



UNIVERSITI  
MALAYSIA  
KELANTAN

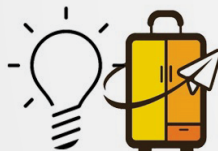


**CRI 2021**  
CARNIVAL OF RESEARCH AND INNOVATION  
VIRTUAL INTERNATIONAL EDITION

**e-PROCEEDING**

*CARNIVAL OF*  
**RESEARCH & INNOVATION**  
**(CRI 2021)**  
VIRTUAL INTERNATIONAL EDITION

*In conjunction with*



**INTELLIGENT 2021**  
POLITEKNIK KOTA BHARU

**I N T E R N A T I O N A L**  
**VIRTUAL INNOVATION CHALLENGE**  
**(INTELLIGENT2021)**

**&**



**CREATIVE INNOVATION CARNIVAL**  
**(CIC) 2021**

**20 – 21 SEPTEMBER 2021**  
UNIVERSITI MALAYSIA KELANTAN, MALAYSIA

CHIEF EDITOR: NUR HAFEZAH HUSSEIN

The background of the entire page is a light gray circuit board pattern with various nodes and connecting lines. At the bottom of the page, there is a more detailed and colorful circuit diagram featuring purple, red, and orange components.

**e-PROCEEDING**

*CARNIVAL OF*

**RESEARCH & INNOVATION**

**(CRI 2021)**

**VIRTUAL INTERNATIONAL EDITION**



**CRI 2021**

CARNIVAL OF RESEARCH AND INNOVATION  
VIRTUAL INTERNATIONAL EDITION

**e-PROCEEDING**

*CARNIVAL OF*  
**RESEARCH & INNOVATION**  
**(CRI 2021)**  
VIRTUAL INTERNATIONAL EDITION

*In conjunction with*



**INTELLIGENT 2021**  
POLITEKNIK KOTA BHARU

**I N T E R N A T I O N A L**  
**VIRTUAL INNOVATION CHALLENGE**  
**(INTELLIGENT2021)**

**&**



**CREATIVE INNOVATION CARNIVAL**  
**(CIC) 2021**

© Research Management Innovation Centre, 2021

All right reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or any means, electronics, mechanical, photocopying, recording or otherwise, without prior permission, in writing, from the Research Management Innovation Centre, Deputy Vice Chancellor (Research & Innovation) Office, Universiti Malaysia Kelantan.

**eISBN**

978-967-2912-89-7

E-PROCEEDING OF CARNIVAL RESEARCH & INNOVATION (CRI2021)  
VIRTUAL INTERNATIONAL EDITION

**DESIGNER**

Muhammad Najibul Muthiie bin Che Ya'acob

**CHIEF EDITOR**

Nur Hafezah binti Hussein

**EDITORS**

Tenh Hock Kuan  
Anuar bin Mohd Yusof  
Mohammad Syukran bin Kamal Ruzzaman  
Liyana binti Ahmad Afip  
Nor Hazwani Munirah binti Lateh  
Noor Izma binti Ab. Ghani  
Nik Azida binti Abd Ghani  
Wanly a/p Eh Keon  
Nor Ashikin binti Mazlan  
Nor Abidah binti Abdul Hamid  
Tan Tse Guan

**PUBLISHED BY**

Research Management Innovation Centre (RMIC)  
Deputy Vice Chancellor (Research & Innovation) Office,  
Universiti Malaysia Kelantan,  
16300, Bachok  
Kelantan, Malaysia.

**ORGANISED BY**

Intellectual Property and Commercialisation Division  
Research Management and Innovation Centre  
Universiti Malaysia Kelantan

**CO-ORGANISED BY**

Faculty of  
Creative Technology and Heritage

Faculty of  
Language Studies and Human Development

  
**POLITEKNIK**  
MALAYSIA  
KOTA BHARU  
Politeknik Kota Bharu, Malaysia

**SUPPORTED BY**

NATIONAL  
**STEM**  
ASSOCIATION  
National STEM Association



## TABLE OF CONTENTS

<b>FOREWORD (BY THE VICE CHANCELLOR UNIVERSITI MALAYSIA KELANTAN</b>	i
<b>FOREWORD BY THE SENIOR DIRECTOR OF RESEARCH MANAGEMENT AND INNOVATION CENTRE, UNIVERSITI MALAYSIA KELANTAN</b>	ii
<b>FOREWORD BY THE DIRECTOR OF POLITEKNIK KOTA BHARU</b>	iii
<b>PREFACE BY CHIEF EDITOR</b>	iv
<b>ORGANIZING COMMITTEE</b>	v
<b>PART 1: SCIENCE &amp; TECHNOLOGY</b>	1
<b>1 QN-OptiCal: A ROBUST CALCULATOR USING QUASI-NEWTON APPROACH FOR SOLVING MATHEMATICAL EQUATION</b>	2
<i>Azfi Zaidi Mohammad Sofi, Sarizam Mamat, Nurul Akmar Che Zaudin, Nor Hakimin Abdullah, An'amt Mohamed Noor, Andi Hermawan, Abdul Hafidz Bin Yusoff, Sharizal Ahmad Sobri, Teo Pao Ter, Mohd Asrul Hery Bin Ibrahim, Khairul Nizar Syazwan, Hasyiya Karimah Adli, Arlina Ali, Muhammad Iqbal Ahmad, Mohamad Bashree Abu Bakar, Hafiz Mohd Hanafi, Khirulnizam Rahman &amp; Nur Muizz Mohamed</i>	
<b>2 THE 3D-BES</b>	4
<i>Jamaliah Mohamad Sopi, Haryati Binti Ismail, &amp; Nor Asma Binti Mamat</i>	
<b>3 MEASUREMENT OF MILITARY COMBAT READINESS USING INTANGIBLE HUMAN DIMENSION FACTORS</b>	6
<i>S. Inderjit, Hasan Al-Banna Mohamed, Abdul Rahman Abdul Razak Shaik, Safar Yaacob, Ummul Fahri Abdul Rauf, Jessica Ong Hai Liaw, Siti Najwa Zainuddin, Kwong Fook Wen, &amp; Wong Wai Loong</i>	
<b>4 SMART 3-WHEEL BIKE "EMPOWER DISABLED ENTREPRENEURS WITH TECHNOLOGY"</b>	9
<i>Nurnaddia Nordin &amp; Nurhaiza Nordin</i>	
<b>5 PUBLIC MOBILITY MONITORING USING COMPUTER VISION AND GIS FOR MEASURING PANDEMIC SOCIAL DISTANCING IN EFFECTIVE AND SCALABLE MANNER</b>	11
<i>Arham Muchtar Achmad Bahar &amp; Wani Sofia Udin</i>	
<b>6 BOOKTABLELA APPLICATION</b>	13
<i>Navanitha Moorthy &amp; K.S. Savita</i>	
<b>7 SMART FERTILIZATION MANAGEMENT FOR OIL PALM TREE BASED ON IoT AND DEEP LEARNING</b>	15
<i>Shaparas Daliman, Nur Ain Najwa Mohd Adib, Nazahatul Anis Amaludin, Noor Janatun Naim Jemali, Aweng Eh Rak, &amp; Nordiana Abd Aziz</i>	
<b>8 DEVELOPMENT OF INTEGRATED SCHEDULED WASTE MANAGEMENT SYSTEM FOR EDUCATIONAL SECTOR</b>	17
<i>Norhidayu Noruddin, Ahmad Rasdan Ismail, Wan Azlee Wan Abdullah, Noor Syuhadah Subki, Siti Suhaila Mohd Nawawi, Mohd Khalid Ab Kadir @ Musa, Asma Salsabila Che Shaffie, &amp; Mohamad Fazli Muhamad @ Che Abas</i>	
<b>9 ISLAMIC HFitTracker: ISLAMIC HEALTH AND FITNESS TRACKER MOBILE APPLICATION FOR HEALTHY LIFESTYLES</b>	18
<i>Mohd Fadil Mohd Yusof, Siti Salina Saidin, Nurul Hafizah Mohd Yasin, Siti Fatimah Ab. Ghaffar, &amp; Nur Farihin &amp; Abd Hadi Khan</i>	
<b>10 A MULTI-PLATFORM AND LOW-COST NETWORK ATTACHED STORAGE FOR IOT APPLICATIONS</b>	20
<i>Nurul Azma Zakaria, Zaheera Zainal Abidin, &amp; Muhammad Iqbal Mohamad Zaimi</i>	

<b>11</b>	<b>TECHNOLOGY IMPROVEMENT OF MINI SMART ARTIFICIAL INCUBATOR SYSTEM (SMART FIN-Tech) FOR FISH EGG</b>	<b>22</b>
	<i>Suniza Anis Mohamad Sukri, Zulhisyam Abdul Kari@Abdullah, Hasnita Che Harun, Zuharlida Tuan Harith, &amp; Mohd Fareezman Zamzuri</i>	
<b>12</b>	<b>LOCKER SAFETY ALARM WITH BLYNK NOTIFICATION</b>	<b>24</b>
	<i>Mohamed Faris Farhan bin Mohamed Rohi, &amp; Zainuddin bin Omar</i>	
<b>13</b>	<b>ZoN- ELECTRONIC SEMICONDUCTOR DEVICES</b>	<b>26</b>
	<i>Arlina Binti Ali, Hidayani Binti Jaafar, Teo Pao Ter, Sarizam Binti Mamat, Norfadhilah Binti Ibrahim, Mohamad Najmi Bin Masri, Mohamad Bashree Bin Abu Bakar, An'Amt Bin Mohamed Noor, &amp; Azfi Zaidi Bin Mohammad Sofi</i>	
<b>14</b>	<b>VEHICLE ALERT SYSTEM</b>	<b>29</b>
	<i>Ts. Mahayudin B. Saad, &amp; Muhammad Danish Bin Syujahuddin Ganeson</i>	
<b>15</b>	<b>IoT SOLAR REFRIGERATOR</b>	<b>33</b>
	<i>Nur Sahira binti Ilias, Nur Filzah binti Mohd Fauzey, &amp; Muhamad Tarmizie bin Ismail</i>	
<b>16</b>	<b>WIRELESS HUMANOID ROBOT USING MICROCONTROLLER "ESP32" VIA BLYNK</b>	<b>35</b>
	<i>Mohd Faizal bin Mustapha, Muhammad Arif bin Zainudi, &amp; Wan Muhammad Afnan bin Wan Azli</i>	
<b>17</b>	<b>SMART HOME AUTOMATION USING BLYNK</b>	<b>38</b>
	<i>Muhammad Amir Syafiq bin Kamalruzzaman &amp; Rosmaria binti Ariffin</i>	
<b>18</b>	<b>IoT-BASED NON-INVASIVE BLOOD GLUCOSE MONITORING SYSTEM</b>	<b>40</b>
	<i>Lim Shau, Ts. Dr. Siti Zuraidah Ibrahim, Ts. Dr. Ku Nurul Fazira Ku Azir, &amp; Assoc. Prof. Dr. Ruzelita Ngadiran</i>	
<b>19</b>	<b>RISK MITIGATION FOR SOFTWARE ANTI-AGEING DURING ANALYSIS OF CHANGES IN SOFTWARE MAINTENANCE</b>	<b>42</b>
	<i>Noraini Che Pa , Thamaratul Izzah Binti Azman, Yusmadi Yah Jusoh, &amp; Rozi Nor Haizan Nor</i>	
<b>20</b>	<b>HUMAN ELEPHANT CONFLICT RECORD (HECoR) APP</b>	<b>44</b>
	<i>Hazizi Husain, Kamarul Ariffin Kambali@Hambali, &amp; Norashikin Fauzi</i>	
<b>21</b>	<b>INTELLIGENT SPECTACLE FOR BLIND PERSON</b>	<b>46</b>
	<i>Anuar Bin Mohamed Kassim, Muhammad Herman Bin Jamaluddin, Arman Hadi Bin Azahar, Mohd Rusdy Bin Yaacob, Sivarao A/L Subramonian, Albert Feisal @ Muhd Feisal Bin Ismail, Md Nazri Bin Othman, Muhammad Fahmi Bin Miskon, Ahmad Zaki Bin Shukor, Muhammad Mustaqiim Bin Roslan, Sahrul Bin Sahak, Nurul Nadia Binti Ayob, Muhammad As Shakirin Bin Abdul Aziz, &amp; Awangku Khairul Ridzwan Bin Awangku Jaya</i>	
<b>22</b>	<b>IoT BASED INTELLIGENT FIRE ALARM SYSTEM (I-FAST)</b>	<b>49</b>
	<i>Anuar Bin Mohamed Kassim, Muhammad Mustaqiim Bin Roslan, Muhammad As Shakirin Bin Abdul Aziz, Muhammad Muslim Bin Mohd Rashidin, Muhamad Afiq Shahmi Bin Shamsul Izran<sup>1</sup>, Sahrul Bin Sahak, Muhammad Malek Faizal Bin Mohammad Zaini, &amp; Awangku Khairul Ridzwan Bin Awangku Jaya</i>	
<b>23</b>	<b>SIMPLE COIN BANK USING ESP32</b>	<b>52</b>
	<i>Noraida binti Yusoff, Hirni binti Rashid, Ajmal Danish bin Mohd Zemri, &amp; Muhamad Akmal Aiman bin Mohd Azlan</i>	
<b>24</b>	<b>IoT-BASED DOOR ACCESS CONTROL USING FACE RECOGNITION</b>	<b>54</b>
	<i>Muhammad Afiq Bin Aznan, Ts. Dr. Siti Zuraidah Ibrahim, Ts. Dr. Ku Nurul Fazira Ku Azir, &amp; Assoc. Prof. Dr. Ruzelita Ngadiran</i>	
<b>25</b>	<b>LOW-COST AUTOMATIC CAT FEEDER</b>	<b>56</b>
	<i>Nawi bin Berahim, Ahmad Irfan bin Kamaruddin, &amp; Muhammad Afiq bin Na Amran</i>	
<b>26</b>	<b>REGENERATIVE BRAKING SYSTEM FOR ELECTRIC VEHICLES</b>	<b>58</b>
	<i>Mohammad Muktafi Ali Khan, Mohammad Muqtada Ali Khan, Hafzan</i>	

	<i>Eva Manosr, Elvaene James, Zaitul Zahira Binti Ghali @ Ghazali, &amp; Sarizam bin Mamat</i>	
<b>27</b>	<b>HEALTH EDUCATION MODULE (HEM) FOR THE PREVENTION OF RESPIRATORY ILLNESSES DURING HAJJ AND UMRAH</b> <i>Mohammed Dauda Goni , Aisha Abubakar Baaba, &amp; Ibrahim Abdul Azeez Okene</i>	61
<b>28</b>	<b>TOWARDS AQUACULTURE PRECISION FARMING: IoT BIG DATA ANALYTICS USING MACHINE LEARNING</b> <i>Khalifa Chekima &amp; Brahim Chekima</i>	63
<b>29</b>	<b>IoT SMART GUIDANCE PARKING SEARCH SYSTEM</b> <i>Iszaidy bin Ismail, Nur Farhan Kahar, Ruzelita Ngadiran, &amp; Mohamad Hanif Md Saad</i>	66
<b>30</b>	<b>EARTHCARE APPS DEVICE</b> <i>Nur Sajida binti Peduka, Zakiyah binti Taharim, Nur Izzah Amalia binti Hashim, Nur Bashiratul Khalidah binti Ismail Hisyam, Hazyati binti Hashim, &amp; Fadhilahanim Aryani binti Abdullah</i>	68
<b>31</b>	<b>APC-BUS: AUTOMATED PASSENGER COUNTING FOR INTELLIGENT BUS TRANSPORTATION SYSTEM</b> <i>Aimi Salihah Abdul Nasir, Muhammad Rizal Farhan Shaik Osman, Muhammad Izuan Fahmi Romli, &amp; Marni Azira Markom</i>	70
<b>32</b>	<b>SMART INTERNET-OF-MEDICAL WEARABLE WATCH FOR EARLIER SYMPTOMS DETECTION, MONITORING AND TRACKING OF COVID-19 PATIENTS</b> <i>Naimah Yaakob, Nik Adilah Hanin Zahri, Siti Hajar Bt Abdul Rahman, Riza Nur Arissha Bt Mohd Sabri, Devendran A/L Ramesparan, &amp; Siti Nur Aisyah Bt Azara'ai, Mahathir Almashor</i>	72
<b>33</b>	<b>VISION BASED SMART GRIPPER FOR MATERIAL HANDLING USING INTERNET OF THINGS</b> <i>Hasimah Ali, Muhammad Irfan Zainur, Tan Yin Suan, &amp; Mohamed Elshaikh</i>	74
<b>34</b>	<b>CUSTOMIZED RAINFALL COLLECTOR FOR ISOTOPE ANALYSIS (<sup>2</sup>H, <sup>18</sup>O, TRITIUM)</b> <i>Roslanzairi Mostapa, Kamarudin Samuding, Mohammad Muqtada Ali Khan, Zakiyah Ainul Kamal, Hafzan Eva Manosor, Nor Shahida Binti Shafiee @ Ismail, &amp; Aweng A/L Eh Rak</i>	76
<b>35</b>	<b>SUPRIMA S5</b> <i>Mohd.Zulkafli Bin Mohamed, Tengku Azmie Bin Raja Hassan, Muhamad Shah Rul Bin Kamaruddin, Ahmad Suhaimi Bin Arshad, &amp; Wan Amiruddin Bin Wan Mustapha</i>	78
<b>36</b>	<b>SCIENTIFIC WRITING PAPER MANAGEMENT INNOVATION "I-REVIEW"</b> <i>Hasanah Binti Safein @ Shafie, Ira Fazlin Bin Mohd Fauzi, Muhammad Daniel Nafis Bin Ahmad, Muhammad Yahya Bin Mat Rashid, &amp; Wan Mohamad Fikri Bin Wan Shaharuddin</i>	80
<b>37</b>	<b>HUMAN INTELLIGENCE PERFORMANCE PREDICTION BASED ON AI METHODS</b> <i>Raja Suzana Raja Kasim, Ghous Bakhsh Narejo, Zulazli Hashim, Nurul Afiqah Zulazli, &amp; Wan Nor Munirah Ariffin</i>	82
<b>38</b>	<b>ARTIFICIAL INTELLIGENCE SYSTEM AND METHOD FOR SUSTAINABLE SOCIAL FINANCE DATA PREDICTION</b> <i>Raja Suzana Raja Kasim, Ghous Bakhsh Narejo, Zulazli Hashim, Nurul Afiqah Zulazli, &amp; Wan Nor Munirah Ariffin</i>	85
<b>39</b>	<b>COMPACT RECIRCULATING AQUACULTURE SYSTEM (CORALS): ASIAN CLAM SAVIOUR</b> <i>Zharif Ramli, Aweng Eh Rak, &amp; Lee Seong Wei</i>	88
<b>40</b>	<b>RIZBRUNANA: ADVANCES IN HIGH---FIBRE BISCUIT USING BROWN RICE AND BANANA PEEL</b> <i>Nurul Hafizah Mohd Yasin, Derweanna Bah Simpong, Nur Farihin Abd Hadi Khan, &amp; Mazne Ibrahim</i>	90

