RICES 2019

RESEARCH INNOVATION COMMERCIALISATION & ENTREPRENEURSHIP SHOWCASE

ENTREPRENEURSHIP
&
SOCIAL INNOVATION

CONTENT

FOREWORD

VICE PRESIDENT RESEARCH AND INNOVATION

The e-Research, Innovation, Commercialization, Entrepreneurship Showcase (eRICES) publication is one of the numerous publications, including journals that MMU Press takes pride in. I am truly pleased that Assoc Prof Dr Madhubala, the first Director of MMU University Press, and her team have embarked on the initiative to publish the inaugural eRICES 2019.

The eRICES 2019 will be the first compilation of MMU's researchers and entrepreneurs' fascinating insights on research ventures and idea creation for commercialising research output as well entrepreneurship.

RICES is an excellent platform for MMU to interact with internal and external stakeholders. These interactions enable researchers to realise potentials for collaborations, IP exploitations, commercialisation and further research. It allows for industrial related viable research and feasible output. This eRICES publication extends the present interactions even further, allowing for post-event interactions to materialise beyond the existing valued stakeholders.

RICES 2019 is evidence of the excellent effort RICES organisers and MMU University Press. Their commitment and dedication have paid out with another hallmark achievement reflecting my Research and Innovation (R&I) Division to synergise the development of Research-Innovation-Commercialisation-Entrepreneurship (R-I-C-) nexus in all research activities. I look forward to RICES 2020 exhibition and its publication.

Thank you

Prof Ir. Dr. Hairul Azhar bin Abdul Rashid
Vice President Research & Innovation
Multimedia University

MULTIMEDIA UNIVERSITY PRESS

I take pride in setting up among others, the Effective Teaching Methodology Unit, the Learning Institute for Empowerment, the Faculty of Applied Communication and the latest, the MMU University Press in MMU. This would not have been possible if not for the support of Prof Hairul Azhar Abdul Rashid, Vice President (Research & Innovation), the 2018 steering committee and the current Press Board Members.
A BIG THANK YOU to the team.

Within a year in 2019, some of the steering committee members took upon themselves the task in setting up international journals: Asian Journal of Law and Policy (AJLP), International Journal on Robotics, Automation and Sciences (IJORAS), Journal of Engineering Technology and Applied Physics (JETAP), Issues and Perspectives in Business and Social Sciences (IPBSS), International Journal of Management, Finance and Accounting (IJOMFA), International Journal of Creative Multimedia (IJCM) and Journal of Science and Social Science (JSSS). These are MMU's first seven international journals since it's inception in 1997. It is heart-warming to see some journals have had their very first publications in the same year.

This year in 2020, MMU Press embarks on publishing other forms of publications and eRICES is among the first. These four eRices Publications showcase research, ICT, multimedia, entrepreneurship and social innovation projects. They showcase researchers' innovative and creative ideas, expertise and their use of technology to provide solutions to address, among others, social, health and wellbeing, economic, educational, environmental and industrial challenges as well as propagate technological developments.

THANK YOU to the Chief Editors, the Reviewers and the Editorial / Design Team.

Assoc Prof Dr Madhubala A/P Bava Harji
Director MMU University Press
Multimedia University

Research, Innovation, Commercialization, Entrepreneurship Showcase (RICES)

Assalamualaikum warahmatullahi wabarakatuh and very good day!

Research, Innovation, Commercialization, Entrepreneurship Showcase (RICES) is an annual event organized by MMU that showcases research projects, innovations, commercialisations and entrepreneurship. Driving Digital Innovation is the tagline selected this year to highlight the importance of having the right tools, technologies and strategies for a digitally transformed organization, community and nation. This year we organised it on 7 November 2019. A total of 167 research projects, 25 start-ups, spin offs and ventures, 26 research centres and 7 research institutes participated in the showcase.

Apart from the exhibitions, we had pitching sessions as well as talks by representatives from the industry.

Both local and international judges who evaluated the showcases had used the judging criteria which is similar to criteria that are set for international exhibitions, such as International Conference and Exposition on Inventions by Institutions of Higher Learning (PECIPTA) and International Invention, Innovation & Technology Exhibition (ITEX).

I would like to take this opportunity to thank the organising committee and everyone who had directly or indirectly attributed to the success of RICES 2019.

Ts. Dr. Junaidi Abdullah
Director of RICES 2019
Deputy Director, Research Management Centre
Multimedia University

1 ENTREPRENEURSHIP

MULTIMEDIA UNIVERSITY

Dr Siti Zakiah Melatu Samsi, Liew Tze Hui, Dr Zauwiyah Ahmad,
Dr Hasmida Jamaluddin, Dr Muhammad Fazil Ahmad (Unisza)

MMU

A Spin-off Under MMU Spin-Off Scheme

THE PROBLEM

Talents are not visible
Students might have talents but do not know how to make **them** visible.

Unused talents
Limited opportunity for talented students to utilise and make money from their talents.

Lack of trust
Some people do not trust freelancers unless by recommendation.

THE SOLUTION

AfterclassCorner
Making your talents count

KEY FEATURES:

"Instagram" or "Pinterest" like platform to impress potential clients

Development of talents & skills database

Talent search & Talent-job matching

Promotion of available talents & jobs

PROJECT PLAN

Project initiation & Requirement study

01

Logical, data flow & interface design.

02

Market validation

03

04

Awareness

Launching & implementation

05

REVENUE MODELS

COMMISSION

ADVERTISING

VALUE PREPOSITION

Match & recommend jobs to talented students

Monetisation of skills & talents

Opportunities to polish talents & skills

Develop personal portfolio from completed jobs

1

MMU
MULTIMEDIA UNIVERSITY

Dr Siti Zakiah Melatu Samsi, Liew Tze Hui, Dr Zauwiyah Ahmad,
Dr Hasmida Jamaluddin, Dr Muhammad Fazil Ahmad

AfterclassCorner
Makes your talents count

A Spin-off Under MMU Spin-Off Scheme

TARGET MARKET:
❑ Students
❑ Alumni
❑ Institute of Higher Learnings

CHANNELS:
❑ Social media
❑ Student Affairs departments, Career Centres, Counseling departments
❑ Job search page

BENEFITS:
❖ Enhancement of talents' skills
❖ Evidence of completed jobs
❖ Marketability in the job market – **e-portfolio**

STRATEGIES:
❖ Social media awareness
❖ Success stories
❖ Collaboration with IHLs career centres

