

Kitar Semula Plastik

Fikir Dahulu Sebelum Buang...

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سُورَةُ الْفَاتِحَةِ

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ ①
الْحَمْدُ لِلَّهِ رَبِّ ②
الرَّحْمَنِ الرَّحِيمِ ③
إِلَهِكَ فَعْبُدْهُ وَارْتَبِعْ صِرَاطَ الَّذِينَ أَنْعَمْتَ ④
عَلَيْهِمْ غَيْرِ الْمَغْضُوبِ عَلَيْهِمْ ⑤
وَلَا الضَّالِّينَ ⑥
وَالضَّالِّينَ ⑦

وَالضَّالِّينَ ⑦

Perkongsian Hari Ini

- Muqaddimah
- Projek-projek MHI
- Pengenalan Kepada Sains Bahan
- Bahan Plastik
- 3R
- Inovasi Kitar Semula Plastik
- Projek Face Shield FKM

Apa Juadah Berbuka semalan?



Bagaimana anda
buang sisa makanan?



**Adakah anda
asingkan sampah?**

Sisa makanan

Bekas makanan plastik

Raya ...Tak lama lagi



Jom tengok



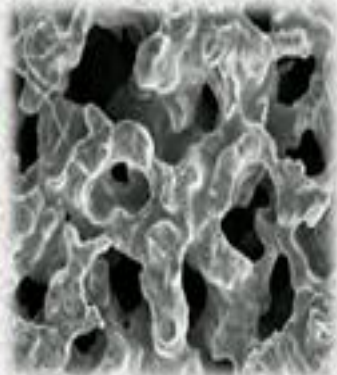
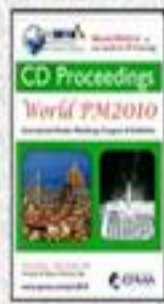


Projek² Kitar Semula Bahan MHI

- Plastic and waste bottles/plastics – **plastic products**
- Aluminium can – **souvenirs**
- Incinerator bottom ash – **artificial aggregate**
- Sludge paper ash – **brick and artificial aggregate**
- Clamshells – **bone substitution**
- Eggshells – **bone substitution**
- Empty fruit bunch ash – **brick**
- Saw dust – **polymer composite**

The Journey of Porous NiTi alloy

Achievement



2012

- PhD

2015

- FRGS (RM194k)
- RACE (RM50k)

2014

- MTDC MySymbiosis 2014

2015

- Prototype Development

2017

- FRGS (RM112k)
- CRADLE (RM150k)

2017

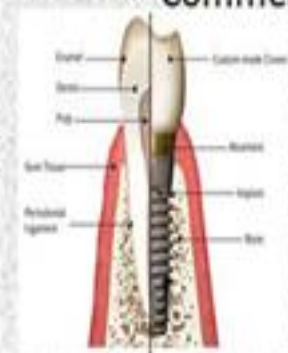
- REI (RM32k)
- GIP (RM20k)
- INNO FUND (RM370k)
- PRGS (RM198k)