<b>41</b>	<b>TERMICIDE: ONE DROP SOLUTION TO REPEL HOUSEHOLD PEST TERMITES</b> <i>Suganthi Appalasamy, Nivaarani Arumugam, Alia Diyana Mohamed Hassim, Boon Jia Geng, &amp; Jayaraj Vijaya Kumaran</i>	92
<b>42</b>	<b>SPATIAL PREDICTION FOR AMBIENT PARTICULATE POLLUTION USING SPATAP MODEL</b> <i>Siti Hajar Ya'acob, Siti Aisyah Nawawi, Noor Syuhadah Subki, Norrimi Rosaida Awang, Shaparas Daliman, &amp; Muhammad Ikram A. Wahab</i>	94
<b>43</b>	<b>DESIGN DEVELOPMENT OF WASTE COOKING OIL SMART FILTRATION BOX</b> <i>Asriana Ibrahim, Rafiq Hilmi Alias, Mohd Hakim Naquuddin Abdul Kadir, Mohd Hafidzal Mohd Hanafi, &amp; Nurul Hanim Razak</i>	96
<b>44</b>	<b>ASTAX-FEED</b> <i>Zuharlida Tuan Harith, Suniza Sukri, Nik Nur Azwanida Zakaria, Fatin Nursabriena Mohd Sabir, &amp; Fatin Syuhada Remlee</i>	98
<b>45</b>	<b>PINE-COOKIES</b> <i>Ho Pei Zheng, Zuharlida Tuan Harith, &amp; Nik Nur Azwanida Zakaria</i>	100
<b>46</b>	<b>LA PANCA: THE FURNITURE FOR THE BOTTOM BILLION</b> <i>Azli Abdullah, Nik Nurul Hana Hanafi, Siti Aisyah Muhammad, Najah Md Alwi, Nor Hafizah Anuar, Nuzul Haqimi Muhammad, Mhd Hafiz Karami Mhd Zain, Muhammad Rizal Khairuddin, Juliza Mohamad, &amp; Yasmin Mohd Faudzi</i>	102
<b>47</b>	<b>SONATA: MOBILISED ARCHITECTONIC STREET FURNITURE WITH MULTI-TRANSFORMATION</b> <i>Siti Aisyah Muhammad, Nik Nurul Hana Nik Hanafi, Juliza Mohamad, Najah Md Alwi, &amp; Nor Hafizah Anuar</i>	104
<b>48</b>	<b>GINOC: EDIBLE FOOD DYE</b> <i>Shamsul Muhamad &amp; Saliza Anida Salleh</i>	106
<b>49</b>	<b>THE INVENTION OF FISH FRY MOBILE, AUTOMATIC COUNTER (FRYMAC) USING ARDUINO UNO</b> <i>Nur Aina Lyana Mohamad Ali, Nazrin Nazari, Norhaida Musri, &amp; Nik Muhammad Farhan Nik Mohd Sani</i>	108
<b>50</b>	<b>GUAJAVA – A NUTRITIONAL PINK GUAVA POMACE POWDER</b> <i>Khomaizon Abdul Kadir Pahirulzaman &amp; Fazilawati Shaari, Nurhanan Abdul Rahman</i>	110
<b>51</b>	<b>PRECISE FERTILIZATION WITH DRONE-BASED TECHNOLOGY</b> <i>Muhammad Nurfaiz Abd. Kharim, Aimrun Wayak, Abdul Rashid Mohamed Shariff, Ahmad Fikri Abdullah</i>	112
<b>52</b>	<b>BIODEGRADTION OF WASTE COOKING OIL, ORGANIC MATERIAL AND PLA-FILAMEN MIXTURE</b> <i>Mohd Hafidzal Mohd Hanafi, Anis Ainaa Omar, Ainul Syakirah Md Saffie, Nurul Hanim Haji Razak, &amp; Asriana Ibrahim</i>	114
<b>53</b>	<b>VSOL- INNOVATIVE METHOD TO DETERMINE ULTRA TRACE LEVELS OF PESTICIDES IN FRUITS</b> <i>Krishna Veni Veloo</i>	116
<b>54</b>	<b>OLEOPHILIC POLYMER WASTE – OIL SOLIDIFIER (OPWOS) FOR USED COOKING OIL (UCO)</b> <i>Nurul Hanim Razak, Mohd Hafidzal Mohd Hanafi, Asriana Ibrahim, Nurul Afwa Ab Razak, &amp; Norlina Mohamad Norani</i>	117
<b>55</b>	<b>BOTANICAL REPELLENTS AGAINST SNAIL (ACHATINA FULICA)</b> <i>Tengku Halimatun Sa'adiyah Binti T Abu Bakar, Aionon Najihah Binti Abd Rahman, Jeffry Anak Tasek, Tengku Halimatun Sa'adiyah Binti T Abu Bakar, Suhana Binti Zakaria, Maryana Binti Mohamad Nor, Norhafizah Md Zin, &amp; Raja Ili Airina Raja Khalif</i>	120
<b>56</b>	<b>MULBERRY LEAVES CHIPS</b> <i>Tengku Halimatun Sa'adiyah Binti T Abu Bakar, Mohamad Syahid Farhan Bin Mohd Zaki, Nurul Hasanah Binti Ibrahim, Hanis Syazwani Binti Haron, Mohamad Nabil Bin Razali, Maryana Mohamad Nor, Suhana Zakaria &amp;</i>	123



	<i>Siti Nuurul Huda Binti Mohammad Azmin</i>	
<b>57</b>	<b>SMART CHAMBER FOR PRE-ACCLIMATIZED TISSUE CULTURE BANANA PLANTLETS</b>	<b>125</b>
	<i>Suhana Zakaria, Tengku Halimatun Saa'diah T Abu Bakar, Maryana Mohamad Nor, Fatimah Kayat, Raja Ili Airina Raja Khalif, &amp; Muhammad Irfan Hakim Azmi</i>	
<b>58</b>	<b>SCREENING AND TRIAGE CUBICLE (S.A.T CUBE) FOR COVID-19</b>	<b>127</b>
	<i>Mhd Hafiz Karami Mhd Zain, Wan Azlina Wan Ismail, Najah Md Alwi, Norwina Mohd Nawawi, Wan Pauzi Wan Ibrahim, Azirawati Ismail, &amp; Mohd Zurairie Mohd Zubir</i>	
<b>59</b>	<b>PREMIUM TMR: ALL-IN-ONE FEED FOR LAMBS</b>	<b>129</b>
	<i>Nor Dini Rusli, Mira Panadi, Khairiyah Mat, Hasnita Che Harun, Mohd Mahmud, Syed Muhammad Al-Amsyar Syed Abd. Kadir, Mohamad Khairi Mohd Zainol, &amp; Zamzahaila Mohd Zin</i>	
<b>60</b>	<b>FUELLING FUTURE TREASURE: COMMUNITY-BASED E-WASTE RECYCLING MODEL</b>	<b>131</b>
	<i>Marieanne Christie Leong, Aweng Eh Rak, Suganthi Appalasamy, Amal Najihah Muhamad Nor, Nur Aqilah Azmi, Jayaraj Vijaya Kumaran, Wong Hie Ling, Muhammad Firdaus Abdul Karim, &amp; Robin Sebolino</i>	
<b>61</b>	<b>DEVELOPMENT OF STRAW MUSHROOM (VOLVARIELLA VOLVACEA) FLOUR AND ITSAPPLICATION IN BAKING PRODUCT</b>	<b>134</b>
	<i>Saw Wei Xian &amp; Noor Hafizoh Binti Saidan</i>	
<b>62</b>	<b>A CASE STUDY – IMPACT OF COVID-19 ON LIVESTOCK FARMERS IN KELANTAN</b>	<b>137</b>
	<i>Nur Syuhada Sazali, Mohammad Mijanur Rahman, Khairiyah Mat, Nor Dini binti Rosli, &amp; Raja Ili Airina binti Raja Khalif</i>	
<b>63</b>	<b>IRFRAM WASTE TRAP</b>	<b>139</b>
	<i>Muhammad Ramzi Bin Ramli, Muhammad Irfan Bin Asri, &amp; Affidah Mardziah binti Mukhtar</i>	
<b>64</b>	<b>PREGNAMIX; RECIPE FOR BREEDING IN RUMINANTS</b>	<b>142</b>
	<i>Raja Ili Airina R.K, M S Nazhiifah Amiirah, Abu Bakar K.N., Mohamad Azlan, S.S., Z Suhana, Nor M. M, &amp; T H S T Abu Bakar</i>	
<b>65</b>	<b>HEALTH CHIPS</b>	<b>144</b>
	<i>Puan Fadilah Hanim Aryani Binti Abdullah, Kasthuri A/P S Visvanathan, Kaushilia A/P Haridash, Keerthana A/P Kalangan, Kirtthana Makendran, Rajtheeban A/L Muthuraman, &amp; Suganthi A/P Muniandy</i>	
<b>66</b>	<b>IoT IRRIGATION MONITORING AND CONTROL SYSTEM</b>	<b>146</b>
	<i>Aziz Mamat, Wan Muhammad Amirul Asyraf Bin Azhar, &amp; Wan Siti Zulaikha Bt Wan Azhar</i>	
<b>67</b>	<b>SUITABILITY OF VEGETATION INDICES METHOD IN DETERMINING THE COCONUT TREE STRESS</b>	<b>148</b>
	<i>Faris Alias &amp; Wani Sofia Udin</i>	
<b>68</b>	<b>GREENTECH PEDUNCUBE MADE FROM CUCURBITA SPP., BANANA PEDUNCLE &amp; BENINCASA HISPIDA</b>	<b>150</b>
	<i>Mohamad Khairullah Bin Atan, Amni Balqis Bt Zurkurnai, &amp; Nuraina Nafessa Bt Abdul Hakim</i>	
<b>69</b>	<b>BAMBOO AS REINFORCEMENT IN CONCRETE</b>	<b>152</b>
	<i>Tengku Suriati Binti Tengku Yusoff</i>	
<b>70</b>	<b>A MATHEMATICAL MODEL DEVELOPED TO PREDICT RESIDENTIAL EXPOSURE TO PESTICIDE VAPOURS EMITTED FROM TREATED FIELDS</b>	<b>154</b>
	<i>Wong Hie Ling, Shaparas Binti Daliman, Marieanne Christie Leong, Siti Hajar Binti Ya'acob, &amp; Muhammad Firdaus Bin Abdul Karim</i>	
<b>71</b>	<b>ECO-TROLLEY SHOPPING BAG</b>	<b>156</b>
	<i>Nur Fatihah Binti Ramli, Shahirah Binti Aziz, &amp; Siti Hawa Binti Kadir</i>	

<b>72</b>	<b>SURFACE-ACTIVE AGENT OF NEWLY ISOLATED BACTERIUM, <i>Pseudomonas sp</i> DSB7</b> <i>Ainihayati Abdul Rahim, Nurazeerah binti Khamis, Noor Azlina Ibrahim, Khomaizon Abdul Kadir Pahirul Zaman</i>	158
<b>73</b>	<b>UNDERGROUND WATER TREATMENT SYSTEM FOR PRIMARY SCHOOL USING ECO WATER MEDIA FILTRATION (ECO WMF)</b> <i>Nik Nurul Anis Nik Yusoff, Wan Mohd Faizal Wan Ishak, Nik Raihan Nik Yusoff, Mohamad Najmi Masri, Nabihah Abdullah, &amp; Shafini Mohd Shafie</i>	160
<b>74</b>	<b>VCENDOL: RETORT PROCESS FOR READY-TO-DRINK (RTD) CENDOL</b> <i>Syamsuriana Sidek, Tuan Muhammad Muiz T. Nordin, Yusrinadini Zahirah Md. Isa @ Yusuff, Nurul Azwa Mohamed Khadri, &amp; Hazrina Hasbolah</i>	162
<b>75</b>	<b>BIOMARKERS EXPRESSION AS A SUCCESSFUL TREATMENT EFFICACY INDICATOR IN POST TREATMENT MANAGEMENT INNOVATION OF MANNHEMIOSIS IN GOATS</b> <i>Mohd Farhan Hanif Reduan, Jasni Sabri, Fathin Faahimaah Abdul Hamid, Nur Athirah Abd Manaf, Intan Noor Aina, &amp; Faez Firdaus Jeese Abdullah</i>	164
<b>76</b>	<b>KOMBU-FEED<sup>+</sup> : INCORPORATION OF BLACK SOLDIER FLY LARVAE MEAL AND KOMBUCHA TEA AS FISH FEED REPLACEMENT AND FEED SUPPLEMENT TO AFRICAN CATFISH, <i>CLARIAS GARIEPINUS</i>.</b> <i>Ruhil Hayati Hamdan, Tan Li Peng, Mohd Farhan Hanif Reduan, Nora Faten Afifah Mohamed, Ain Auzureen Mat Zin, Chan Jian Ern, &amp; Ahmad Syazwan Samsuddin</i>	166
<b>77</b>	<b>PHOSPHATE SOLUBILIZING BACTERIA FROM PADDY RHIZOSPHERE AS BIOFERTILIZER</b> <i>Nik Fatin Qharanie Binti Nik Mohd Kamaruzaman &amp; Ainihayati Binti Abdul Rahim</i>	168
<b>78</b>	<b>SPINACH CRACKER: A NEW SNACK FOOD FOR EVERYONE</b> <i>Leony Tham, Daphane Teo Wen Xin, &amp; Nurhanan, A.R</i>	170
<b>79</b>	<b>ProovyFeed: POULTRY FEED OF SUSTAINABLE PROTEIN SOURCES</b> <i>Khairiyah Mat, Nor Dini Rusli, Hasnita binti Che Harun, Zulhisyam bin Abdul Kari, Mohammad Mijanur Rahman, Mohd bin Mahmud, Syed Muhammad Al-Amsyar, Lee Seong Wei, &amp; Leony Tham Yew Seng</i>	172
<b>80</b>	<b>ACTIVATED CARBON FROM FOXTAIL PALM FRUIT FOR REMOVAL OF METHYLENE BLUE, Cr(IV) AND METAMIFOP</b> <i>Nik Raihan Nik Yusoff, Nisrina Nadia, Noor Syuhadah Subki, Rozidaini Mohd Ghazi, Asanah Radhi, Nik Nurul Anis, Musfiroh Jani, &amp; Noor Janatun Naim, Marinah Muhammad</i>	174
<b>81</b>	<b>BIOCIDE FOR SICK BUIDLING SYNDROME FUNGUS (BioC-F)</b> <i>Muhamad Azahar Abas, Kamarul Ariffin Hambali, Muhammad Firdaus Abdul Karim, Lukman Ismail, Nor Hizami Hassin. Nurul Syazana Abdul Halim, Amal Najihah Muhamad Nor, Hamzah Hussin, &amp; Hafizi Rosli</i>	176
<b>82</b>	<b>SWEET POTATO AND BLACK BEAN PASTA</b> <i>Nurhanan, AR &amp; Nur Azhani Azzaharah, N</i>	178
<b>83</b>	<b>A RAPID DIAGNOSTIC TECHNIQUE FOR DETECTION OF VIRAL DISEASES</b> <i>Ruqayyah Ainul Bashirah, Nurulhuda Najihah Zainal Abidin, Nur 'Atikah Abdul Latif, Mariatulqabtiah Abdul Razak, &amp; Kuo Pin Chuang</i>	180
<b>84</b>	<b>INTEGRATED SOLAR-IoT MONITORING AND PREDICTIVE MAINTENANCE SYSTEMS FOR IRRIGATION (S-IoTP)</b> <i>Hasyiya Karimah Adli, Khairul Nizar Syazwan Wan Salihin Wong, Muhammad Akmal Remli, &amp; Ku Azmie Ku Husin</i>	182
<b>85</b>	<b>SPATIAL FRAMEWORK OF ZERO COVID 19 OUTBREAK FOR SUSTAINABLE HEALTH IN KELANTAN</b> <i>Amal Najihah Muhamad Nor, Rohazaini Muhammad Jamil, Hasifah Abdul Aziz, Muhamad Azahar Abas, Siti Aisyah Nawawi, Marieanne Christie Leong, Kamarul Ariffin Hambali, Nor Hizami Hassin, Muhammad Firdaus Abdul Karim, Aainaa Syazwani Mohamad Amir Hamzah, Wani Sofia Udin,</i>	184