TALENTS

Register

Upload & maintain profile

find a job
Search suitable jobs

CLIENTS

Submit job offer

WE ARE looking for TALENT
Search talent, view profile, submit request

Rate & feedback

AfterclassCorner

Promote – connect match – record - report

2

CLOUDYVICE: DATA ANALYTICS AND DYNAMIC PRICING FOR CONFINED PARKING SYSTEM

DR MICHAEL GOH, MR POH LI ZHE, MR ADVENT PHANG, DR TEE CONNIE, MR TEY FU CHEN

Abstract

According to a survey published by the New Straits Times (2017), the average time spent to look for parking in major cities such as Hanoi, Hong Kong and Kuala Lumpur is 35 minutes per day. Ass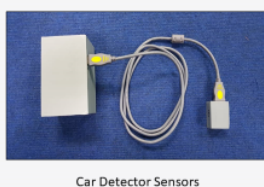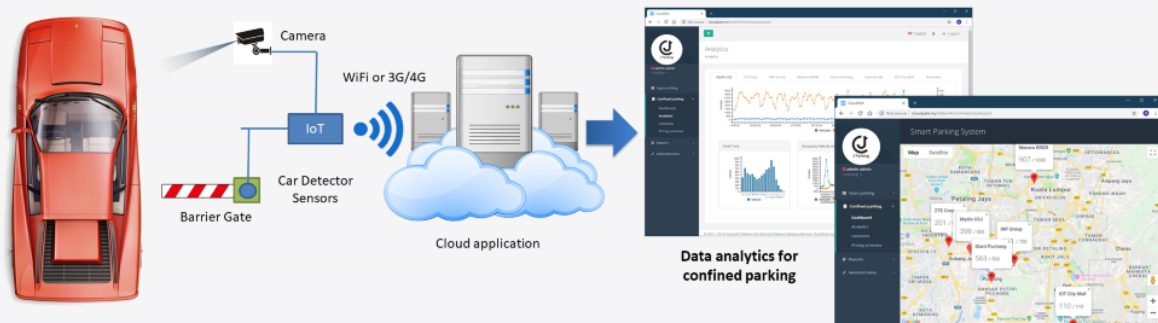uming there are over 100 cars looking for parking in the cities, there could be over 3500 minutes wasted every day. If these values are converted to fuel consumption, CO2 emission and economical effects, the parking search time is indeed very expensive. Most of the existing parking technologies require parking operators to install sensors at each parking bay to detect the number of cars entering/exiting the parking areas. This technology is not new and it incurs very expensive setup and maintenance costs. Therefore, it is not suitable for wide deployment and only a few big companies are able to afford such technology. Our invention, which is specially designed for wide and low-cost deployment, only requires IoT devices to be placed at the existing barrier gates to collect data about the number of car entering/exiting the parking area. The collected information, translated to parking occupancy, will be stored in the cloud and disseminated to mobile users. The IoT device is cheap and can be implemented in any confined parking areas with barrier gates. With its low price, even small parking operators can afford to use the invention.

Data analytics for confined parking

Car Detector Sensors

Dynamic Pricing Scheme for Congestion Reduction Scheme

Without Rebate — High traffic due to many cars enter/exit at once

With Rebate — Giving rebate to some drivers will attract them to enter/exit during non-peak hours, hence reduce traffic congestion

Benefits to Users and Government/Parking Vendors

- Obtain real-time parking occupancy information
- Promote visibility of the parking area through Google map
- Get traffic congestion forecast based on parking and traffic information around the parking area
- Make better decisions with regards to regulating the parking rate (based on a dynamic pricing model) and increasing parking bays

Impact of the Project

- Enables drivers access to parking information and plan their travelling schedule
- Encourages travel during non-peak hour to reduce congestion in the city
- Reduces traffic congestion and time in searching for a parking area
- Helps reduce the emission of CO_2 and fuel consumption through green technology
- Implements an industrial revolution 4.0 technology that utilises the cloud server, smartphone, IoT technology and data analytics to solve city parking and traffic issues

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App Concept
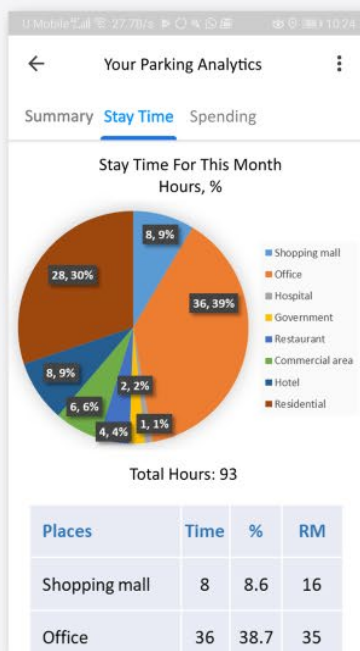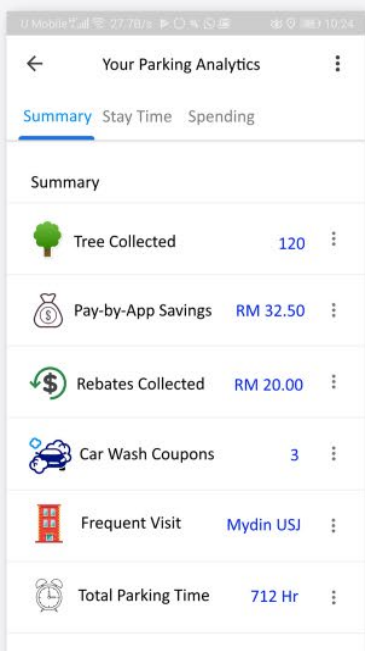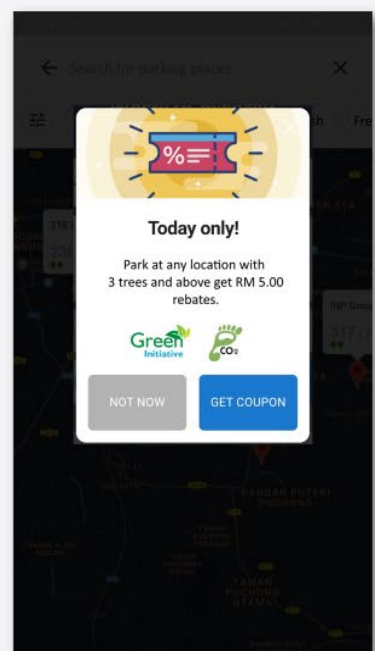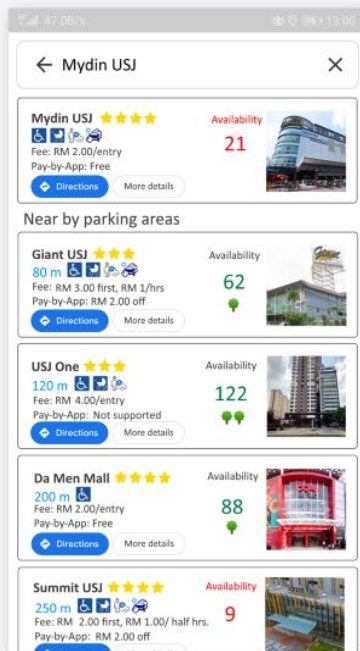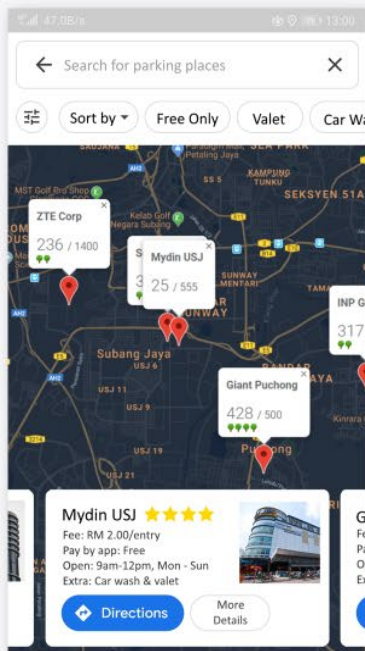
habibu
mother & child

www.habibu.my
habibu.my
habibu.my
011-23665254

- Habibu, a Social Enterprise curates a platform for local entrepreneur to sell, collaborate, review and showcase products and services exclusively for new mothers and babies.
- We create a mindful/conscious mama-hood by passionately creating our E-commerce platform, #mamahangout. This platform brings together a community of like-minded people who meet to share experience, gain knowledge, express thoughts, feelings and problems while having their me-time.