2020

- Commercialization



The first prototype porous NiTi dental implant

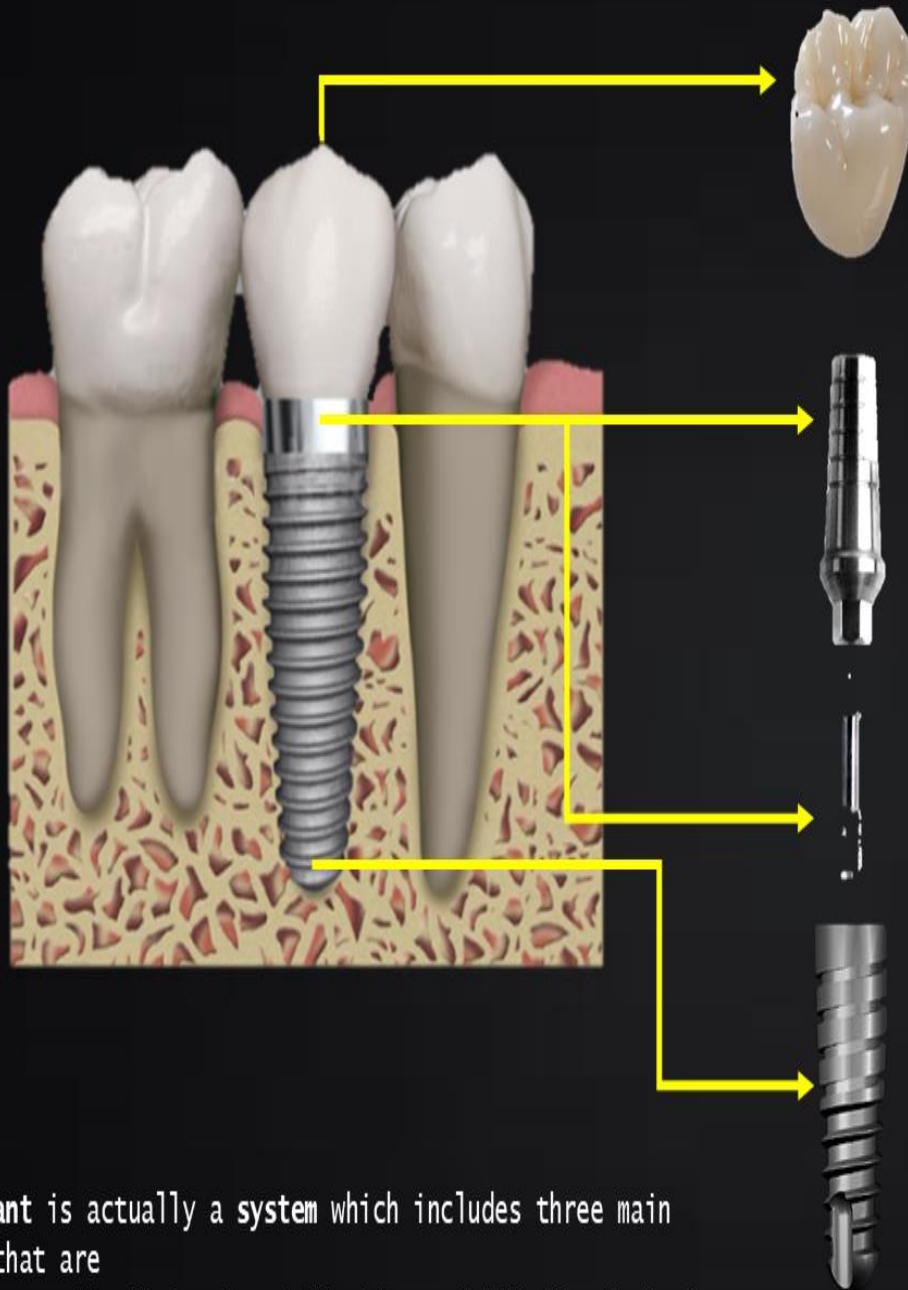


- 2 ISI Q1 Journals
- 1 ISI Q3 Journal
- 1 Int. Magazine
- 3 Conference Papers
- 1 Book Chapter

PATENT PENDING (2015)
: PI 2015700327

Faculty of Mechanical Engineering
Faculty of Dentistry

Industrial Partner :
Nitium Technology Sdn. Bhd



Dental Crown:

Made by SiO_2 , able to reduce half of the cost from typical dental crown by using locally abundant beach sand

Abutment and Fixation Screw:

Made by Porous Nickel Titanium alloy, its pseudoelasticity properties enables abutment to absorb any excessive lateral forces thus avoiding any impending fractures

Implant:

Porous structure helps to enhance the implant-bone integration as well as bone regeneration. Furthermore, the tapered design provide excellent stability after implant insertion

Dental Implant is actually a system which includes three main components that are
i. Dental Crown, ii. Abutment and Fixation and iii. The Implant.

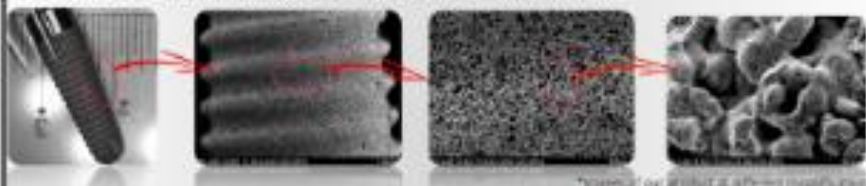
Our Solution

We solved this problem by producing porous nickel titanium dental implant by using totally different manufacturing route i.e. using the **Powder Metallurgy (PM) Technique**. PM technique involves multiple stages of process namely mixing, injection, debinding and sintering with each has its own technical complexity. **Be able to figuring out those complexities and obtaining the perfect formulation, ratio and SOP is Nitium Technology main IPs.**

Powder Metallurgy (PM) Technique



Nitium Technology Sdn Bhd not only have successfully developed the **World's first porous nickel titanium dental implant** (with desire porous structure and mechanical properties) but also reduces **60 - 70% of average production cost of dental implant**



Comparison With Latest Product Available in Market

straumann
The Roxolid Standard Plus



= \$400

NITIUM TECHNOLOGY



= \$130

ZIMMER BIOMET
Traabacular Metal



= \$1200

tenax
implant

Sybron Implant Solutions

These are three known porous dental implant available in the market. Notice that all of them **do not have the thread on the porous part of the implant**. Without thread, no primary stability (immediate implant lock after insertion). Our implant is the first in the World to have threaded + porous.

What Support Do We Need?

One of the process in our production requires high vacuum furnace. Unfortunately, in Malaysia, there are only 3 of this machine while 1 of it (at UKM) only suitable for research purpose. During our production for pre-clinical trial (early of 2018), both of these two, at SIRIM and Adtech, are not operational. We are forced to use the UKM's until its fixed. This problem not only delayed our production to 6 months but also led to more than 700 implants lost due to the contamination. This is why, we are looking for funding to setup our own facilities. The cost of setting up a single production line with the capacity of 5000 implants (max) per month (including the cost of certification i.e. ISO 13485 and GMP, the plant rental and labour) is around US\$850,000.

