healthcare facilities, this system will document patients' information such as blood sugar tests, blood tests, cholesterol tests and eye tests. Diabetics also has ubiquitous access to their health record within the web app. Besides, Power BI dashboard is embedded in system for users to view statistics of related information to diabetics and the predictions of glucose and insulin by age. User Experience Testing (UXT) with 30 respondents was conducted to validate the prototype. The respondents include diabetic patients, medical staff and experts from IT fields. Results from the UXT shows that the prototype obtained constructive feedback from users. Therefore, it can be concluded that the objective for this study is successfully attained.

Keywords: UrSugar, Diabetes management record, User Experience Testing (UXT), Data visualization

HEYBABY: Prenatal Care Record System with Data Visualization

Syafiqah Adibah Arbain¹, Siti Sarah Md Ilyas²

¹*adibahsyafi@gmail.com*

²*sarahilyas@uitm.edu.my*

ABSTRACT

Prenatal Record Booklet or mainly known as ‘Buku Pink’ is the established method to record health information of mother-to-be and baby throughout pregnancy in Malaysia. The Prenatal Care Record System with Data Visualization is developed to provide a computerized variation of ‘Buku Pink’. This system intended to provide solution to the concern of misplacing the ‘Buku Pink’, misreading information written, and most importantly failure to remember the scheduled appointment. The objective of this project is to develop a web application For Prenatal Care Record System embedded with Data Visualization. This system able to assist pregnant ladies and medical staff to keep track of their prenatal care records, such as appointment dates, blood test results, urine test results, blood pressure, and fetus growth. Power BI dashboard is integrated to allow user to view total of birth weight by gender. User also presented with the predictions of total birth growth by state. The second objective of this study is to evaluate the prototype using User Experience Testing (UXT). 30 respondents including women aged from 18 until 36 and above with various background and medical staff. From the UXT, positive insight was attained from the respondents. Thus, it can be concluded that the objective for this study is successfully achieved.

Keywords: HEYBABY, Prenatal care record system, Data visualization, User Experience Testing (UXT)

Web-Based Application of Loan Eligibility Verification System for No Credit Users by using Power BI

Syawalina Muhamad Shukri¹, Ruzita Ahmad², Shukor Sanim Mohd Fauzi³

¹*syawalina.shukri@gmail.com*

²*ruzitaahmad@uitm.edu.my*

³*shukorsanim@uitm.edu.my*

ABSTRACT

Despite the growth of economic and technology, a great deal of loan applicants, especially lower income earners (LIEs) and young adults, suffer from loan rejection due to little or no credit history. This issue contributes to a high loan rejection rate, which not only causes great losses for the lenders but also harms many applicants, particularly LIEs and young adults. They would not be able to access affordable financing in the future resulting in many financial constraints especially in facing emergencies of unexpected events and widening prospects to improve life such as education, home ownership and family's welfare. Thus, they require an alternative loan eligibility verification model. This research emphasizes that the borrowers' characteristics affect the lending decision. This research identifies several criteria of the applicant such as the debit bank account transaction data instead of conventional credit history data. The objectives of this study are to identify the criteria for loan eligibility, to develop a web-based application system for loan eligibility verification for no credit users and to evaluate the reliability and effectiveness of the proposed model. Predictive analytics with decision tree classification models in the field of machine learning employed a model of decisions in this proposed loan eligibility verification. The finding of this study will assist the lenders in granting loans and decrease the loan rejection rate among the LIEs and young adults. The expected outcome of this study is to ensure that the needs of the society in assessing loans are adequately addressed.

Keywords: Loan eligibility verification, No credit users, SDLC, Debit bank transaction, Financial behaviour, Predictive analytics, Microsoft Power BI

E-Sport Winner Prediction Using Tree-Based Classifier

Muhammad Faris Danial Andenan¹, Balkiah Moktar²

¹*farisdanial1810@gmail.com*

²*balkiah@uitm.edu.my*

ABSTRACT

Prediction of the winner team in esports Dota competitions has been a hot research topic for the game, especially in machine learning. Esports analysis has become an emerging field in many professional esports competitions to decide based on the investigation. In this modernist era, the Dota game, a form of multiplayer video game competition, has also been considered a legal sport. This study employs a tree-based classifier to assess participant performance at winner prediction. In this manner, using the tree-based classifier method is used differently by using WEKA and choosing which is more accurate. The tree-based classifier will use the Random Forest, Random Tree Classifiers, and J48 Classifiers. The proposed method of assessment has a bright future in evaluating those participants, performance because it provides a more reasonable and intelligent evaluation with accurate findings while also introducing an alternate approach to assessing performance.

Keywords: Prediction winner, Dota, Tree-based classifier, Weka, Esports, Random Forest Classifier (RFC), Random tree classifier, J48 Classifier

Forecasting Unemployment Rate in Malaysia During Covid-19 Using Box-Jenkins Models

Nur Asyikin Abdul Halim¹, Nor Azriani Mohamad Nor²

¹*asyikinhalim14@gmail.com*

²*norazriani@uitm.edu.my*

ABSTRACT

Unemployment is one of the most common issues confronting many countries around the world, including Malaysia. The unemployment rate in Malaysia has been one of the issues, particularly since the COVID-19 outbreak. As a result, to prevent the situation from worsening, forecasting is needed to foresee the unexpected situation that might happen in the future. Therefore, Box-Jenkins models were used and the best fit model is determined to forecast the unemployment rate in Malaysia during the pandemic COVID-19. For this purpose, the unemployment rate data set used from January 2020 to May 2022, was obtained from the Department of Statistics Malaysia Official Portal website. There were four models developed such as ARIMA (1,1,1), ARIMA (2,1,1), ARIMA (1,1,3) and ARIMA (2,1,3). The model's performance is determined using Akaike's Information Criteria (AIC), Bayesian Information Criterion (BIC), Hannan-Quinn, Box-Pierce Q Statistics, and Means Squared Error (MSE). The finding indicates that ARIMA (1,1,1) was selected as the best ARIMA model for forecasting since it has a better performance compared with other models. As a result, the findings of this study may be useful in predicting Malaysia's unemployment rate in the future and can help the government to find initiatives to cope with unemployment in Malaysia's future.

Keywords: Unemployment rate, Forecasting, ARIMA models

The Propagations of Saturating Feedback Mechanism Colorectal Cancer Mathematical Model

Nurul Dayini Zulkifli¹, Nur Izzati Khairudin²

¹2019218962@student.uitm.edu.my

²zatkhairudin@uitm.edu.my

ABSTRACT

A mathematical modelling of colorectal cancer is required to gain a better understanding of colorectal cancer and to provide insights into more effective early treatment strategies. Although the nature of cancer is complex, a mathematical model for tumour growth has assisted researchers in understanding and categorising the illness's behaviour. Therefore, this report studies the propagations of saturating feedback mechanism colorectal cancer mathematical model. Moreover, Euler's method is applied into the mathematical model to examine and to observe a system of ordinary differential equations as some parameters change. In this study, we used two mechanisms that could influence the growth of colon cancer. The first mechanism is saturating mechanism in which we vary parameter, $m_1 = 0.07$, $k_1 = 0.04$, $\gamma = 0.155$, and $\beta = 0.357$. Following that are the linear and saturating mechanism in which we only vary parameter $k_0 = 0.06$, $m_0 = 0.07$ and $\gamma = 0.1345$ while for m_1 , k_1 and β , as same as the value for saturating mechanism. By choosing these parameters, we able to obtain the behaviour of colorectal cancer. We observed that present study has escalation in N_2 , while N_0 and N_1 stage as same as Johnston et al. (2006) and Khairudin and Abdullah (2013). For saturating feedback mechanism, we obtain $N_0^* = 4$, $N_1^* = 166$ and $N_2^* = 883$. As for linear and saturating mechanism, we obtain $N_0^* = 5$, $N_1^* = 168$ and $N_2^* = 1358$. This study shows that the exponential growth of tumour is faster than the previous studies. This will help oncologists to predict and detect the evolvement of tumour in one patient. By using this mathematical model, the oncologists can proceed the next process to give a better treatment to the cancer patients.

Keywords: Colorectal cancer, Euler's method, Feedback mechanism, Mathematical model, Ordinary Differential Equations

Prediction of Particulate Matter (PM) 2.5 for Spatio – Temporal Dataset Using Time Series Models

Anis Munirah Rizuan ¹, Azlan Abdul Aziz ²

¹*anismunirah03@gmail.com*

²*azlan172@uitm.edu.my*

ABSTRACT

Monitoring air pollution levels, particularly Particulate Matter 2.5 (PM_{2.5}), is now crucial for the environment. The PM_{2.5} concentration needs to be evaluated to implement haze prevention measures since it impacts human health and the economy. This study focussed on investigating the pattern of PM_{2.5} at four stations; Shah Alam, Selangor (CA20B), Klang, Selangor (CA21B), Sri Aman, Sarawak (CA63Q), and Minden, Pulau Pinang (CA08P). Data from the Department of Environment (DOE) Malaysia have been obtained from 2018 to 2020 with 1096 observations. This study aims to determine the best "win" model and produce forecast values with high percentage accuracy by using Time-series Cross-Validation. Five models and four error measures have been implemented in this study. There are Naïve model, Mean Model, Single Exponential Smoothing Technique, Holt's method, and Box-Jenkins model. While the error measures used are Root Mean Square Error (RMSE), Mean Absolute Error (MAE), Mean Absolute Scale Error (MASE), and Mean Absolute Percentage Error (MAPE). To execute these models, RStudio version 4.0.5 is based on R programming language 4.2.0. The results show that the best "win" model for Shah Alam, Klang, Sri Aman and Minden is Naïve model, Single Exponential Smoothing Technique, Holt's Method and ARIMA(3,1,1), respectively. The results of the study also found that the forecast value for the four locations studied recorded a high percentage of forecast accuracy such as Shah Alam (84-98 forecast accuracy), Klang (92-98 forecast accuracy), Sri Aman, Sarawak and Minden, Penang recorded a percentage of forecast accuracy between 94 - 98 percent.

Keywords: Particulate Matter 2.5 (PM_{2.5}), Univariate time series, Time-series Cross-Validation, Forecast optimization

Study on Smartphone Preferences Using Fuzzy AHP

Fatnin Nadiah Arifin¹, Diana Sirmayunie Mohd Nasir²

¹*nadiyaharyf@gmail.com*

²*dianasirmayunie@uitm.edu.my*

ABSTRACT

In recent years, our technology has advanced remarkably quickly, especially on smartphone. Smartphones are now in high demand among people of all ages. A smartphone is a portable device that combines the features of a phone and a computer into one device. Customers may save money by choosing the best smartphone. However, when there are many smartphone models with multiple criteria the selection for the best model gets more difficult since, some individuals may find it difficult to pick a smartphone with a variety of complex technologies. Therefore, the widely used multi-criteria decision-making tool Fuzzy AHP may be utilized as a method for selecting the best smartphone. This study shows how Fuzzy AHP was used by a smartphone company to choose the optimal smartphone model based on a set of criteria. A total of 3 criteria were chosen which are the camera, storage and battery and six alternatives used are Samsung Galaxy A53, Samsung Galaxy A73, Huawei nova 9 SE, Huawei P50 Pro, vivo V23 5G, vivo iQOO Z6. The Fuzzy AHP was then used to compute the data according to the phase, allowing us to determine the rank and preference value of the desired smartphone. Results shows the consumers firstly prefers Huawei P50 Pro, secondly Samsung Galaxy A73 5G, thirdly Samsung Galaxy A53 5G. Fourth, Huawei nova 9 SE. Fifth, Vivo iQOO Z6 and finally Vivo V23 5G. Furthermore, by describing the stages of Fuzzy AHP in a clear and quantifiable manner. This research can serve as a model for applying the technique to other multi-criteria decision-making issues.