Target : 3.2

BY YEAR 2030: END PREVENTABLE DEATHS OF NEW-BORNS AND CHILDREN UNDER 5 YEARS OF ALL AGE IN ALL COUNTRIES. REDUCE NEONATAL MORTALITIES AS LOW AS 12 AND UNDER-5 MORTALITIES AS LOW AS 25 PER 1,000 LIVE BIRTHS RESPECTIVELY.
KEY INDICATOR:
3.2.1 UNDER-FIVE MORTALITY RATE
3.2.2 NEONATAL MORTALITY RATE

3 GOOD HEALTH AND WELL-BEING

Target : 3.4

BY YEAR 2030, REDUCE PREMATURE MORTALITY FROM NON-COMMUNICABLE DISEASES BY ONE THIRD THROUGH PREVENTION AND TREATMENT. PROMOTE MENTAL HEALTH, MINDFULNESS AND WELL-BEING
KEY INDICATOR:
3.4.2 SUICIDE MORTALITY RATE

Target : 10.2

10 REDUCED INEQUALITIES

BY YEAR 2030, EMPOWER AND PROMOTE SOCIAL, ECONOMIC AND POLITICAL INCLUSION IRRESPECTIVE OF AGE, GENDER, ABILITY, ETHNICITY, ORIGIN, RELIGION OR OTHER ECONOMIC AND SOCIAL STATUS

KEY INDICATOR:
10.2.1 PROPORTION OF PEOPLE LIVING BELOW 50 PER CENT OF MEDIAN INCOME, BY AGE, SEX AND DIFFERENTLY ABLED.

OUR TARGET BENEFICIARIES

Mothers in generals

Mothers from marginalized community

AUTISM

Mothers with special care children

habibu

OUR LEARNING MODEL FOR PDD AWARENESS

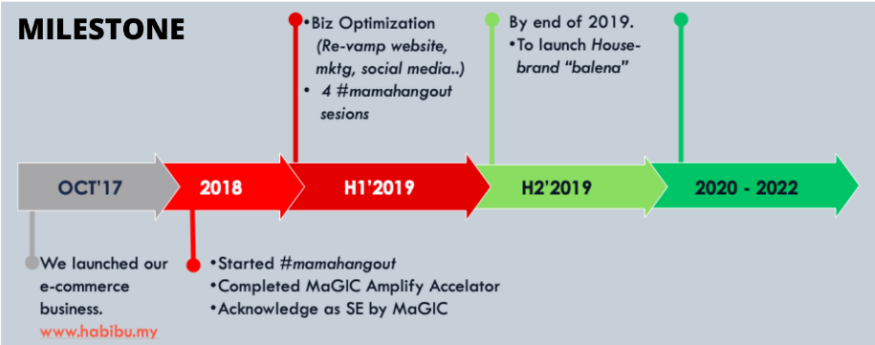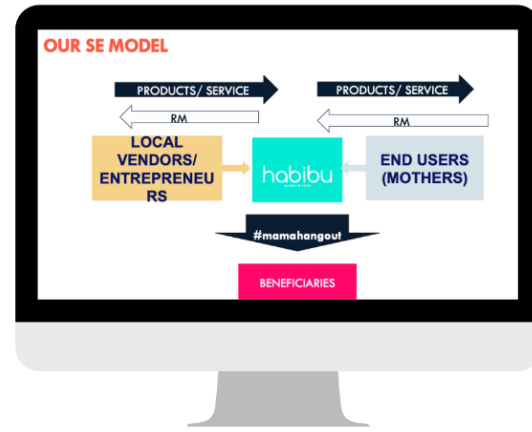| TIME	TOPICS	ACTIVITIES/ OBJECTIVE	MINIMUM EXPECTED TAKE-AWAY
11:00 – 11:15 (15 mins)	INTRODUCTION	• Ice-breaking in small groups	• Establish bond & exchange contacts
11:15 – 11:25 (10 mins)	WHAT IS PPD ?	• Symptoms and root-causes of PPD • Consequences of PPD	• Describe behaviors of a PPD at risk mother • Explain consequences of untreated PPD
11:25 – 11:45 (20 mins)	HANDLING PPD	• Easy tips to manage PPD • How to find help	• Demonstrate simple tips to manage PPD • Illustrate conversations with key stakeholders (family members, doctors, etc) for assistance
11:45 – 11:55 (20 mins)	HELPING OTHERS WITH PPD	• How to identify a mother at risk of PDD • How to guide a mothers at risk	• Explain behaviors of mother-at-risk • Illustrate conversations with mother-at-risk and their family
11:55 – 12:10 (15 mins)	CLOSING	• Open Sharing • Feedback of programs	• Commit for continuous sharing of knowledge and experience

BERITA | BERITA MALAYSIA

Baby found with throat slit, believed to be killed by own mother

Muhaimi Muhamad, Astro Awani

theSundaily
TELLING IT AS IT IS

LOCAL WORLD BUSINESS SPORT STYLE/LIFE OPINION SUPPLEMENT MEDIA &

New mom leaps to her death from home
25 OCT 2015 / 16:55 H.

PETALING JAYA: A 30-year-old accountant who delivered her first born child 10 days ago, plunged to death from the 16th floor of her condominium balcony at The Park Residences, Off Jalan Kerinchi Bangsar South, Kuala Lumpur on Saturday.

OUR SE MODEL

PRODUCTS/ SERVICE →   PRODUCTS/ SERVICE →
← RM   ← RM

LOCAL VENDORS/ ENTREPRENEURS → habibu ← END USERS (MOTHERS)

#mamahangout

BENEFICIARIES

MILESTONE

- Biz Optimization (Re-vamp website, mktg, social media..)
- 4 #mamahangout sesions

By end of 2019.
- To launch House-brand "balena"

| OCT'17 | 2018 | H1'2019 | H2'2019 | 2020 - 2022 |

We launched our e-commerce business.
www.habibu.my

- Started #mamahangout
- Completed MaGIC Amplify Accelator
- Acknowledge as SE by MaGIC

We've carefully handpicked these amazing local products & brands, with different stories to tell! They are all Hand Made, Home Made.

A Startup Under MMU Startup Scheme

habibu
mother & child

LOW-COST VIDEO GAME PRODUCTION

BEARPACK
PRODUCTION
A Startup Under MMU Startup Scheme

Bearpack Production is a low cost game production company based in Malaysia, founded by a team of students from Multimedia University in 2019. We aim to revolutionise the game industry and allow anyone to make games with our automation and service based on their own ideas and talent.