Funding

- Jan 2016**
Awarded US\$35,500.00 CIP150 grant from Cradle Fund (agency under Ministry of Finance) for prototyping
- July 2017**
Awarded US\$93,000.00 InnoFund grant from Ministry of Science Technology and Innovation to complete the pre-clinical trial
- Sept 2017**
Under collaboration with UiTM's researchers, awarded US\$50,000.00 PRQS grant from Ministry of Higher Education to develop the dental implant system
- Nov 2017**
Secured investment of US\$100,000.00 from angel investor for OPEX

Team

- From left:
- Associate Prof. Rohana Ahmad, PhD
 - Associate Prof. Hussain Ismail, PhD
 - Dato' Ir. Noor Azmi Jaafar, M.Eng
 - Asif Khushaini, M.Sc
 - Zul Iman Yusuf, B.B.A
 - Zamzura Hashim, B.Eng



Technical Director, Angpt/Advisor, CMO

Location of high vacuum furnace in Malaysia



Network and Collaboration

Nitium Technology Sdn Bhd have pretty much extensive network with various dental schools in Malaysia. We have collaborative agreement and MOUs with Faculty of Dentistry Universiti Teknologi MARA (UiTM), Faculty of Dentistry, Universiti Malaya (UM) and Advanced Medical and Dental Institute, Universiti Sains Malaysia (USM). The collaboration between us and these dental schools enables us to develop strong market foundation with 48 dental schools in ASEAN that participate in South East Asia Association of Dental Education (SEADE). Apart from that, we also have the collaborative agreement with Faculty of Mechanical Engineering, UiTM, the raw material supplier, RS Advanced Technology Sdn. Bhd. and micromachining company, LD Microprecision Sdn. Bhd to ensure our future production will be done smoothly.



Logam
(Metals)



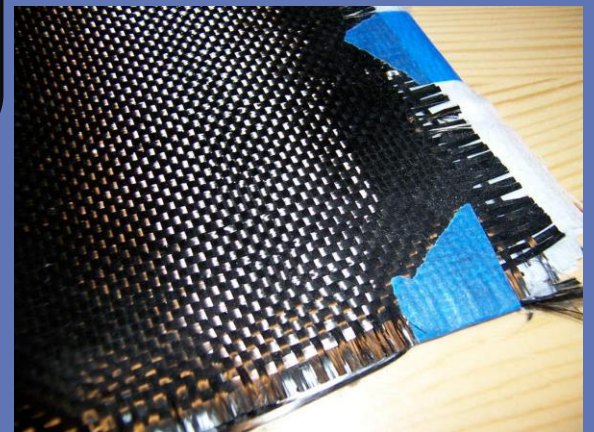
Polimer
(Polymers)



Pengenalan
Kepada Bahan
Kejuruteraan



Ceramics / Glass



Komposit (Composite)

Adakah Anda Tahu?