Keywords: Smartphones, Fuzzy AHP, Multi Criteria Decision Making

Forecasting Malaysia's Trading in Global Market Using Autoregressive Model

Muhammad Nor Hidayat Mohd Jalani¹, Mohamad Najib Mohamad Fadzil²

¹*mnorhidayat23@gmail.com*

²*mohamadnajib@uitm.edu.my*

ABSTRACT

International trade is one of the sectors that contributes to Malaysia's economic growth and development. According to the Economic Complexity Index (ECI), Malaysia ranked 21st among the world's largest exporters in 2019 and 25th among the world's largest importers. The Department of Statistics Malaysia (DOSM) has recorded the Malaysia Trade Statistics as an initiative to provide information on Malaysia trading statistics involving Malaysia's export and import data. Based on Malaysia's external trade performance, total import and export trade has been increasing year after year. The purpose of this research is to present forecasting principles, methods, and strategies based on data from Malaysia's foreign trade. Forecasting the value of imports, exports, balances, and total trade value can assist Malaysia in setting new objectives and goals to increase the value of Malaysia's international trade in the future. Hence, this study investigates the relationship between import, export, total import, balance and total trade to the growth of Malaysia's economic growth and to forecast the Malaysia Trading in Global Market by using the Autoregressive models that includes Vector Autoregression (VAR) Model and Autoregression Integrated Moving Average to be compared. The forecasting analysis shows that both the ARIMA and VAR techniques are effective predictive models with nearly identical performance.

Keywords: International trade, Forecasting, Export, Import, ARIMA, Vector Autoregression, VAR, Autoregressive model

Estimating Energy Demand and Emission from the Transportation Sector by Using a Modified Artificial Bee Colony (MABC) Algorithm

Nur Alia Sofea¹, Siti Hafawati²

¹*nuraliasofea99@gmail.com*

²*hafawati832@uitm.edu.my*

ABSTRACT

Nowadays, the world has rapidly expanded worldwide in every sector, including the transportation sector. In this research, a Modified Artificial Bee Colony (MABC) algorithm was proposed in order to estimate the energy demand and emission from the transportation sector. This research was conducted to optimize energy consumption to reduce environmental problems such as global warming and prevent future economic growth crises, specifically in oil consumption. The proposed method is intended to provide the estimated best energy iteration as long as the optimal value for each parameter used in this research.

Keywords: Energy demand and emission, Transportation sector, Modified Artificial Bee Colony (MABC) algorithm

The Most Preferred Treatment for COVID-19 Patients to Reduce the Infection Symptoms

Sarah Yusoff¹, Siti Fatimah Abd Rahman²

¹*srhyusoff10@gmail.com*

²*sitifatimah471@uitm.edu.my*

ABSTRACT

The SARS-CoV-2 virus is the infectious disease known as coronavirus disease (COVID-19). COVID-19 patients had a negative impact in terms of health categories mild, moderate, and severe. Alternative treatments are used by patients to prevent and treat COVID-19 infection symptoms, including natural treatments, vitamin supplementation, and medical treatment. However, the best treatment plan to reduce the infection symptoms is still undetermined. Thus, the purpose of this study is to determine the treatment that could assist in reducing COVID-19 infection symptoms for mild, moderate, and severe symptoms. In addition, the aim of this study is to gather information from expert and post COVID-19 patients or who are currently suffering the illness about the treatment used for COVID-19 infection symptoms. The method of Fuzzy Analytical Hierarchy Process (AHP) and the calculation using Excel software is used for this study to rank the treatment. As a result, it shows that, when compared to natural treatments and vitamin supplementation, most patients and experts choose medical medication as the best alternative treatments. Natural treatment and vitamin supplementation are the second and third-ranked treatments using the Fuzzy AHP method. This demonstrates that both experts and patients believed that treating COVID-19 infection symptoms with medicine would be more effective. The antiviral medicine paxlovid and paracetamol, as well as vitamin D and C supplements, have been advised by both experts and patients. In the meantime, natural treatments like essential oils, *Nigella sativa*, and honey were commonly used. Some of the essential oil suggested by the responders include digize, thieves, clove, peppermint, and lemon from Young Living Essential Oils. Thus, ranking medication, natural treatment, and supplement types that patients used for COVID-19 infection symptoms is necessary for future study.

Keywords: COVID-19, Natural treatment, Mild symptoms, Moderate symptoms, Severe symptoms, Essential oils, Vitamin supplementation, Medical medication, Infection symptoms, Fuzzy AHP

Evaluation of The Best E-commerce Websites in Malaysia Using Fuzzy AHP

Umairah Najwa¹, Siti Nor Nadrah², Mohd Halimi³

¹*umairahnajwazaib@gmail.com*

²*nadrahmuhamad@uitm.edu.my*

³*halimi@uitm.edu.my*

ABSTRACT

E-commerce, often known as electronic commerce, is a method of doing business that involves purchasing and selling products and services via a digital network like the internet. The Fuzzy AHP method was used in this study to select the best e-commerce websites in Malaysia. The research aim is to determine the criteria when choosing e-commerce websites, identify sub-criteria that impact e-commerce website rankings and investigate the best rank of e-commerce in Malaysia. In this study, two decision-makers examine three criteria and eight sub-criteria to determine the best e-commerce websites in Malaysia. There are three websites to choose from Shopee, Lazada, and PGMall. The criteria are system quality, information quality, and service quality. At the same time, the sub-criteria are access speed, visual appearance, response time, reliable information, update information, accurate information, tracking order status, and payment alternatives. The data is gathered by distributing a questionnaire to experts in the field, and it is calculated using a formula and Microsoft Excel. Shopee is the best e-commerce website in Malaysia, according to the results, with a normalised score of 0.4488. Lazada comes in second with a normalised 0.4360, and PGMall with a normalised 0.1153. As a result, Shopee outperforms the other two online transaction platforms, Lazada and PGMall.

Keywords: E-commerce, Fuzzy AHP, Criteria, Sub-criteria, Decision makers, Best e-commerce websites

The Construction of Quartic Bezier Curve with C^1 Continuity

Wan Nur Ashilah Shamihah Wan Muhammad Shafawi¹, Siti Sarah Raseli²

¹*ashilahshamihah94@gmail.my*

²*sitisarahraseli@uitm.edu.my*

ABSTRACT

The primary objective of the study is to construct a quartic bezier curve with five control points that will be used in the C^1 continuity curve technique. The Bezier curve is important because it may be used to describe our everyday lives, especially at this point when the government is increasingly focused on advancing the economic sectors. The creative industries' crafts are given more consideration in company design to enhance the economic sectors. One of the study's main concepts is the hope that the techniques examined in this research can benefit those who work in the design business, such as the craft industry. One method used in this study to aid in the formation of industries is the construction of quartic bezier curves with C^1 continuity. This is because several shapes can be produced utilising technique C^1 continuity on the bezier curve. It opens up a lot more possibilities because there is a wide range of shape options depending on the control point selected. With a computer, there are countless shape options and significant time savings. The suggested method is to enhance the skill of the industries as time goes on as well as the current product. For instance, there is still a mistake in flattening the curvature, especially around the lip of the bottle. The algorithm from MATLAB software will be used to build the quartic bezier curve with C^1 continuity.

Keywords: Bezier curve, Quartic bezier curve, C^1 continuity, MATLAB

The Susceptible-Infected-Recovered (Sir) Model for The Virality Of Online Business on Facebook During Covid-19 Pandemic

Nur Liyana Mazlan¹, Ku Azlina Ku Akil²

¹*liyanay658@gmail.com*

²*kuazlina@uitm.edu.my*

ABSTRACT

Facebook is one of the most attractive platforms for viral marketing and is also the most popular and widely used user-friendly application by sellers to promote their products online. However, most marketers who have used the Facebook platforms cannot forecast whether the products posted will become viral. This research aims to look at online business dynamics on Facebook using the Susceptible-Infected-Recovered (SIR) model. The Facebook account selected for the purpose of the study is Wan Nur Amirah, an online entrepreneur. The findings of this study indicate that the number of followers, comments, shares, and likes has an influence on the virality of a product when the number of fundamental reproduction numbers goes above one. It is recommended that future study can use a non-fixed total population and SEIR model to get more meaningful results.

Keywords: SIR, Facebook, Virality, Online business

Mathematical Approach for Optimizing Cemetery Layout

Maya Nuraisha Mohd Nasir¹, Izleen Ibrahim²

¹*mayaisha163@gmail.com*

²*izleen373@uitm.edu.my*

ABSTRACT

Optimization techniques have been especially prevalent for solving land-use problems. However, there are no guidelines supporting the selection of an appropriate method. To enhance the applicability of optimization techniques for real-world case studies, this study provides a method used to maximize the cemetery in Tanah Perkuburan Kampung Lin. Landfill dead religions and cultures and even in different areas with different and sometimes conflicting approaches to face. The mathematical approach aims to generate solutions that are close to the “optimal” solution in the objective space. The technique is compatible with any single-objective optimization method. The mathematical approach method is calculated manually and using Mapple software. The model is applicable in identifying the optimal solution for maximizing the cemetery land within available resources. The constraints represent limits in the model related to available resources. The traditional single-objective optimization technique can still be used, but it may cause some issues. It is because the method is not a reliable method for identifying the best or all possible solutions. Based on the result, the cemetery site at Tanah Perkuburan Kampung Lin has an area of 0.29 acres (1173.59 m²) and a perimeter of 14256 meters. The result of this analysis can be used as a consideration in decisions making about reorganizing and planning for future work by the cemetery management team. It also provides recommendations that can be applied to counter existing practices in managing cemeteries in Malaysia. Land use planning is an important tool for countries around the world to help regulate the land use process as well as ensure sustainable development, especially the cemetery site.

