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### **Foreword**

Dear readers,

Welcome to the 1<sup>st</sup> Issue of 2022 UTM Prospering Lives. This magazine features university-community collaboration outstanding projects undertaken by university researchers that have impacted the lives of the community in various aspects.

This collaboration brings new perspective on research, drive innovation and enrich education while serving the community. This issue highlights projects related to Solar PV Technology, Special Needs Support, Business Ethics, Bee Modular Technology, Aquaponics and 3D Prosthetic Hands.

The compilation of these projects was done by Centre for Community and Industry Network (CCIN) while the Office of Strategy and Corporate Affairs takes the responsibility of sharing new ideas and fresh insights into community engagement focus areas as well as meaningful contributions for social relationship.

Enjoy the stories shared in this issue of UTM Prospering Lives, and we hope this will encourage everyone to collaborate with us in support of empowering the community.

Finally, I would like to thank the editors, writers and UTM Prospering Lives Team!

Assoc. Prof. Ts. Dr. Dayana Farzeeha binti Ali Director of Corporate Affairs Office of Strategy and Corporate Affairs Universiti Teknologi Malaysia





## Introduction

### UTM Prospering Lives

UTM is committed at what we do 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 publication 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.

## Perlis Kedah Kelantan Kota Bahru Kuala Terengganu George Town **Pulau Pinang** Perak Pahang Selangor **Kuala Lumpur** Putrajaya Negeri Sembilan **Johor** Bandar Mel Melaka Johor Bahru

### UTM Prospering Lives











# **Executive Summary**

Most fishermen use diesel generators to have electricity on boats when carrying out activities such as capturing marine life. However, the generators produce a rather noisy sound with unpleasant odour and require a high cost to own and pricey diesel fuels.

In order to help reduce the cost required and ensure a sustainable environment, an adaptation of solar PV technology on fishermen's boats in Mersing, Johor project was proposed to be implemented. The PV solar system that will be installed is designed to store electricity during the day and be used at night by the fishermen.

UTM also developed a simple guideline or module for fishermen to understand how this solar PV alignment works. Through this adaptation of solar PV technology, the fishermen's quality of life can be improved.

### **Beneficiary**

Boat owners among B40 families Head of Project
Ir. Ts. Dr. Syed Norazizul Syed Nasir
Faculty of Engineering
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### **Impact**

Provide practical exposure and guideline to boat owners on the operation and usage of solar PV systems.





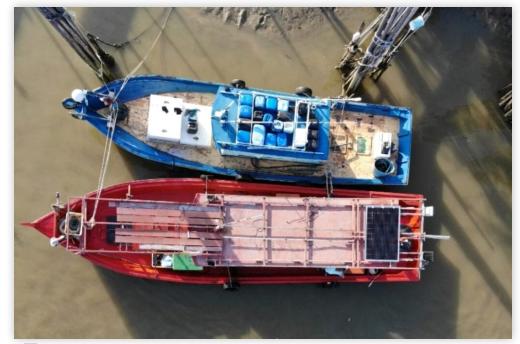




Installation of Solar PV System (in-progress)



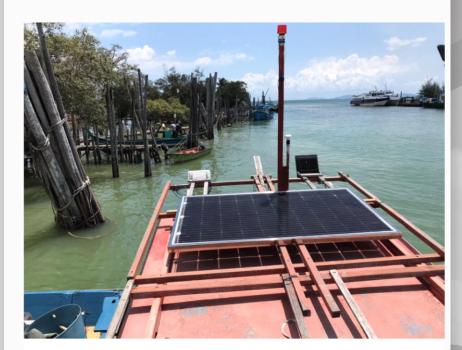
Interview session with one of the boat owners



PV solar system on a boat



### **NEWSHUB**



### UTM Adaptasi Tenaga Solar Kepada Bot Komuniti Nelayan Untuk Kelestarian Alam

Fakulti & Sekolah, Fakulti Kejuruteraan, Libatsama Komuniti, Sekolah Kejuruteraan Elektrik, Tanggungjawab Sosial / By Nor Hidayati Mokhtar / Disember 26, 2021 / 2 minutes of reading

MERSING, 28 Nov. – Universiti Teknologi Malaysia (UTM) melalui penyelidik dari SekolahKejuruteraan Elektrik (SKE) telah mengadaptasikan teknologi solar bagi menggantikan penggunaan diesel kepada bot nelayan bagi tujuan kelestarian alam.