FOUNDERS

CHU HONG YANG

NICCUS TAN

DANIAL HASYEIMI

YEAP SEOW SIEN

POPULATE

To learn and discover, we will be making a lot of games ourselves first. Though we are not open to the public we are still available for various forms of collaboration and servicing during this stage.

There are many ways to cut the cost of creating games. But mainly we will be focusing on two main concepts - Recycling assets and Automation tools.

AUTOMATE

In the future, with a more defined low-cost game development method and automation tools, we will aim to automate the process of game development to further reduce the cost, by doing so remove the manpower cost entirely from the process.
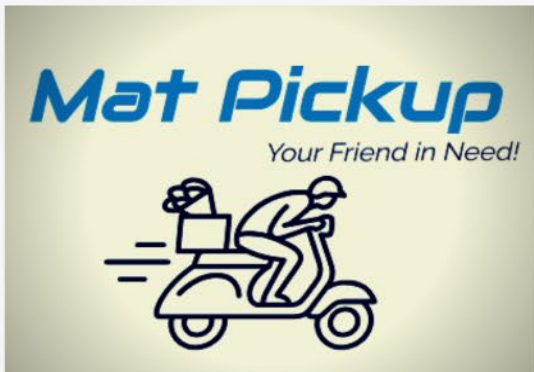
Learn more at :
www.bearpackproduction.com

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7

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Mat Pickup
Your Friend in Need!

A Spin-off Under MMU Spin-Off Scheme
A MOBILE APPLICATION

Mat Pickup is a mobile application system for delivery service which aims to support Small & Medium Retailers and home-based businesses delivering goods to consumers. It also provides job to those in needs as their side income. This application may help the users to get particularly their groceries and anything they need just using their mobile gadgets.

Specialty:
- ❑ Speedy delivery
- ❑ Convenient
- ❑ Reliable
- ❑ Value for money

Business Model

S&M Retailers → Welcome to Mat Pickup → Consumer

Home Based Business → S&M Retailers

3 Functions of Mat Pickup
- Consumer buy from S&M Retailers
- Consumer buy from Home Based Business
- S&M Retailers buy from Home Based Business

Application Features

- Suppliers list (for consumers)
- Products list (for consumers)
- Product Registration (for Suppliers)
- Acceptance Job (for Delivery Man)

3 INTERFACES:
1. Small & Medium Retailers / Home-based Businesses
2. Delivery man
3. Consumers / Public

Revenue Model

- Sales Commission
- Delivery Commission
- Premium Advertisement

Project members:
1. Hamsatulazura Hamzah (Hamsatulazura.hamzah@mmu.edu.my)
2. Muhammad Fakhrul Nazim bin Mohd Nizar
3. Ahmad Fattah bin Mohamad
4. Farah Zulaikha binti Asaraff Ali
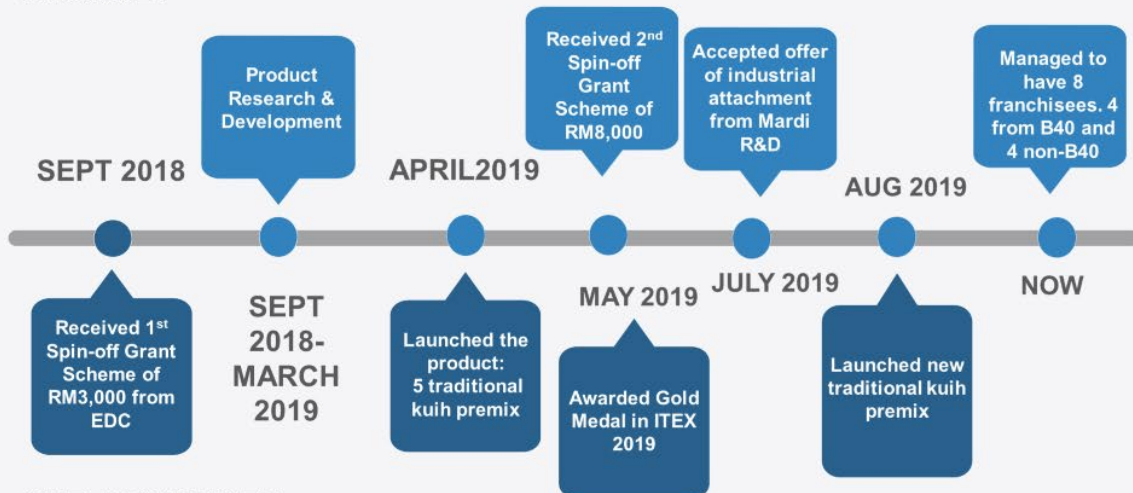
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OUR FRANCHISEES (B40)

Puan Suria

Puan Sabariah

Encik Shahbudin

Puan Normahwati

OUR FRANCHISEES (Non B40)
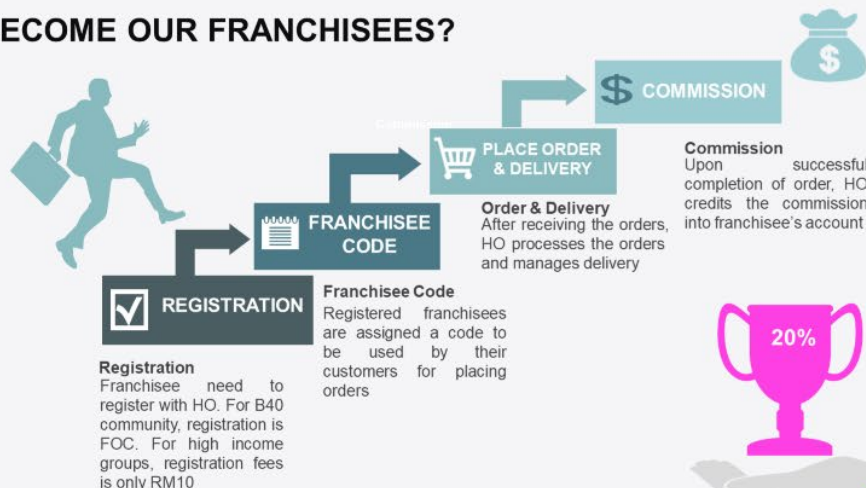
Puan Nuralisa

Puan Suhaila

Encik Nazli

Encik Lusfi

HOW TO BECOME OUR FRANCHISEES?

COMMISSION

PLACE ORDER & DELIVERY

FRANCHISEE CODE

REGISTRATION

Commission
Upon successful completion of order, HO credits the commission into franchisee's account

Order & Delivery
After receiving the orders, HO processes the orders and manages delivery

Franchisee Code
Registered franchisees are assigned a code to be used by their customers for placing orders

Registration
Franchisee need to register with HO. For B40 community, registration is FOC. For high income groups, registration fees is only RM10

20%

FRANCHISEES BENEFITS

ZERO CAPITAL
- No capital investment needed
- All you need is a smartphone with social media accounts to engage in promotional activities.

HASSLE FREE
We completely handle stocks and delivery for you.