Keywords: Cemetery management, Optimization, Mathematical approach, Maximization, Maple

Selection of Priority Groups to Receive COVID-19 Vaccines in Malaysia

Muhammad Ridhwan Ahmad Azahari¹, Mohd Fazril Izhar Mohd Idris²

¹*ridhwanazahari1@gmail.com*

²*fazrilizhar@uitm.edu.my*

ABSTRACT

A deadly infectious disease known as COVID-19 has had an impact on the health-care system, the economy, and the lives of millions of people. The COVID-19 vaccines have been developed, but the priority groups for their distributions have yet to be determined. This study primarily focused on the prioritisation of priority groups that received COVID-19 vaccines based on the criteria and alternatives. The selection criteria for this study were chronic disease condition, geographical location, and blood pressure condition. The alternatives for this study's selection are elderly over 50 years old, health care workers, and teenagers. The Fuzzy Analytical Hierarchy Process (FAHP) method was used in this study. Because many decision-making situations can be easily adapted to the FAHP technique. It can also improve the consistency and accuracy of decision-makers' judgement. As part of the technique, two respondents from Hospital Batu Gajah were polled. The Saaty Scale, which range from one to nine, was used to ask the respondents to rate the comparison. All surveys were then compiled and converted to triangular fuzzy number for further analysis using Microsoft Excel. The analysis reveals that the chronic disease condition, with a normalized weight of 0.757034, ranks highest for the specified criteria. It is also known that the elderly over 50 years old, with a normalized weight of 0.5547, ranks highest for the alternative. Therefore, Malaysian should be aware if they fall under the criteria or alternatives of priority groups to receive the COVID-19 vaccines first. They can receive COVID-19 vaccines if necessary.

Keywords: Fuzzy Analytical Hierarchy Process, COVID-19, Vaccines, Triangular fuzzy number

Evaluation and Selection of Online Food Delivery (OFD) Companies in Perlis Using Fuzzy Analytical Hierarchy Process (AHP)

Nur Anis Liyana Muhamad Rosli ¹, Zurina Kasim ²,

¹*liyananorlie@gmail.com*

²*zkas@uitm.edu.my*

ABSTRACT

The COVID-19 pandemic has accelerated the global expansion of online food delivery (OFD) services. Food delivery services are comparable to courier services in that the ordered food is delivered to customers by workers or rider delivery companies. As the number of OFD companies continues to rise, the selection of OFD companies, such as Grabfood, Foodpanda, Halo Delivery, and others, is extremely competitive. Customers must choose carefully which OFD companies offer the best services. The objectives of this research are to investigate the evaluation criteria for OFD companies, then evaluate the OFD companies based on the evaluation criteria and rank the best OFD companies that provide the best services to customers in Perlis based on certain criteria. As a result, this study proposes a solution to this problem by developing a technique from multi criteria decision making (MCDM) known as the Fuzzy Analytical Hierarchy Process (FAHP) to determine the relative importance of criteria used in ranking OFD services. This study's findings indicate that Foodpanda is the most preferred food delivery service, followed by Grabfood and Halo Delivery. The most crucial main criteria is the economy, with Discounts and Offers as the priority sub-criteria. The second most important criterion is Service Quality, and the last is Technology.

Keywords: Fuzzy Analytical Hierarchy Process (FAHP), Online Food Delivery, Ranking, Evaluation, Perlis, MCDM

Prediction of Future Stock Price Using Recurrent Neural Network

Nur Izzah Atirah Mohd Ikhrum¹, Nor Hayati Shafii²

¹*atirahizzah014@gmail.com*

²*norhayatishafii@uitm.edu.my*

ABSTRACT

The stock market can affect businesses in a variety of ways. The rise and fall of a company's share price values affects its market capitalization and thus its market value. Forecasting stock market returns is difficult because financial stock markets are unpredictable and non-linear. The market trend, supply and demand ratio, global economy, public opinion, and a variety of other factors may all influence the price of a particular stock. With the advent of artificial intelligence and increased processing power, programmable prediction techniques have proven to be more effective in predicting stock values. This study proposed a Recurrent Neural Network (RNN) model that uses a deep learning machine to forecast Malaysian Pacific Industries' stock price in the future (MPI). The five stages were data analysis, dataset preparation, network design, network training, and network testing. The accuracy of the model examined is determined by the mean square error (MSE) and root mean square error (RMSE), which are 1.24 and 1.12, respectively. The predicted closing price is compared to the actual closing price. Finally, it is proposed that this approach be used to forecast other volatile time-series data.

Keywords: Stock market prediction, Recurrent Neural Network, Stock price

Prediction of Students' Performance in Mathematics Subject Using Logistic Regression

Nur Syakirah Rosli¹, Norwaziah Mahmud²

¹*syakirahrosli99@gmail.com*

²*norwaziah@uitm.edu.my*

ABSTRACT

Predicting students' academic performance plays an important role in academics. Mathematics is a science concerned with the logic of shape, quantity, and order. This subject is one of the most important subjects in the school curriculum. Mathematics is a basic knowledge that students should have the expertise in order for them to score in the other subjects. As most students find Mathematics a difficult subject, they will have difficulty scoring in this subject. Therefore, this study will focus on the factors that could affect the performance of mathematics subjects. This paper aims to predict a student's performance in mathematics subjects and the factors that affect their performance. This paper only predicts the pre-calculus subject among students of CS110 in UiTM Cawangan Jasin. A questionnaire has been distributed through Google Form that consists of two parts, which are part A and part B. Part A is the questions about their demographic profile. In contrast, part B contains the questions about their assessment marks and their time spent studying pre-calculus subjects per week. After analyzing the questionnaire results, the results were interpreted using SPSS software. The logistic regression model was applied, and the results showed that the place of residence, time spent studying pre-calculus per week and quiz 1 are variables that are significant to the model. Numerous internal and external factors might have an impact on a student's academic performance. Only a few of the variables influencing students' accomplishment scores were examined in this study which are gender, grade for MAT133, place of residence, whether the student took Additional Mathematics in SPM, time spending to study pre-calculus subject and the assessments.

Keywords: Prediction students' performance, Logistic Regression, SPSS

Evaluation of Hotel Website and Digital Service Providers

Nurfatihah Athirah Rahmat¹, Nuridawati Baharom²

¹*2019422832@student.uitm.edu.my*

²*nuridawati@uitm.edu.my*

ABSTRACT

The fact that there are numerous digital service providers, and that the hotel website must compete with them is mostly due to the advancement in technology. Online reservation systems can improve a business's financial success, according to researchers in the field of hospitality management. Hotels can be booked via the hotel website and various digital service providers such as Traveloka, Trivago, Agoda, Trip.com, Booking.com, and Hotels Combined. The ways that these websites promote themselves, the services they provide, and the prices they charge are different. On the other hand, some websites still do not have criteria in place to draw in more visitors. The purpose of this study is to determine the weightage of criteria for a hotel website and digital service providers and to evaluate and identify the best alternative among the hotel website and digital service providers. A case study is presented, where three alternatives; a hotel website and two digital service provider firms are evaluated based on nine criteria. The Fuzzy Techniques for Order Preference by Similarity to Ideal Solution (Fuzzy TOPSIS) was applied in this study. By employing this method, fuzzy evaluation criterion weights were first determined, and alternatives were ranked using the generated fuzzy weights. As a result, the hotel website was ranked the highest compared to other two digital service providers.

Keywords: Fuzzy Techniques for Order Preference by Similarity to Ideal Solution (Fuzzy TOPSIS), Rank, Websites, Online reservation

Supplier Selection for Mobile Phone Spare Parts Using Fuzzy PROMETHEE

Nurul Shahadah Ahmad Sairi¹, Raihana Zainordin²

¹*nurul.shahadah34@gmail.com*

²*raihana420@uitm.edu.my*

ABSTRACT

All businesses or organisations focused on the best suppliers to provide quality services or products to their customers. Choosing a great supplier can improve Supply Chain Management (SCM) and the performance of the business or organisation, but it is a challenging process due to the numerous criteria that a business owner must consider, as well as the fact that human judgment is subjective. This study proposes to rank suppliers for business owners using the fuzzy PROMETHEE mathematical method, and to compare the fuzzy PROMETHEE ranking of suppliers to the business owner's original ranking. Five mobile phone spare parts suppliers were evaluated based on four distinct criteria: price, responsiveness, quality, and delivery. In this study, one of the MCDM methods, fuzzy PROMETHEE, was used to rank the suppliers. The study's findings considered four important criteria in selecting a supplier for a business, including price, responsiveness, quality, and delivery time. The five suppliers were rated favourably. The fuzzy PROMETHEE ranking was compared to the original decision maker ranking. The comparison result between the fuzzy PROMETHEE ranking and the decision maker's original ranking revealed some similarities and differences. The similarities in the results indicated the decision maker's preferred decision, whereas the differences indicated the decision maker's confusion in making the decision. The method used in this study demonstrated that this method was effectively used for business owners to make a decision due to the ability to handle human doubts and subjectivity. Finally, this research was useful in assisting business owners in selecting the best supplier for their company. Aside from being beneficial to business owners, it can also help suppliers improve their service in order to attract more customers and expand their wholesaler base.

Keywords: Supply chain management, Supplier selection, Fuzzy PROMETHEE, rank

Application of Fuzzy TOPSIS for Decision Making in Selection for Poverty Among UiTM Perlis Students Due to Covid-19 Pandemic

Nurulain Nabilah Muhamad Fauzuki¹, Sharifah Fhahriyah Syed Abas²

¹*nurulain.nabilah00@gmail.com*

²*sfhahriyah@uitm.edu.my*

ABSTRACT

Universiti Teknologi MARA (UiTM) has offered several aids to assist the students. To obtain these aids, students must apply for the application by completing the required documents. Consequently, students must submit all relevant documentation which include their family income, occupations and the number of dependents, which will be inspected, graded and selected by the committee to determine the qualification for assistance. Hence, it will be a long process to select the rightful applicants, which involves a significant length of time as it consisted of hundreds of applicants. This study aims to select and rank the best alternative which is UiTM Perlis students with fairness, fast and accurate manner. In this study, the Fuzzy Technique for Others Preference by Similarity to Ideal Solution (TOPSIS) method was used to solve the problem. The model was run using Microsoft Excel. The selection of UiTM Perlis students were based on a set of criteria that had been predetermined: family income, occupations and number of dependents in the family. The findings show that from 35 samples of UiTM Perlis students, student (S35) is in the highest-ranking with a 1.0000 relative closeness. Meanwhile, student (S30) is in the lowest ranking with a 0.6478 relative closeness. It is also shown that all 35 students are qualified to receive aid due to the allocation provided is sufficient for 35 students. Therefore, using this method, the mistakes during the selection process can be reduced compared to manual selection thus making it easier to channel aid faster. As a result, it has been demonstrated that this method can produce results quickly.