Projek yang dipanggil UTM Smart Eco-Photovoltaic Boat tersebut merupakan projek pembangunan sistem solar Photovoltaic (PV) pada bot nelayan dan telah dijalankan di Kampung Mersing Kanan, Mersing, Johor.







# **Executive Summary**

Limited awareness programs on special needs and rehabilitation procedures for lower-income (B40) parents will lead to ignorance of their children's problems. Therefore, a Multi-Sensory SMART Room innovation commenced in 2019 aimed to provide therapy facilities and a support program for lowerincome (B40) families.

The innovation and structured support program fosters the awareness among parents, teachers and caregivers in handling special needs children. The program includes free sessions for screening, training series, and group therapy. There is also sponsorship for therapy sessions and tools.

This program, in collaboration with Malaysian Technology Development Corporation (MTDC), Skudai Assemblyman, DF & K Group Sdn. Bhd. and Pusat Pemulihan Dalam Komuniti (PDK) received nearly RM 50,000.00 sponsorship to ensure the target group received the benefits and showed positive impacts.

### Beneficiary

· 88 special needs children from 80 lower income group (B40) families

### **Impact**

- · Improve the knowledge and skills development of the special needs children to an optimal level
- Foster parents, teachers, and caregivers' awareness, knowledge, and management skills in handling special needs children.

### **Achievement**

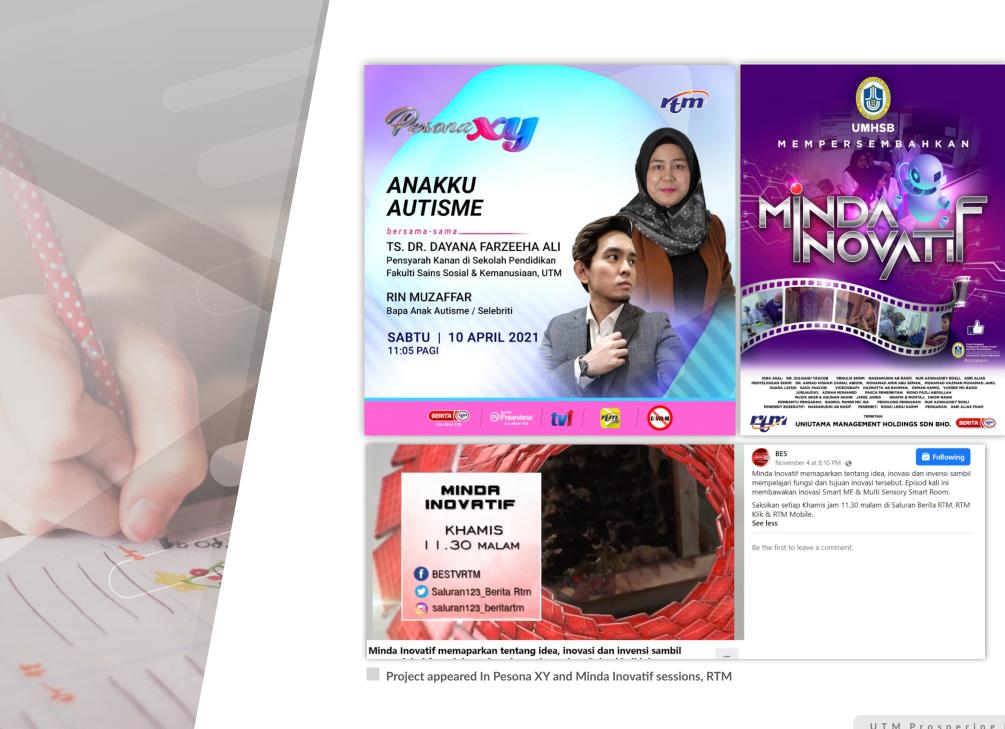
- Won Gold for IUCEL 2021 Award
- · Won Silver for INACIX 2021 Award
- · Received funds worth RM50,000 from agencies and partners

Head of Project Assoc. Prof. Ts. Dr. Dayana Farzeeha Ali Faculty of Social Sciences and Humanities dayanafarzeeha@utm.my