Roniza Ismail, Nazahatul Anis Amaludin, Mohamad Faiz Mohd Amin, Norfadhilah Ibrahim, Abdul Hafidz Yusoff, Nur Hairunnisa Razaai, & Nur Hanisah Abdul Malek

- |           |   |     |
|-----------|---|-----|
| <b>86</b> | <b>SUPER PROTECTION GRPAHENE FACE MASK</b><br><i>Thinakaran Narayanan &amp; Kaushik Pal</i>   | 186 |
| <b>87</b> | <b>IComPBag</b><br><i>Azura Sharena Yahaya, Siti Nor Farhanah Sh Nor Shahidin, &amp; Mohd Fahmi Lukman</i>  | 187 |
| <b>88</b> | <b>MICROENCAPSULATED ASTAXANTHIN FACE SERUM</b><br><i>Nik Nur Azwanida Binti Zakaria, Nurul Najwa Izzati Binti Mohd Zakuwan, &amp; Zuharlida Tuan Harith</i>  | 189 |
| <b>89</b> | <b>TOMCAT TRAP</b><br><i>Nik Azida binti Abd Ghani, Juli Suzlin binti Jalaluddin, Syed Zainal Abidin bin Syed Noor Wahid, Muhammad Azham Aizil bin Othman, Nurul Durrani binti Afandi, &amp; Hanis Izzati binti Roslan</i>  | 191 |
| <b>90</b> | <b>INNOVATIVE TREATMENT MANAGEMENT OF NOTOEDRIC MANGE WITH A COMMERCIALGAMAT OIL PREPARATION IN CATS</b><br><i>Siti Nur Amira binti Zambri, Jasni bin Sabri, Abd Rahman bin Aziz, Ibrahim Abdul-Azeez Okene</i>   | 193 |
| <b>91</b> | <b>ANTIBIOFILM PROPERTIES OF GRAPHENE OXIDE AGAINST STAPHYLOCOCCUS AUREUS ISOLATED FROM BOVINE MASTITIS</b><br><i>Nor Fadhilah Kamaruzzaman, Liang Vivian, &amp; Shamsaldeen Ibrahim Saeed</i>  | 196 |
| <b>92</b> | <b>ANTI-PSOPRIASIS COSB (Cathanranthus roseus extract, Olive oil, Shea butter &amp; Beewax) OINTMENT</b><br><i>Sujej Kumar Rajendren, Chooi Kah Loong, Abdul Rahman Bin Aziz, &amp; Nor Fadillah Binti Kamaruzzaman</i>   | 197 |
| <b>93</b> | <b>AUTOMATED SCREENING AND CELLS COUNTING SYSTEM FOR LEUKAEMIA AND MALARIA</b><br><i>Aimi Salihah Abdul Nasir &amp; Thaqifah Ahmad Aris, Mohd Yusoff Mashor, &amp; Zeehaida Binti Mohamed</i>   | 199 |
| <b>94</b> | <b>DETECTION AND ASSOCIATED RISK FACTORS ON GASTROINTESTINAL PROTOZOA IN OWNED CATS IN SELECTED DISTRICTS IN KELANTAN</b><br><i>Nurshahirah Shahrulnizim, Tan Wan Loong, Intan Noor Aina, Basripuzi Nurul Hayyan</i>  | 201 |
| <b>95</b> | <b>MASSAGE BAR ADDED WITH WATERMELON SKIN EXTRACT &amp; MINT (Cool-Lit Watermelon Massage Bar)</b><br><i>Siti Nuurul Huda Mohammad Azmin &amp; Nur Dini Dayana Zamzuri</i>  | 203 |
| <b>96</b> | <b>SMART OPTIMIZATION SYSTEM (SOS): OPTIMIZATION SYSTEM TRACKER OF BLOOD COLLECTION OPERATION DURING COVID 19</b><br><i>Ts. Muhamad Hafiz Bin Masran, Ts. Dr. Wan nor Munirah Ariffin, Dr. Nor Azrita Mohd Amin, Nur Arif Azezan, YM Prof. Dr. Hjh Raja Suzana Raja Kasim, &amp; Muhammad Suhaimi bin Zaini</i>   | 205 |
| <b>97</b> | <b>PARTICLE BOARD MADE FROM WASTE EXPANDED POLYSTYRENE (EPS)</b><br><i>Andi Hermawan, Tuan Mohamad Firdaus bin Tuan Muhamad Adnan, Sharizal bin Ahmad Sobri, Nor Hakim bin Abdullah, &amp; Mohd Hazim bin Mohamad Amini</i>   | 207 |
| <b>98</b> | <b>HIGH GRADE ALPHA CELLULOSE OF SESBANIA GRANDIFLORA</b><br><i>Liew Jing Xian, Boon Jia Geng, Liew Jeng Young, &amp; Suganthi Apalasy</i>  | 209 |
| <b>99</b> | <b>GREEN POROUS CERAMIC THERMAL INSULATOR (GreenPCTI) MADE FROM WOOD SAW DUST WASTE</b><br><i>Pao Ter Teo, Afiqah Awang Kechik, Siti Koriah Zakaria, Nur Atikah Muhammad Tharmizi, Arlina Ali, Jia Geng Boon, Mardawani Mohamad, Mohamad Najmi Masri, Julie Juliewatty Mohamed, &amp; Mustaffa Ali Azhar Taib</i> | 211 |



<b>100</b>	<b>KELANTAN BAMBOO ACTIVATED CARBON: AN ECONOMICAL AND SUSTAINABLE INNOVATION FOR WASTEWATER TREATMENT BY ADSORPTION TECHNIQUE</b>	213
	<i>Danial Shamzari bin Hashim, Liew Jeng Young, Boon Jia Geng, Ng Kooi Huat, &amp; Sim Kheng Yuen</i>	
<b>101</b>	<b>WASTE TO WEALTH; A NOVEL BIODEGRADABLE COMPOSITES FROM AGRICULTURE WASTE FOR DRUG DELIVERY</b>	215
	<i>Nor Hakimin Abdullah, Nur Aiman Mohamad Senusi, Rathesh Kumaran A/L Ulaganathan, &amp; Mohammad Aiman Hakim Bin Abdullah</i>	
<b>102</b>	<b>REDUCING CORROSION ON STAINLESS STEEL PIPELINE VIA HYDROGEN INDUCE CRACKING</b>	217
	<i>Associate Professor Dr. Mohamad Najmi Masri &amp; Nur Adeeba Zakiah Che Yusoh Zaki</i>	
<b>103</b>	<b>THE IMPROVEMENT OF MAMBONG CLAY PROPERTIES WITH CALCIUM CARBONATE ADDITION</b>	219
	<i>Nurul Ainon Bakar, Siti Mariam Mat Nor, Noruzzaman Daud, Wan Nor Dini Wan Azli Jasmi, Muhammad Qusyairi Saari, Julie Juliewatty Mohamed, &amp; Hasanah Safein@Shafie</i>	
<b>104</b>	<b>K-NUFF BLOCK</b>	222
	<i>Mardawani Mohamad, Mohamad Najmi Masri, Teo Pao Ter, Mohd Fadzhel Mohd Nasir, Abdul Hadi Hassan, Mohd Ali Amin, Azkhari Munif</i>	
<b>105</b>	<b>INNOVATION OF HERBAL LIQUID BATH SOAP WITH ALOE VERA EXTRACT AND OLIVE OIL EXTRACT EFFORTS TO BRIGHTEN THE SKIN WITH VISCOSITY METHOD AND CHEMICAL COMPOUND EXPERIMENT</b>	223
	<i>Dika Putra Wijaya, Milan Rosa Aprilia, &amp; Daffa Dwi Nafisah</i>	
<b>106</b>	<b>THE CONVERSION OF LDPE PLASTIC WASTE INTO FUEL</b>	225
	<i>Mohammad Shamizi bin Sayuti, Muhammad Afiq Farhan bin Ab Aziz, &amp; Affidah Mardziah binti Mukhtar</i>	
<b>107</b>	<b>MECHANICAL PROPERTIES OF CELLULOSE NANO CRYSTAL/GRAPHENE NANO PLATELETS REINFORCED POLY(LACTIC) ACID BIOCOMPOSITES</b>	228
	<i>Abu Bakar, M. B., Mustapha, N. I., Mazli, N. I., Rosdi, N. A. M., Mohd, S. H., &amp; Mohamed, M.</i>	
<b>108</b>	<b>EFFECT OF CELLULOSE NANO CRYSTAL AND GRAPHENE NANO PLATELETS ON THERMAL PROPERTIES OF UNSATURATED POLYESTER RESIN REINFORCED KENAF FIBRE BIOCOMPOSITES</b>	230
	<i>Bakar, M. B. A, Rosdi, N. A. M., Mohd S. H., Mohamed, M., &amp; Abdullah, N. H.</i>	
<b>109</b>	<b>PHYSICAL PROPERTIES OF CELLULOSE NANOCRYSTAL (CNC) / GRAPHENE NANOPATELETS (GNP) HYBRID NANOFILLERS REINFORCED POLYLACTIC ACID BIOCOMPOSITES</b>	232
	<i>Abu Bakar, M. B, Mazli, N. I., Mohd, S. H., Md Akil, H., &amp; Rosdi, N. A. M</i>	
<b>110</b>	<b>DEGRADATION OF METAMIFOP BY TiO<sub>2</sub>/Al<sub>2</sub>O<sub>3</sub>/CNT, TiO<sub>2</sub>/Al<sub>2</sub>O<sub>3</sub>/G AND Al<sub>2</sub>O<sub>3</sub>/G</b>	234
	<i>Nik Raihan Nik Yusoff, Mahani Yusoff, Rozidaini Mohd Ghazi, Asanah Radhi, Nik Nurul Anis, Musfiroh Jani, Noor Janatun Naim, &amp; Marinah Muhammad</i>	
<b>111</b>	<b>FOOD PACKAGING BIOPLASTIC FILM FROM COCOA POD HUSK INCORPORATED WITH SUGARCANE BAGASSE</b>	236
	<i>Siti Nuurul Huda Mohammad Azmin &amp; Najah Aliah Mohd Hayat</i>	
<b>112</b>	<b>SMART VIEW AND ANTIFUNGAL ENTO CABINET (SVAFEC)</b>	237
	<i>Norashikin Fauzi, Noor Syuhadah Subki, Zaitul Zahira Ghali@Ghazali, &amp; Musfiroh Jani</i>	
<b>113</b>	<b>TWO RODS FISHING BAIT LAUNCHER</b>	239
	<i>Mohd Hafidzal Mohd Hanafi, Muhammad Nur Ariffuddin Nuruddina, Fadhilah Shikh Anuar, Nurul Hilwa Mohd Zini, &amp; Mohd Noor Asril Saadun</i>	

<b>114</b>	<b>THE CEILING FAN CLEANER</b> <i>Mohd Zaidi bin Mahmud &amp; Zahidi Bin Habadullah</i>	241
<b>115</b>	<b>PORTABLE ELECTRIC GENERATOR</b> <i>Norlila binti Mohd Yusoff, Masarizan binti Mohamed, Syahmi Adib bin Nazri, &amp; Muhammad Nur Aiman bin Mohd Zulkifli</i>	243
<b>116</b>	<b>BRIDGE TESTING APPARATUS (BRIDGTEST)</b> <i>Noor Hazwani Binti Sapuan, Farha Binti Mohamed Yasin, Mohd Yusri Bin Yusop, &amp; Zulkiflie Bin A Wahab</i>	245
<b>117</b>	<b>COCONUT FIBRE GRINDING MACHINE</b> <i>Mariam Binti Abdul Aziz, Wan Muhammad Azim Bin Wan Makhzan, &amp; Siti Nor Syamimi Binti Abd Razak</i>	247
<b>118</b>	<b>DEVELOPMENT OF REALTIME MONITORING SYSTEM FOR WELDING PARAMETER MONITORING (seeWeld)</b> <i>Sarizam Mamat, Ahmad Zaki Amiruddin, Khairul Nizar Syazwan Wan Salihin Wong, Azfi Zaidi Mohammad Sofi@Aziz, Airel Jashimiey Arifin, Rose Ellyana Alifah Roslan</i>	250
<b>119</b>	<b>HANDS FREE HAND SANITIZER</b> <i>Sheilani Binti Shaari &amp; Nur Alia Izatey Binti Ismail</i>	251
<b>120</b>	<b>CNC MACHINE MOTION CONTROL TECHNIQUE FOR ISO 14649 DATA INTERFACE MODEL</b> <i>Kamran Latif, Shafinaz Ismail, Muhammad Hazimi Hilmi Md Puzi, Hamdan Syakirin Md Amir, &amp; Krisnan Kandhian</i>	253
<b>121</b>	<b>LANDSLIDE SUSCEPTIBILITY MAPPING USING THE GEOGRAPHIC INFORMATION SYSTEM (GIS) APPROACH</b> <i>Rohazaini Muhammad Jamil, Noorzamzarina Sulaiman, Nursufiah Sulaiman, Siti Aisyah Nawawi, Amal Najihah Mohamad Nor, &amp; Norfadhilah Ibrahim</i>	255
<b>122</b>	<b>SMART SOLAR GRASS CUTTER</b> <i>Mohd Hisham Bin Makhtar, Wan Muhammad Marzudi Bin Wan Muhammad, Muhammad Rozidie Bin Sazali, Muhammad Amyrul Aizat Bin Mohd Asri, &amp; Ahmad Fahmi Bin Mohamed</i>	257
<b>123</b>	<b>OBIA: MAPPING FOREST MADE EASY!</b> <i>Noor Janatun Naim Jemali, Mohd Fariz Abd Rhani, Syafinie Majid, &amp; Marinah Muhammad</i>	259
<b>124</b>	<b>MOBILE PRECAST STUMP AND FOOTING</b> <i>Mohd Yuzha Bin Usoff, Hamidah Bt Zakaria, Mohd Hilmei Bin Abdul Aziz, Izhah Bin Wahab @ Hassan Basari</i>	261
<b>125</b>	<b>COMPRESSIVE STRENGTH OF OIL PALM SHELL CONCRETE GRADE 30</b> <i>Tengku Suriati Binti Tengku Yusoff</i>	263
<b>126</b>	<b>RTK GPS CONSISTENCY IN VERTICAL CONTROL WORK</b> <i>Nor Azme Bin Nordin, Asiah Binti Abdul Satar, &amp; Sulzakimin Hj Mohamed</i>	266
<b>127</b>	<b>SMART RECYCLE BIN SYSTEM(I-BIN)</b> <i>Anuar Bin Mohamed Kassim, Muhammad Mustaqiim Bin Roslan, , Muhammad As Shakirin Bin Abdul Aziz, Muhammad Muslim Bin Mohd Rashidin, Muhamad Afiq Shahmi Bin Shamsul Izran, Sahrul Bin Sahak, Muhammad Malek Faizal Bin Mohammad Zaini, Awangku Khairul Ridzwan Bin Awangku Jaya</i>	269
<b>128</b>	<b>A STUDY ON RECYCLED TYRES AS AN ADDITIVE IN CONCRETE MIXTURE</b> <i>Nor Abidah binti Abdul Hamid, Nur Ezzah binti Mohd Sidik, Siti Farah binti Mohd Sidik</i>	273
<b>129</b>	<b>SELF-ENERGY GENERATION BUILDING: PORTABLE E-STORAGE DEVELOPED VIA RENEWABLE ENERGY (RE)</b> <i>Salmiah Binti Aziz, Siti Nuratirah Binti Che Mohd Nasir, Mohammed Fadzli Bin Maharimi, Neha R Jacob</i>	275
<b>130</b>	<b>WASTE TO WEALTH: CASSAVA PEEL STARCH</b>	278