Keywords: Fuzzy Technique for Others Preference by Similarity to Ideal Solution (TOPSIS), Select, Rank, Alternative

The Susceptible-Infected-Recovered (SIR) Model for the Spreading of News in Twitter during Covid-19 Pandemic

Nik Nor Hafizah Ab Halim¹, Ku Azlina Ku Akil²

¹*hafizahnik99@gmail.com*

²*kuazlina@uitm.edu.my*

ABSTRACT

Twitter is one of the most used social media in Malaysia to spread the news to other users. However, the excessive spread leads to the issue going viral. Furthermore, factors that contribute to virality is not fully investigated. This study aimed to determine which topic has a higher virality rate in Malaysia. Specifically, this study is conducted to identify whether the number of followers affects the virality of news, verify which type of Twitter account has a higher virality rate, and investigate the effect of the parameter for this study. The numbers of followers and following for each selected Twitter user have been recorded. The two types of Twitter accounts, verified and unverified for each account, are also recorded. For each selected tweet, the number of comments, retweets and likes has been recorded every two hours for three days. The Susceptible-Infected-Recovered (*SIR*) model has been used to achieve the goal of this study. There are two steps in analyzing the data, step one is model formulation and second step is numerical experiment. This study found that Twitter users in Malaysia have a higher interest in news related to health issues compared to natural disaster issues. The result of this study shows that the number of followers does affect the virality of a tweet made by verified and unverified user accounts. The unverified account has a higher virality rate in spreading the news. The number of followers also encourages the virality of a tweet. Based on the result, it is recommended that other researchers use another extension method of the *SIR* model, such as the *SEIR* model, to investigate this study.

Keywords: SIR, Twitter, Tweet, Topic, Virality

Ranking Five Tour Package in Langkawi Island Using Fuzzy AHP

Ku Auni Dalili Ku Zahrin¹, Huda Zuhrah Ab Halim²

¹*kuaunidalili@gmail.com*

²*hudazuhrah@uitm.edu.my*

ABSTRACT

Covid-19 has become endemic on 1st April 2022 so the Malaysia's economy has started to build up, and one of them is tourism. Tourism is one of the key factors for a successful industry. Tourists count on tour operators to turn their dream vacations into realities. Booking a tour is the easiest way for a traveler to experience a foreign land and at the same time they could enjoy the best spots. The main objective of this study is to rank 5 tour packages available in Langkawi Island by using fuzzy AHP. The specific objective is to identify and rank criteria of a tour packages which were listed by the previous literature. The findings found that transportation is the most important criteria in selecting a tour package in Langkawi. The transportation criteria is rank first with 48.1% followed by cost 26.66%, food service 10.98%, accommodation 8.46% and tour guide 5.79%. From the five tour packages identified, the "Langkawi Mangrove Tour" is rank first with a percentage of total multiplication of 74.44%, followed by "The Datai Langkawi" with a percentage of 27.09%, "Sendi Pertiwi Travel and Tour SDN BHD" with a percentage of 22.03%, and "Honeyzone Travel and Tours SDN BHD" with a percentage of 17.69% and lastly "Langkawi Budget Holiday SDN BHD" with a percentage of 16.8%.

Keywords: Tourism, Langkawi Island, Fuzzy AHP method

Fuzzy Time Series and Moving Average Method to Predict the Currency Exchange Rate

Alia Maisarah Mohd Shukri¹, Jasmani Bidin²

¹*aliasarahshukri00@gmail.com*

²*jasmani@uitm.edu.my*

ABSTRACT

The exchange rate is the price of one currency in relation to another currency, expressed as a percentage. There is also a potential for fixed or dynamic exchange rates. Even though central banks control fixed exchange rates, the market determines floating exchange rates by the supply and demand of goods and services, not by the supply and demand of money. The main objective of this study is to predict the exchange rate using the method Fuzzy Time Series and Moving Average Method. The sub-objectives are to compare the method that is used, which is the Fuzzy Time Series and Moving Average Method, and to select the best method to predict the exchange rate by using Mean Absolute Percentage Error (MAPE) and Root Mean Square Error (RMSE). This study purposes of using the Fuzzy Time Series and Moving Average Method to predict the currency exchange rate. This study can help many sectors in Malaysia, such as governments, investors, and communities. Root Mean Square Error (RMSE) and Mean Absolute Percentage Error (MAPE) are used to evaluate this method's performance. The results show that Fuzzy Time Series produce a good forecast result compared to the Moving Average Method because the analysis shows that Fuzzy Time Series has the lowest Value of RMSE and MAPE.

Keywords: Exchange rate, Fuzzy Time Series, Moving Average Method, RMSE, MAPE

A Comparative Study of The Sir Model and Arima Model for Forecasting Covid-19 Death Cases – Pre and Post Pick Program

Farzanah Bt Ahmad Sukri¹, Balkiah Bt Moktar²

¹2019207274@student.uitm.edu.my 1

²balkiah@uitm.edu.my 2

ABSTRACT

In the year 2020, a significant risk to public health was discovered. The new severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) epidemic began in December 2019 in Wuhan City, Hubei Province, China, and spread to the rest of the world. According to the World Health Organization, this disease is known as COVID-19. The goal is to understand the trend of COVID-19 death cases rising or falling in Malaysia utilizing the SIR and ARIMA models and choose the best model for forecasting COVID-19 death cases. This study uses the susceptible-Infected-Recovered (SIR) model and ARIMA model to predict the number of death cases in Malaysia. The prediction data has been divided into three classes: prediction before the vaccination program has started, prediction after the first and second dose, and prediction after the booster dose. The RMSE value will be compared to get the best model. ARIMA is the best model since it has the lowest RMSE = 3.1099 on ARIMA (4,1,3). The models are compared, and further recommendation is proposed.

Keywords: SIR Model, ARIMA Model, COVID-19, Vaccine, Malaysia

An Approximate Solution of Schrödinger Equation Using Sine – Cosine Function Method

Mohamad Arif Firdaus Ibrahim¹, Teoh Yeong Kin²,

¹*ariffirdaus000229@gmail.com*

²*ykteoh@uitm.edu.my*

ABSTRACT

In this study, we developed a travelling wave solution for nonlinear Schrödinger equations utilising the Sine-Cosine method. A variety of nonlinear partial differential equations, including the Schrödinger-Hirota equation, the Gardner equation, the modified KdV equation, the perturbed Burgers equation, the general Burger's-Fisher equation, and the cubic modified Boussinesq equation, which is a crucial Soliton equation, can be solved precisely using this method.

Keywords: Nonlinear Schrödinger equations, the Sine-Cosine method

Selection of a Notebook for ODL by Using The Fuzzy Analytic Hierarchy Process (FAHP) Method

Nor Asyikin Azhar¹, Noorzila Sharif²

¹*asyikin.azhar00@gmail.com*

²*noorzila@uitm.edu.my*

ABSTRACT

The Coronavirus (COVID-19) pandemic has impacted many individuals and organizations in Malaysia, and this situation has also forced the government to take action to impose a movement control order (MCO). Because of the COVID-19 issues, students need to learn using the online distance learning (ODL) method. This has become a challenge for students who have internet connection problems and do not have enough equipment to learn using ODL, so they must purchase a notebook based on the specification. Thus, the study is conducted to determine the factors that influence students' choices, compare all the factors that influence students' decisions, and formulate the Fuzzy Analytic Hierarchy Process (FAHP) method to choose the appropriate notebook. A logarithmic fuzzy preference programming (LFPP) based technology for FAHP priority derivation was proposed. It formulates the priorities of a fuzzy pairwise comparison matrix as logarithmic nonlinear programming and derives crisp priorities from fuzzy pairwise comparison matrices. Six criteria (price, weight, processor, RAM, memory, and hard disk) and five alternatives which are notebooks brands (Dell, HP, Lenovo, Asus, and Acer), were chosen in the study. Surveys and interviews were conducted and evaluated by decision-makers who are the notebook's users. Results showed memory is considered a prominent criterion in selecting a notebook. The consumers firstly preferred Asus, secondly Lenovo, thirdly Acer, fourthly HP and lastly Dell. Future work in this study may use other alternatives to be ranked by considering other top models.

Keywords: Notebook, Online Distance Learning (ODL), Fuzzy Analytic Hierarchy Process (FAHP)

Analytic Hierarchy Process (AHP) Method for Determination of Reasons Students' UiTM Cawangan Perlis Apply for Zakat Assistance

Nur Alya Abu Bakar Alias ¹, Wan Nurshazelin Wan Shahidan ²

¹*aleyaavince@gmail.com*

²*shazelin804@uitm.edu.my*

ABSTRACT

Due to the Covid 19 epidemic, all global operations have been moved to internet platforms, and physical separation instructions are being observed. ZAWAF started an online zakat aid application in March 2020 due to the impossibility of performing personal interviews during the epidemic. However, ZAWAF had a greater number of zakat help requests to handle, making it challenging for ZAWAF to identify which students had been approved for zakat support. Due to this ZAWAF inefficiency, even when using the online application process, it took two to three months to complete before students got their zakat aid. This study will acquire zakat approval more quickly when they urgently need to use more financial aid for their education by identifying the important factors (criteria) that will determine which students are eligible for zakat assistance. For improvement of determining factors that students eligible to receive zakat assistance need to include sub criteria for supporting the criteria given and need to include all 25 experts in this study.

Keywords: Factor zakat UiTM Perlis, Online zakat application, ZAWAF, AHP Method, Analytic Hierarchy Process

A Spread of Covid-19 in Kedah by Using Sir Model

Nurshafiqah Noor Shamsull Kamal¹, Nurizatul Syarfinas Ahmad Bakhtiar²

¹*pqahkamal000@gmail.com*

²*nurizatul@uitm.edu.my*

ABSTRACT

Covid-19 is a major global health threat that causes severe acute respiratory syndrome (SARS), is highly contagious, and has a high mortality. This study investigates the efficacy of the modelling approach on the pandemic caused by the spread of the novel Covid-19 disease and develops a susceptible-infected-recovered (SIR) model that provides a theoretical framework to investigate its spread within a Kedah community. This system was used to gain more insight into the long-term outcomes of Covid-19. As a case study, the Covid-19 transmission dynamics are investigated using daily confirmed cases in Kedah, where certain epidemiological parameters (such as β infection rate and r as removal rate) of this system are estimated based on the fitting of the model to accurate Covid-19 data released by the Malaysian Ministry of Health (MoH). The SIR model, in particular, can provide insights and predictions about the spread of the virus in communities that the recorded data alone cannot. It demonstrates the significance of modelling the spread of Covid-19 using the SIR model proposed here, as it can aid assessing the disease's impact by providing valuable predictions. However, this study proposes several parameters related to the spread of Covid-19 and the number of susceptible, infected, and recovered populations from the 10 May to 30 May 2022. By comparing the recorded data with the data from the modelling approaches, it was determined that the spread of Covid-19 can be contained in all communities under consideration if appropriate restrictions and firm policies are implemented to control the infection rates as soon as the disease begins to spread.