UTM Prospering Lives 14



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### Anakku Autisme: Sesi Bual Bicara Ts. Dr. Dayana Farzeeha Ali Bersama Pesona Xy RTM Sempena Bulan Austime Sedunia

Community Engagement, Faculty of Social Sciences and Humanities, Research/Experts Highlights, RTM, School of Education, Social Responsibility, Spin-off Company, TV Coverage / By dayana farzeeha ali / April 28, 2021 / 3 minutes of reading

Sempena bulan Autisme sedunia baru-baru ini, Ts. Dr. Dayana Farzeeha Ali, pensyarah kanan di Sekolah Pendidikan, Fakulti Sains Sosial dan Kemanusiaan yang juga merupakan Timbalan Pengarah (Pembangunan) di Unit UTMAlumni, telah menjadi tetamu jemputan dalam rancangan Pesona XY di Radio Televisyen Malaysia pada 10 April 2021 bagi membincangkan mengenai isu yang bertajuk "Anakku Autisme".

Beliau yang juga merupakan Ketua Pegawai Eksekutif DF & K Group Sdn Bhd, syarikat hiliran UTM yang mempunyai satu pusat terapi untuk kanak-kanak berkeperluan khas, bersama-sama seorang bapa kepada anak Autisme telah dijemput pada rancangan berkenaan untuk mengupas mengenai topik Autisme yang kian mendapat perhatian masyarakat zaman sekarang disebabkan oleh peningkatan jumlah kanak-kanak yang menghidap Autisme di Malaysia setiap tahun.

Ts. Dr. Dayana Farzeeha Ali pada awal rancangan berkata, "Autisme adalah satu gangguan perkembangan neuro di mana ianya akan memberi kesan kepada tingkahlaku, sosial dan komunikasi anak-anak.



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#### CELEBRATING THE WORLD AUTISM MONTH: UNITING FOR BLUE EVENT

Community Engagement, Faculty of Social Sciences and Humanities, School of Education, Social Responsibility, Spin-off Company / By dayana farzeeha ali / April 27, 2021 / 2 minutes of reading

Ts. Dr. Dayana Farzeeha Ali

A Universiti Teknologi Malaysia's spin-off company, DF & K Group Sdn Bhd, which is a company that focuses on the therapy services and therapy equipment for the special needs community, organized a Uniting for Blue Event in collaboration with Mydin Mutiara Rini on 10th April 2021 at Mydin Mutiara Rini. This event was held in conjunction with World Autism Month, especially to celebrate and raise awareness of Autism Spectrum Disorder while increasing people's understanding and acceptance towards people with Autism. The program received a very good response with the participation of about 200 families.



## PENGENALAN KEPADA SOLAR PV & SMART ECO-PV BOAT















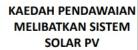


8 APRIL 2021 2:30 PM - 4:00 PM

**DAFTAR DI SINI** https://forms.gle/y1pVxNthAC1Zz9Sp6

KESELAMATAN PENGGUNAAN ELEKTRIK











Dr. Madihah binti Md Rasid Pensyarah Kanan UTM

Salrizal bin Abd Aziz Pensyarah Jabatan Elektrik

# Lnowledge Sharing on Solar PV

# System to School **Students**

## **Executive Summary**

Under community grant awarded by UTM Centre of Community and Industry Network (CCIN), UTM Smart Eco-Photovoltaic Boat prototype was built to be used by Mersing fishermen. Later, in collaboration with the Ministry of Education Malaysia (MOE), Industrial Training Institute (ILP), and EEE Power and Energy Society Malaysia Chapter, UTM conducted an online webinar on solar PV system as a knowledge transfer program.

The target participants were the teachers and students of electrical course. The webinar aimed to give a practical and theoretical understanding of solar PV, wiring methods, and electricity safety usage. The MOE even used the content of this webinar's to assist the new electrical education syllabus in adopting solar PV systems. The participants were also encouraged to educate the community on the use of solar PV.