	<b>BIOFLOCCULANT</b>	
	<i>Norzila Othman &amp; Syazwani Mohd Asharuddin</i>	
<b>131</b>	<b>DESIGN OF DOORPAGE FOR CARRYING AND INSTALLING DOORS</b>	<b>280</b>
	<i>Mohd Fadly Bin Abdullah, Wan Nur Aqilah Binti Wan Nawang, &amp; Mohd Sobri Bin Hassan</i>	
	<b>PART 2: SOCIAL SCIENCE</b>	<b>283</b>
<b>132</b>	<b>VIRTUAL EARLY MATHEMATICS LEARNING KIT FOR ADDRESSING THE AMBIGUITY OF MATHEMATICAL PROCEDURAL SKILLS AND TERMINOLOGIES</b>	<b>284</b>
	<i>Prof. Madya Dr. Anida Sarudin, Dr. Husna Faredza Mohamed Redzwan, Dr. Wan Mazlini Othman, Prof. Madya Dr. Zulkifli Osman, Prof. Madya Raja Noor Farah Azura Raja Ma'mur Shah, Prof. Madya Dr. Intan Safinas Mohd Ariff Albakri, Dr. Siti Rahaimah Ali, &amp; Muhammad Nazrin Abu Bakar</i>	
<b>133</b>	<b>AR OF BRITISH PILLBOX AS A MEDIUM IN EDUCATION THROUGH THE TOURISM SECTOR FOR YOUNG GENERATIONS</b>	<b>287</b>
	<i>Nur Athmar Binti Hashim, Dr. Tengku Fauzan Tengku Anuar, Dr Siti Aisyah Muhammad, &amp; Nur Farhana Bt Shuhaimi</i>	
<b>134</b>	<b>PROGRAMMING TRAINER KIDS (ProKiDs)</b>	<b>291</b>
	<i>Chung Boon Chuan, Nik Rahaya binti Nik Ishak, Nur Filzah Binti Mohd Fauzey</i>	
<b>135</b>	<b>PROGRAMMING EDUCATION CARDS GAME (PECgame)</b>	<b>294</b>
	<i>Chung Boon Chuan, Melissa Khor Suan Chin, &amp; Udom A/L Ewon</i>	
<b>136</b>	<b>SMART NOTES</b>	<b>297</b>
	<i>Nik Noorafieda Binti Wan Azraen</i>	
<b>137</b>	<b>STACK THE ENGLISH GAMES (STEN.G) INNOVATION FOR TEACHING AND LEARNING</b>	<b>299</b>
	<i>Melissa Khor Suan Chin, Chung Boon Chuan, Siti Martini Binti Mustapha</i>	
<b>138</b>	<b>SEISMIC REFLECTION INTERPRETATION USING AR APPLICATION TO ENHANCE UNDERGRADUATE STUDENT'S UNDERSTANDING</b>	<b>303</b>
	<i>Noorzamzarina binti Sulaiman, Nursufiah bte Sulaiman, Rohazaini binti Muhammad Jamil, Wani Sofia binti Udin, Nor Shahida binti Shafiee @ Ismail, Fazrul Razman bin Sulaiman</i>	
<b>139</b>	<b>TALKING SNAKES &amp; LADDERS</b>	<b>305</b>
	<i>Marianti binti Mohd Suhaimi</i>	
<b>140</b>	<b>MOBILE APPLICATION DEVELOPMENT TO TEACH ENGLISH PROFICIENCY COURSES</b>	<b>307</b>
	<i>Nazatul Syima Mohd Nasir, Nor Hazwani Munirah Lateh, Khairul Hisyam Baharuddin, Amaal Fadhlini Mohamed</i>	
<b>141</b>	<b>IoT RESCUE BUTTON</b>	<b>308</b>
	<i>Nazratulhuda Hashim, Wan Majdah Ton Mamat, &amp; Zetty Rohaiza Mohd Ishak @ Sahak</i>	
<b>142</b>	<b>LEGO MODEL LAYOUT PLAN TOOL KIT EXPLORATION FOR STUDIO-BASED LEARNING</b>	<b>311</b>
	<i>J. Azri, N. A. H. Hamizah, H. Ramly, L. H. I. Ismi, M. K. Rizal, M. M Fadzli</i>	
<b>143</b>	<b>Account4U</b>	<b>314</b>
	<i>Noorul Azwin Md Nasir, Siti Afiqah Zainuddin, Nadzirah Mohd Said, Noorshella Che Nawwi, Tahirah Abdullah, Wan Farha Wan Zulkifli</i>	
<b>144</b>	<b>THE LEMBAH SIREH-KB CITY WEB APP: PROTOTYPE FOR SITE ANALYSIS IN FINAL YEAR ARCHITECTURE STUDIO TEACHING</b>	<b>316</b>
	<i>Najah Md Alwi, Mhd Hafiz Karami Mhd Zain, Muhammad Mujibur Rahman Bin Ahmad Safuan, Liew Ho Yen, Ariff Asyraf Bin Ab Rahman, Muhammad Azeem Bin Mohd Rizal, Nurul Fatimah Binti Said, Nur 'Izzatul Zaharah Binti Mohd Rosli</i>	
<b>145</b>	<b>Jen-HyPe: ENHANCING LEARNERS' ENGAGEMENT VIA HYBRID TEACHING AND LEARNING PEDAGOGY</b>	<b>317</b>

	Mohamad Najmi Masri, Mardawani Mohamad, Ain Zulaikha Zuhairi, & Teo Pao Ter	
<b>146</b>	<b>Mar-ProD: PROJECT-BASED LEARNING APPROACH VIA INNOVATIVE PROJECT DESIGN</b>	<b>319</b>
	Mardawani Mohamad, Noor Fazliani Shoparwe, Rosmawani Mohammad, Teo Pao Ter, Mohamad Najmi Masri, & Wan Hasnidah Wan Osman	
<b>147</b>	<b>CREATING EXCITEMENT IN LEARNING THROUGH TIKTOK APPLICATIONS</b>	<b>322</b>
	Normaizatul Akma Saidi, Naziatul Aziah Mohd Radzi, & Mazne Ibrahim	
<b>148</b>	<b>PKB-JOBLINK</b>	<b>324</b>
	Aslamaitulakma Mohamad, Norhidayah Mohamad Yusop, & Roslina Idris	
<b>149</b>	<b>THE SIMULATION IN VIRTUAL LEARNING FOR PRACTICAL COURSES: A PROPOSED IDEA</b>	<b>326</b>
	Mazne Ibrahim, Naziatul Aziah Mohd Radzi, & Normaizatul Akma Saidi	
<b>150</b>	<b>GAMIAPP: USING GAMES IN WHATSAPP TO INCREASE PUPILS' ENGAGEMENT IN ENGLISH PDPR</b>	<b>328</b>
	Siti Hajar Akma Mohd Rawi & Mhd Hafiz Karami Mhd Zain	
<b>151</b>	<b>APPLICATION OF THE KIRKPATRICK MODEL: EFFECTIVENESS IN ACCOUNTING COURSE</b>	<b>330</b>
	Normaizatul Akma Saidi, Noraida Saidi, Derweanna Bah Simpong, Nur Azimah Othman, Hazztyati Hashim, Nadzirah Mohd Said, Wan Farha Wan Zulkiffli	
<b>152</b>	<b>GET2GETHER: THE WEB-APP THAT CAN WORKS WITHOUT THE INTERNET</b>	<b>332</b>
	Azlin Sharina Abdul Latef, Nuzul Haqimi Muhammad, Hana Yazmeen Hapiz, Sarah Wahida Hasbullah, Mohd Zaimmudin Mohd Zain	
<b>153</b>	<b>DEVELOPING WEBSITE FOR TEACHING DIGITAL TOOLS IN ARCHITECTURE AND CREATIVETECHNOLOGY PROGRAMS</b>	<b>335</b>
	Nuzul Haqimi Muhammad, Azlin Sharina Abdul Latef, Noorul Huda Mohd Razali, Hana Yazmeen Hapiz, Yuhanis Ibrahim	
<b>154</b>	<b>PERFORMING VISUAL INTERPRETATION AND ANALYSIS IN VIRTUAL SERIAL VISION (VSV) USING SATELLITE IMAGERY AS NAVIGATION TOOLS</b>	<b>337</b>
	Nor Hamizah Abdul Hamid, Muhamad Ezran Zainal Abdullah, Nurul Izzati Othmani, Syahidah Amni Mohamed, Ramly Hassan, Wan Azlina Wan Ismail, Wan Saiful Nizam Wan Mohamad, Noorliyana Ramlee, Nurfadilah Saadul Kurzi, Yeo Lee Bak, Mohd Azri Mohd Jain Noordin, Ruwaidah Borhan	
<b>155</b>	<b>THE ENGAGEMENT OF CLASSIC INTERACTIVE DOLLS IN ESL ONLINE CLASS FOR PDPR</b>	<b>339</b>
	Amaal Fadhlini Mohamed, Nazatul Syima Mohd Nasir, Ariezal Afzan Hassan, & Wan Suzanna Aafanii Adeeba Wan Hassan	
<b>156</b>	<b>AN INNOVATION OF AUTOMATIC SOLAR TRACKER USING ARDUINO</b>	<b>342</b>
	Salwati Binti Mohamed@Awang, Nik Nor hishamuddin Bin Nik Mustapha, Ahmad Baihaqi Bin Mohd Hatim	
<b>157</b>	<b>SRAV TRAINER KIT</b>	<b>344</b>
	Syed Arifin Bin Engku Sulong, Nor Juliha Binti Said, Roslinda Binti Sidek	
<b>158</b>	<b>SMART SPRING ABSORBER REPLACEMENT [SSAR-01]</b>	<b>346</b>
	Mohd Azri bin Abdul Ghani, Muhd Naqib Bin Mohd Rezali, Muhd Irfan Akif Bin Mohd Radzi, Muhd Syafiq Bin Mohd Afandi	
<b>159</b>	<b>DUE 10012 COURSE OVERVIEW ANIMATION VIDEO</b>	<b>348</b>
	Wan Rahayah Rahimi Wan Ramli	
<b>160</b>	<b>PORTABLE PROGRAMMABLE LOGIC CONTROLLER TRAINER WITH MODULES FOR TRAINING</b>	<b>350</b>
	Nurul Aemyza Binti Che Fauzi, Roslinda binti Ismail, Nurul Fatini Bt Abdul Pattah, Mohamad Adli Bin Mohamed Nor, Mphd Adli Bin Zaki, Mohd Hafiq Bin Che Sayuti	



<b>161</b>	<b>CONDUCT OF GRADATION TEST IN DETERMINATION OF SOIL PARTICLE SIZE DISTRIBUTION USING VIDEO</b>	<b>352</b>
	<i>Norli Binti Ismail &amp; Rus Ayunita Binti Jusoh</i>	
<b>162</b>	<b>JAMBOARD IN FINANCIAL MANAGEMENT: ENGAGED AND ENHANCED STUDENT'S PERFORMANCE</b>	<b>354</b>
	<i>Ruzanifah Kosnin, Siti Salina Saidin, Suchi Hassan, Ahmad Fahme Mohd Ali, &amp; Naziatul Aziah Mohd Radzi</i>	
<b>163</b>	<b>FAULT FINDER DEVICE FOR SINGLE PHASE INDUCTION MOTOR (FFIM)</b>	<b>356</b>
	<i>Azani bin Mat Ali, Mohd Rizuhan Bin Jaafar, &amp; Jafni bin Othman</i>	
<b>164</b>	<b>FS MADE EASY TEMPLATE</b>	<b>358</b>
	<i>Noraida Saidi &amp; Dr. Normaizatul Akma Saidi</i>	
<b>165</b>	<b>MAGIC PIZZA FLOUR</b>	<b>360</b>
	<i>Hanirah Binti Mohamad Nur, Hasniza Binti Tawyer, Mohd Ramadan Bin Mohd Khalid</i>	
<b>166</b>	<b>MULTIMETER KIT`S</b>	<b>362</b>
	<i>Khetijah binti Samat, Julia Izura binti Jopely, Nor 'Aziah binti Abdullah</i>	
<b>167</b>	<b>MOBILE EDUCATIONAL APPLICATION: SMART CASH FLOW</b>	<b>365</b>
	<i>Nur Afifah Binti Ahmad &amp; Norzaiti Aktar Binti Mohamed</i>	
<b>168</b>	<b>"POGRAM MINI PROJECT" GOOGLE SITES AS AN INNOVATION IN STUDENTS'S PROGRAM IMPLEMENTATION</b>	<b>368</b>
	<i>Nurliyana Husna Binti Ramli &amp; Mohd Faizal B Ismail</i>	
<b>169</b>	<b>INSTASPACE MODULE</b>	<b>370</b>
	<i>Fariha Diyana Binti Awang Ali, Muhammad Anwar Bin Mohd Kamal, Mirza Madihah Bt Zainal, Jayemogen a/I Shanmugam</i>	
<b>170</b>	<b>A SHORT VIDEO ON JOB INTERVIEW</b>	<b>372</b>
	<i>Noor Asmaa' binti Hussin, Kamilah binti Zainuddin, Nik Nur Fathiha bin Nik Din</i>	
<b>171</b>	<b>CLAP SWITCH</b>	<b>374</b>
	<i>Noor Azim Hakimie B Azli, Nurliyana Husna Binti Ramli, Mohd Faizal B Ismail</i>	
<b>172</b>	<b>SMART DUSTBIN</b>	<b>376</b>
	<i>Muhammad Nabil Najmi Bin Mohd Razali, Muhammad Arif Farhan Bin Hanipa, Nurliyana Husna Binti Ramli, &amp; Nazihah Bt Che Rozan</i>	
<b>173</b>	<b>STEM INTEGRATED LEARNING: MECHANICAL HANDS</b>	<b>378</b>
	<i>Anisah Binti Jawawi, Wan Siti Rodziah Binti Mohd Nasir, Norainin Binti Ahamed, Muhammad Hazmi Bin Mustafa Bakri, Muhammad Rafiq Amir Bin Rahimin, Muhamad Atiqullah Bin Abdullah, &amp; Muhammad Hafizuddin Bin Amran</i>	
<b>174</b>	<b>DEAR SIR: SMART INTERACTIVE RESEARCH TOOL FOR STUDENTS</b>	<b>381</b>
	<i>Nadia Hanum Binti Amiruddin, Norzianis Binti Rezali @ Abdul Sukor, Sulaiman Bin Mohammed Khalid, Siti Daleela Binti Mohd Wahid, Norraidah Binti Abu Hasan, &amp; Ahmad Sapuan Bin Hasan</i>	
<b>175</b>	<b>READ-A-LOT!: READEA</b>	<b>383</b>
	<i>Fatin Sabrina Abdul Sukor , Norhidayah Binti Md Yusof, Nor Fazura Md Zulkifle, Nur Baiti Binti Ismail Shauki</i>	
<b>176</b>	<b>AN INNOVATION ON ENHANCING ORAL PRESENTATION SKILLS THROUGH SELF-ASSESSMENT OF VIDEO RECORDING AND ORAL PRESENTATION TEMPLATE</b>	<b>385</b>
	<i>Roslan bin Mamat, Yuzaimi binti Yazid, &amp; W. Farhana binti W. Halim</i>	
<b>177</b>	<b>#SOFTWARETHESES A FASTER WAY TO FIND RESEARCH GAPS AND COLLECT CONTENTS FOR CHAPTER 1,2,3,4,5</b>	<b>387</b>
	<i>Ahmad Humaizi Hilmi &amp; Ahmad Zaim Hilmi</i>	
<b>178</b>	<b>YOU ARE JACK! - ENHANCING ENGLISH LITERACY THROUGH FAIRYTALE ADVENTURE</b>	<b>389</b>
	<i>Syed Muhammad Adam Syed Najib, Farah Diyana Wan Iskandar Shah, Ummi Rumaisyah Masdino, Muhammad Shafiq Muhammad Nor,</i>	

	Muhammad Al-Ameen Amir Fauwaz, Ai'syah Abd Mutalib, Nurshahirah Azman, Ann Sofee Razali, Mirza Madihah Zainal, & Hazeeq Hazwan Azman	
<b>179</b>	<b>ELECTRICAL ENGINEERING MATHEMATICS APP</b> Muhammad Shahrizal Bin Shahrimy, Wan Izyani Binti Wan Jusoh, Rozaimah Binti Mustapa	391
<b>180</b>	<b>SMART POWER LOCK KIT</b> Ahmad Zhafran Bin Yusof & Wan Amiruddin Bin Wan Mustapha	393
<b>181</b>	<b>IPS GAME: LEARN BASIC SOLAT THROUGH 3D GAME</b> Mohamad Fakhri bin Fadzil, Nadia Akma Ahmad Zaki, Nor Masharah Husain, & Nor Zuhaidah Mohamed Zain	395
<b>182</b>	<b>TEACHING AND LEARNING AID OF AUTOMATIC WINDSHIELD WIPER SYSTEM</b> Wan Husni Zaim Bin Wan Muhamad , Mohamad Bin Hitam@Yahaya, & Ahmad Suhaimi Bin Arshad	397
<b>183</b>	<b>'I-MATH 4U'</b> Ainor Izmira binti Maimun@Mahmood, Hanisah binti Yusof, & Suzilaeli binti Mohd Sarman	399
<b>184</b>	<b>TUTORZONE COST &amp; MANAGEMENT ACCOUNTING 2</b> Noraihan binti Mamat Zambi, Noor Hanim binti Ismail, & Nor Lailihuda binti Ismail	402
<b>185</b>	<b>i-KIAMAT PROTOTYPE: INFORMATION OF 'KIAMAT' TERMINOLOGY IN AL-QURAN</b> Khairul Asyraf Mohd Nathir & Siti Nur Baiin Che Harun	405
<b>186</b>	<b>MOBILE APPLICATION OF AR SURAH AD-DHUHA</b> Aslina Saad & Muhammad Aqmal Firdaus b. Azlin	408
<b>187</b>	<b>MOBILE ROBOT DEVICE TRAINER (MoRDeT)</b> Suriati Ramle, Ct Salwaniee Bahayahkhi, Wee Siuw Sia	410
<b>188</b>	<b>HUBEE ROBLOX ENGLISH LANGUAGE LEARNING: GLOBAL DIGITAL CHANGE-MAKER IN THE MAKING</b> Nor Hanim Mustafa & Nur Hafezah Hussein	412
<b>189</b>	<b>GAMIFY LEARNING FOR SUSTAINABLE SCIENCE STUDENTS THROUGH ESCAPE GAME BASED</b> Nurul Syazana Abdul Halim, Nor Shahirul Umirah Idris, Muhamad Azahar Abas, Norrimi Rosaida Awang	416
<b>190</b>	<b>TAX KIT: I'M A JUNIOR TAX AGENT</b> Muhammad Zamrin Bin Maliki & Wan Azilah Binti Wan Yunus	418
<b>191</b>	<b>SOCIAL INNOVATOR TALENT DEVELOPMENT INNOVATIVE FRAMEWORK: CERTIFIED SOCIAL ENTREPRENEURIAL INNOVATOR PROGRAM</b> Wan Mohd Nazdrol bin Wan Mohd Nasir, Siti Aishah Attaullah, Nik Zulkarnaen Khidzir, Jayaraj Vijaya Kumaran, Nik Maheran Nik Muhammad, & Mohamad Izharrullail Azmi	420
<b>192</b>	<b>SPEAKING SQUARES</b> Siti Martini binti Mustapha, Rosilawati binti Muhamad Ramli, Zarina binti Hashim, Noor Hafiza binti Zainuddin, & Rodey Hamza bin Hamzah	422
<b>193</b>	<b>THE "RADIO OF TAFSIR QURAN": UNDERSTANDING TAFSIR QURAN THROUGH INTERACTIVE GADGET</b> Shamsul Kamal bin Abdullah @Mohd Khir, Roslan bin Yahya, Alinawati bt Ab Aziz@Kamarulzaman, Rasidah bt Md Nor, & Mohd Zohdi bin Said	424
<b>194</b>	<b>PARCEL STORAGE BOX</b> Afiqah Natrah Binti Shahrudin, Nur Aliya Nadhirah Binti Shamsunaha, Siti Aisyah Binti Zulkifli, Wan Nur Anis Hidayu Binti Wan Zailani, Aida Ashyurani Binti Mohd Razully	426
<b>195</b>	<b>A MOTIVATION VIDEO: YOU CAN DO IT! A SHORT VIDEO IN DEVELOPING TECHNICAL STUDENTS TO LOVE ENGLISH LANGUAGE</b> Che' Fadhilah Binti Che' Lah & Shuzura binti Yusof	428