KEYWORDS: Covid-19, SIR model, Infectious disease, Forecasting, Kedah

New Solutions of Initial Value Problem (IVP) using Picard's Iteration

Nursyahira Atiqa Zainal Rahid¹, Suzanawati Abu Hasan²

¹*syahiraatiqa99@gmail.com*

²*suzan540@uitm.edu.my*

ABSTRACT

A differential equation in mathematics contains the derivatives of one or more dependent variables. The equation can be classified as an ordinary or a partial differential equation, with a partial differential equation containing differentials about many independent variables. We will concentrate on an ordinary differential equation in this study. We want to find a pattern by using ordinary differential equations, for example, in biology or medical physics. Differential equations can be linear or nonlinear. Some strategies for achieving a numerical solution are Euler's, Picard's, and others. This study focuses on Picard's method. Picard's method was the first to be used to demonstrate the existence of solutions to the initial value problem for the ordinary differential equation. The advantage of Picard's method is its ability to deal with a wide range of initial conditions, as we will see in the initial value problem. Furthermore, Picard's method is a simple and straightforward approach in terms of formulas. As a result, we use Picard's method equations to simplify the analytical, calculation, and numerical solutions. Furthermore, Picard's method can provide the most approximate solution because it is an iterative method in which the numerical results become more accurate as more times are used. Picard's Iteration will be used in this study to solve initial value problem equations. The objectives also include determining Picard's Iteration solutions and studying numerical solutions to initial value problems. The numerical solutions to three ordinary differential equations used in this study will be examined.

Keywords: Picard's Iteration, Differential equation, Ordinary Differential Equation, Partial Differential Equation, Initial Value Problem, Numerical solution

COVID-19 PANDEMIC SIMULATION IN PERAK BY SIR MODEL

Nurul Asyiqin Izzani Idrus¹, Nur Fatihah Fauzi²

¹2019405786@student.uitm.edu.my

²fatihah@uitm.edu.my

ABSTRACT

In this work, the Susceptible-Infected-Removed (SIR) epidemiological model of the COVID-19 pandemic was introduced in the Malaysia Movement Control Order (MCO). The proposed model is intended to provide accurate prescient data to the chiefs of the evaluation of general welfare and social estimates identified with COVID-19 pestilence. The SIR model MCO shows a pinnacle of disease on 10 April 2020, in 100 dynamic cases by early July 2020, in 10 dynamic cases by end-August 2020, and almost zero daily new cases by the end week of July 2020, with a total of 6562 contaminated cases. Results suggest that the present MCO has decreased overall the quantity of the powerless population and the total number of contaminated cases. The technique used in this investigation to fit the SIR model was discovered to be accurate in mirroring the information observed in the first place.

Keywords: Covid-19, SIR Model, Epidemic trend, Malaysia, Movement Control Order

Effect of Carbon Nanotubes in Aligned Magnetohydrodynamics Mixed Convection Flow of Nanofluid Through an Inclined Plate

Nurul Samiha Mohd Shahabudin¹, Nurul Hidayah Ab Raji²

¹*nrulsamiha@gmail.com*

²*hidayah417@uitm.edu.my*

ABSTRACT

This study investigates the effect of carbon nanotubes in aligned magnetohydrodynamics (MHD) mixed convection flow of nanofluid through an inclined plate. Both single-wall and multi-wall carbon nanotubes are employed. The velocities and temperature profiles of the nanofluid are being analyzed in order to comprehend its behaviors. The governing equation of non-dimensionless partial differential equations (PDE) is converted into dimensionless ordinary differential equations (ODE) by utilizing the similarity transformation. Fourth-Order Runge Kutta Method is used to solve the resulting equations numerically in Maple Software. It is discussed how various dimensionless parameters, including the angle of magnetic field, the interaction of magnetic, the angle of an inclined plate, the volume fraction of nanoparticles, and mixed convection, affect velocity and temperature profiles, as well as how carbon nanotubes with various base fluids affect skin friction and the Nusselt number. For both types of carbon nanotube nanofluids, SWCNT/kerosene and MWCNT/kerosene, an increase in angle of magnetic field, interaction of magnetic, and mixed convection parameter risen the velocity profile while an increase in angle of inclined plate and volume fraction of nanoparticles enhanced the temperature profile. The Nusselt number and skin friction coefficients increase with increasing angle of magnetic field, interaction of magnetic, and mixed convection parameter and decrease with increasing inclined plate angle and volume fraction of nanoparticle. In comparison to MWCNT with various base fluids, the skin friction coefficient for SWCNT with various base fluids has the greatest value. While for MWCNT with different base fluids, the Nusselt number has the maximum value. It was found that MWCNT transferred heat more efficiently than SWCNT.

Keywords: Carbon nanotubes, Mixed convection flow of nanofluid, Aligned MHD, Inclined plate

Predicting Stroke Occurrence Using Ant Colony Optimization

Nurul Shamimi Shahidan¹, Rizauddin Saian²

¹*nushamimiey422@gmail.com*

²*rizauddin@uitm.edu.my*

ABSTRACT

Stroke is rapidly becoming a major public health issue in Malaysia, where it is the third leading cause of death. It has sparked widespread concern among health professionals. Hence, they must put in more effort to detect stroke disease, which is not an easy task. This study used the Ant Colony Optimization algorithm known as the Ant-Miner to develop a classification model to predict stroke disease. This study made use of a dataset provided by a data scientist at Kaggle where the data is a refined subset of the original dataset which is based on the Electronic Health Record (EHR) controlled by McKinsey and the company. This dataset describes the risk factors for stroke in patients. First, the data set was discretized using WEKA software to convert numeric attributes to nominal attributes. Second, the Ant-Miner algorithm will train the data to produce the classification model. In addition, this research used a k-fold cross-validation procedure to validate the performance of the developed classification model. The results show that the predictive accuracy of the developed classification model is at par with the industry-standard classification algorithm such as J48. Furthermore, it produced a classification model with a fewer number of rules and conditions.

Keywords: Ant Colony Optimization, Classification, Ant-Miner, WEKA

Application of Fuzzy AHP and Fuzzy TOPSIS on Supplier Selection in Restaurants

Nur Saidatul Fitrah Sulaiman ¹, Norpah Mahat ²

¹*nursaidatul36@gmail.com*

²*norpah020@uitm.edu.my*

ABSTRACT

One of the important processes in a business is supplier selection. The supplier selection process consumes a significant amount of a business's financial resources and important role in the business's performance. This is because it needs to guarantee that they purchase the best raw materials in order to have a high quality of goods so that it can make profitable products. Therefore, it is important to consider the performance of all the potential suppliers based on the certain criteria needed as it will affect the business's profitability and image. To cope with uncertainty in supplier selection decision procedures, fuzzy set theory and multi-criteria decision making (MCDM) methodologies have been frequently employed because it provides a suitable language to handle imprecise criteria and the ability to integrate the analysis of qualitative and quantitative factors. Fuzzy AHP which is Fuzzy Analytic Hierarchy Process and Fuzzy TOPSIS which is Fuzzy Technique for Order Preference by Similarity to Ideal Solution are two examples. The main reason for this study is to determine the best supplier of fresh chickens for chicken chop restaurants by using Fuzzy AHP and Fuzzy TOPSIS. At the same time, this study purpose is to compare both methodologies used. Fuzzy AHP and Fuzzy TOPSIS are applied to the primary data that has been collected. The outcomes of this study has shown that it produced the same outranking even though different method has been applied to it. However, it may produced different outcomes if both alternatives and criteria are added more. The analysis presented in this research may be used as a tool for further studies for future researchers.

Keywords: Supplier Selection, Multi-criteria Decision-making, Fuzzy AHP, Fuzzy TOPSIS

An Evaluation of Nasyid Competition Using Fuzzy Logic Approach

Muhammad Yazwan Aiman Yaacob¹, Khairu Azlan Abdul Aziz²

¹yazaiman99@gmail.com

²khairu493@uitm.edu.my

ABSTRACT

The Nasyid Competition evaluates a participant's performance based on several factors, including Voice, Music, Lyrics, and Performance. Participants in the Nasyid Competition are usually assigned a point value of 100, with each point representing a linguistic word such as “Perfect,” “spectacular,” “Very Good,” and so on. Evaluating participant performance is especially difficult because it involves human decision-making, which is imprecise, ambiguous, and unpredictable. This study employs the fuzzy evaluation method to assess participant performance at a Nasyid Competition in Kebangsaan 2015. In this manner, the membership function graph was used to determine the membership value of each satisfaction level. When fuzzy numbers are used, the fuzzy markings are created more consistently. The satisfaction level of each participant’s mark would then be computed. At the end, the fuzzy markings with linguistic value would be obtained. The proposed assessment method has a bright future in evaluating those participants’ performance because it provides a more reasonable and intelligent evaluation with accurate findings while also introducing an alternate approach to assessing performance.

Keywords: Fuzzy Evaluation Method, Fuzzy Approach, Graph of Membership Function, Satisfaction level, Degree of satisfaction, Nasyid competition

IoT Based Heart Rate Emergency Alert System for Persons with Disabilities

Nur Afiqah Jabarudin¹, Ros Syamsul Hamid²

¹*afiqahjabarudin@gmail.com*

²*rossyamsul@uitm.edu.my*

ABSTRACT

Nowadays, the sexual assault against Persons with Disabilities (PWD) are increasing and the violent victimization rate of PWD in was nearly four times the rate for persons without disabilities in 2019. PWD are various and heterogeneous. For instance, a person with dementia, autism, blind, deaf, mute, and has amputated legs or hands. Disability is a complex and dynamic also considered as a part of human condition, permanently or temporarily. In global application, there are several systems that offer never-ending protection and heart monitoring services within the market. Heart rate is the most main signal in living beings as the heart is the crucial organ and specifically, rapid heartbeat will occur during anxious and flight or fight situation. However, there is lack implementation of essential function which is the real-time function to inform someone if an abnormal heart rate detected. The objectives of this research are to develop a system that can alert the guardian to the emergency of PWD by detecting the heart rate and evaluate the functionality, network, and usability of the alert system. The prototype is tested through a few different scenarios to test its network, and functionality. For network testing, the prototype is tested three times through different location and different types of telecommunications to record the response time. For functionality testing, the prototype is tested for its heart reading during different activities and existence of disturbance. The recommendations for future studies are to develop the prototype into a wearable device such as watch, to make it easier to bring everywhere. Furthermore, the SMS notification should be changed to calls for future work to ensure fast alert from the guardian when emergency happens.

Keywords: Internet of Things, Heart Rate Emergency Alert System, SMS, Persons with Disabilities, SIM900A GSM, GY-NEO6MV2 GPS

Comparison of Detection Model Using Machine Learning on Android Malware

Muhammad Ikmal Ihsan¹, Rafiza Ruslan², Mohd Faris Mohd Fuzi³

¹*muhammadikmal09@gmail.com*

²*rafiza.ruslan@uitm.edu.my*

³*farisfuzi@uitm.edu.my*

ABSTRACT

Mobile devices have experienced tremendous growth during the past ten years. As gadgets become more pervasive and people save more sensitive data on their mobile devices, the prevalence of mobile malware has increased. Malicious software, commonly known as malware, poses a greater risk to these mobile devices nowadays. Recently, several articles have been published regarding the proliferation of Android malware. Many new technologies, such as smartphones, have been used into Android malware development, enabling it to advance. It has been used for a long time but is now worthless due of the evolution of Android malware and the inability to detect it. This project will be using supervised machine learning techniques such as SVMs, Naive Bayes and Random Forest to build an android malware detection model. It also will test and train the selection of Android characteristics to evaluate the malware detection model's performance. Then, the project will examine the effectiveness of several machine learning detection models in identifying Android malware. This project will be divided into five distinct parts, each with a distinct purpose. Initialization, planning, development, evaluation, and documentation are all part of the process. In the end of the project, the result will discuss and will be compared for each machine learning used to get the highest accuracy to achieve the project objectives.