100% of plastik boleh dikitar semula

Tetapi..tahap kitaran hanya 50%



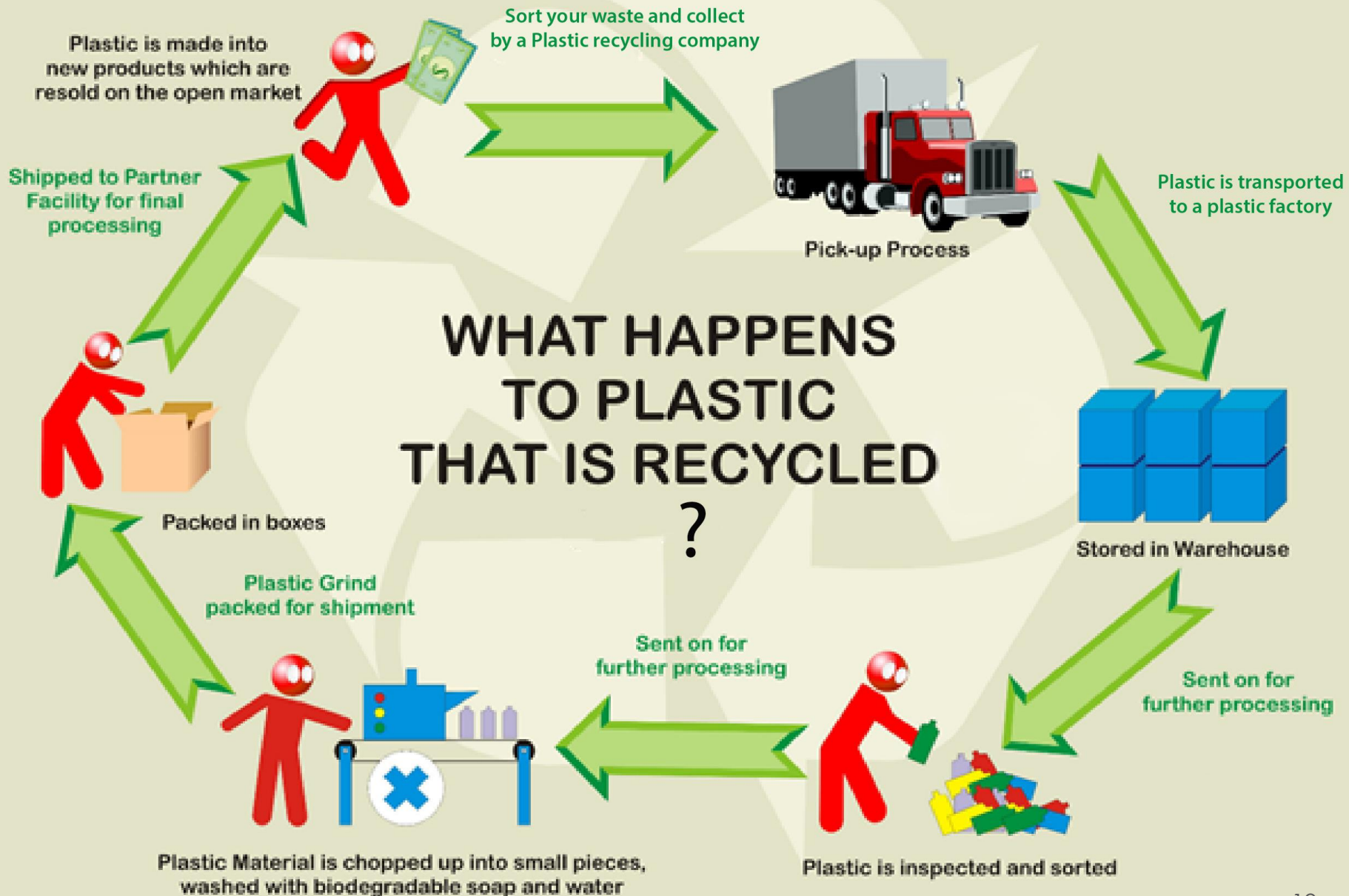
Introduction

- Major Malaysian citizens are aware of the significance of waste recycling but...
- **Do we really practice it?**
- The average Malaysian throws away **1.64 kg of waste per day** (above the average worldwide at 1.2 kg according to World Bank report (Khor, 2014))
 - Malaysia's waste recycling rate ~> **11%**
 - Singapore ~> **57%**
 - Germany ~> **66%**





PLASTICS RECYCLING OVERVIEW



HOW LONG DOES IT TAKE FOR GARBAGE TO DECOMPOSE?

Train Tickets



2 weeks

Orange Peel



6 months

Milk Cartons



5 years

Tin Can



50 years

Batteries



100 years

Plastic Bottles



450 years

How Long Does Plastic Take to Break Down?

The Estimated Decomposition Rate of Plastics in Our Oceans

Soda Bottle

Polyethylene
terephthalate
(PET)



450-1,000 years

Plastic Grocery Bag

High-Density Polyethylene
(HDPE)



10-100 years

Detergent Bottle

High-Density Polyethylene
(HDPE)



500-1,000 years

Anda Tahu Maksud nombor-nombor?



PETE

HDPE

V

LDPE





PP

PS




Other

RESIN IDENTIFICATION CODE SYSTEM

- Developed by the Society of Plastics Industry (SPI) in 1988.
- The main purpose of these codes is to allow the ease of separation of different plastics types for recycling, also tells the user on what type of plastics they are, how biodegradable the type of plastics used, and the safety aspect of using the plastics product.[19]

| Recycling Number | Plastic Description and Information | Resin Identification Code System |
|------------------|--|---|
| 1 | PET or PETE (Polyethylene terephthalate) <ul style="list-style-type: none"> • Found in soft drinks and mineral water bottles, mouthwash bottles. • Its enables a bacteria to accumulate on it. |  |
| 2 | HDPE (High Density PolyEthylene) <ul style="list-style-type: none"> • Found in milk and juice bottles, motor oil bottles, bleach and detergent bottles. • Usually opaque in appearances. |  |
| 3 | V (Vinyl) or PVC (Polyvinyl Chloride) <ul style="list-style-type: none"> • Found in medical equipments, piping and clear food packaging. • Contains chlorine, released toxins when set into fire. |  |
| 4 | LDPE (Low Density PolyEthylene) <ul style="list-style-type: none"> • Found in squeezable bottle, dry cleaning bag, clothing, furniture and carpets. |  |

RESIN IDENTIFICATION CODE SYSTEM

| | | |
|---|---|---|
| 5 | PP (PolyPropylene) <ul style="list-style-type: none">• Found in some yogurt container, syrup bottles, and medicine bottles.• Has high melting point, often chosen for containers that deals with hot liquid. |  |
| 6 | PS (PolyStyrene) <ul style="list-style-type: none">• Found in disposable plates and cups, egg cartons, take away container, CD cases.• Potentially leaching toxic chemicals when being heated. |  |
| 7 | Others (all other resins and multi-materials; acrylic, nylon and polycarbonate) <ul style="list-style-type: none">• Found in bullet-proof materials, sunglasses, iPod and computer cases.• Contains toxic of bisphenol-A (BPA) for polycarbonate which can cause infertility, reproductive problems and other health issues. |  |

