



UTM
UNIVERSITI TEKNOLOGI MALAYSIA

UTM *Prospering* **LIVES**



innovative • entrepreneurial • global

UTM PROSPERING LIVES

UTM Prospering Lives

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Foreword

UTM Prospering Lives is a publication that highlights the University-Community relationship where research projects undertaken by university researchers were conducted to impact lives of the community. This symbiotic relationship entails working together between university and community members in upgrading the quality of life in every possible aspect.

The work done by CCIN in coordinating the research projects and Office of Corporate Affairs for documenting the research for our future reference contributes to a meaningful university for society relationship.

Please feel free to contact us if you would like to collaborate with UTM in projects that will benefit the community and the society. Happy reading!

Assoc. Prof. Dr. Zaleha Abdullah
Director
Office of Corporate Affairs
Universiti Teknologi Malaysia



Introduction



Prospering Lives with Translational Research

UTM is committed to the best at what we do and by bringing out the best of our people. We work together to achieve our common goals, to not only excel in academics but also expand our research and innovation beyond the campus.

UTM subscribes to the idea of Translational Research using our core strengths : Science, Technology and Engineering, applying the concept of applied knowledge to address industrial and societal issues. Apart from creating new knowledge and generating new insights, we work together with our partners to transform our academics to become entrepreneurs with impactful products to benefit the communities for years to come.

This magazine intends to highlight exemplary activities that have impacted communities through Technology and Knowledge Transfer Programmes, University Social Responsibility Programmes and Service Learning Programmes conducted by UTM staff and students which have all been designed to be in line with the Sustainable Development Goals (SDG) agenda.

Number of High Impact Projects April-Jun 2020 (New Project) Knowledge Transfer Program (KTP)

7 New Projects

(RM149,096.00)



**FOCUS
AREAS**



1 project :
Environmental
Sustainability



1 project :
Capacity Building



5 projects :
Education
Enhancement

Empowering IR 4.0 In STEM



At UTM, our Knowledge Transfer Programmes (KTP) are designed and implemented to ensure that its targeted community is positively impacted and empowered. Our programmes are centred on 5 focus areas consisting of Education Enhancement, Social Entrepreneurship, Improving Livelihood, Environmental Sustainability and Capacity Building to address the national socio economic agenda and Sustainable Development Goals (SDG)

Additionally, it is vital that our programmes are assessed by the Community Engagement Impact Star Rating Assessment. Although 2020 has been an unprecedented year for all, the first quarter of 2020 had recorded a total number of 7 KTPs conducted for the community. Due to the rising number of awareness for 4th IR skill sets, 5 projects under the category of “Education Enhancement” in support of SDG 4: Quality Education have been actively conducted by UTM particularly in relation to STEM (Science, Technology, Engineering, Mathematics). With the world changing at a faster rate and the increasing use of technology in our daily lives, the need for various community sectors (preschoolers, secondary schoolers, adults and elderly) to be educated on STEM is important for them to not get left behind.

To actively engage and increase their interest in STEM, the 5 projects have embedded elements of IoT (Internet of Things) and AI (Artificial Intelligence) to create fun learning methods. It is hoped that the programmes will equip our community with higher education prospects in STEM and employment opportunities in the same sector.

5 Community Engagement Focus Areas

Our Community Engagement Focus Areas are derived through various engagements with stakeholders to ensure that targeted communities are positively impacted by our programs.

Our collaboration with external partners are not limited to these 5 Focus Areas but also supporting SDGs.

Social Entrepreneurship

To build a strong collaboration between university & community's economic growth and innovation capability & to foster entrepreneurship.

Education Enhancement

To develop holistic students with a high interest in science and technology & at the same time engaging the community in promoting STEM and English proficiency.

Environmental Sustainability

To promote and engage communities in activities that will enhance and sustain the environment through such events, as it is that positive change will contribute to sustainable livelihoods at the community level.

Improving Livelihood

To pilot an experiential learning model to strengthen quality of life & better graduate training and engagement of the university and its immediate community and to mentor champions.

Capacity Building

To engage, train and strengthen the skills and & abilities of staff, students and stakeholders to take effective action and leading roles in the development of their respective communities.