Keywords: Machine Learning, Mobile, Android malware, Accuracy

Geofence Based Staff Attendance Tracking System Using Android Mobile Application

Ilham Syahmin Nasruddin¹, Mohd Nizam Osman²

¹*ilham.syahmin99@gmail.com*

²*mohdnizam@uitm.edu.my*

ABSTRACT

Attendance system provides many advantages to organizations. It allows employers to monitor their employees' working hours and helps to control labor costs by reducing over-payment, which is usually caused by transcription error, intentional error. Besides, previous methods such as biometric attendance system, RFID attendance system and card magnetic attendance system may have lots of bugs. The bugs that occur may come from either human error or system or device error. Those problems may lead to long queues, which for some attendance systems, it has to take sometimes to register staff or employees' attendance and cause recorded time of employees register their attendance are not accurate as they reach the workplace. As every organization has a specific location which can be detected by GPS satellite, attendance of the staff and employees can be taken by tracking their GPS device which is their smartphone. This system can ensure the attendance record of the staffs and employees more accurate as the time they enter the geofence of premise area (workplace area). Users are required to allow the use of GPS after downloading this android mobile application to ensure the application functions well. Notification will be sent when the user enters or exits the geofence area that has been set by code and the timestamp of user enter and exit will be recorded in firebase database firebase. In the testing phase, user acceptability test and network's performance test were carried out. User acceptance testing was implemented with a questionnaire evaluation method to thirty participants. The survey results showed that the majority of respondents well accepted all the categories offered. In addition, the outcome of the network performance test regarding the recorded timestamp of when the geofence trigger revealed satisfactory result. As for the future work, this application can be improved by allowing other platforms to use this application such as for iOS user since it has been one of the biggest platforms that being used nowadays. It also can be improved by adding more features for users used and employer used.

Keywords: Geofencing technology, GPS, Attendance, Android mobile application, Timestamp

Flood Warning and Monitoring System Using NodeMCU Technology

Muhammad Luqman Zulkifli¹, Nurzaid Muhd Zain²

¹*luqmanzulkifli0@gmail.com*

²*nurzaid@uitm.edu.my*

ABSTRACT

Floods are one of the most destructive natural catastrophes, causing significant losses because of high rate of property destruction and death. This happens because the residents in flood prone areas are not aware about the current flood water level that keeps increasing when heavy rain happens. The flood victims should be well informed of the current flood water levels so that the victim can prepare to evacuate and also save the important belongings. In order to solve the problems, Flood Warning and Monitoring System using NodeMCU Technology is developed. Flood Warning and Monitoring System using NodeMCU is a personal flood monitoring system that has featured user can know the current flood water level by monitor it through Blynk application and for the warning system, the user can check the Telegram Bot that have been made specially for warning system in the Telegram application. The system is developed using ESP8266 NodeMCU as microcontroller that can connect to the Wi-Fi, ultrasonic sensor (HC-SR04) and 12C LCD. Users can request the current flood water level via Telegram and can monitor it through Blynk application as long the NodeMCU and user smartphone are connected to the internet. At the Telegram, there are three levels of flood water level which are, normal water level, warning water level and dangerous water level. Dangerous water level will send through Telegram with “Please evacuate immediately” to notify the user. Flood Monitoring and Warning System using NodeMCU is simple but it is effective to the resident in flood prone area to be prepared. The functionality test, prototype test and connectivity test have produced positive results and it has the potential to be enhanced. It is recommended to the future researcher to make the system not only personal use but it can be used by all the resident in flood prone area and create automatic call to Fire Station if the flood water level reached dangerous.

Keywords: ESP8266, NodeMCU, Warning system, Monitoring system, Flood, Ultrasonic sensor, Arduino IDE

Performance Analysis of Wormhole Attack on Dynamic Source Routing (DSR) in Manet

Muaz Adib Azfar Azhar¹, Ahmad Yusri Dak²

¹*adibazfar1311@gmail.com*

²*ahmadyusri@uitm.edu.my*

ABSTRACT

The mobile ad hoc network (MANET) is a type of wireless network that is decentralized. The network is ad hoc since it is not dependent on pre-existing infrastructure, such as routers or access points in wired networks. Rather than that, each node contributes to routing by forwarding data to other nodes; hence, which nodes forward data is determined dynamically based on network connectivity and the routing algorithm in use. Each device in a MANET is free to move in any direction, and so regularly changes its connections to other devices. Each must forward traffic that is unrelated to its own usage, requiring it to function as a router. MANET routing protocols such as DSR contain numerous security bugs, making certain types of network attacks on mobile ad hoc networks possible. wormhole attack which believed to be the dangerous network attack. This is because of the unusual form of tunnel attack between two malicious nodes, where a malicious node attracts all traffic to the tunnel, forwards it to another malicious node at the tunnel's other end and replays it throughout the network. Once the Wormhole tunnel is established, it can be used to launch various attacks such as routing attacks, packet dropping, and spoofing. In this paper, we examine and evaluate the performance of routing protocol, DSR with and without wormhole attack. At the same time, performance of DSR and DSDV are being compared based on its performance metrics. The simulation is carried out with size of area is 500m*500m, for 120 seconds, for three scenarios by using Network Simulator 2 (NS2) with vary number of nodes starting with 10, 20, 30, 40 and 50 nodes. Results showed that DSR under wormhole attack did not perform better as it had less throughput and more end-to-end delay. Meanwhile, the performance for DSR and DSDV show that, DSR performed better in term of Packet Delivery Ratio (PDR), while DSDV performed better in term of Throughput.

Keywords: MANET, Wormhole attack, DSR, DSDV, NS2

Remote Patient Monitoring System for Covid-19 Patient Based on Pulse Oximeter Reading Sensor Via Wireless Network

Muhammad Akmal Mohd Taqayuddin¹, Iman Hazwam Abd Halim²

¹*hazwam688@uitm.edu.my*

²*muhammadakmal001124@gmail.com*

ABSTRACT

Continuous Heart disease and high blood pressure is a problem that must be addressed immediately. Heart disease is one of the world's most serious disease today at hospital, as it will lead the patient to died. Continuous measurement, analysis, and Pulse Oximeter Reading monitoring in real-time are necessary to ensure that appropriate measures can be taken when necessary. To achieve this, this proposed model leverages the concept of IoT to inform users about the concentration of heart disease and high blood pressure to all people about their healthy every day. The Remote Patient Monitoring System for Covid-19 Patients Based on Oximeter Reading Sensor uses the Web Server ESP 32 MAX30100 to replace current Oximeter Reading monitoring and public broadcasting methods using the Wireless Sensor Networks (WSN) concept. The proposed Oximeter Reading monitoring system can monitor indoor and outdoor heart rate and Oxygen level. The MAX30100 Pulse Oximeter sensor is used to determine the concentrations of various heart rate and oxygen level using the industry-standard Heart Rate and Oxygen Level Index, which is available from the manufacturer. Furthermore, the devices can store data in a cloud-based system when connected to the internet, enabled by the NodeMCU ESP32 Wi-Fi and Bluetooth module. As a result, by combining the MAX30100 Pulse Oximeter sensor and Arduino with the Internet of Things (IoT), it is possible to develop real-time and effective Heart Rate and Oxygen Level monitoring. Subsequently, the results indicate that users of this system and the Arduino IDE software can access and monitor Heart rate and oxygen level using the Web Server ESP32 MAX30100 regardless of their location relative to the monitoring area. Correspondingly, include an LCD for viewing the readings and ensuring that the owner receives information about the Pulse Oximeter Reading monitoring while the system is operating.

Keywords: Internet of Things, Web server, NodeMCU ESP32, MAX30100 Pulse Oximeter Sensor, Arduino IDE

Home Alarm Security System using Arduino and Telegram Bot

Muhammad Amirul Hafiz Mat Hussin¹, Rafiza Ruslan²

¹*miruhafiz@gmail.com*

²*rafiza.ruslan@uitm.edu.my*

ABSTRACT

In order to safeguard people's property from danger, home security is a crucial problem. At the moment, school breaks and other public holidays tend to be when house burglaries rise. The main purpose of this project is to develop and create security system using PIR motion sensor the detect any movement from living bodies which also consisted of buzzer that intended to the potential intruder and Node MCU to send an alert in form of notifications via Telegram Bot to the owner. The prototype was evaluated using functionality testing, network testing and user acceptance testing. For the functionality testing, the prototype is tested 3 times in different range to see if it worked as intended. For network testing, the prototype is put into several situations to test the response time of the network. The user acceptance is providing 30 home owners with a questionnaire to gauge their perceptions of the home security system's usability. The outcomes showed how practical, fast, and simple to operate the home security system was. Therefore, when the system detects an intruder in the property, the home security system may assist the home owner in taking prompt action, such as contacting the authorities.

Keywords: Internet of Things (IoT), Node MCU, Smart Home Security System, Telegram Bot, Alert, Buzzer

Smart Agriculture Monitoring System Web-Based Using Nodemcu and Telegram Notification for Chili Plant

Muhammad Fakrul Rizuan Azman¹, Nurzaid Muhd Zain²

¹*rizuanfakrul@gmail.com*

²*nurzaid@uitm.edu.my*

ABSTRACT

The traditional technique of moving water to the plant at the garden is using a hose or a bucket. This will consume physical activities and it will consume time if the chili plants are many. The chili plants need extra care by giving the right amount of water daily. If the chili plants are not enough water and overwater, the plants affect the growth of the plants. The gardener not know the right amount of water need by the chili plants. This will make the chili plants withered or die if the chili plants do not get the water daily. One solution for this problem is to build an automatic irrigation system. This project have three objective. The first objective is to design a system that can pass the data between device and system. The objective is successfully met when the results of the prototype functionality, complete system and WiFi network tests have obtained. The result from this research, data from the sensors is collected and passing to the database that is MySQL using WiFi connection. Then, the web-based system that used for monitoring will displayed the data from the database. The gardener can monitor the chili plants by using web application on computer as long the system is connected to the internet. This system will use soil moisture sensor and temperature and humidity sensor to read the data from the plants. The data will be stored in the database in MySQL and the gardener can view the data using the web application and also can use telegram to get the reading of the sensors. The prototype were tested in two experiments that use wet soil and dry soil to verify functionality. For the future works, the researcher can add more sensors so that more plants can be monitor by the user, enhance the interface of the web application to be more user friendly and add control features for the water pump.