Thermal Analysis of Recycled Bottles

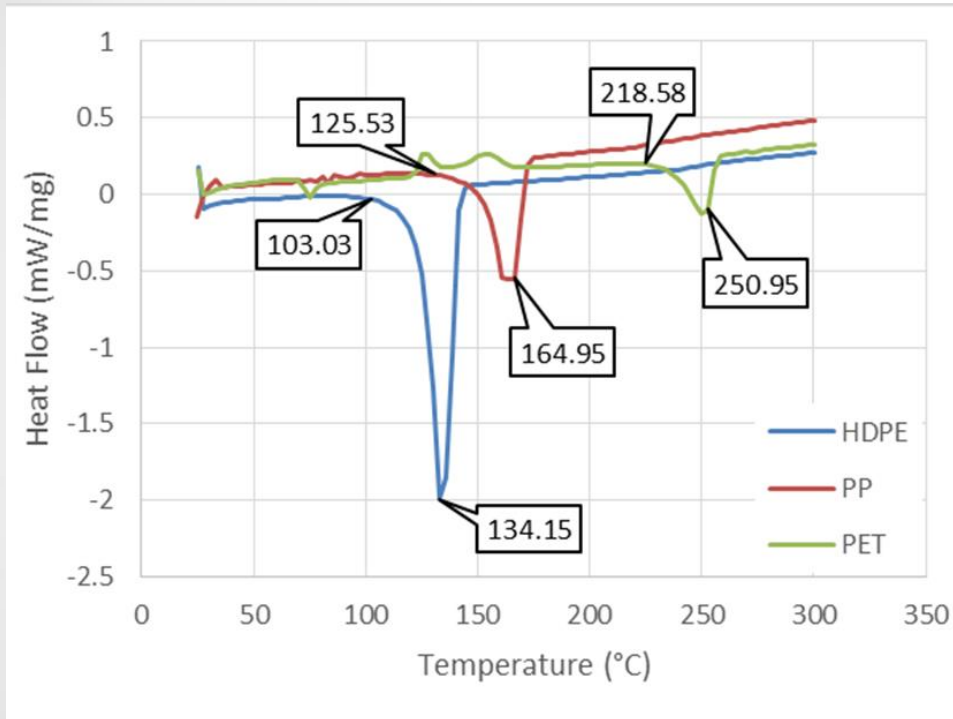


Figure 6: DSC graph

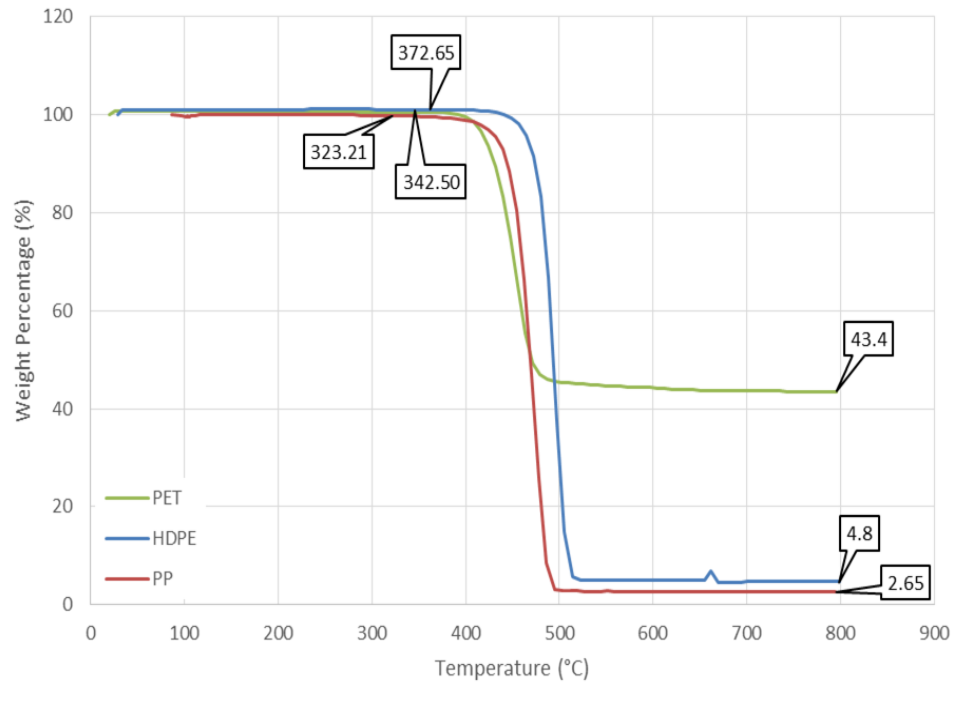


Figure 7: TGA graph

REUSE
REDUCE
RECYCLE