<b>196</b>	<b>C.G.G. INTEGRATED E-TOOLS FOR COLLABORATIVE WRITING AND FEEDBACK IN TEACHING ACADEMIC ENGLISH WRITING</b> <i>Nur Hafezah Hussein</i>	430
<b>197</b>	<b>STEM FORENSIC KIT: SCIENCE FORENSIC LEARNING AID</b> <i>Hazeeq Hazwan Azman, Muhamad Faqih Damarulan, Muhammad Aqil Noor Azali, Maegala Nallapan Maniyam, Norazah Mohammad Nawawi, Nadzirah Abu Samah, Khairil Bariyyah Hassan, Hasnur Hidayah Kamaruddin, Rahayu Md Khalid, Norhisyam Mat Sout, Hasdianty Abdullah, Marini Ibrahim, Nur Akmal Suliman, Muzairihana Md Moi, Yusmi Mohd Yunus, Latifah Abdul Latib &amp; Nor Suhaila Yaacob</i>	432
<b>198</b>	<b>COMPRESSOR DUSTBIN</b> <i>Siti Noor binti Abdullah, Rohani binti Yusof, Nur Amirah binti Mat Zubir</i>	434
<b>199</b>	<b>SURPRISE BOARD TO ENHANCE COMMUNICATION SKILLS</b> <i>Che' Fadhilah Binti Che' Lah, Shuzura Binti Yusof, Melissa Khor Suan Chin</i>	436
<b>200</b>	<b>DEVELOPMENT OF FLIP CLASSROOM INTERACTIVE NOTES FOR BUILT UP RATES</b> <i>Ross Saliha Safura Binti Hamzah, Affidah Mardziah binti Mukhtar, &amp; Dr. Tengku Ahmad Badrul Shah Bin Raja Hussin</i>	438
<b>201</b>	<b>CREATE YOUR SOCIAL ENTREPRENEURSHIP (CYSE)</b> <i>Sathiswaran Uthamaputhran, Hasannuddiin Hassan, &amp; Mohd Ikhwan Aziz</i>	441
<b>202</b>	<b>WRITER BOOSTER</b> <i>Mohd Zulkifli Muhammad, Ahmad Ridhuwan Abdullah, Zul Karami Che Musa, Azwan Abdullah, Noorshella Che Nawi, &amp; Mahathir Muhamad</i>	443
<b>203</b>	<b>MUSLIMAH SAFETY BAG DEVICE</b>  <i>Rohana binti Abdullah, Zunaidawati binti Mat Daud, &amp; Azizah binti Che Musa</i>	446
<b>204</b>	<b>QS JUNIOR MOBILE LEARNING APPLICATION</b> <i>Sukmawati Ismail, Nor Ashikin binti Mazlan, &amp; Zahurin Binti Husin</i>	448
<b>205</b>	<b>THE JOME CARD GAMES: FROM TEACHING INNOVATION TO COMMERCIAL GAME</b> <i>Johan bin Ismail, Nur Eliza binti Abd. Rahman, Nurdiyana binti Ahmad Denil, Rozihan bin Mohamed, Ahmad Nasir bin Mohd. Yusoff</i>	450
<b>206</b>	<b>MY E-VOCABULARY PROFILE (MEVP): TEACHER'S PERSPECTIVE ON ITS USABILITY</b> <i>Norshazrina Sabri, Liyana Ahmad Afip, Aveleena Afzan Hassan, &amp; Nursyuhada Zakaria</i>	452
<b>207</b>	<b>MYOT_G: AN INNOVATIVE AND INTERACTIVE E-TEACHING METHOD FOR PRE-UNIVERSITY STUDENTS</b> <i>Hutkemri Zulnaidi, Raihan Zainudin, &amp; Mohd Zahurin Mohamed Kamali</i>	454
<b>208</b>	<b>GLOBAL UMRAHAJI GAME (GUG)</b> <i>Prof. Dr. Azman Ab Rahman, Afaf binti Sukari, Mohamad Anwar Zakaria, Muhammad Faiz Abd. Shakor, Nurul Nadia binti Nozlan</i>	457
<b>209</b>	<b>LEARNING GRAPH THEORY BY USING ROTHE-Q INNOVATION METHOD</b> <i>Nur Izzati Abd Aziz @ Mughni, Kalaiarasan A/L Subramaniam, Nik Atikah Nik Adnan, Noorul Afiah Mohamed Shuaib, Nur Fatehah Zaharim, Hutkemri Zulnaidi</i>	460
<b>210</b>	<b>PERMUTATION AND COMBINATION USING VELEAOFF (INTERACTIVE LEARNING OFFLINE)</b> <i>Siti Nabila binti Sulaiman, Siti Nur Shafila binti Che Kamaruzaman, Wan Nurshairah binti Wan Mohammad Nizam, Nadiah binti Mohd Yusuff, &amp; Hutkemri Zulnaidi</i>	462
<b>211</b>	<b>OPTIMISING EBOOK TO OVERCOME STUDENTS' ONLINE LEARNING CHALLENGES</b> <i>Wan Yusoff Wan Shaharuddin, Ruzaini Ijon, Yasmin See, Mohammad Affiq</i>	464



	<i>Kamarul Azlan, Mohd Asyraf Zulkfli, Nur Syahirah Mohd Nawawi, Noraini Hj. Zaini, &amp; Julia Tan Yin Yin</i>	
<b>212</b>	<b>TMCAS MODEL: REIMAGING AN IMPACTFUL VIRTUAL COLLABORATIVE PROJECT BASED LEARNING IN TEACHING ENTREPRENEURSHIP</b> <i>Fadhilhanim Aryani bt Abdullah, Noor Raihani Binti Zainol, Nur Farihin Binti Abd Hadi Khan, Muhamad Nasyat Muhamad Nasir, Aikal Liyani Binti Mohd Rasdi</i>	466
<b>213</b>	<b>CHATBOT: I'M NOT PERFECT BUT I'M HERE TO HELP</b> <i>Wan Suzanna Aafanii Adeeba Wan Ibrahim, Nur Hafezah Hussein, Siti Bahirah Saidi, Ariezal Afzan Hassan &amp; Amaal Fadhlini Mohamed</i>	469
<b>214</b>	<b>TEACHING AND LEARNING OF THE PLAN AND ELEVATION USING GEOGLE-WALL APPROACH</b> <i>Hutkemri Zulnaidi, Fatin Farhayu Mohd Salim, Noor Syuryani Lokman, Nur Asfa Dini Azmi, Nur Hanis Nabilah Saihuddin, Nurul Shafiqah Ismail</i>	471
<b>215</b>	<b>DEVELOPING WEBSITE FOR MANAGING STUDENT IN ENTERPRISE PROGRAM (SIEP) IN FACULTY OF ARCHITECTURE AND EKISTICS</b> <i>Nuzul Haqimi Muhammad, Azlin Sharina Abdul Latef, Ismi Luqman Hamadi Bin Ibrahim, Nurul Izzati Binti Othmani, Muhammad Rizal Bin Khairuddin</i>	474
<b>216</b>	<b>DIGITAL STORYTELLING: A HOLISTIC PROJECT BASED LEARNING TO ENHANCE 21<sup>st</sup> CENTURY SKILLS</b> <i>Najihah Mahmud, Siti Amirah Ahmad Tarmizi, Amaal Fadhlini Mohamed, &amp; Ariezal Afzan Hassan</i>	476
<b>217</b>	<b>ADAPTATION OF INTERACTIVE WEB TOOLS 2.0 IN ENTREPRENEURSHIP COURSES</b> <i>Hazrina Hasbolah, Nurul Azwa binti Mohamed Khadri, Dr. Syamsuriana binti Sidek, Dr. Yusrinadini Zahirah binti Md, Isa@Yusuff</i>	478
<b>218</b>	<b>CATCH ME FOR I - SCIENCE</b> <i>Hasanah Binti Safein @ Shafie, Muhammad Daniel Nafis Bin Ahmad, Muhammad Yahya Bin Mat Rashid, Wan Mohamad Fikri Bin Wan Shaharuddin</i>	481
<b>219</b>	<b>E-LEARNING IN SPANISH LANGUAGE</b> <i>Mariyati Haji Mohd Nor, Harnani Mat Zin, Harozila Ramli</i>	483
<b>220</b>	<b>i-2tor: THE 21ST CENTURY APPROACH FOR EDUCATION PLATFORM</b> <i>Joanna Ng Row Yee, Muhammad Faizul Hakimi Bin Kamaruzzaman, Nur Farah Hanis Binti Jalalol Khaizi, Nur Zahidah Binti Muhamad Taher, Mazlan Bin Radzwan, Lelia Nastasia Binti Amlie, &amp; Roslizawati Binti Che Aziz</i>	486
<b>221</b>	<b>NEARPOD: APPLICATION OF INTERACTIVE VIRTUAL REALITY IN TOURISM COURSES</b> <i>Nurzehan Abu Bakar, Marlisa Abdul Rahim, Nor Maizana Mat Nawawi, Siti Salina Saidin, &amp; Suchi Hassan</i>	489
<b>222</b>	<b>DIGITALIZED SUSTAINABLE SCIENCE COURSES THROUGH E-LEARNING INTERACTIVE APPROACH</b> <i>Noor Syuhadah Subki</i>	491
<b>223</b>	<b>THE USE OF STUDY APPS IN IMPROVING STUDY HABITS AMONG UNDERGRADUATE STUDENTS</b> <i>Khairul Hisyam Bin Baharuddin, Nazatul Syima Binti Mohd Nasir, Nor Hazwani Munirah Binti Lateh</i>	493
<b>224</b>	<b>ERAoI: A-10 MINUTES FORMATIVE EVALUATION APPROACH</b> <i>Siti Hajar Ya'acob, Siti Aisyah Nawawi, Noor Syuhadah Subki, Nor Shahirul Umirah Idris, Wong Hie Ling</i>	495
<b>225</b>	<b>SUBMIT A MOBILE APPLICATION FOR ASSIGNMENT DUE DATES MANAGEMENT: A MOBAGOGY</b> <i>Siti Afiqah Binti Zainuddin, Noorul Azwin Binti Md Nasir, Tahirah Binti Abdullah, Noorshella Binti Che Nawawi, Wan Farha Binti Wan Zulkiffli, Mohd</i>	496

	<i>Nor Hakim Bin Yusoff, Siti Salwani Binti Abdullah, Ahmad Ridhuwan Bin Abdullah, Siti Rohana Binti Mohamad, Siti Nurul Shuhada Binti Deraman, Nur Farahiah Binti Azmi, Nur Izzati Binti Mohamad Anuar, Nik Alif Amri Bin Nik Hashim, &amp; Hazriah Binti Hasan</i>	
<b>226</b>	<b>“SAINS KEJURUTERAAN” SMARTPHONE APPLICATION AS AN ONLINE TEACHING AND LEARNING METHOD</b>	<b>498</b>
	<i>Mohd Sanusi Deraman, Rozaimah binti Mustapa Marhaniza Ibrahim, Nurliyana Husna Ramli, Rosliza Ayob, &amp; Anisah Jawawi</i>	
<b>227</b>	<b>TIKTOKING TO IMPROVE SPEAKING SKILLS: A SOCIOCOGNITIVE CASE STUDY OF MALAYSIAN ESL LEARNERS</b>	<b>500</b>
	<i>Siti Amirah Ahmad Tarmizi, Najihah Mahmud, Amaal Fadhlini Mohamed, &amp; Ariezal Afzan Hassan</i>	
<b>228</b>	<b>MOBILE LEARNING INNOVATION: PKB FINANCIAL MANAGEMENT CALCULATOR</b>	<b>503</b>
	<i>Norhidayah binti Mohd Salleh &amp; Madiha bt Hasbullah</i>	
<b>229</b>	<b>MODEL OF THE INFLUENCE BY FIRM SIZE ON FINANCIAL PERFORMANCE IN MALAYSIAN ICT SECTOR</b>	<b>506</b>
	<i>Mohd Fazli Bin Mohd Sam, Brenda Lim Xun Li, &amp; Nurul Hasyimah Mohamed</i>	
<b>230</b>	<b>FUND FOR FOOD: COMPLETE GUIDE TO HELP FIGHT HUNGER ON CAMPUS</b>	<b>508</b>
	<i>Nurul Hafizah Mohd Yasin, Fadhilhanim Aryani Abdullah, Nur Haiza Nordin, Nur Naddia Nordin, Nur Dalila Mat Yusoff, Nik Noorhazila Nik Mud, Siti Zamanira Mat Zaib, Nurul Fardila Abd Razak</i>	
<b>231</b>	<b>SOUP KITCHEN AS SOCIAL ENTERPRISE STRATEGY: A RIPPLE EFFECT THEORY</b>	<b>511</b>
	<i>Noor Raihani Zainol, Anis Amira Ab Rahman, Shamsul Anuar Salim, Mohd Shahril Nizam Md Radzi, Mohd Hafis Mohd Fauzi, Nor Shuhada Ahmad Shaupi, &amp; Azila Jaini</i>	
<b>232</b>	<b>KEEP ACCOUNT YEARLY FOR SUSTAINABLE AUDIT REPORTING (KAYSAR) APPS</b>	<b>512</b>
	<i>Nik Zakiah Nik Mohamed Zain, Noor Raihani Zainol, Rafiq Sharman Khamis, Mohd Hafis Mohd Fauzi, &amp; Yohan Kurniawan</i>	
<b>233</b>	<b>PROTOTYPE OF BIODEGRADABLE PACKAGING MATERIAL FROM MUSM</b>	<b>514</b>
	<i>Laila Naher, Nor Alifa Mirza I, Norhafizah Md Zain, Nurhanan Abdul Rahim, Ch'ng, H.Y, M.M.Nor, Siti Maryam Salamah, &amp; NurHusna Syahirah</i>	
<b>234</b>	<b>INTEGRATING ENVIRONMENTAL ELEMENT IN MAXIMIZING BUSINESS PROFIT: AN APPLICATION OF HEDONIC PRICING METHOD</b>	<b>516</b>
	<i>Nur Syafiqah A. Samad, Norzalizah Bahari, Siti Fariha Muhamad, Adi Aizat Bin Yajid, &amp; Mohd Fathi Bin Abu Yaziz</i>	
<b>235</b>	<b>AN INTEGRATED ONLINE HUB FOR MUSLIM FRIENDLY HOMESTAY OPERATORS IN MALAYSIA</b>	<b>518</b>
	<i>Nadzirah Mohd Said, Derweana Bah Simpong, Hazyati Hashim, Nur Azimah Othman, Normaizatul Akma Saidi, &amp; Wan Farha Wan Zulkiffli</i>	
<b>236</b>	<b>DEVELOPING HOLISTIC PERFORMANCE MEASUREMENT INDEX FOR ISLAMIC BANKS</b>	<b>519</b>
	<i>Siti Fariha Muhamad, Nur Syafiqah A. Samad, Adi Aizat Yajid, Mohd Rushdan Yasoa', Muhamad Nasyat Muhamad Nasir, Fahru Azwa Mohd Zain</i>	
<b>237</b>	<b>DIAGNOSIS FRAMEWORK OF PERSONAL CASH FLOW STATUS VIA I-KFC</b>	<b>521</b>
	<i>Azwan Abdullah, Mohd Nazri Zakaria, Noormariana Mohd Din, Mohd Ikhwan Aziz, Mohd Zulkifli Muhammad, Wan Ahmad Amir Zal Wan Ismail, Tengku Fauzan Tengku Anuar, Nurhanan Abdul Rahman, Hafizi Mat Salleh, &amp; Siti Asma Md Rasdi</i>	
<b>238</b>	<b>B40 SINGLE MOTHER MICRO ENTREPRENEUR EMPOWERMENT PROGRAM THROUGH ONLINE TRAINING AND MONITORING</b>	<b>525</b>
	<i>Mohammad Noorizzuddin Nooh, Jamal Abdul Nassir Bin Shaari, Norhaziah Nawai, Mohd Shukor Harun, Nurul Aini Muhamed, Mahdhir Abdullah, &amp;</i>	