WORK FROM HOME
Work at your own convenience and from the comfort of your home.

ATTRACTIVE COMMISSION AND BONUS
The more you sell, the more you earn.

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![MMU Multimedia University logo]

Financial Data as of September 2019

SALES	ASSETS	GROSS PROFIT MARGIN	NET PROFIT MARGIN
April 2019 to September 2019	(Fixed Assets and Current Assets)		
RM8,216.50	RM3,023.00	50% - 65%	35% - 40%

FUTURE PLANS

RECRUIT MORE FRANCHISEES

PRODUCE MORE PRODUCT LINE

COLLABORATE WITH OTHER AGENCIES

PROMOTE IN SCHOOLS, COLLEGES FOR ENTREPRENEURSIP PROJECT

EARN MORE COMMISSIONS FOR THE FRANCHISEES

FOUNDER- NURBANI MD HASSAN

BA (Hons) Accounting & Finance, Liverpool John Moores University, United Kingdom
Masters in Business Administration, Universiti Utara Malaysia

Business Advisor -Home Based Station
- Acar Buah Sabariah
- Kurnia Mart
Business Owner – Propertyradar
Past Experience in banking, finance, manufacturing and services – 13 years

CO-FOUNDER – DR. NOOR ASHIKIN MOHD ROM

BA (Hons) Accounting & Finance, Liverpool John Moores University, United Kingdom
Executive Masters in Business Administration, UiTM
Doctor of Philosophy (Business Management), UiTM

Possessed experience in banking and finance – 14 years
Advisor cum Coach to 5 petty traders on book-keeping & social protection (KTP 2018)

Rasa Sorga Cookies Cakes Cueh

rasa_sorga_cookies

www.nurafood.com.my

017-568 2949 / 012-354 9817

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ARMADA
A SPIN-OFF UNDER MMU SPIN-OFF SCHEME

INTRODUCTION

Armada Ltd was formed in May 2019 under a spin-off under Multimedia University (MMU) spin-off scheme, with the prime objective to involve its academic staff to contribute to the industry in their respective areas of specialization. This entails as following:

a) Joint effort of partnership in research and development with industry key players
b) Consultancy services to aid industry in their R&D endeavor
c) Provide and organize training programs
d) Testing, diagnosing and design of current attendance system in most sectors
e) Commercialization of new solution for smart attendance system

VISION

To create a better every-day life for many people using smart attendance systems

MISSION

To provide services through an innovative approach and design in smart attendance systems

COMPANY ORGANIZATION

Assoc.Prof. Dr.Mardeni Roslee
CEO / Founder

Dr.Azwan Mahmud
Co-founder 1
(Testing, installation, measurement, analysis)

Khairil Anuar
Co-founder 2
(Marketing, sales, finance, secretary)

Support Staff

Ahmad Fattah   Muaz   Muhammad Izzat   Nur Syahira Amira

COLLABORATOR

- NEC Corporation of Malaysia Sdn Bhd
- Universiti Putra Malaysia

VALUE OF PRODUCT

- Real time, operated 24 hours per day
- Easy for monitoring
- Ease of Use / Cheap / User-friendly Product
- Q management system
- Salary will be calculating based on the attendance / performance
- Works in "offline" environmental

POTENTIAL CUSTOMER

- University / College / School
- Education sector
- Government sector
- Private sector
- Supermarket

ARMADA
A SPIN-OFF UNDER MMU SPIN-OFF SCHEME

CONTACT US

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Development of Innovative and Entrepreneurial Computer Vision Solutions for Tourism 4.0

DR TEE CONNIE & DR NEO HAN FOON

Abstract

Artificial Intelligence (AI) is increasingly being used to enhance tourists' experiences. In this project, students present different AI solutions from robots, chatbots and websites, to tools that help to analyse visitor data. The students work in a cross-disciplinary team to come out with innovative projects. Students from different professional backgrounds contribute their technical competencies to develop a consolidated project containing entrepreneurial element for Tourism 4.0. By collaborating with members from various disciplines, the students learn to communicate with each other and develop networks beyond the classroom. The project has created a joyful and exciting experience for the students.
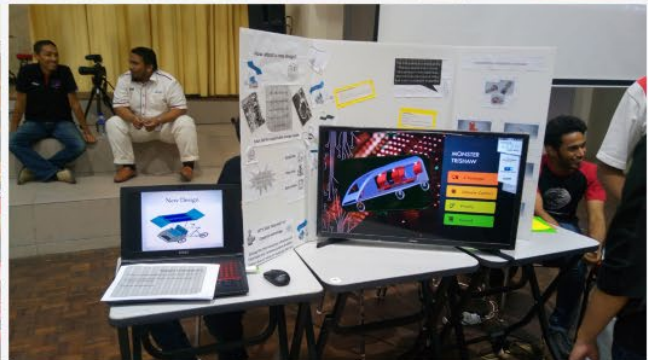
Benefits

- Bridge disciplines and forge new connections
- Pursue different ways of thinking towards solving the same problem
- Learn to manage relationships with stakeholders

Discussion

Students gained knowledge and experience in the following areas:

- Better understanding of the roles of other professionals/disciplines
- Appreciate the importance of collaboration
- Solve problems when conflicts arise in interdisciplinary collaboration
- Obtain increased self-confidence in interdisciplinary collaboration

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Embedding Entrepreneurial Learning in BMR 3184 Social Media Digital Marketing

Tan Gek Siang and Robert Jeyakumar

INTRODUCTION

Championed by the **Entrepreneur Development Centre (EDC)**, **MMU Dream Team Challenge** is an initiative to break silos and converge dream teams among students from various faculties in Multimedia University.

Participating faculties and subjects:
Faculty of Business (FOB) - BMR3184 Social Media Digital Marketing
Faculty of Information Science and Technology (FIST) - TCV3151 Computer Vision
Faculty of Engineering and Technology (FET) - EME3066 CAD/CAM

In conjunction with the **Visit Melaka Year 2019**, the theme for the Dream Team Challenge this year is **Tourism 4.0**.

Tourism 4.0 is an initiative to transform tourism by creating a collaborative ecosystem in which tourism stakeholders co-create enriched travel experience by using the enabling key technologies of Industrial 4.0 such as **artificial intelligence (AI), internet of things (IoT), big data analysis, blockchain, virtual reality (VR) and augmented reality (AR)**.

tourism 4.0
ENRICHED TOURISM EXPERIENCE

The tourism sector in Melaka is **deteriorating**. The number of tourist arrivals failed to maintain double-digit growth since 2013 and only grew by 3.13% in 2017 (the lowest since 2008).

The growth of tourist arrivals was recorded at 7.65% in 2017 (the lowest since 2008).

Museum visitors reduced by 78,269 visitors (-10.43%) in 2016 and 35,662 visitors (-5.31%) in 2017.

Students are expected to generate possible ideas and solutions for the local tourism sector using key enabling technologies of Tourism 4.0 to enhance tourist experience.

The Dream Team Challenge aims to achieve **TWO (2) Entrepreneurial Learning Outcomes and Pedagogies**, namely (1) knowledge of the phases and stages involved in going into business, and (2) skills and competencies in managing relationship with different stakeholders, as well as cultivation of entrepreneurial traits and competencies among students.