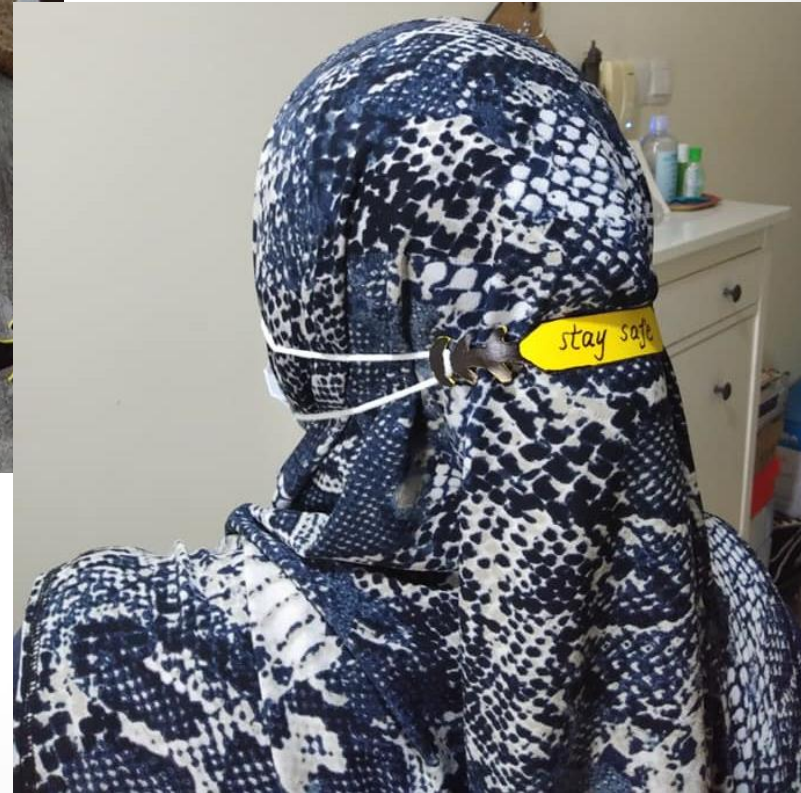
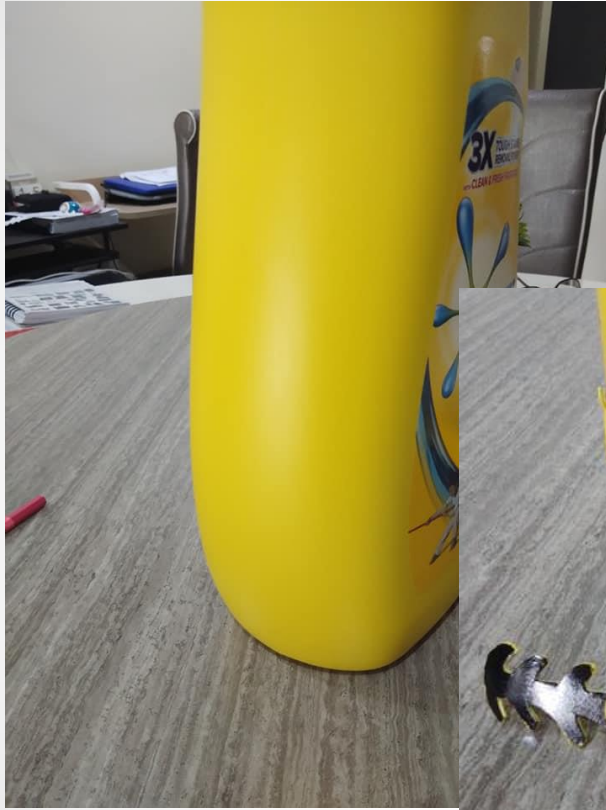


shutterstock.com · 626695319



Reuse

Face mask ear guard



Reduce



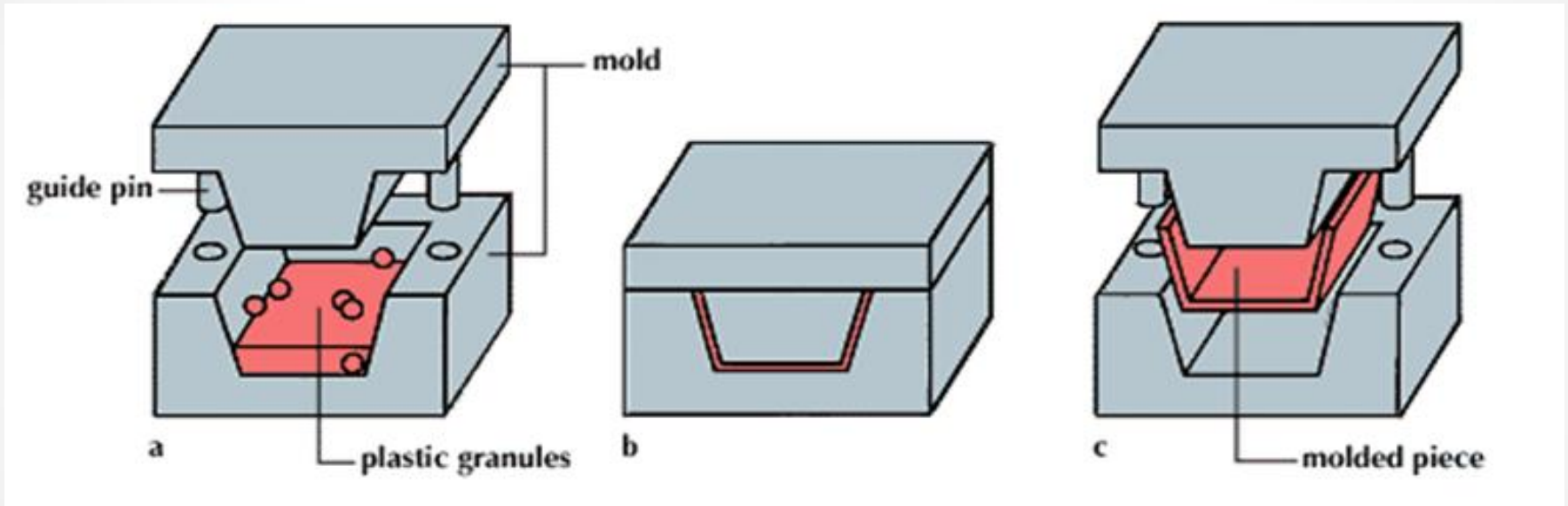
Ideas of plastic making ?