### **Beneficiary**

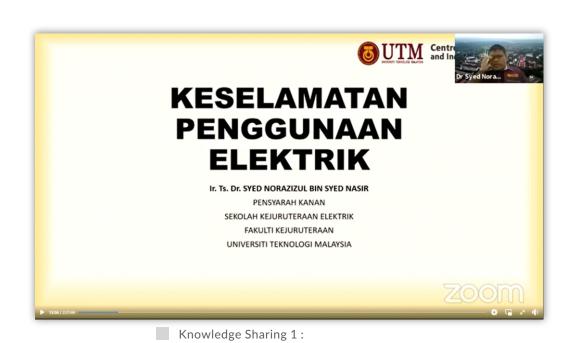
- · Involve 421 participants among teachers dan students from technical and vocational schools under MOE
- · Syllabus designer from MOEs

### **Impact**

- · Improve the understanding of school community about solar PV system
- · Encourage MOE to produce up-to-date electricity-related education syllabus in the future

Head of Project
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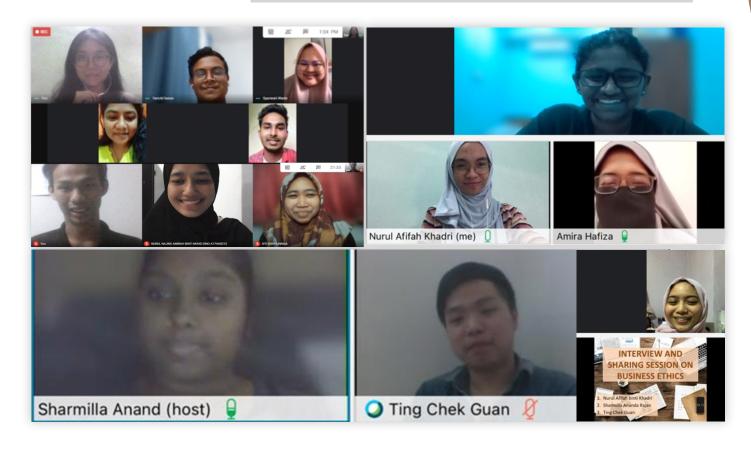






Knowledge Sharing 3 : Wiring Method related to solar system

# Transging and Enlightening Business Owners with Business Ethics







## **Executive Summary**

Azman Hashim International Business School (AHIBS) had organized an online engagement program for its Accounting students involving micro to small business owners from various sectors throughout Malaysia.

The program aimed to provide awareness and guidelines on how business owners could sustain their business and yet stay ethical in enduring business challenges. The program also provided an opportunity for students to approach business owners and enlighten their knowledge of business ethics, sustainability guidelines, and principles.

The business owners shared their business ethics knowledge and experiences, especially their challenges during the COVID-19 pandemic. The students also reflected on the input from business owners with their knowledge of ethics and sustainability principles.

### Beneficiary

- 25 business owners
- · 85 AHIBS Accounting students

### **Impact**

- · Enhance the community technology skills and values
- · Give awareness on business ethics
- · Develop civic responsibility
- · Build community-university partnership.

### **Achievement**

Received Silver Award for SULAM 2021

Head of Project Assoc. Prof. Dr. Maisarah Mohamed Saat Azman Hashim International Business School maisarahsaat@utm.my



Award Received During 1st National Conference on Sulam 2021





Prospering Lives with Translational Research and Innovation

# 5 See Modular Technology for Kelulut Beekeeping Entrepreneurs

A total of 100 B40 families in the Simpang Renggam district, Johor have the opportunity to improve their living standards through UTM Innovation Livestock Breeding Project led by Azman Hashim International Business School (AHIBS) senior lecturer, Dr. Mohd Khairuddin Ramliy. The UTM project, in collaboration with Simpang Renggam District Council and Usahawan Johor Berhad, is made possible by the Malaysia Social Innovation (MySI) grant awarded by Ministry of Science Technology and Innovation (MOSTI).

The uniqueness of the project is the introduction of a Bee Modular Technology used in the design of nest boxes and artificial materials that are more durable, weatherproof and easy to operate. This project is based on the principle of social responsibility, emphasising Science, Technology, Innovation and Economy (STIE) that can benefit the B40 group with more sustainable, innovative and effective kelulut breeding to generate income.

Head of Project

Dr. Mohd Khairuddin Ramliy

Azman Hashim International Business School

mohdkhairuddin@utm.my

# Utusan Malaysia UTM bantu 100 keluarga B40 jana pendapatan **(1) (2) (3) (2)** JOHOR BAHRU: Universiti Teknologi Malaysia (UTM) melancarkan program Ternakan Kelulut Modular Inovasi untuk membantu 100 keluarga berpendapatan rendah (B40) sekitar daerah Simpang Renggam, dekat

Pensyarah Kanan Sekolah Perniagaan Antarabangsa Azman Hashim UTM,

Dr. Mohd. Khairuddin Ramliy berkata, program yang bermula 1 November

ini secara tidak langsung dapat meningkatkan pendapatan mereka.