SUBJECT DESIGN

Assignment 1 (40%)

Part 1: Business Modal Canvas (10%)

Part 2: Website Development (20%)

Students are required to create a website using wix.com to promote their innovative solution and associated attractions.

Part 3: Pitching (10%)

Assignment 2 (30%)

Part 1: Facebook Analytics and Insights (10%)

Students are required to manage a Facebook page to promote their innovative solution and associated attractions for a minimum of 28 days. Engagement metrics are assessed.

Part 2: Sharing & Reflection (10%)

Students share and reflect on ethics on social media promotion, key knowledge, skills and competencies harnessed from Dream Team Challenge

PROJECT DESIGN

31st July 2019: Kick-Off Boot Camp

Activity 1 — Formation of Dream Team

Total number of students: 177
Total number of **Dream Teams** formed: 42
Number of members per team: 4-5 students
Composition of team members: 1 FOB, 1 FIST, 2 FET

Activity 2 — Entrepreneurial Quotient Profiling Test

Objective: To determine the EQ of the students and the role each member plays in the **Dream Team**

HIPSTERS — Design & User Experience (UX)
HACKERS — Engineers & Developers
HUSTLERS — Marketing & Business

Activity 3 — Industrial Talks by Corporate Leaders

Objective: To equip students with knowledge on the local tourism sector, social media and digital marketing, tourism and IT and electronic business.

Findbulous — SERUNAI — softinn
Tourism Melaka — ENCORE MELAKA IMPRESSION SERIES — Startup Mamak

Activity 4 — Brainstorming Session

Objective: To generate possible ideas and solutions for the local tourism sector using key enabling technologies of Tourism 4.0, such as

Internet of Things — Artificial Intelligence — Mobile Application — Web Application

11th September 2019: Demo Day

Highlight 1 — Pitching

Number of judges: 12

During the judging process, each team is assessed by 2 independent judges based on the criteria below. The top 12 teams qualified into the final round of pitching.

Product / Service / Game (10%): Ability to identify a compelling solution and address a common issue in a different way.

Customer (10%): Ability to identify the target customers and their problems / pains to be addressed.

Technical (5%): Feasibility in building the solution with a reasonable amount of effort.

Poster and Pitch (10%): The presentation is delivered with clarity, focus and confidence.

Overall Impression (10%): Team and idea proposed.

TakeMe-Melaka — Warship Through Years — Hang Tuah Centre Recognition System

Highlight 2 — Knowledge Transfer Programme

Community: Sekolah Menengah Teknik Melaka
Participants: 2 teachers and 30 students
Activities:
1.) Briefing by EDC
2.) Knowledge sharing from participating lecturers
3.) Booth visit
4.) Assessment

KEY FINDINGS AND DISCUSSION

Announcement of Result

1st — Swalayan Dodol
2nd — The People's Choice Award — Jom Beca
3rd — Cendolhaus
Tourism Melaka Special Award — See the Unseen

Effectiveness of Knowledge Transfer Programme

+2.02

Knowledge **AFTER** the session
3.55 / 5.00 (high knowledge)

Knowledge **BEFORE** the session
1.53 / 5.00 (low knowledge)

Achievement of Entrepreneurial Learning Outcomes and Pedagogies

Knowledge of the phases and stages involved of going into business

Skills and competencies in managing relationships with different stakeholders

Entrepreneurial traits and competencies

Embedding Entrepreneurial Learning Scheme (EELS)-Engineering CADCAM

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Abstract: The purpose of this project is to explore how collaborative Embedding Entrepreneurial Learning Scheme (EELS) processes between entrepreneurs and university students can enhance entrepreneurial practices in the context of knowledge-transfer. These learning processes serve as a valuable source for entrepreneurship development in incumbent enterprises in the forms of innovative products, services, processes or organisational rejuvenation. Students employed the skill learnt in CAD/CAM to produce or innovate an item or product that is ready to be commercialised

Keywords: CADCAM, Engineering design, Tourism 4.0

INTRODUCTION

The tourism sector is a key engine for growth for Melaka specifically and Malaysia in general. Thus, it is crucial to ensure the competitiveness and sustainability of the sector. Given that we are in the era of Industrial Revolution 4.0 (IR 4.0), it is proposed that new innovative solutions be created for the various players in the tourism sector using IR 4.0 technology thus leading the sector into Tourism 4.0.

The collaborative EELS processes between faculties in MMU provide a coherent and systematic approach to generate, select and implement entrepreneurial practices in incumbent seeds. This starts from a project competition involving creative students and innovative future entrepreneurs. EELS processes in the community comprise of lecturers as facilitators and groups of university students who are put through the entrepreneurial phases of inspiration, exploration and growth. These phases include the learning processes of experimenting and finally thinking and reflecting. The implications of this project can be identified according to many perspectives that emphasise the centrality of the learning process in the research on knowledge-intensive entrepreneurship. The involvement of EME3066 CAD/CAM students in activating EELS processes with the Entrepreneur Development Centre (EDC) is a significant initiative in the field of entrepreneurship and innovation.
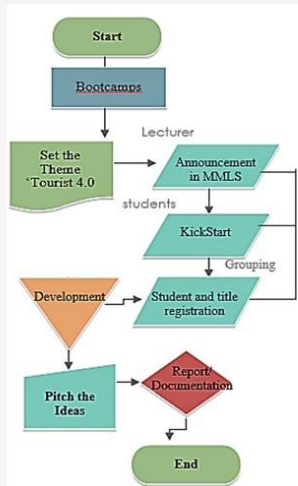

Figure 3. Business canvas and flow activity

PROJECT DESIGN

The subject involved in this programme is Engineering CADCAM, EME 3066. 94 Mechanical Engineering (ME) students participated in the project. They are assigned into groups which consisted of not more than two members of ME students per group. Figure 3 illustrates the business canvas sketch for idea mapping and plan execution.

Students are asked to form groups comprising of four members and they are assigned to different tasks based on their skill and field. Each group consists of one student each from FIST and FOB with 2 members from FET. They are required to discuss and identify problems faced by tourists when visiting Melaka. Figure 4 shows the bootcamp day and group forming session.

The students need to brainstorm their concept with other group members. In the initial stage, they are required to do 2D sketch design ideas. Then they need to produce a 3D modeling once the ideas are finalised. The design model must be an assembly model containing at least five different parts. The detailed assembly drawings must feature dimensioning, sectioning view and detailed view. The model is presented in terms of exploded view of assembly with overall dimensions, ballooning and table of part list.

Figure 4. Bootcamp and Group forming session

FINDINGS

This project duration was almost 11 weeks. Figure 8 shows the activity during demo day. Students presented their projects in group. Figure 9 shows sample of poster and model design.

Figure 8. Demo Day

Figure 9. Sample poster presentation and design model

Among 44 groups of contestants, 13 groups were selected to pitch their ideas on stage in front of selected jury. The top 3 winners are Swalayan Dodol, Chendolhaus and JomBeca. The best idea category is won by the project 'See the Unseen' while the most popular booth award as selected by the community goes to JomBeca.