Keywords: ESP8266, NodeMCU, Monitoring system, Agriculture, Chili plant, Soil moisture sensor, Temperature and humidity sensor, Water pump, Relay, Web application, Telegram, Arduino IDE

Performance Evaluation of AODV Using Blackhole Attack and Tora in MANET

Muhammad Idham Padil¹, Ahmad Yusri Dak²

¹*muhdidham130151@gmail.com*

²*ahmadyusri@uitm.edu.my*

ABSTRACT

MANET are self-contained, multi-hop, wireless, transitory networks that operate under throughput, power, and energy constraints. Mobile wireless networks are more prone to attacks than fixed wireless networks. These networks are vulnerable to security due to unprotected and open wireless broadcast channels and inadequate physical security. Blackhole attacks are active attacks in which the attacking node continuously declares that it has the quickest route to any desired network node, although it does not. Consequently, all packets will travel through it, enabling the blackhole node to forward or delete packets during data transfer. As most studies examine reactive, proactive, or hybrid routing protocols, such as AODV and DSDV or AODV and ZRP, there is also a dearth of research comparing AODV with TORA. This article examines and evaluates the performance of the routing protocol AODV with and without a blackhole attack. Moreover, the throughput, packet delivery ratio, and end-to-end delay of AODV and TORA are compared to evaluate their respective performance. Using Network Simulator 2 (NS2), three scenarios with varying numbers of nodes beginning at 10, 20, 30, 40, and 50 are simulated for a total of 60 seconds. With a lower throughput of 29.19 Kbps, a poorer packet delivery ratio of 1.01%, and a more significant end-to-end delay of 1674.8ms, the results show that AODV with blackhole attack performs worse than without blackhole attack for all performance criteria. AODV outperforms TORA in terms of throughput, packet delivery ratio, and end-to-end delay, according to a performance comparison. This project also could be enhanced for future work by examining or suggesting other network and transport layer security techniques used to prevent these attacks.

Keywords: AODV, TORA, Blackhole, Throughput, Packet delivery ratio, End-to-end delay

Smart Agriculture Monitoring System for Harumanis Using Lora Technology in UiTM Perlis

Ahmad Nazim Ahmad Rusli¹, Rafiza Ruslan², Nor Azira Mohd Radzi³

¹*nazimrusli292@gmail.com*

²*rafiza.ruslan@uitm.edu.my*

³*norazira202@uitm.edu.my*

ABSTRACT

Smart farming based on IoT technology assists farmers in reducing waste and increasing output in areas such as the quantity of fertiliser used, and the number of farm vehicle trips made. Farmers at UiTM Perlis must walk to the planting field every day to monitor the soil condition. The previous researcher created and examined a soil moisture monitor that used the Zigbee network to monitor soil moisture by determining the pH of the soil, however Zigbee only covers a narrow coverage area. This research was implemented to build a prototype to capture the pH value and soil moisture needed by Harumanis mango using LoRa technology and to execute functionality, usability, and network test. This project used two LoRa shields that act as client and server and the data will store locally in Microsoft Excel via Data Streamer. The results for this project are soil moisture value, RSSI, humidity, and temperature. UiTM Arau can consider providing a gateway for use of future researchers without having to depend on a public gateway as there are few concerns while performing this project.

Keywords: IoT, Zigbee, Data streamer, RSSI

Detecting Brute Force Attack and Analyzing Network Traffic Using Wireshark

Nur Khaira Ahmad Shah¹, Abidah Haji Mat Taib², Nor Azira Mohd Radzi³

¹*nurkhaira2@gmail.com*

²*abidah@uitm.edu.my*

³*norazira202@uitm.edu.my*

ABSTRACT

Brute force attacks remain a serious cybersecurity issue, and much research is being conducted to create brute force attack prevention and detection approaches. However, employees' lack of security awareness when it comes to brute force attacks makes them ideal targets for hackers and cybercriminals. Furthermore, the current increase in cybersecurity attacks makes network traffic analysis even more vital. Monitoring network traffic for anomalous behaviour allows for the discovery and prevention of cybersecurity attacks in real-time. Nonetheless, the lack of proper analysis on cybersecurity activities such as network traffic allows the hacker to abuse the website by benefiting from advertisements, stealing personal data, and spreading malware to create disruptions. As a result, this study presents a brute force attack analysis on an experimental testbed for subsequent deployment in SMEs by utilising Wireshark. The research objectives are to create an experimental testbed for showing brute force activities and analyzing network traffic with Graphical Network Simulator-3 (GNS3), as well as to assess limit login attempts in WordPress by examining its capacity to identify and filter brute force attacks. An experimental testbed comprised of one web server, one attacker host, two Cisco 3745 Routers, two GNS3 generic Ethernet switches, and three GNS3 Virtual PC Simulators is developed. Hydra in Kali Linux was used to generate the brute force attack. This project has produced three scenarios. The first and second scenarios examine network traffic before and after the brute force attack respectively, while the third scenario examines one of the brute force attack mitigation measures. For Scenarios 1 and 2, Wireshark is used to examine network traffic. Scenario 2 has a higher total number of packets, average packet size, and average packet per second than Scenario 1. Furthermore, filters such as `http.request.method=="POST"` and `http.response.code==302` are used in Wireshark to identify login attempts. Furthermore, WordPress's restricted login attempts successfully mitigate brute force attacks. This project can be expanded in the future to include an application that detects brute force attacks and notifies the user of the intrusion through notice or email.

Keywords: Network Security, Brute Force Attack, Analyze Network Traffic, Wireshark, GNS3, Hydra

Visitor Management Mobile Application for School in Malaysia

Muhammad Rais Helmi Md Aris¹, Nurzaid Muhd Zain²

¹*m.raishelmi@gmail.com*

²*nurzaid@uitm.edu.my*

ABSTRACT

This report is mainly discussed the design and develop the Visitor Management Mobile Application as an application that manages all of the visitors that visited the school. School visitor management is a mobile application that helps to manage the visitors that wish to enter the school. The visitors can be a parent, relatives, or friends. This system will help to manage the visitors by needing them to fill in the visiting form in the application at least three days before visiting. It gives the school admin access to manage their visitors. It is possible because the visitors need to sign in and request the visit so that only the accepted an authorized visitor can enter the school. Currently, many public schools in Malaysia only uses basic security measure by filling in forms manually. This shows that the current filling system for visitor management is not well secured. In cases where student abduction or sudden disappearance without trace may happen, the school cannot refer to the visitor history as a reference. So, with help of this mobile application, hopefully it will improve the school security and the management of visitors will become smoother than before. For the testing phase, this application used functionality testing and user acceptance testing. The result for the functionality testing of this application is pass while the result for usability testing also passes by the respondent. However, there are still some improvements that can be done in this application for future work.

Keywords: Visitor Management Mobile Application, Visitors, Visiting form, Authorized visitor

Comparison of Malware Detection Model using Supervised Machine Learning Algorithms

Syamir Mohd Shahirudin¹, Mohd Faris Mohd Fuzi²

¹*syamirmdin@gmail.com*

²*farisfuzi@gmail.com*

ABSTRACT

Because of various security concerns and cyberattacks, cybersecurity is crucial in today's environment. In addition, malware has evolved quickly in recent years. Machine learning is utilised for malware detection with the advancement of malware analysis. The comparison of malware detection models utilising supervised machine learning techniques is the main goal of this project. The objective of this project is to develop the Windows malware detection model using supervised machine learning in Decision Tree, K-NN and Naïve Bayes, to evaluate the performance of malware detection model in term of testing and training of the features selection and to compare the accuracy detection model in all three machine learning algorithms. The Windows malware dataset has been training and testing by these three machine learning algorithms to get the percentage detection accuracy. After comparing these three result machine learning algorithms of percentage detection accuracy, the outcomes demonstrated that the best classifier for categorizing our data with 0.96% accuracy is the Decision Tree machine learning algorithm. When comparing the accuracy of a malware detection model, it is excellent if there are numerous machine learning algorithms and more malware datasets included.

Keywords: Supervised machine learning, Windows malware, Malware detection model, Percentage detection accuracy

A Prototype of Traffic Management System Using Lora Shield at Rural Area

Muhammad Alif Najmi Ahmad Tarmizi¹, Rafiza Ruslan², Nor Alifah Rosaidi³

¹*syamirmidin@gmail.com*

²*rafiza.ruslan@uitm.edu.my*

³*alifah.rosaidi@uitm.edu.my*

ABSTRACT

An efficient traffic management system will definitely reduce the percentage of accidents. Lora technology is one of the effective methods in implementing traffic management system in any area due to the long range and low power capability. This project built a prototype of a traffic management system in rural area routes where many vehicles pass-by. Many accidents happen in narrow roads such as the vehicles fall into the river to give-way to other vehicles. This prototype utilizes lora shield for the client and the server. The client is attached with the mini pir motion sensor and the traffic light while server is attached with traffic light only. This project is to build a prototype of a traffic management system using lora shield at the narrow road in rural area to avoid traffic and to evaluate the performance of LoRa network perform in term of signal strength at distance and signal strength between indoor and outdoor. There is one scenario that applied here, by using one client and one server. Client attached with mini pir motion sensor while server attached with breadboard, jumper wires and leds (green, yellow, red) to indicate traffic light. The distance of this client and server is the main key, when at 50 meters, the RSSI is -29 while at 150 meters, the RSSI is -99. For future works, use gateway as main controller to control the traffic light management.

Keywords: IoT, Traffic Management System, Leds, RSSI

Handwritten Character Recognition System for Online Learning Using Recurrent Neural Networks (RNN)

Nur Nabilah Shafiqah Rosli¹, Zulfikri Paidi²

¹*nabilah.shafiqah509@gmail.com*

²*fikri@uitm.edu.my*

ABSTRACT

Each person has special features that lead to his or her individual identifying identity. Since the letter structures or alphabets used to write the writing are unpredictable and difficult to identify and recognise, it is difficult to understand what is being written. Handwritten character recognition is one of the technologies that exist in the field of pattern recognition. In handwritten character recognition, pattern recognition is performed on characters consisting of alphabets or letters written by hand. The purpose of this research to develop handwritten character recognition system by using Recurrent Neural Network (RNN) algorithm. RNN are even used with convolutional layers to extend the effective pixel and achieve good result. Database will be collected from open resource website for research purpose. Next, integrate the trained neural network model into the TensorFlow as the recognition tool. The project's results/findings, which are the Character Error rate and Word Error Rate after training the datasets sample handwriting, are being gathered for analysis. The result of the error rate of the tenth learning of the datasets for sample handwriting is between 0 until 0.3 which is good result. The significance of this study is the project would be able to help community especially to educator and children in their learning aids. Next, it is important for people to save and keeps data and documents well. Handwriting recognition helps to transform the writings in the papers to a text document format which can also be said as readable electronic format. For future work are to build the project for open user. User can download the application on their own smartphone. Next, if there is much time given for this project, researcher or developer need to collect their own sample on handwriting from other people in order to get best result.