Beliau berkata, sebuah ladang diwujudkan dengan kerjasama Majlis Daerah Simpang Renggam (MDSR) akan menempatkan 100 tempat

"Sebanyak 100 keluarga B40 terpilih dibimbing dengan kaedah penternakan lebah kelulut secara inovatif melalui teknologi 'Bee Modular' yang dibangunkan penyelidik UTM dengan fokus mendapatkan madu

pembiakan lebah kelulut kepada peserta.

kelulut untuk dikomersilkan.



**OUTM** NEWSHUB

#### AHIBS UTM Jayakan Projek Ternakan Kelulut Modular Inovasi Bantu B40

Ahli Akademik/Penyelidik Terkenal, Fakulti & Sekolah, Hebahan, Kejayaan UTM, Kolaborasi dan Jaringan Industri/Institusi, Libatsama Komuniti, Penyelidikan & Pembangunan/Projek/Pengkomersilan Berimpak, Sekolah Perniagaan Antarabangsa Azman Hashim, Tanggungjawab Sosial, Umum / By Hafizan Hamzah / Oktober 18, 2020 / 3 minutes of reading

Sebanyak 100 keluarga B40 di daerah Simpang Renggam berpeluang meningkatkan taraf hidup melalui projek komuniti Universiti Teknologi Malaysia (UTM) yang terbaharu iaitu Peningkatan Ekonomi B40 melalui Ternakan Kelulut Modular Inovasi UTM.

Pensyarah kanan Sekolah Perniagaan Antarabangsa Azman Hashim (AHIBS) UTM, Dr Mohd Khairuddin







MOSTI site visit to UTM Innovation Livestock Breeding Project at Simpang Renggam





# The Empowerment of B40 Group through Smart Partnership in Aquaponics Freshwater Lobster Farming

A smart partnership in aquaponics freshwater lobster (Cherax quadricarinatus) farming is aimed to empower 42 participants from B40 group income earners in Johor and Perak. Aquaponics is the cultivation of fish and plants together in a constructed recirculating ecosystem utilising natural bacterial cycles to convert fish waste to plant nutrition. This five-year project is led by Assoc. Prof. Dr. Anwar Johari and sponsored by the TERAJU under Dana Pembangunan Usahawan Bumiputera (DPUB) with a total amount of RM2.2Mil.

The participants will be supplied with a complete aquaponics system and practical training. Under the buyback program, mature lobsters will be sold back to the University via spin-off company for marketing and selling purposes. The project is expected to help each participant generate an income of RM1500 per month after a 2-year implementation.



Aquaponics system supplied for participants

Head of Project

Assoc. Prof. Dr. Anwar Johari

Faculty of Engineering

anwar@utm my





# 3D Prosthetic Hands

# for Disabled hen in l

UTM has donated 30 sets of 3D prosthetic hands for disabled children aged six to 10 years old in Yemen. The contribution is an outcome of research, innovation and synergy between biomedical engineering expertise by UTM researchers and Yemen students led by Ts. Dr. Mohd Najeb Jamaludin with local robotic hand designer, Sujana Mohd Rejab.

The 3D hand innovation involves a combination of 3D printing technology, Open Source 3D drawing software. electronic control features for prosthetic hand movements, and sensory features to 3D printed prosthetic hand movements. The 3D-printed prosthetic hand allows fingers to move manually and produce varied hand gestures, including holding a pen and a water bottle. The type and specifications of the forged hand are according to the recipient's suitability.

Head of Project Ts. Dr. Mohd Najeb Jamaludin Faculty of Engineering najeb@utm.my





UTM 3D Prosthetic Hands Handover ceremony with Yemen



#### UTM hasilkan tangan palsu 3D untuk kanak-kanak OKU Yaman

membantu meningkatkan semula keyakinan," katanya ketika usia. - Bernama ditemui di universiti itu.