DISCUSSION

A few groups from different communities were invited to the Demo Day. The community and user groups that were engaged were secondary students from a technical school nearby and MMU Melaka students. This knowledge transfer activity with selected communities begin by briefing from a participating lecturer.

CONCLUSIONS

The Multimedia University Embedding Entrepreneurial Learning Scheme nurtures entrepreneurship among MMU students by supervising and providing financial support for projects or assignments within courses offered by the faculties that embeds entrepreneurial learning. Embedding entrepreneurial learning is defined as the act of developing entrepreneurial competencies and traits amongst students within a particular subject/discipline teaching context.

# Market and Design Studies

Hanafizan Hussain

The product design expert works with art, science and technology to create these products. This increasingly complex process is now supported by evolving digital tools and techniques that reduce the involvement of a large team and help visualize a product in great deal before it is created.

(Martin, 2014)

https://www.cleverism.com/product-design/
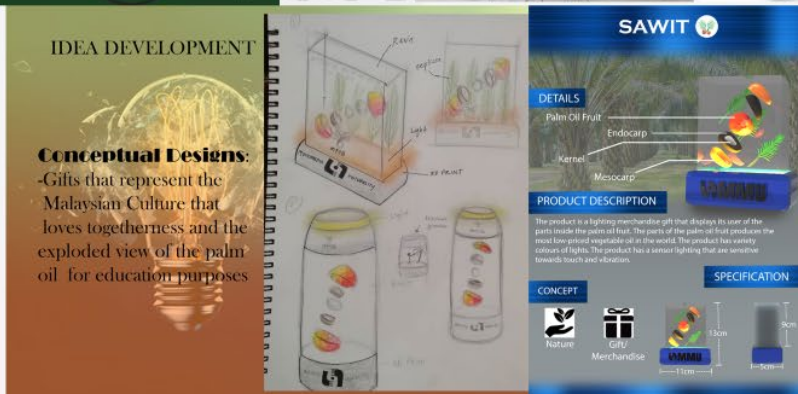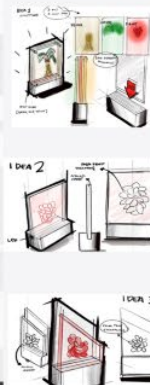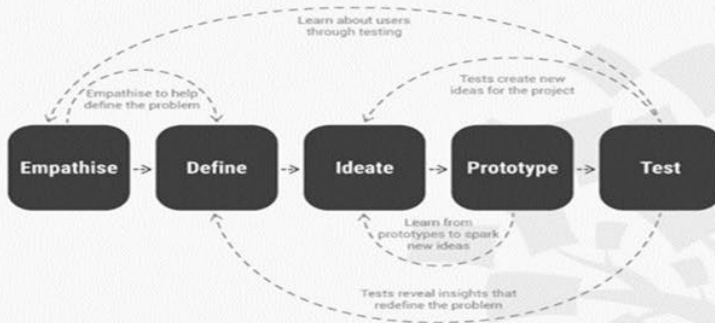
This project is using the iterative design approach when describing the idea for the content given. Sketch has been applied as one of the visualized tools that can be enhanced the idea and development of the prototype product. The output of generating the idea has been sketch with the minimum of two design based on the content and specialty on this project. Then the process of the development from the sketch has been implemented as prototype product. For the finalized of the product has been tested on the showcase event whereby the observation data has been gathered towards the participants who visit the booth of prototype product. Thus this will enhance the iterative process for the next cycle of development of the ideation. The prototype of the product has been exhibit on August 20, 2019 together with the 'Education Carnival' which has gained more than one thousand five hundred participants.

OPTIMISATION OF THE AIRCRAFT LANDING PROBLEM ON SINGLE RUNWAY USING CONSTRAINED PARTICLE SWARM OPTIMISATION ALGORITHM

Norhidayah Mohamad, Aminurafiuddin Zulkifli, Nor Azlina Ab. Aziz, Nor Hidayati Abdul Aziz

In this work, constrained PSO (CPSO) is used for the aircraft landing problem. We present results showing that CPSO is able to minimize the penalty cost and achieve better solution than its predecessor.

AIRCRAFT LANDING PROBLEM

Aircraft landing problem or **ALP** can be defined as a process of sequencing and scheduling the arriving aircrafts. From this definition, there are two parts of ALP; **sequencing** and **scheduling**. The sequencing process is to construct an order of the arriving flights while the scheduling process is to assign a runway for each arriving aircraft.
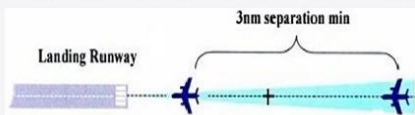

Figure 1: Example of two consecutive aircraft landing on a runway

The ALP is modelled as follow: Given that a group of P aircrafts is arriving at an airport, each aircraft i has,

E_i = the earliest landing time
L_i = the latest landing time
T_i = the target landing time
$[E_i, L_i]$ = the landing time window ($E_i < T_i < L_i$)
S_{ij} = the separation minima between aircraft i and aicraft j
g_i = the penalty cost for aicraft i lands before T_i
h_i = the penalty cost for aircraft i lands after T_i
α_i = time deviation before T_i
β_i = time deviation after T_i
$\delta_{ij} = \begin{cases} 1 \text{ if aircraft } i \text{ lands before aicraft } j \ (i, j \in P; i \neq j) \\ 0 \text{ otherwise} \end{cases}$

The objective function,

Minimise $f(x) = \sum_{i=1}^{P} g_i \alpha_i + h_i \beta_i$ $\qquad \forall i \in P$
Subject to:
$\delta_{ij} + \delta_{ji} = 1$ $\qquad \forall i, j \in P; i \neq j$
$x_j \geq x_i + S_{ij} - (L_i + S_{ij} - E_j)\delta_{ji}$ $\qquad \forall i, j \in P; i \neq j$
$x_i = T_i - \alpha_i + \beta_i$ $\qquad \forall i \in P$

PARTICLE SWARM OPTIMISATION ALGORITHM & CPSO

Particle Swarm Optimisation algorithm or **PSO** is a stochastic global optimisation method introduced by Kennedy and Eberhart which is based on simulation of social behaviour. In PSO, no evolution operators are applied to extract a new generation of agents. Instead, PSO relies on the exchange of information between agents, denoted as particles, of the population, which is called swarm. In effect, each particle adjusts its trajectory towards its own previous best position and towards the best previous position attained by any member of its neighbourhood.
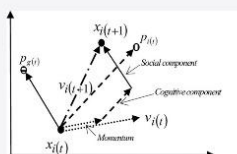
Constrained Particle Swarm Optimisation algorithm or **PSO** is a variant from the original PSO. It combines the swarm behaviour of PSO with a simple yet efficient constraint handling technique for ALP.