Keywords: Recurrent Neural Network, Handwriting, Recognition, Write, Error rate, Datasets, Layers, Algorithm

IoT Based Wi-Fi Smart Home Automation System for Elderly and Disabled People

Nurfatnin Hadfina Mohd Hadafi¹, Rashidah Ramle²

¹*fatnin.hadfina885@gmail.com*

²*rashidahramle@uitm.edu.my*

ABSTRACT

At this point, the percentage of the population aged 60 and older will increase from 1 billion in 2020 to 1.4 billion. Using technology can have advantages and disadvantages at any age, but previous research shows that elderly and disabled people have limitations when using technology. Due to age and health conditions, the elderly and disabled had to rely on other people to complete their daily routines. The IoT-based Wi-Fi Smart Home Automation System is developed to help elderly and disabled people to control their home appliances using the Blynk application on their mobile phones, make a noise and send alert notifications to users when there is an intruder in front of the door. The objectives of this research are to develop a prototype Wi-Fi Smart Home Automation System for elderly and disabled people using NodeMCU ESP8266 with Blynk application and evaluate the performance of the prototype through functional testing, network testing and user acceptance test. The bulbs and fan were tested three times by controlling them using the Blynk application. Next, the buzzer also was tested three times by changing the distance of people with the IR sensor to check whether it can make sound or not. Meanwhile, the IR sensor was tested three times through created scenarios by using different distances and with or without obstacles to ensure network performance. The response time is still in the acceptable range to notify the users when the distance is between 80 centimetres. The user acceptance test shows that above 50% of respondents agreed that this prototype is useful for them. For future work, other researchers can try to test the prototype with another home appliances. In summary, this research has successfully developed a Wi-Fi Smart Home Automation System prototype to ease elderly and disabled people.

Keywords: Internet of Things (IoT), Blynk, Smart Home Automation System, Wi-Fi, Elderly, Disabled people

Malaysian License Plate Recognition System using Convolutional Neural Network (CNN) on Web Application

Nur Farahana Binti Mahmud¹, Zulfikri Bin Paidi²

¹*nrfarahanamahmud@gmail.com*

²*fikri@uitm.edu.my*

ABSTRACT

Car License Plate Recognition System (CLPR) is a technology that utilise image processing and computer vision to extract and recognize license plate information from an image or video without the need for human intervention. The purpose of recognition carried out is either for verification or for identification purposes. It is widely utilised in diverse applications, for example, access control and parking management. Nowadays, there are numerous license plate recognition systems that have been developed and analysed effectively by previous researchers using different machine learning algorithms. However, according to a recent study, ANN algorithms require a huge amount of training data while BPFFNN algorithms only have an average success rate of 70% in recognizing all the characters. An improvement is needed on this factor, which could increase the accuracy of the system in the future. The objectives of this research are to develop a Malaysian license plate recognition system using a Convolutional Neural Network (CNN) on a web application and evaluate the performance of the system based on accuracy and loss values. In this research, the methodology that has been used is modest but appropriate. 10 license plate image samples were collected from the internet. The datasets used contain images of alphabets (A-Z) and digits (0-9) and were arranged categorically. Training and validation data are split 80:20. The obtained sample image will first undergo pre-processing and character extraction. 3 layers of a Convolutional Neural Network (CNN) model that contain convolutional, max pooling, flatten and dense were created and further trained. The binary image of the extracted characters was fed to the CNN model for classification. In addition, a simple web application connected to Jupyter Notebook has been developed to perform the testing. Based on the results obtained, the trained CNN model was able to achieve an accuracy of 97.11% for training and 96.76% for validation, respectively. For future work, the researcher may consider expanding the current size of the trained datasets by performing data augmentation to further increase the resilience of the system. A more sophisticated version of this system can be implemented by developing it on a mobile platform.

Keywords: Convolutional Neural Network, Malaysian License Plate Recognition System, Accuracy, Loss, datasets, Web application, Jupyter notebook

Implementation of Blockchain Technology in Online Voting System with Ethereum and Metamask

Nurriza Syafiqah Mohd Rozali¹, Muhamad Arif Hashim²

¹*the.nsyfih13@gmail.com*

²*muhamadarif487@uitm.edu.my*

ABSTRACT

Nowadays, elections are a method of selecting representatives that is based on justice, integrity, and democratic principles. The voting mechanism allows voters to vote for candidates during the election. The implementation of the blockchain in voting system is very significant. In essence, the voting system can directly affect political science, social science, and economics. Thus, the voting system's idea must respond and be carefully evaluated before being implemented. It is critical to protect voters' votes to preserve based on the integrity and reliability of online voting. However, blockchain is one of the emerging technologies with strong cryptographic foundations enabling applications to leverage these abilities to achieve resilient security solutions. The goal of this proposal is to implement blockchain technology in online voting system. The main objective of this project was to implement the blockchain technology in online voting system with Ethereum and MetaMask. To achieve this main objective, there were three sub objectives need to be address. Firstly, to identify suitable blockchain technology to be implemented in online voting system. Secondly, to develop an online voting system that implemented the chosen blockchain technology and lastly, to submit the vote by Ethereum using MetaMask wallet. When an election is selected, the vote is requested to be submitted then the request is broadcast to a peer-peer network of computers or "nodes". The network is validated the vote using algorithms. After verification, a vote is combined with others to create a "block" of data for the ledger. The new block is added to the blockchain in a way that cannot be changed. As a result, a vote is completed permanently, and the result can be trustworthy to achieve the integrity and reliability with the blockchain technology.

Keywords: Blockchain, Cryptographic, Election, MetaMask, Peer-Peer Network, Voting system

Intruder Detection System at Home using LoRa Technology

Muhammad Ameen Ahamad Khamaruddin¹, Ros Syamsul Hamid²

¹*ameenmuhd07@gmail.com*

²*rossyamsul@uitm.edu.my*

ABSTRACT

As a result of its ease and effectiveness, Internet of Things (IoT) technology is one of the primary requirements for the development of a smart house. This is because IoT technology makes inhabitants feel better. LoRa is a 1GHz ISM band modulation from Semtech. LoRaWAN is one of the finest Low-Power WAN (LPWAN) technologies. Sigfox and Zigbee have implemented home security solution, which includes home intrusion that have problems, such as low data rate for Sigfox and shorter range for Zigbee. By implementing LoRa Technology proposed project, Intruder Detection System at Home using LoRa Technology, the prototype can detect intruder at long range and LoRa have higher data rate. This project consists of three different developments, which is LoRa peer-to-peer communication, addition of ESP-01s WiFi Transceiver and connect LoRa Shield to LoRa gateway. As a result, two out three methods passed the functionality test and only one method that succeed the network testing. To avoid limitations for future researchers and developers that wanted to do project about LoRa, it is suggestable to add more LoRa gateway at public places, or places that many people can do research with LoRa, for example, at university. It is hoped that this project can add more safety and security at home.

Keywords: IoT, LPWAN, LoRa, LoRaWAN, ISM band, LoRa gateway, peer-to-peer communication, LoRa Shield

Keylogger Detection Analysis Using Machine Learning Algorithm

Muhammad Faiz Hazim Abdul Rahman¹, Abidah Hj Mat Taib², Nor Alifah Rosaidi³

¹*faizhazim.rahman@gmail.com*

²*abidah@uitm.edu.my*

³*alifah.rosaidi@uitm.edu.my*

ABSTRACT

Malware is one of the most harmful forms of attack on computers because of its passive approach and hidden execution. The most widespread type of malicious software that discreetly monitors user activities and logs keystrokes is called keylogging malware. Accordingly, the goal of this study are to create a detection model based on both supervised machine learning on keylogger dataset. Plus, to analyse the efficiency of a detection model on keylogger dataset by evaluating a selection of attributes. Besides, to test the accuracy of detection models on keylogger dataset comparing two machine learning algorithms. This study is carried out through the utilisation of two machine learning techniques, namely Decision Tree and Naive Bayes, on Jupyter Notebook in order to conduct an analysis of the Keylogger Detection dataset obtained from a trustworthy website known as Kaggle. There are a few outcomes that have been achieved to decide between those two machine learning methods that have better accuracy to carry out analysis on the dataset which of the two, but rather Decision Tree, have the greater accuracy. Early identification of a keylogger malware attack could prevent hackers from accessing personal user data and reduce the likelihood of infiltration, which could reveal account information, credit cards, usernames, passwords, and other data. In this way, we can decrease the likelihood of being the victim of a spyware attack and losing our information. It is intended that this initiative would deliver benefits to all of the users and be useful to them.

Keywords: Decision Tree, Naïve Bayes, Jupyter notebook

Social Distancing Mobile Application Using Bluetooth Low Energy (BLE)

Nur Irdina Nadira Mohd Dzahir¹, Ros Syamsul Hamid²

¹*irdinanadira00@gmail.com*

²*rossyamsul@uitm.edu.my*

ABSTRACT

Concerns about the health of the populace have been brought on by the rapid spread of COVID-19, a potentially lethal illness. In light of the gravity of the situation, maintaining social distance is one strategy for halting the contagiousness of the virus. This study discusses the process of developing a social distance mobile application. The social distancing mobile application is a kind of programme that, when activated, will send alerts to the user. After the user has downloaded and installed the programme as well as activated Bluetooth on their mobile devices, the application will function properly. The notice will be triggered when the user comes in touch with another user who is at a distance of less than 2 meters. For the programme to function properly, it must be able to identify mobile devices with the Bluetooth setting turned on. During the testing phase, both a user acceptability test and a test of the network's performance were carried out. A user acceptability test consisting of an evaluation of the questionnaires was carried out with thirty participants. The results of the surveys revealed that the vast majority of respondents were pleased with all of the categories offered. In addition, one of the aspects of testing that was carried out was a test of the performance of the network, and the outcome of that test regarding the reaction time of the network revealed that it was satisfactory. Therefore, on the basis of the features and capabilities provided in this system, the users who have installed the programme will profit.

Keywords: Social distancing, Bluetooth Low Energy, Mobile application, COVID-19, Alert notification, 2 meters

IoT Based Motion Alert System using Blynk Application to Prevent Fatal Accident of Falling from Height

Farah Najihah Mohamad Kamal¹, Rashidah Ramle²

¹*frhnajihah749@gmail.com*

²*rashidahramle@uitm.edu.my*

ABSTRACT

In the last decade, there have been many cases of children falling from high places such as balconies and stairs in our country. A warning system for fatal accidents of children falling from heights is important, and the motion detection system to prevent falls is very convenient for young people in their daily life. The IoT-based motion alarm system with Blynk application is designed to monitor the children when they step into the dangerous angle of the house, and a warning message will be displayed on the phone. The objectives of this research are to develop a prototype child motion alarm system using the PIR motion sensor and NodeMCU with the Blynk application, and to evaluate the performance of the prototype through functional testing, network testing, and user acceptance testing. The sensor was tested 3 times in conjunction with the Blynk application to verify functionality. Meanwhile, some scenarios with and without obstacle were created to ensure the network performance. When the distance increase more than 4m, the response time are still in an acceptable range to notify parent. In summary, this research successfully developed a prototype motion detection sensor using NodeMCU as the microcontroller and Blynk as the application to receive signal and send alert notification to smartphone. For the future works, this research system can be integrated with a camera or CCTV to make it easier to monitor the children from smartphone that are connected with the prototype. Other than that, other researchers could try to add some hardware that can automatically defence children falling from height.

Keywords: Motion detection, Children, IoT, PIR motion sensor, Blynk