18

Impactful Projects

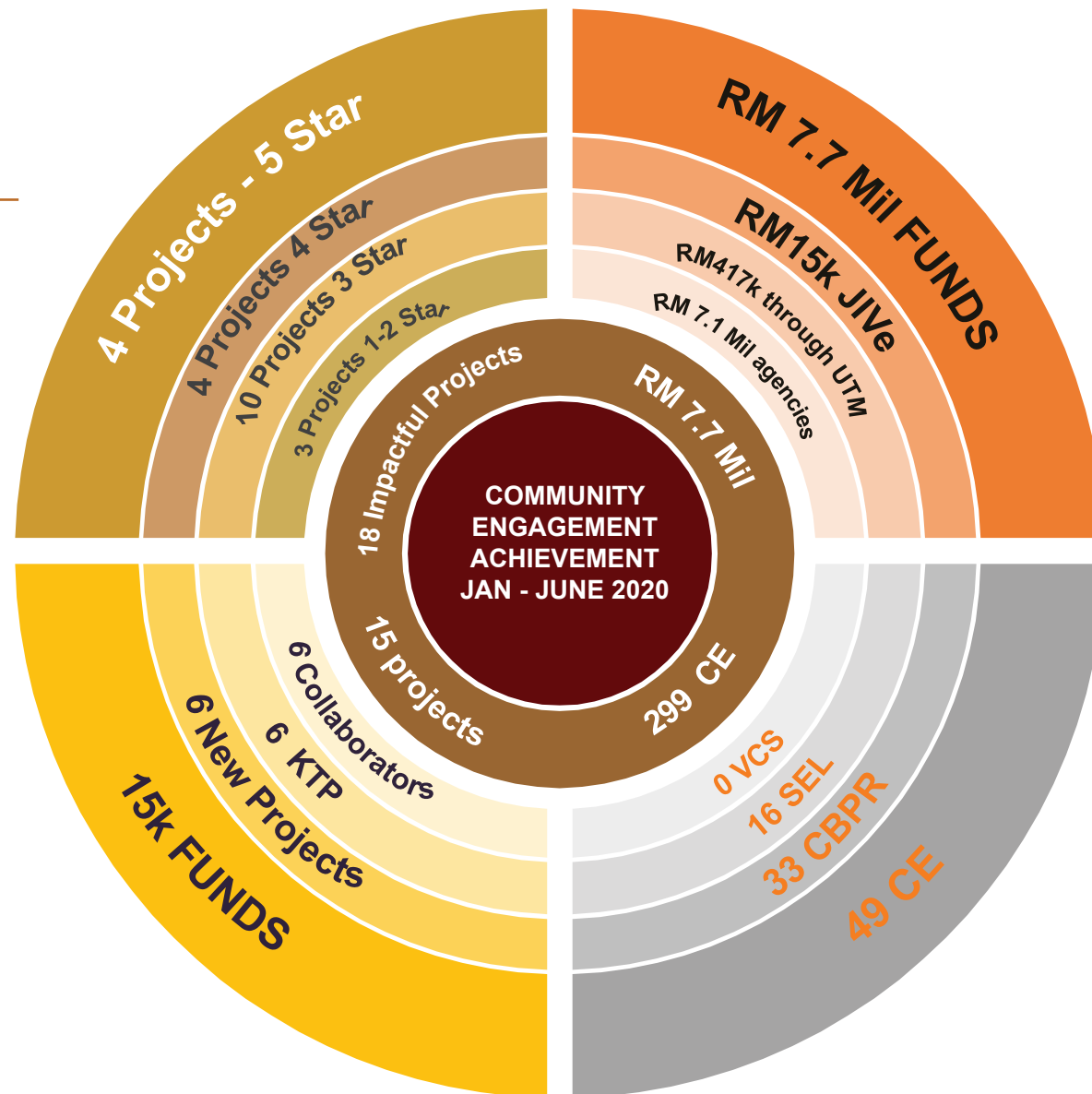
11 rolling
7 new

Energizing CE Star Ratings
across PTJs
through reward and
recognition for
UTM Academics

6

Johor Innovation
Valley (JIVe)

Collaborative Innovation with
Johor State
Government



RM7.7 Mil

Community
Engagement Funds

Utilization of funds for
CE (cumulative)