CONSTRAINT HANDLING TECHNIQUE

ALP is a constrained optimisation problem. In order to minimize the objective function, the constraints must be handled in such a way that agent exploration and exploitation in optimising the solution can be carried out. There are many constraint handling techniques that can solve constrained optimisation problem available in literature.
In order to find a feasible optimal solution to the ALP, the modification of the objective function is first performed, which changes the constrained problem to an unconstrained problem.

$$\min \mathcal{L}(x) = \begin{cases} \hat{h}(x) = h_{max}(x) \ if \ h(x) > 0 \\ \hat{f}(x) = \text{atan} \ f(x) - \dfrac{\pi}{2} \ , otherwise \end{cases}$$

where,

$$h_{max}(x) := \max_{h_i(x)} |h_1(x), h_2(x) \ldots h_i(x)|$$

and atan[·] denotes the inverse tangent. It is important to note that $\hat{f}(x) < 0$ for any x, and thus $\hat{f}(x) < \hat{h}(x)$ is guaranteed. Note that no extra problem-dependent parameters are required in this technique.
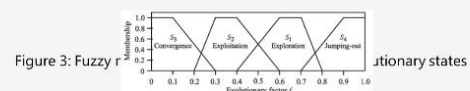
To control the PSO more objectively and optimally, the **ESE** approach is used. During a PSO process, the population distribution characteristics vary not only with the generation number but also with the evolutionary state. For example, at an early stage, the particles may be scattered in various areas, and, hence, the population distribution is dispersive. As the evolutionary process goes on, however, particles would cluster together and converge to a locally or globally optimal area. Hence, the population distribution information would be different from that in the early stage. Therefore, it is beneficial to detect the different population distribution information and use it to estimate the evolutionary state. The distribution information can be formulated by calculating the mean distance of each particle to all the other particles. In this work, ESE is systemised with a **fuzzy classification**. The ESE approach is as follows:

Step 1: At the current position, calculate the mean distance of each particle i to all the other particles. Mean distance can be measured using a Euclidian metric.

Step 2: Denote d_i of the globally best particle as d_g. Compare all d_i and determine the maximum and minimum distances d_{max} and d_{min}. Compute evolutionary factor f as defined by

$$f = \frac{d_g - d_{min}}{d_{max} - d_{min}} \in [0,1]$$

Step 3: Classify f into one of the four sets S_1, S_2, S_3 and S_4, which represents the states of exploration, exploitation, convergence and jumping out, respectively. For the final classification, either of the two most commonly used defuzzification techniques, i.e., the "singleton" or the "centroid" method may be applied.

Figure 3: Fuzzy r ... utionary states

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Sayangi Sawitku - Sri Kusumawati Binti Mohd Daud (PL)

2 SOCIAL INNOVATION

Driving Social Innovation in Education
Mini Design Thinking for SJKT Batu Arang

Abstract

Children must be taught "How to Think" and not "What to Think". What better way could this be done than using Design Thinking to inculcate thought provoking ideas in these young minds. On 4 May 2019, Prof Murali and Dr Sharmini in collaboration with Persatuan Kebajikan Sosial Selangor (PKSS) and our partner MalProc Sdn Bhd conducted a design thinking workshop Year Six children. Students were exposed to a couple of Mini Design Thinking activities as teasers, and on how they should equip themselves to be better performers in school exams and life at large.

Delivery Method

The session was conducted to equip students, predominantly UPSR candidates at SKJT Batu Arang, to think and solve problems more effectively. Design Thinking is an approach to learning that focuses on developing students' creative confidence. Hence, Design Thinking holds the key to effective learning experiences that can equip our students with the 21st century competencies.

Outcome

Students were exposed to some concepts of Design Thinking which were indeed an eye opener particularly in terms of a better structured problem solving approach. This was essential for them as UPSR exams was around the corner and they needed to be more conscious of how to solve some of the Higher Order Thinking Skills (HOTS) based questions. The headmistress, senior school staff, teachers and PIBG members applauded PKSS, MMU Business School and volunteers from MalProc Sdn Bhd for an excellent session delivered.

Project Leader:
Dr Sharmini Gopinathan

Project Member:
Prof Dr Murali Raman

Special Thanks to
❑ Persatuan Kebajikan Sosial Selangor (PKSS)
❑ MalProc Sdn Bhd
❑ Student Volunteers

21st Century Teaching

Introduction

Something had to change, as students in Malaysia have been facing challenges under the current method of teaching. It is believed that teaching methods will have to change for the newer generation who are more tech savvy, always connected and device-gadget dependent. Instead of banning phones from classrooms there is a need to allow students to embrace them as phones can be a vital link to support students' learn. This is inline with the Malaysian Education Blueprint that promotes 21st Century Learning.

Delivery Method

Teachers were gathered in a session for 2.5 hours to be exposed to this 21st Century Teaching. They were taught to use basic games to attract attention and increase student engagement and participation in class. Teachers had to prepare some games and align it with the topics to be taught in class. Some examples of games used were snakes and ladders, Kahoot quizzes, Rubik cubes and many others.

Outcome

The new age teaching strategies exposed teachers to changes they can make to their regular methods of teaching, to make boring topics and theory dominant subjects more interesting, ones to inculcate positive learning attitudes as well as to create a fun learning environment amongst the students. It also fosters self-learning ability which leads to hands-on learning, continuous participation as well focused attention. Teachers applied the ideas shared in the session in their classes. One such successful story was the Bahasa Tamil subject that never had student interest and engagement, but after the teachers introduced the games and incorporated interactive activity based teaching, students became more engaging and proceeded to develop their own forms of games. Another prominent change that brought tremendous engagement and cultivated students' interest was for Mathematics as the teacher used tablets and technology based quizzes to attract the students' attention.
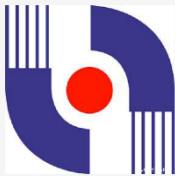
Project Team

Project Leader:
Dr Sharmini Gopinathan

Project Member:
Prof Dr Murali Raman

Special Thanks to
- ❏ SK METHODIST ACS SEREMBAN
- ❏ Student Volunteers

HEAR YE! HEAR YE!!

MMU STRIKES MOMENTOUS COLLABORATION WITH TRANSPARENCY INTERNATIONAL CAMBODIA

THE ONLY MALAYSIAN UNIVERSITY VISITED BY TI CAMBODIA

MMU achieved a historical and innovative milestone was achieved when we ventured into a new and exciting dimension of Youth and Women Leadership Programme, an initiative of Transparency International, Cambodia (TI)

MMU team, comprised of academics, officers and students had an interesting discourse with 30 member strong delegation on :
- knowledge of women and youth accountability
- transparency of governance
- democratic governance
- the importance of civic participation
- Building of capacity of women and youth
- engagment in decision making process.

It was fruitful and the TI team gained valuable input from us.

MMU

INSPIRE INQUIRE INNOVATE

………WE DID IT!!!!

RICES

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ACKNOWLEDGEMENT

RICES Committee

Units related

Collaboration & Innovation Centre (CIC)

Corporate Communications Unit (CCU)

Digital Cities Research Institute

Digital Connectivity Research Institute

Digital Education Research Institute

Digital Enterprise Research Institute

Digital Lifestyle Research Institute

Digital Security Research Institute

Digital Society Research Institute

Entrepreneur Development Centre (EDC)

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Yayasan Universiti Multimedia (YUM)