	Zulkifly Mohd Zaki	
<b>239</b>	<b>FRESHGO CLOUD DATA WAREHOUSE CONCEPT WITH MUTUALISTIC ECOSYSTEM</b> <i>Intan Nurrachmi, Anthon Budyana, Hardyansyah, &amp; Rizky Alamsyah Nurdianto</i>	527
<b>240</b>	<b>HUB FOR SOCIAL ENTREPRENEURSHIP (HUBSOE): CATALYSING IMPACTFUL INNOVATIVE SOLUTION TO SOCIAL AND ENVIRONMENTAL SUSTAINABILITY</b> <i>Noor Raihani Zainol, Anis Amira Ab Rahman, Nurul Izyan Mat Daud, Zul Karami Che Musa, Nur Ain Ayunni Sabri, Mohd Zulkifli Muhammad, Roselina Ahmad Saufi, Fatin Najihah Nik Muhammad</i>	530
<b>241</b>	<b>G-ROLES: FBS MODEL</b> <i>Nurul Ashykin Abd Aziz, Nik Syuhailah Nik Hussin, Zuraimi Abdul Aziz, Hasif Rafidee Hasbollah, &amp; Mohd Hizam Hanafiah</i>	532
<b>242</b>	<b>MAGIC WOODEN FOLDING TABLE</b> <i>Siti Hajar Binti Mud Ariff, Maizatul Aisya Binti Ab Halim, Nur Fatin Syafiqah Binti Mazani, Nur Anis Ayunie Binti Kamarudin, Nur Anisah Binti Idzuwan</i>	535
<b>243</b>	<b>MINI HAND SANITIZER</b> <i>Norbaini Binti Ghazali, Nik Umira Fatinn Bt Nik Ismail, Koh Liew Min</i>	537
<b>244</b>	<b>AYAM PERCIK PRE-MIXED POWDER</b> <i>Noraida binti Ismail @ Yusof, Juli Suzlin binti Mohd Jalaludin, Nur Alifah Hafizah binti Ezairoskan, Nurul Shahida binti Jusoh @ Yusoff</i>	539
<b>245</b>	<b>UIJA TWIST</b> <i>Razia Malini binti Mohamad, Rosilah binti Wok, Syahidatul Aqma binti Mohd Zamri, Nurul Izzaty Akmal binti Ropi, Faridatul Hamidah binti Zulkifli</i>	541
<b>246</b>	<b>CROWDFUNDING AS A TOOL FOR ENTREPRENEURSHIP EDUCATION IN HEIs</b> <i>Ahmad Ridhwan Abdullah, Zul Karami bin Che Musa, Siti Salwani binti Abdullah, Dzulkifli bin Mukhtar, Muhammad Naqib Bin Mat Yunoh, Mohd Shahril Nizam Bin Md Radzi, Mohd Zulkifli bin Muhammad, Mahathir bin Muhamad, Abd Aziz Bin Mat Hassan, Siti Afiqah Binti Zainuddin, Siti Rohana Binti Mohamad, Nur Farahiah Binti Azmi, Nur Izzati Binti Mohamad Anuar, &amp; Siti Nurul Shuhada Binti Deraman</i>	543
<b>247</b>	<b>BRIDGING THE GREEN GAP: AN INTEGRATED FRAMEWORK TO UNDERSTAND CONSUMERS' ACTUAL CONSUMPTION DRIVING FORCES TOWARD ORGANIC FOOD IN MALAYSIA</b> <i>Brahim Chekima, Azaze-Azizi Abdul Adis, Suddin Lada, Rozilee Asid, &amp; Toh Pei Sung</i>	545
<b>248</b>	<b>PI-ASISSTANT COMBO: PROMOTION ITEM COMBO TOOL TOHELP RETAIL INDUSTRIES TO SET OPTIMAL PROMOTION ITEMS</b> <i>Ts. Dr. Wan Nor Munirah Ariffin, Ts. Muhamad Hafiz Masran, Dr.Nor Azrita Mohd Amin, YM Prof. Dr. Hjh Raja Suzana Raja Kasim, Dr. Emy Aizat Azimi, Prof. Ts. Dr. Mohd Mustafa Albakri Abdullah</i>	547
<b>249</b>	<b>KETAPANG POUCH</b> <i>Roslina bt Ab Rahman, Muhammad Mukhlis bin Hamdan, Nur Azlin Asyikin binti Azizi, Muhammad Naim Aiman bin Razali</i>	549
<b>250</b>	<b>MODELING THE TALENT SHORTAGE THROUGH SUPPLY AND DEMAND ATTRIBUTES FOR YOUTH IN ISLAMIC BANKING INSTITUTION</b> <i>Mohd Ikhwan Aziz, Hassanuddin Hassan, Sathiswaran Uthamaputhran, Azwan Abdullah, Siti Norjannah Mohd Jamil</i>	550
<b>251</b>	<b>SUSTAINABLE eHALAL AGROCHAIN MARKETPLACE USING BLOCKCHAIN INNOVATION</b> <i>Raja Suzana Raja Kasim, Amir Shafiq Abdullah, Zulazli Hashim, Nurul Afiqah Zulazli, &amp; Wan Nor Munirah Ariffin</i>	552
<b>252</b>	<b>MAPPING OF TOURISM IN JELI, KELANTAN THROUGH AUGMENTED REALITY (AR) APPLICATION</b> <i>Norazlinda Mohamed Rosdi, Daeng Haliza Daeng Jamal, Max Martin Petel, Hazrina Hasbolah</i>	556

<b>253</b>	<b>My Escapade! APPS: EXPLORING ADVENTURE TOURISM DESTINATION</b> <i>Siti Nur Farhana Dzulkipili, Nor Azwani Anuar, Zahidah Mad Loddin, Roslizawati Che Aziz, &amp; Nik Alif Amri Nik Hashim</i>	558
<b>254</b>	<b>ULAM COOKIES</b> <i>Derweanna Bah Simpong, Nur Azimah Othman, Normaizatul Akma binti Saidi, Hazyati binti Hashim, Nadzirah binti Mohd Said, &amp; Wan Farha binti Wan Zulkiffli</i>	561
<b>255</b>	<b>MALAYSIAN TREE SELECTION MODEL FOR RIGHT TREE SPECIES</b> <i>Ramly Hasan, Nor Hamizah Abdul Hamid, Wan Saiful Nizam Wan Mohamad, &amp; Noorliyana Ramlee</i>	565
<b>256</b>	<b>1CLICK BUDGET TRAVEL:ONE-STOP PLATFORM FOR BUDGETING TRAVELLER</b> <i>Mallini A/P Anparasan, Dhivyaa A/P Selvalumaran, Khirrun An Nisa Bahaudin, Elly Maya Masnida Othman, Chua Hui Qi, Leong Wen Qin, &amp; Roslizawati Che Azi</i>	567
<b>257</b>	<b>TAMI MULTIPURPOSE HAND SANITIZER</b> <i>Velan Kunjuraman, Fatimah Zahra Dahalan, Mohd Saiful Jamil, Nur Ain Syafiqah Asha'ari, Wan Muhammad Aqramin Wan Othman, Damayanti Tindo Purwanto, Fatin Nur Hazwani Haron, Nurin Hazirah Razdi, Nurshafikah AB Majid, Nurul Nadia Najmi Azman &amp; Nursyahira Badarudin</i>	570
<b>258</b>	<b>MYh-SMART: AN INNOVATIVE APP FOR HOSPITALITY INDUSTRY</b> <i>Velan Kunjuraman, Fadhilahanim Aryani Binti Abdullah, Noor Raihani Binti Zainol, Michelle Hoo Yean Nee, Cheah Ing Zhen, Cheong Hui Yin, Chia Choy Cheng Crystalbel, Lee Jia Jin, Lim Chai Hui, Sen Mei Lam, Tan Chin Haw, Tan Hong Lin, &amp; Wee May Yee</i>	571
<b>259</b>	<b>FAIR SKIN PRODUCT</b> <i>Nor Syuhada Zulkefli, Fadhilahanim Aryani Abdullah, Norelisa Bakri, Nurdy'anna Nordin, Siti Munirah A. Kadir, Arisa Arifah Kamaluddin, Nur Humirah Rizwan, Nur Rusfadilah Ruslan</i>	573
<b>260</b>	<b>HERB2BE HERBS TEABAG: SOLUTION TO DYSMENORRHOEA (MENSTRUAL PAIN)</b> <i>Nur Athirah Sumardi, Fadhilahanim Aryani Abdullah, Nur Hafizah Muhammad, Ghazali Ahmad, Nur Aliah Mansor</i>	575
<b>261</b>	<b>PROTOTYPE FORMATION FOR DEVELOPING HERITAGE TRAIL VIA QR CODE APPLICATION AT SUNGAI BUDOR VILLAGE, KELANTAN</b> <i>Ramly Hasan, Shardy Abdullah, Wan Saiful Nizam Wan Mohamad, Noorliyana Ramlee, Mohammad Rusdi Mohd Nasir, Yeo Lee Bak, Wan Azlina Wan Ismail, Nurul Izzati Othmani, Syahidah Amni Mohamed, Nurfadilah Saadul Kurzi, Nor Hamizah Abdul Hamid</i>	577
<b>262</b>	<b>3 LAYERS KAMPUNG SCENTED CANDLE</b> <i>Ruzanifah binti Kosnin, Fadhilahanim Aryani binti Abdullah, Aina Mawaddah Binti Hamdanni, Diveiga A/P Poobalan, Fatin Nurliyana Binti Mohd Rosley, Izzati Binti Razlee, Khalida Najihah Binti Johan, Norshazani Binti M Hanafi, Nur Hanis Binti Mohd Nasir, Nurin Rasyidah Binti Rosli, Rohaya Binti Jonaidey, Siti Syazwina Binti Abdul Hamid</i>	578
<b>263</b>	<b>SCIENTIFIC ECO-AGRO TOURISM MODEL IN MERAPOH, PAHANG</b> <i>Muhammad Aminuddin Baqi bin Hasrizal Fuad, Mohammad Hafiz Bin Mohd Yazid, Mohamad Nur Arifuddin Bin Mad Yusof, Mohamad Izereen Bin Amat Mukri, Balakrishnan Parasuraman, Suganthi Appalasaamy, Boon Jia Geng, &amp; Jayaraj Vijaya Kumaran</i>	580
<b>264</b>	<b>EMOSIHAT: AN EMOTION BOARD GAME FOR CHILDREN</b> <i>Siti Fatimah Ab Ghaffar, Normaizatul Akma Saidi</i>	582
<b>265</b>	<b>3D ANIMATION APPLICATION FOR THE COVID-19 QUARANTINE AND LOW-RISK TREATMENT CENTRE (PKRC) DEVELOPMENT</b> <i>Siti Aisyah Muhammad, Tengku Fauzan Tengku Anuar, Nur Athmar Hashim, Nik Nurul Hana Nik Hanafi, &amp; Najah Md Alwi</i>	584

<b>266</b>	<b>SMART JACKET: A MULTI-UTILITY TRAVEL JACKET FOR TRAVELLERS</b> <i>Muhammad Azam Aziz, Muhammad Asyraf Najmi Azmi, Najwa Izzani Laili, Noor Syazwani Narzuwan, Murni Husna Muhamad Jehka, Sangeetha Sangkar, Previna Vijayan, Ng Huoi Hsian, Nik Alif Amri Nik Hashim</i>	586
<b>267</b>	<b>MODISH TRAVEL HEATER: THE INNOVATION OF NIMBLE TIFFIN</b> <i>Nor Dalilla Marican, Aifaa Syazwani Abdul Razak, Nurfarisha Fauzi, Nurul Najwa Nasuha Muda, Syazwani Sahwandi, Syed Muhammad Izzat, Nur Farah Wahida Saidi, Nur Nabilah Husna, Nurul Farhana Mohd Hanafi, Fatin Afikah Talib, Fatin Shahirah Sholahudin</i>	588
<b>268</b>	<b>PROTOTYPE SNEAKER INSOLES SENSOR</b> <i>Woo Wai Yee, Chan Kit Min, Chiang Zhi Ying, Hoo Jia Ming, Wong Pei See, Chin Chi Fung Tiew Yee Shan, Tchey Guat Nee, Pn.Fadhilahanim Aryani Binti Abdullah, Dr.Derweanna Binti Bah Simpong, Mohd Hafzal Bin Abdul Halim</i>	590
<b>269</b>	<b>AVOCADO EL CABELLO OIL (NATURAL HAIR SERUM)</b> <i>Fadhilahanim Aryani Abdullah, Naziatul Aziah Mohd Radzi, Nur Farah Nabilah Aina Ruslan, Nurafyrra Joha, Maryam Sahla Che Mohd, Kaiyisah Mohd Apandi, Nurin Aqilah Natasha Rosli, Haida Misnon, Izni Zulaikha Kamarezaman, Norazni Azikin Norhisham, Nur Syuhaida Safiee</i>	591
<b>270</b>	<b>PROPOSING A CONCEPTUAL MODEL OF DESTINATION LOYALTY: TWO PARALLEL MEDIATORS OF PLACE ATTACHMENT AND TOURIST MOTIVATION</b> <i>Muhamad Nasyat Muhammad Nasir, Marlisa Abdul Rahim, &amp; Siti Fariha Muhamad</i>	594
<b>271</b>	<b>THE VALUES OF HEROISM IN TOK TANGOK FOLKLORE AS A SYMBOL OF PERSONALITY AND INDENTITY OF MALAY COMMUNITY: RESEARCH ON THE PERCEPTION STUDENTS IN UNIVERSITY MALAYSIA KELANTAN THROUGH KAHOOT APPLICATION</b> <i>Mohd Firdaus Che Yaacob, Muhammad Nur Al-Hakim Mohamad Hanafiah, &amp; Tuan Siti Nurul Suhadah Tuan Adnan</i>	596
<b>272</b>	<b>LEGENDA PUTERI SAADONG NARRATIVE APPRECIATION THROUGH 2D GAME APPLICATION</b> <i>Fairuladilan Hamadun, Izati Nabila Marzuki, Md Ariff Ariffin, Hidayat Hamid, Suraya Md Nasir, Farrah Atikah Saari, Daeng Haliza Daeng Jamal, Tan Tse Guan, Anuar Mohd Yusof</i>	598
<b>273</b>	<b>VIRTUAL HERITAGE TOUR THROUGH AUGMENTED REALITY (AR): APPLICATION ON MUSEUMS IN KOTA BHARU, KELANTAN</b> <i>Daeng Haliza Daeng Jamal, Norazlinda Mohamed Rosdi, Izati Nabila Marzuki, Fairuladilan Hamdun, &amp; Hazrina Hasbolah</i>	601
<b>274</b>	<b>AUGMENTED REALITY (AR) NATION'S PILLARS STREET ART IN KOTA BHARU FOR URBAN REGENERATION AND TOURISM</b> <i>Tengku Fauzan Tengku Anuar, Hani Izzaty Mohd Jamil, Wan Ahmad Amir Zal Wan Ismail, Suraya Md Nasir, Haris Abadi Abdul Rahim, Nawwal Abdul Kadir, Nur Athmar Hashim, Izati Nabila Marzuki, Md Ariff Ariffin, &amp; Siti Aisyah Muhammad</i>	603
<b>275</b>	<b>IMPROVING THE USER INTERACTION THROUGH BAMBOOSA VOID PAVILION AT HOSPITAL PASIR MAS, KELANTAN</b> <i>Zulhilmi Zahari, Wan Azlina Wan Ismail, Ramly Hasan, Nurul Izzati Othman, &amp; Nor Hamizah Abdul Hamid</i>	606
<b>276</b>	<b>AN ENVIRONMENTAL ADAPTIVE DESIGN OF THE ECLECTIC SET</b> <i>Lai Man Fai, Wan Azlina Wan Imail, Ramly Hasan, Nor Hamizah Abdul Hamid, Yeo Lee Bak, &amp; Nor Diana Aziz</i>	608
<b>277</b>	<b>SPACE SAVING AND SUSTAINABLE FOR CYCLIST BY COMBINATION DESIGN AS CYCLIST FRIENDLY BENCH AT SUNGAI LEMBING, KUANTAN, PAHANG</b> <i>Lee Pui Yin, Wan Azlina Wan Ismail, Ramly Hasan, Nor Diana Aziz, Nor Hamizah Abdul Hamid, &amp; Nurul Izzati Othmani</i>	610