49

Community Engagement

CBPR - Community Based
Participatory Research

SEL - Service / Embedded
Learning

VCS - Volunteerism &
Community Services



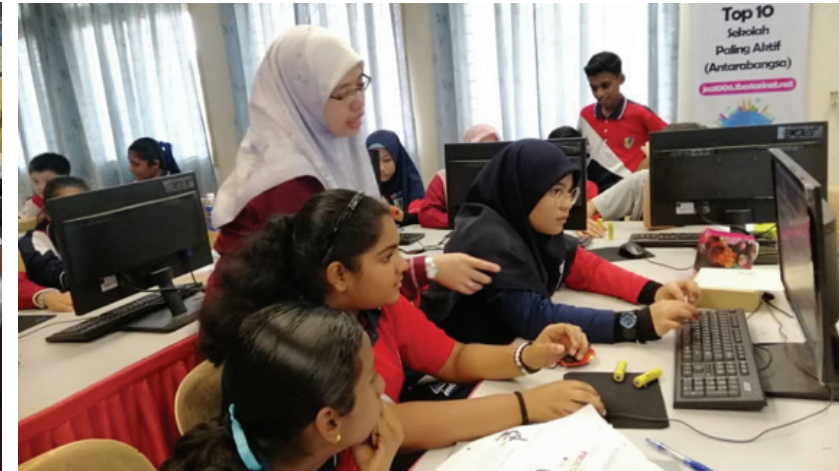
DESIGN ENGINEERING TECHNOLOGY THROUGH IoT FUN AND LEARNING CONCEPT

Executive Summary

Education by IoT and Robotics-based learning kits exposed the students to engineering technology design techniques in consolidating their knowledge in robotic. Train the Trainer Program is expected to successfully transfer the knowledge to the teachers through teaching and learning basics of programming concept. It was implemented for form 1 students who attended robotic classes, on every Thursday for 2 hours. The students would be using Tinkercod for robot called Tuah. It included mini competition and pop quiz module in every session of exercise with 8 Missions involved such as Speedy Gonzales, Follow the Wall, Autonomous Car, Find the Clue etc. Learning outcomes are expected to open their minds to jointly participate in robotics competitions at the national level by proving their ability globally and innovatively to compete together with other participants at the end of the year.



Students trying out Scratch during the briefing at PRZS, UTM



Students focusing on assigned Scratch task

Beneficiary



34 students in Sek. Men. Keb. Skudai, Johor

Achievement



LOI with SMK Skudai Johor



Impact



Assist teachers and students in learning Programming techniques for robots.

The students showed high interest in STEM and started to adopt the innovation.

Empowering robotic clubs in SMK. Skudai

Head of Project
Dr. Zaharah binti Johari
Engineering Faculty



GRADUATE SUCCESS ATTRIBUTES PROGRAM : A STEM OUTREACH PROGRAMS FOR EDUCATION ENHANCEMENT IN SK TAMAN DAYA JOHOR BAHRU



Executive Summary

Graduate Success Attributes Program targets to encourage the involvement of students in school co-curricular activities through the IR 4.0 elements of AI and IoT. The activities involve such as hands-on activities, boot-camps, tours, demonstrations, games, as well as experience sharing sessions by experts and influencer to enhance their interest in STEM.

This one day program provided variety of exciting STEM activities which included Straw Circle Paper Plane, Balloon Power Car, Paper Helicopter, Pyramid, Cup Cup Flyer, Popsicle Stick Catapult, and Paper Parachute . It educated students to be more competitive, innovative and provided a different dimension of learning concept other than in the classroom.

Thus, fun learning and voluntary is the best element that proves it can increase students' level of creativity and team work without feeling lethargic or bored. They enjoyed and were having fun with their friends and facilitator beyond the pressures and limitations of adulthood.

Beneficiary



28 students of SK Taman Daya,
Johor Bahru

Impact



Increase leadership, teamwork ,
communication and thinking skills
through fun learning approach of
STEM education