Beliau berkata, 30 unit tangan palsu itu akan dihantar kepada Institut Penjagaan dan Rehabilitasi Orang Kurang Upaya Tahadi (TCRD) iaitu sebuah badan bukan kerajaan di Yaman, bulan depan.Menurut Mohd Najeb, kanak-kanak terbabit akan diberi manual latihan penggunaan tangan palsu itu dalam Bahasa Arab dan menjalani penilaian yang dipantau TCRD.

https://www.sinarharian.com.my/article/169205/EDISI/UTM-hasilkan-tangan-palsu-3D-untuk-kanak-kanak-OKU-Yaman

JOHOR BAHRU - Universiti Teknologi Malaysia (UTM) telah "Istimewanya projek ini turut memberi sentuhan kemanusiaan dengan menghasilkan tangan palsu cetakan 3D manual bagi membantu memperkenalkan proses rehabilitasi dan latihan secara berperingkat dan kanak-kanak orang kurang upaya (OKU) di Yaman.Tangan palsu itu berkala. "Sekiranya lulus latihan, TCRD akan bantu buat penilaian dan selepas itu dihasilkan menerusi inovasi sekumpulan penyelidik daripada baru kita akan menghantar tangan palsu daripada versi-versi lebih maju seperti Sekolah Kejuruteraan Bioperubatan dan Sains Kesihatan, Fakulti yang menggunakan motor, bateri dan sebagainya," katanya.Selain itu, beliau Kejuruteraan universiti itu, dengan kerjasama sebuah syarikat berkata, penghasilan tangan palsu itu dilihat bertepatan memandangkan pencetakan 3D, MyVista. Ketua Projek dan Pensyarah Kanan UTM, sebahagian besar pelajar Yaman di UTM mengambil pengajian dalam bidang Ts Dr Mohd Najeb Jamaludin berkata, tangan palsu itu akan Kejuruteraan Bioperubatan."Apa yang kita harapkan, apabila mereka habis memberi manfaat kepada kanak-kanak OKU berusia enam hingga melanjutkan pelajaran di sini dan telah menimba ilmu, kepakaran teknologi ini 10 tahun dan reka bentuk yang dihasilkan adalah khusus untuk boleh dibawa pulang untuk mereka membantu masyarakat di sana yang kini individu yang masih mempunyai pergelangan tangan. "Tangan palsu dilanda krisis peperangan," katanya. Mohd Najeb menambah, UTM telah manual ini berfungsi sebagai terapi untuk melatih pemakainya bekerjasama dengan syarikat MyVista semenjak 2015 dalam usaha menambah menggunakan alat bantuan tangan pada peringkat permulaan, baik pelbagai reka bentuk tangan palsu 3D dan elektronik, yang disumbangkan terutama yang baru sahaja terlibat dalam kemalangan, sekali gus syarikat berkenaan kepada golongan OKU di negara ini dari pelbagai peringkat



Pelajar Sarjana Bioperubatan dan Sains Kesihatan Universiti Teknologi Malaysia (UTM), Nur Amalina Ras menunjukkan replika tangan robotik yang sudah siap 100 peratus ketika Majlis Serahan Tangan 3D ke Yaman 2021 pada Rabu. - Foto Bernama

He added that children involved in







12TH SARAV



UTM Project Head and Senior Lecturer, Dr Mohd Najeb Jamaludin (left) said the contribution is an outcome of research, innovation and synergy between UTM's biomedical engineering expertise with local robotic hand designer, Sujana Mohd Rejab. - NSTP/MARY VICTORIA DASS.

JOHOR BARU: To restore confidence among disabled children who are also victims of war, Universiti Teknologi Malaysia (UTM) has donated 30 sets of 3D prosthetic hands for the use of children aged six to 10 years old in Yemen.

UTM Project Head and Senior Lecturer, Dr Mohd Najeb Jamaludin said the contribution is an outcome of research, innovation and synergy between UTM's biomedical engineering expertise with local robotic hand designer, Sujana Mohd

He said the 3D hand innovation involved a combination of 3D printing technology, Open Source 3D drawing software and the addition of electronic control features for prosthetic hand movements as well as the addition of sensory features to 3D printed prosthetic hand movements.

Najeb said the 3D-printed prosthetic hand can move fingers manually, producing varied hand gestures such as being able to hold a pen and a water bottle.



# Acknowledgement

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And all those who have contributed directly or indirectly in this publication.

### Thank You

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