• All are from recycled plastic

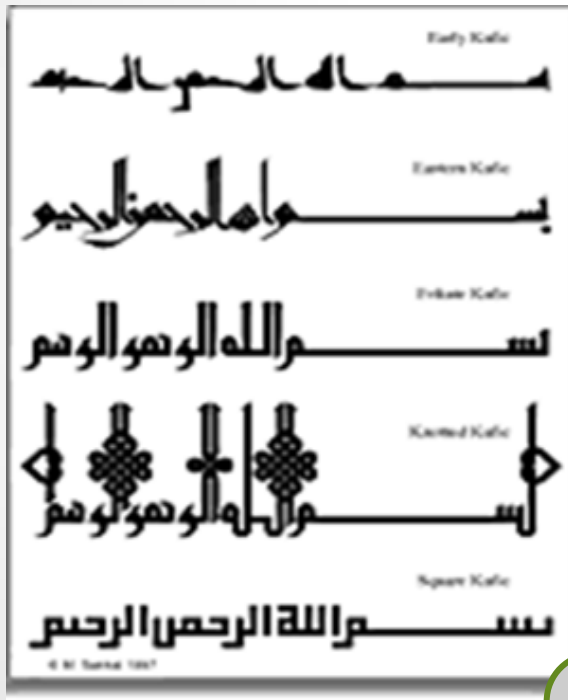
1. Compression Moulding



LITERATURE REVIEW

Islamic Calligraphy

Dry Style [3]



- Calligraphy from Greek word, κάλλος kallos “beauty” + γραφή graphē “writing”. [1]
- Arabic calligraphy was developed and innovated much until the sixteenth century A.D. [2]
- Starting from the North Arabic script (prevailed as the Arabic script of the Quran). [2]
- Influenced by the Nabataean script that established in north-east Arabia and spread out in the 5th century among the Arabian tribes (Hirah and Anbar) which then flourished to Hijaz in western Arabia. [3]

Cursive Style [3]



LITERATURE REVIEW



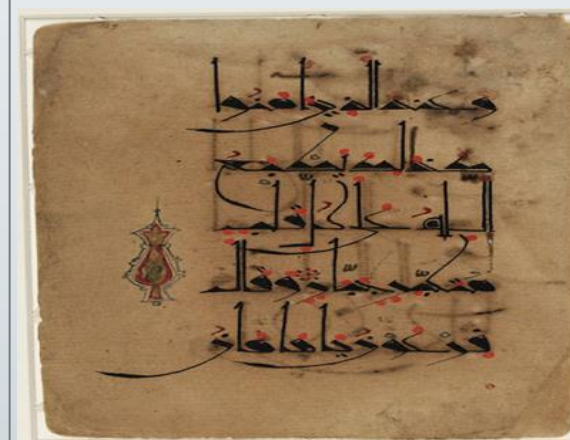
History of Kufi Script

- 641 A.D, the city of Kufah was established in Iraq.[3]
- One of the activities was the refinement of the Arabic script into more elegant and uniform script which later be known as Kufi or Kufic.[4]
- This script is used as the first copy of the Quran as it was the preferred script to be used in the 8th to 10th century as the Kufi script reached perfection in the second half of the 8th century.[5]
- Modified form of an old Nabataean Script, combination of square and angular lines on one hand, and compact bold circular forms on the other hand. The vertical strokes were short, while the horizontal strokes were long and extended. [3][4]

Earliest Kufi
(Archaic Kufi)[6]