<b>278</b>	<b>THE CONNECTEDNESS BETWEEN SPACES TO STIMULATE THE LIVEABLE ENVIRONMENT BY THE PLEXUS IN JOHOR BAHRU CITY CENTRE, JOHOR</b> <i>Nur Rabihtul Samsudin, Wan Azlina Wan Ismail, Ramly Hasan, Noorliyana Ramlee, Yeo Lee Bak, &amp; Nor Diana Aziz</i>	611
<b>279</b>	<b>BUBU ARCHWAY</b> <i>Syamimi Mohd Noor, Ramly Hasan, Wan Azlina Wan Ismail, Nor Diana Aziz, Mohammed Fadzil Maharimi</i>	612
<b>280</b>	<b>THE UNIQUENESS OF BLOSSOM CATCHMENT WATER</b> <i>Aqilah Azeni, Ramly Hasan, Wan Azlina Wan Ismail, Nor Diana Aziz, Mohd Azri Mohd Jain Noordin</i>	613
<b>281</b>	<b>THE ATTRACTIVE OF NEON TUNNEL DESIGN</b> <i>Muizzuddin bin Basharudin, Wan Azlina Wan Ismail, Ramly Hasan, Nor Hamizah Abdul Hamid, Nor Diana Aziz, &amp; Muhamad Hilmi Mohamad @Masri</i>	615
<b>282</b>	<b>GERBANG MEK MAS AS A NEW ICONIC STRUCTURE AT KAMPUNG PANTAI MEK MAS, KOTA BHARU</b> <i>Muhammad Aslam Husaini Mohd Sapuan, Ramly Hasan, Wan Azlina Wan Ismail, Syahidah Amni Mohamed, &amp; Nor Diana Aziz</i>	616
<b>283</b>	<b>SINGGAH JELAPANG AS PARADIGMATIC STRUCTURE AT PENDANG TOWN</b> <i>Noor Saadah Hussain, Ramly Hasan, Wan Azlina Wan Ismail, Muhamad Hilmi Mohamad @ Masri, Syahidah Amni Mohamed, &amp; Nor Diana Aziz</i>	617
<b>284</b>	<b>SMART SCULPTURE BENCH</b> <i>Siti Fatin Hamida Zinun, Ramly Hasan, Wan Azlina Wan Ismail, Nor Diana Aziz, &amp; Muhamad Hilmi Mohamad @ Masri</i>	618
<b>285</b>	<b>TRADITIONAL ELEMENT OF MALAY TERENGGANU: INTRODUCING GAZEBO PERMAI AT SUNGAI TAROM PUBLIC PARK, SETIU, TERENGGANU</b> <i>Mohamad Hazmie Bin Rusdi, Wan Azlina Wan Ismail, Ramly Hasan, Nor Diana Aziz, &amp; Mohd Azri Mohd Jain Noordin</i>	620
<b>286</b>	<b>AGRONOMICAL SHELTER AS AN EDUCATION CENTER FOR URBAN FARMING AWARENESS</b> <i>Amirul Hidayat Hussin, Wan Azlina Wan Ismail, Ramly Hasan, Noorliyana Ramlee, Nor Diana Aziz</i>	621
<b>287</b>	<b>SOLVING THE COASTAL EROSION AND SUSTAIN THE COASTAL ECOSYSTEM THROUGH THE ECO FRIENDLY DEFENDER AT PANTAI IRAMA, BACHOK, KELANTAN</b> <i>Leong Kam Hung, Wan Azlina Wan Ismail, Ramly Hasan, Noorliyana Ramlee, &amp; Nor Diana Aziz</i>	623
<b>288</b>	<b>DESIGNING CREATIVE ONE STOP GETAWAY AT DANGA BAY WATERFRONT</b> <i>Muhammad Firdaus Rahim, Wan Azlina Wan Ismail, Ramly Hasan, Nur Hafizah Ramle, &amp; Nor Diana Aziz</i>	624
<b>289</b>	<b>THE BEAUTY OF BUNGA BINTANG HYPNOTIC AT ROYAL TOWN, PEKAN PAHANG.</b> <i>Farah Amirah Kasimi, Ramly Hasan, Wan Azlina Wan Ismail, Nor Hamizah Hamid, Yeo Lee Bak, &amp; Nor Diana Aziz</i>	625
<b>290</b>	<b>SOLVING THE SOIL DEPOSITION THROUGH THE SUSTAINABILITY OF RESILIENCE DRAINAGE SYSTEM AT BUKIT KELUANG BEACH, BESUT, TERENGGANU</b> <i>Ahmad Huzairah Aminuddin, Wan Azlina Wan Ismail, Ramly Hasan, Nor Diana Aziz, &amp; Mohd Azri Mohd Jain Noordin</i>	626
<b>291</b>	<b>DEVELOPMENT OF POSTURE CORRECTOR DEVICE WHILE SITTING FOR DISCOMFORT PROBLEMS AMONG OFFICE WORKERS</b> <i>Darlina Mohamad, Azmul Fadhli Kamaruzzaman, Nooraziah Ahmad, Hana Yazmeen Hapiz, Mohd Yusri Mohd Naser</i>	627
<b>292</b>	<b>EXPERIENCE THE NATURE VIA SMART 'SEGAR AMAT' BRIDGE AT RECREATION PARK</b> <i>Tan Vie Khuen, Wan Azlina Wan Ismail, Ramly Hasan, Nor Diana Aziz, &amp;</i>	630

	<i>Mohammed Fadzli Maharimi</i>	
<b>293</b>	<b>REMEMBERING CULTURE ACTIVITY FOR THE USER AT PANTAI SRI TUJUH, TUMPAT</b>	<b>632</b>
	<i>Nik Nabila Nik Mat, Wan Azlina Wan Ismail, Ramly Hasan, Nor Diana Aziz, &amp; Mohammed Fadzli Maharimi</i>	
<b>294</b>	<b>DEVELOPING ICONIC LANDMARK OF GREEN CURTAIN TOWER AT KOLAM HIJAU COMMUNITY PARK</b>	<b>634</b>
	<i>Raja Faerull Asraf Raja Alim, Ramly Hasan, Wan Azlina Wan Ismail, Muhamad Hilmi Mohamad @ Masri, &amp; Nor Diana Aziz</i>	
<b>295</b>	<b>ADAPTIVE PRAYER WEAR FOR IMMOBILE MUSLIM WOMEN</b>	<b>636</b>
	<i>Sarah Wahida binti Hasbullah, Siti Nurul Diana binti Sukri, Mohd Zaimuddin bin Mohd Zain, Hana Yazmeen binti Hapiz, Azlin Sharina binti Abdul Latef, Mohd Hafiz bin Drahman, &amp; Nurul Syahida binti Mat Hussin</i>	
<b>296</b>	<b>OMNI: TOOTHBRUSH DESIGN FOR DOWN SYNDROME CHILDREN</b>	<b>638</b>
	<i>Hana Hapiz, Yuhanis Ibrahim, Sarah Wahida Hasbullah, Azlin Sharina Abdul Latef, Ainul Wahida Radzuan, Suraya Sukri, Mohd Zaimuddin Mohd Zain, Nuzul Hakimi Muhammad</i>	
<b>297</b>	<b>GAPURA: APPLICATION OF 3D TECHNOLOGY VISUALISATION IN CONSERVING HERITAGE BUILDING OF ISTANA BALAI BESAR</b>	<b>641</b>
	<i>Siti Aisyah Muhammad, Azli Bin Abdullah, Yasmin Binti Mohd Faudzi, Ahmad Nizam Aiman Bin Mohd Pauzi, Normaisarah Binti Mohd Rosdi, &amp; Muhammad Arib Muzakkir Bin Mohd Salleh</i>	
<b>298</b>	<b>FLUX: A MODULAR 3D PRINTED FURNITURE JOINERY SYSTEM</b>	<b>644</b>
	<i>Muhamad Ezran Zainal Abdullah, Nor Hamizah Abdul Hamid1, Jarfrulhizam Jaafar, Mohd Hilmi Harun, Siti Nurul Diana Sukri, Mohd Firuz Mohd Anwar, Darliana Mohamad, &amp; Nooraziah Ahmad</i>	
<b>299</b>	<b>GERBANG KOLEK: FASHIONING AN ICONIC UMK GATEWAY</b>	<b>646</b>
	<i>Juliza Mohamad, Muhammad Rizal Khairuddin, Azli Abdullah, Nik Nurul, Hana Hanafi, Siti Aisyah Muhammad, Nor Hafizah Anuar, Najah Md Alwi, Yasmin Mohd Faudzi, Mhd Hafiz Karami Mhd Zain, Nuzul Haqimi, &amp; Muhammad Ismi Luqman Hamadi Ibrahim</i>	
<b>300</b>	<b>IE-SMART TRACKER 3.0 (INTELLIGENT EMPLOYABILITY SMART TRACKER 3.0)</b>	<b>649</b>
	<i>Khairul Azhar Mat Daud, Balakrishnan Parasuraman, &amp; Ena Bhattacharyya</i>	
<b>301</b>	<b>MODEL OF DEPRESSION, ANXIETY AND STRESS, EMOTIONAL INTELLIGENCE AND SATISFACTION OF WORK-LIFE BALANCE</b>	<b>650</b>
	<i>Rogis Baker, Hassan Al-Banna Mohamed, Nur Fatimah Husna Mohamad Puzi, Nur Surayya Mohd Saudi, Haliza Mohd Zahari</i>	
<b>302</b>	<b>NEW INTEGRATION MODEL OF HUMAN DIMENSIONS WITH MILITARY MINDS AND PATRIOTISM AMONG MALAYSIAN ARMED FORCES</b>	<b>652</b>
	<i>Jessica Ong Hai Liaw, &amp; Nora Ibrahim</i>	
<b>303</b>	<b>INTERPRETATION OF NATURE IN LITERATURE THROUGH FILM ADAPTATION</b>	<b>656</b>
	<i>Sudirman Kiffli, Nordiana Ab Jabar, Suraya Sukri, Ainul Wahida Radzuan, Farrah Atikah Saari, &amp; Siti Nur Anis Muhammad Apandi</i>	
<b>304</b>	<b>RELIGION AS PEACEBUILDING: A CASE OF SABAH SOCIAL ENVIRONMENT</b>	<b>658</b>
	<i>Suraya Sintang, Romzi Ationg, Mohd Nazmi Mohd Khalli, Khadijah Mohd Khambali @ Hambali, Syamsul Azizul Marinsah</i>	
<b>305</b>	<b>ESTABLISH SPATIAL STATISTICS SYSTEM DESIGN FOR POVERTY RISK ESTIMATION</b>	<b>661</b>
	<i>Siti Aisyah Nawawi, Norashikin Mohd Fauzi, Amal Najihah Muhamad Nor, Norfadhilah Ibrahim, Rohazaini Muhammad Jamil, Siti Hajar Ya'acob, Wan Nur Fazni Wan Mohamad Nazarie, Rabihah Nawawi</i>	
<b>306</b>	<b>BIBLIOMETRIC: JURIMETRICS TO DETERMINE REFERENCES ON LEGAL CASES IN MALAYSIA</b>	<b>663</b>
	<i>Adi Aizat Yajid, Abdul Khabir Rahmat, Ahmad Ridhuan Abdullah, Nur Syafiqah A. Samad, Norzalizah Bahari, Siti Fariha Muhammad</i>	



<b>307</b>	<b>A MODELING STUDY OF THE ECONOMIC EMPOWERMENT OF WOMEN IN THE FIELD OF ENTREPRENEURSHIP IN KELANTAN</b> <i>Zaleha Embong, Fairuz A'dilah Rusdi, Asma Lailee Mohd Noor, Wan Ahmad Amir Zal Wan Ismail</i>	665
<b>308</b>	<b>FUTURE HOMES: INTEGRATION ELEMENT OF A HEALTHY HOME AND SMART SYSTEM TO ENHANCE WELLBEING FOR ALL</b> <i>Siti Nuratirah bt Che Mohd Nasir, Salmiah bt Aziz, Nur 'Izzati bt Mohd Amin, Dr WaOmar Ali Saifuddin b Wan Ismail</i>	667
<b>309</b>	<b>DEVELOPMENT OF A MODERATED FINANCIAL STRAIN MODEL AMONG HOMEOWNERS WITH THE JOB SATISFACTION-DEBT BEHAVIOUR INTERACTION</b> <i>Husniyah A. Rahim, Zahariah Sahudin, Amirah Shazana Magli, Mohd. Fazli Sabri, Mohd. Amim Othman</i>	669
<b>310</b>	<b>USE ME HEALTH RECORD (UMHR)</b> <i>Khairunisa Nasuha Ahmad Kamal, Damia Nazifa Al Hashimi, Muhammad Akmal Hazim Fairusdzuddin &amp; Afzanizam Alias</i>	672
<b>311</b>	<b>PRINCIPLES OF RESPONSIBILITY IN THE MEDINA CHARTER TO BUILD COOPERATIVE RELATIONS OF THE CROSS-CULTURAL SOCIETY</b> <i>Zaleha Embong, Fairuz A'Dilah Rusdi, Asma Lailee Mohd Noor, Ateerah Abd Razak, Nik Yusri Musa<sup>1</sup>, Nur Azuki Yusuff, Noor Shakirah Mat Akhir, Nazri Muslim</i>	674
<b>312</b>	<b>THE DOLLS KIT FOR EFFECTIVE INTERVIEW MAPPING STRATEGY (A MODEL FRAMEWORK)</b> <i>Yohan Kurniawan, Mohammed Farhan Bin Md Yusof, Noor Raihani Binti Zainol, Yang Jia Qi</i>	676
<b>PART 3: LIST OF CONTRIBUTORS STEAM</b>		678
<b>313</b>	<b>WATERPROOF FIRESTARTER FOR OUTDOOR ACTIVITY</b> <i>Saliza Anida Salleh, Yumna Fatima Khan, Nuralya Qaisara Mohd Hashim, Aydin Shamsul, Shamsul Muhamad</i>	679
<b>314</b>	<b>DRONE@SCHOOL: NARROWING DIGITAL DIVIDE, INCREASING S.T.E.M CURIOSITY</b> <i>Noor Janatun Naim Jemali, Mohamad Radi Mohamed Rosly, Marinah Muhammad, Shaparas Daliman, Muhammad Firdaus Abdul Karim, Aqilah Abdul Rahim</i>	680
<b>315</b>	<b>SYSTEMATIC SYNTHETIC PHONICS: AN EVALUATION OF THE EFFECTIVENESS OF USING THE JOLLY PHONICS PROGRAMME TO TEACH READING</b> <i>Norfarisha Elyana Abdullah, Najihah Mahmud, Nazirah Mahmud</i>	682
<b>316</b>	<b>DESIGNING AND DEVELOPING YEAR ONE SCIENCE PEDAGOGICAL MODULE BASED ON STEAM LEARNING MODEL</b> <i>See Too Kay Shi &amp; Assoc. Prof. Dr Ng Siew Foen</i>	683
<b>317</b>	<b>WATER POLLUTION</b> <i>Yumna Fatima Khan, Saliza Anida Binti Salleh, Mohammad Muqtada Ali Khan, Hafzan Eva Manosr, Elvaene James</i>	685
<b>318</b>	<b>YOGURTINI – A BENEFICIAL YOGURT WITH NATURAL STINGLESS BEE (MELIPONINI) HONEY'S JELLY GUMMY</b> <i>Khairinawati Binti Shuib, Nor Syawalnie Binti Ghazali, Nor Alisya Maisarah Binti Norhisham, Muhd Al-Amin Shah Bin Mohd Asmadi, Aniff Bin Affenddy, Muhamad Sabri Bin Saidi, Aniq Fahmi Bin Mohammad Zainal, Nur Alia Maisarah Binti Nawawi, Muhd Danial Irfan Bin Mohammad Zu, Nur Ainatul Amani Binti Isa, Nur Athirah Binti Mohd Sayuti, Azhaney Binti Abdullah, Azfi Zaidi Bin Mohammad Sofi Aziz, Nor Hakim Bin Abdullah</i>	687
<b>319</b>	<b>PRODUCTION OF BIOGROWTH POT (BIO-G POT) FROM LOCAL AGRICULTURE WASTE FOR CROP SEEDLING APPLICATION</b> <i>Azhaney Binti Abdullah, Aniq Fahmi Bin Mohammad Zainal, Nur Alia</i>	689

Maisarah Binti Nawawi, Muhd Danial Irfan Bin Mohammad Zu, Nur Ainatul Amani Binti Isa, Nur Athirah Binti Mohd Sayuti, Nor Syawalnie Bt Mohd Ghazali, Nor Alisya Maisarah Binti Norhisham, Muhd Al-Amin Shah Bin Mohd Asmadi, Aniff Bin Affenddy, Muhamad Sabri Bin Saidi, Khairinawati Binti Shuib, Nor Hakim Bin Abdullah, & Azfi Zaidi Bin Mohammad Sofi@Aziz

- |                                   |   |     |
|-----------------------------------|---|-----|
| <b>320</b>                        | <b>TRIMBOT: REMOTE CONTROL LAWN MOWER</b><br>Wan Nur Batrisyia Irwan, Muhammad Muaz Lasim, Zulaiqah Badrul Isham, Zalina Ahmad, Norulshaidah Mohamad, Raja Noor Farah Azura Raja Ma'amor Shah   | 691 |
| <b>321</b>                        | <b>BOM WARISAN</b><br>Al-Aqif Hafez bin Al Kamalrolzaman, Nur Iman Amani binti Khairil-Iszuddin, Fathin & A'liya binti Mohamad Jamaludin  | 693 |
| <b>322</b>                        | <b>EnviroMPlasc (FOOD PACKAGING FROM COCOPEAT, LEMONGRASS AND COGON GRASS)</b><br>Najwa Ariena Mohamad Azizie, Siti Nur Eleysa Maisarah Abdul Rahim, Thasni Balqis Mohammad Yusof, Nur Aqish Putri Mohd Zailani, Nur Aini Rosdi, Nor Zaihan Shamsudin | 694 |
| <b>323</b>                        | <b>POTATO AS A POTENTIAL ORGANIC WATER CARRIER UTILIZED IN REDUCING SALINITY IN SALT SOLUTION</b><br>Afifah binti Abdul Azmil, Nurul `Izzan binti Abdul Razak, Muhammad Safwan Bin Khairudin, & Muhammad Azan bin Tamar Jaya                          | 697 |
| <b>APPENDIX A: LIST OF JUDGES</b> |   | 699 |

## **FOREWORD BY THE VICE CHANCELLOR UNIVERSITI MALAYSIA KELANTAN**

Assalamualaikum Warahmatullahi Wabarakatuh.