Achievement

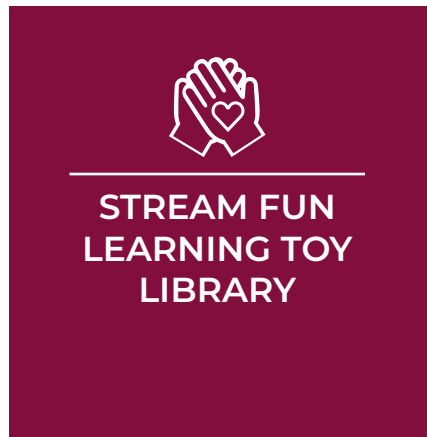
NALI Exhibition and
Competition Award



Head of Project

Puan Marlina Binti Ali

Faculty of Social Sciences and Humanities



Executive Summary

Fun Learning Toy Library is a conducive approach to develop the interest among pre-school students in rural areas in the field of Science (S), Technology (T), Engineering (E), and Mathematics (M), and to develop a holistic future generation, this project integrates the religious and moral values (R) as well as arts and creativity (A) (STREAM). A feasibility study on learning activities of the public pre-school, space and availability of facilities was undertaken through observations, interviews and curriculum review. Official document review of the Ministry of Education (MOE) Malaysia pre-school curriculum shows six (6) thrusts to fulfil. Therefore, this project proposed five (5) themes of STEM education that map to the 6 thrusts of MOE: Science, Engineering and Technology; Mathematics; Arts, Language and Creativity; Physical, Spiritual and Wellbeing; and Multimedia. Modules were developed, toy sets purchased and arranged in the classrooms according to the themes. Play-based learning is the learning concept used in this STREAM Fun Learning Toy Library project. It creates fun learning environment and monitors achievement of the learning outcomes. The pre-school students gained knowledge and skills through their involvement in role-play activities and experiment (learning by doing) that helped stimulate their interest in STEM and motivation to learn through self-learning ability (self-regulated learning). Besides, the intangible benefits of this project are the networking and bonding that was developed among the volunteers, partners and the local community, particularly the school teachers and students alike. The teachers' participation in the implementation of STREAM activities was dynamic and promising.



Beneficiary

25 pre school pupils
Students of Sek. Keb. LKTP
Ayer Hitam



Impact

-STREAM learning in a fun way
through game approach
- Increase the students' attendance



Output

16 iCARE My Community (iMC)
ambassadors (active status)



Achievement

9 Modules of Early child speech
@ language education



Head of Project
Assoc. Prof. Ir. Dr. Shamsul Bin Sarip
Razak Faculty of Technology and Informatics



SpeEd Robotics 2020 : SPECIAL STEM EDUCATION THROUGH IOT & ROBOTIC FOR OKU STUDENTS



Executive Summary

This program is aimed at OKU students, whom are slow learners and requiring special education approach. It is a special knowledge transfer from University to their teachers to cultivate interest and attract their students' attention to do scientific activities being exposed to robotic technology, drones and internet-related, or better known as IoT (Internet of Things).

A day workshop has been held to conserve four conducive modules: Night Light Module, Autonomous Car Module, Light Tracer Module and Follow the Junction Module in special collaboration with the Scouts Association of Malaysia in Johor. This module was chosen on the assumption that these students are interested in things that move and can perform appropriate instructions that are remotely controlled by smartphone.

This effort is being worked on by the school. It is to nurture and guide these students so as not to be left behind with the growing technology and gaining public attention for their future.



Beneficiary

- 23 primary schools in Skudai Area
- 70 pupils
- 26 teachers



Impact

- The students had successfully developed a Repair Robot Kit which included programming, motor functions, efficiency robot's holder and match tracker in handling drone.



Achievement

LOI with The Scouts Association of Malaysia in Johor

Head of Project
Dr Nurul Ashikin Binti Abdul Kadir

Faculty of Engineering



PROJECT CREATED : STRENGTHENING STUDENTS' STEM KNOWLEDGE

Executive Summary

This project was implemented with the aim of providing STEM skills to the students involved to be used in the future, especially in the world of their work later. These skills include using science, technology, engineering and mathematics; the ability to apply systematic and critical assessment of complex problems with an emphasis on solving them and applying theoretical knowledge of problems and problem solving; the ability to impart knowledge to others; intelligence, logical reasoning and practical intelligence. Furthermore, many positive impacts were



Beneficiary



40 Form 5 chemistry students
and 3 teachers in SMK Simpang
Renggam



Impact

Good material for educational robotics that
has created tech-savvy, innovative and soft
skills of the students



Achievement

- Secured PRGS grant by MOHE RM82,680.00
- Secured PRGS Covid Grant by ICC UTM
- Gold Medal in the Congress and T&L Innovation Competition (Kinovasi 2020) organised by UKM

4 QUALITY
EDUCATION



Head of Project

Dr Corrienna Binti Abdul Talib

Faculty of Social Sciences and Humanities

MEDIA

Facebook link: <https://bit.ly/2ONowBa>



Yesterday, February 11, 2020:Lawatan & Aktiviti STEM

Grid View

Feed View

Program Lawatan & Aktiviti STEM SMKSR di Sekolah Pendidikan,FSSH,UTM Photo by: Mohd.Pu`aat Ahmad School of Education,FSSH, Universiti Teknologi Malaysia

1 post · 35 items · 1 contributor ·

14

2 shares

Like

Comment

Share



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Thank You

The divine law of Allah is the foundation of knowledge. In line with His Will, UTM strives with total commitment to attain excellence in science, technology and engineering for the well-being and prosperity of mankind

- UTM Philosophy



The background is a dark red color with abstract geometric patterns. On the left and right sides, there are diagonal bands of lighter red and pink, each filled with a pattern of small dots. These bands are separated by solid-colored diagonal stripes. In the center, there is a large, irregular shape composed of many small dots, creating a textured effect.

<https://corporateaffairs.utm.my/corporatepublication/corporate-ebook/utm-prospering-lives/>