In the Name of Allah, the Most Gracious, the Most Merciful.

It gives me great pleasure to welcome all participants and presenters to the Carnival of Research and Innovation (CRI2021) jointly organized by Universiti Malaysia Kelantan and Politeknik Kota Bharu in conjunction with the International Virtual Innovation & Invention Challenge (INTELLIGENT) 2021 and Creative Innovation Carnival (CIC) 2021, and supported by National STEM Association. I would also like to congratulate the organizers for their sheer dedication and an unwavering commitment in making this event a success. I believe organising such an event during this unprecedented time due to the Covid-19 pandemic has been quite a challenge to everyone involved.

CRI 2021 serves as a platform to encourage researchers, educators as well as industry players from various fields and organisations to share their research and showcase their innovations. This synergy is hoped to be able to provide the participants with new knowledge and further nurture their creative minds to produce more quality research and innovations in the future for the benefit of the whole society.

I'd like to draw your attention to STEAM (Science, Technology, Engineering, Arts & Mathematics), one of the categories introduced in the carnival. Having the school community take part in this event is a good way to create awareness especially among students about the importance of research and innovation in education. Such exposure helps develop their creativity as well as problem solving skills and familiarises them with research culture at an early age.

It is also important to note that both research and innovation are central in stimulating economic growth. I believe that some of the research projects and innovations presented at this carnival have enormous commercialisation potential. Consider this platform as a steppingstone for your innovations & inventions to be made visible and later commercialised for many to benefit from.

Finally, Universiti Malaysia Kelantan, through our Research Management and Innovation Centre (RMIC) is committed to empowering research and innovation among our staff. With grant applications open for both academic and non-academic staff and awards to acknowledge their accomplishments speak volumes of our commitment on this matter. CRI 2021 is also part of our continuous effort to strengthen our research agenda especially in response to the demands of the Fourth Industrial Revolution that is gradually taking place.

Once again, I would like to congratulate everyone who has devoted their time and effort in making CRI 2021 a reality. I wish all of you a very successful event and all the best in your future research endeavours.

Thank You

**Prof. Dr. Nik Maheran Binti Nik Muhammad**  
Exercising the Function of Vice Chancellor  
Universiti Malaysia Kelantan

## **FOREWORD BY THE SENIOR DIRECTOR OF RESEARCH MANAGEMENT AND INNOVATION CENTRE UNIVERSITI MALAYSIA KELANTAN**

Assalaamu'alaikum Warahmatullahi Wabarakatuh.

In the Name of Allah, the Most Gracious, the Most Merciful.

It is a great and a heart-warming pleasure for me to welcome everybody to Carnival of Research and Innovation – Virtual International Edition – (CRI 2021). The success of last year's event drives us to go bigger and global! This year Universiti Malaysia Kelantan and Politeknik Kota Bharu, supported by National STEM Association co-organise CRI 2021 in conjunction with the International Virtual Innovation & Invention Challenge 2021 (INTELLIGENT) and Creative Innovation Carnival (CIC) 2021. I would like to extend my gratitude to all organising committees for excellent works and passionate efforts.

Ladies and gentlemen,

It has been almost two challenging years since the start of pandemic in Malaysia. This has impacted us in every aspect of our lives. However, we must not hold ourselves back, but keep up the momentum to bounce back stronger. For this year's edition, we received over 350 entries from universities, collages and industries in Malaysia and Indonesia. There are 14 categories to compete involving various fields of teaching and learning, technology, innovation, business, machinery and more.

Dear friends and colleagues,

The idea of CRI is to establish a networking platform between universities and agencies as well as a place for researchers to showcase their research products to be highlighted at higher level. In doing so, we encourage continuous research and innovation from researchers towards commercialisation. Other than that, we are hoping to cultivate innovative research with high impacts for local and global communities. For your information, Carnival of Research and Innovation (CRI) is an annual signature programme under the Office of Deputy Vice Chancellor (Research & Innovation) since 2016. Back then, it was organised by Research Management and Innovation Centre under the name of Research and Innovation Exhibition. A year later, we had combined Research and Innovation Exhibition with Research and Innovation Week to reward researchers who achieved success in their researches. In the third year, the programme was renamed to Carnival of Research and Innovation (CRI 2018). This programme has been promoted as an official university programme which will be organised by the office of Deputy Vice Chancellor of Research & Innovation annually.

For 2019, we involved participants from schools to expose them in innovative competition. Finally, we had our first virtual carnival eCarnival of Research and Innovation in 2020. This is an example persistence in pursuing dreams and you have my respect for that.

Ladies and gentlemen,

Before I'm ending my speech, I would like to thank and congratulate everyone that directly and indirectly involved with the carnival. Keep up the momentum and pray to God that this event will be continued in coming years to give chances to other researchers, inventors and educators to highlight and showcase their best creative innovative ideas. May God bless this programme so it fulfils the objectives and brings benefits to all of us. Please enjoy all the activities prepared for the day.

Thank you.

**Prof. Ir. Ts. Dr. Prof. Ahmad Ziad bin Sulaiman**

Senior Director

Research Management and Innovation Centre

Universiti Malaysia Kelantan

## **FOREWORD BY THE DIRECTOR OF POLITEKNIK KOTA BHARU**

Assalaamu'alaikum Warahmatullahi Wabarakatuh.

In the Name of Allah, Most Gracious, Most Merciful.

It is my pleasure to welcome everyone to the International Virtual Innovation & Invention Challenge 2021 (INTELLIGENT) in conjunction with Carnival of Research and Innovation 2021. This virtual international event is proudly organized by Universiti Malaysia Kelantan and jointly organized by Politeknik Kota Bharu and the Department of Polytechnic and Community College Education, Ministry of Higher Learning Malaysia. I would like to take this opportunity to thank all the organizing committees for the hard work and effort for making this event a resounding success in terms of participation and organization.

Due to the outbreak of COVID-19 and corresponding to the Malaysian Government Order on Movement Control Order (MCO), INTELLIGENT 2021 is organized virtually. However, despite the pandemic, more than 370 participants from various categories had participated. This overwhelming response clearly shows that nothing can stop us from learning and striving to be the best in facing global challenges and obstacles.

INTELLIGENT 2021 is a great stage for innovators and researchers in showcasing creative ideas and innovations of various categories. There are three categories that involve various fields of studies covering science technology, social sciences and STEAM or Science Technology, Engineering, Arts and Mathematics. This innovation competition is open to all innovators from higher learning institutions and schools.

This distinctive program is in line with the strategies in Malaysia Education Blueprint 2015-2025 for Higher Education in producing great talents, ecosystem innovation and global E-Learning. Hence, this platform has served as a medium to put forward the innovations and creative ideas that are developed by students, teachers and lecturers in order to meet the challenges of Industrial Revolution 4.0.

Therefore, the innovations are expected to improve productivity in all sectors. Apart from that, the innovators and researchers require supports and motivation to generate creative minds to design quality and useful innovations. The positive impacts of the innovations will change how we live, work, and communicate. Thus, I believe this platform will greatly benefit and contribute to the new ideas in teaching and learning development.

Finally, once again, I congratulate all the organizing committees, participants and presenters. Keep up the good work and hopefully this event will be able to raise awareness and encourage more educators and researchers to continuously produce excellent quality of innovations and inventions. May this event run smoothly and achieve its objectives in uplifting the country's education to a greater level.

Thank you.

**Kamaludin bin Daud**  
Director  
Politeknik Kota Bharu

## PREFACE BY CHIEF EDITOR

This e-Proceedings contains a compilation of 323 selected papers from the Carnival of Research and Innovation (CRI 2021) – Virtual International Edition. This event was held at Universiti Malaysia Kelantan (UMK) via online platform on the 20th to 21st September 2021. CRI 2021 was held in conjunction with the International Virtual Innovation & Invention Challenge (INTELLIGENT) 2021 and Creative Innovation Carnival (CIC) 2021. It aims to provide platform for academics, researchers, practitioners and students to showcase their products, research and innovation and at the same time to share their expertise and creativity. It also aims to cultivate interests and encourage lecturers and students to develop teaching materials in line with current technological developments.

It was gratifying to all of us on the overwhelming response for CRI 2021 as we received more than 300 submissions from various areas of related fields in science and technology, social sciences and STEAM. After a peer-review process, the editors have accepted 323 papers for the e-proceedings that cover 14 categories. All contributions express the different expertise, experiences, contexts and knowledge which have been compiled into this e-proceeding as a true collection of intellectual, effort and wonderful diversity.

With the large number of submissions, the event has achieved its main objective which is to bring together educators, researchers, practitioners and students to share their findings and perhaps sustaining the research culture in the university and school.

As chief editor, it has been a great pleasure for me to preside over the review of the e-proceedings and I sincerely would like to thank the contributing authors for their cooperation in refining the manuscripts to meet the scholarly requirements while at the same time meeting the tight deadlines.

I would also like to express my appreciation to fellow members of the Publication Committee for devoting their time and effort in compiling and reviewing the selected papers for this e-proceedings as well as the designer for the excellent cooperation in preparing the e-proceedings of CRI 2021. We hope that this e-proceedings will serve as a valuable reference for researchers, academics and students.

Thank you.

**Nur Hafezah Hussein**

Chief Editor  
e-Proceedings of CRI 2021



## ORGANIZING COMMITTEE

Advisors	<p>Prof. Ir. Ts. Dr. Ahmad Ziad Bin Sulaiman Senior Director of Research and Innovation Management, Universiti Malaysia Kelantan</p> <p>Ts. Zainab Binti Ahmad Director-General of Polytechnic and Community College Education Department, Ministry of Higher Education</p> <p>Mr. Kamaludin Bin Daud Director of Kota Bharu Polytechnic</p>
Head of the Secretariat	<p>Assoc. Prof. Ir. Dr. Julie Juliewatty Binti Mohamed</p> <p>Ym Dr. Tengku Ahmad Badrul Shah Bin Raja Husin</p> <p>Dr. Zubaidah Binti Aman</p> <p>Dr. Ishak Bin Mohamad</p>
Assistant Head of the Secretariat	<p>Assoc. Prof. Ts. Dr. Tan Tse Guan</p> <p>Assoc. Prof. Dr. Yohan Kurniawan</p> <p>Mr. Chung Boon Chuan</p>
Secretariat	<p><b>Head:</b> Mrs. Nurul Iman Binti Hj Mohd Zain</p> <p><b>Members:</b></p> <p>Mr. Syed Ahmad Afiq Hasif Bin Syed Ab Rahman</p> <p>Mrs. Roslinda Binti Ismail</p> <p>Mrs. Roslida Binti Abdul Rahman</p> <p>Dr. Anwar Bin Hamid @ Pa</p> <p>Mrs. Suzianah Binti Sahar</p>
Finance	<p><b>Head:</b> Mrs. Lidyawati Husniza Binti Mohd Zahari</p> <p><b>Members:</b></p> <p>Mrs. Nooraida Faziela Binti Ahmad Amin</p> <p>Mrs. Nur Afifah Binti Ahmad</p> <p>Mr. Khairul Azhan Bin Zakri</p> <p>Mrs. Farah Binti Ariffin</p> <p>Mrs. Wan Farizan Binti Wan Ibrahim</p>
Invitation & Registration	<p><b>Head:</b> Dr. Zaleha Binti Embong</p> <p><b>Members:</b></p> <p>Miss Chin Siao Mei</p> <p>Mrs. Nurul Aadilah Binti Salleh</p> <p>Dr. Sarah Wahida Binti Hasbullah</p> <p>Dr. Mohd Zaimmudin Bin Mohd Zain</p> <p>Dr. Hana Yazmeen Binti Hapiz</p> <p>Mrs. Rozaimah Mustapa</p> <p>Mrs. Fatimah Binti Abdul Rahman</p> <p>Mrs. Nur Filzah Binti Mohd Fauzey</p>
Judging	<p><b>Head:</b> Ts. Dr. Darliana Binti Mohamad</p> <p><b>Members:</b></p> <p>Mrs. Wan Suzanna Aafanii Adeeba Binti Wan Ibrahim</p> <p>Miss Alia Nadhirah Binti Ahmad Kamal</p> <p>Assoc. Prof. Ts. Dr. Tan Tse Guan</p> <p>Mr. Zuhairy Bin Zahari</p> <p>Mr. Udom A/L Ewon</p>



Gift & Certificate	<p><b>Head:</b> Mrs. Nur Athmar Binti Hashim</p> <p><b>Members:</b> Miss Chua Hui Wen Miss Shahidatul Maslina Binti Mat So'od Mrs. Nor Fazura Binti Md Zulkifle Mrs. Nor Hanim Binti Mustafa Dr. Norazlinda Binti Mohamed Rosdi Dr. Daeng Haliza Binti Daeng Jamal Mrs. Norhapiza Binti Md Noor Miss Nur Farhana Binti Shuhaimi Mr. Muhammad Nafizie Bin Elias Mrs. Rosilah Binti Wok Mr. Wan Muhammad Marzudi Bin Wan Muhammad</p>
Promotion & Publicity	<p><b>Head:</b> Mr. Arifuddin Bin Abdullah</p> <p><b>Members:</b> Mr. Wan Yusoff Bin Wan Shaharuddin Assoc. Prof. Ts. Dr. Khairul Azhar Bin Mat Daud Assoc. Prof. Ts. Dr. Nik Zulkarnaen Bin Khidzir Mrs. Nurulahda Binti Sulaiman Mrs. Farrah Atikah Binti Saari Mr. Azmi Bin Ayub Mr. Rozaidi Bin Ismail Mr. Rodey Hamza Bin Hamzah Mrs. Siti Martini Binti Mustapha Mrs. Melissa Khor Suan Chin</p>
Sponsorship	<p><b>Head:</b> Mr. Aziz Bin Mamat</p> <p><b>Members:</b> Mrs. Zuriati Binti Mohd Rashid Mrs. Tg. Iffah Binti Tuan Yazid Mr. Md Ariff Bin Ariffin Miss Izati Nabila Binti Marzuki Mrs. Aspalila Binti Awang Mrs. Rosnani Bt. Hassan</p>
Publication	<p><b>Head:</b> Dr. Nur Hafezah Binti Hussein</p> <p><b>Members:</b> Dr. Nor Hazwani Munirah Binti Lateh Mrs. Liyana Binti Ahmad Afip Mr. Tenh Hock Kuan Ts. Dr. Anuar Bin Mohd Yusof Mr. Mohammad Syukran Bin Kamal Ruzzaman Mr. Muhammad Najibul Muthiie Bin Che Ya'acob Assoc. Prof. Ts. Dr. Tan Tse Guan Sr. Noor Izma Binti Ab. Ghani Dr. Nik Azida Binti Abd Ghani Mrs. Wanly A/P Eh Keon Mrs. Nor Ashikin Binti Mazlan Mrs. Nor Abidah Binti Abdul Hamid</p>
Texts for Speech	<p><b>Head:</b> Mrs. Linira Bt Ghazali</p> <p><b>Members:</b> Mr. Arifuddin Bin Abdullah Mrs. Liyana Binti Ahmad Afip</p>

Montage	<b>Head:</b> Mr. Hidayat Bin Hamid <b>Members:</b> Mr. Mohammad Syukran Bin Kamal Ruzzaman Mr. Md Ariff Bin Ariffin Mr. Fairuladilan Bin Hamadun
Technical & Logistics	<b>Head:</b> Mr. Mohd Safuan Bin Mohd Azam <b>Members:</b> Mr. Mohd Norhisyam Bin Jaafar Mr. Rosmawi Bin Md Ali Mr. Wan Mohd Osman Bin Wan Omar Mr. Nik Kamaruddin Bin Fatanah Mr. Roslan Bin Mamat Mr. Hazmee Bin Abdul Halim
Recording & Archives	<b>Head:</b> Miss Rosmawati Binti Che Hassan <b>Members:</b> Mrs. Noor Faezah Binti Basary Mr. Mohd Safuan Bin Mohd Azam Mr. Wahyudi Yusra Bin Zulfin Mr. Mohd Khairul Azman Bin Che Ibrahim Mr. Che Seman Bin Che Cob
ICT & Equipment	<b>Head:</b> Mr. Ahmad Bustaman Bin Arifin <b>Members:</b> Mr. Khairul Ikhwan Bin Mohd Sukri Mrs. Suzianna Binti Taib Mrs. Siti Zaleha Binti Ibrahim