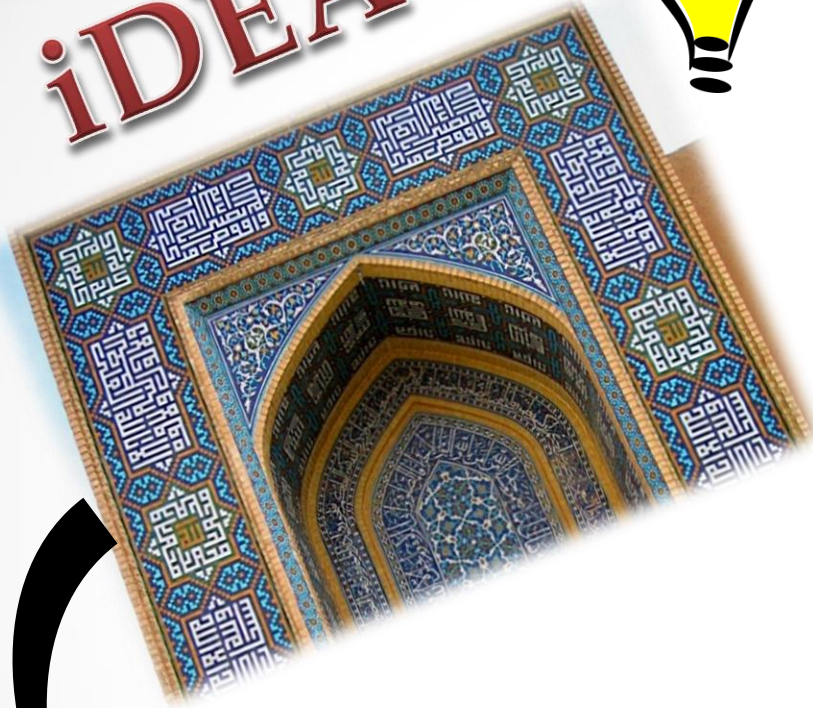
Eastern Kufi
(Fatimi Kufi)[7]



Square Kufi
(Murabba Kufi)[6]



iDEA



The word 'Mechanical'

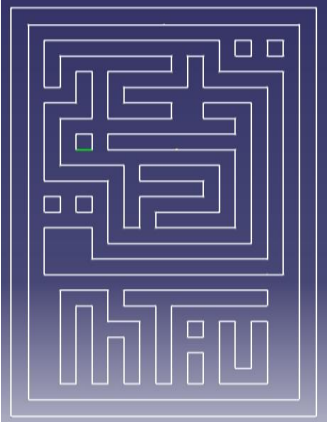
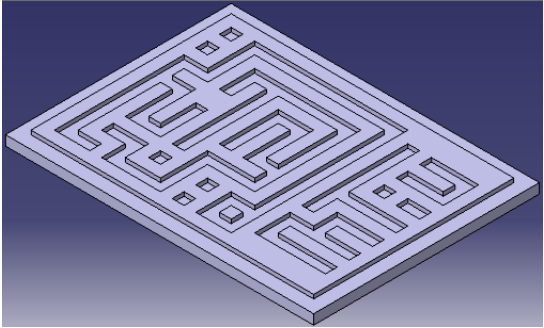
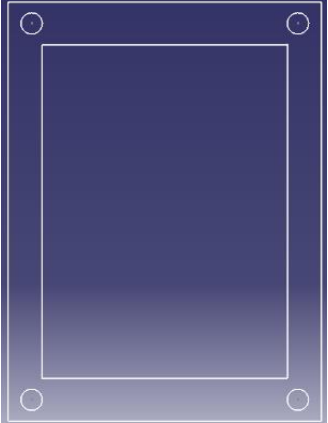
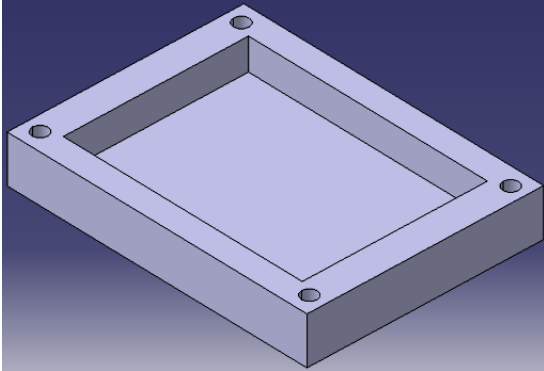
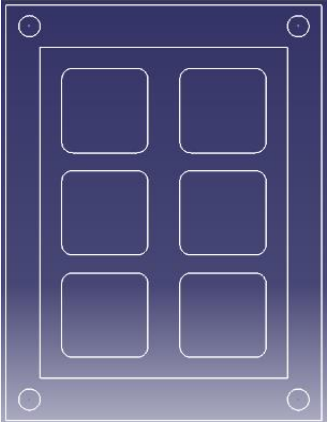
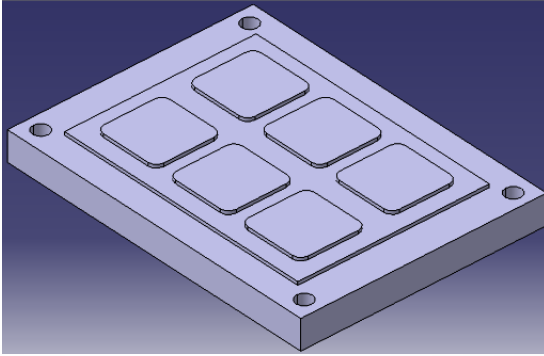
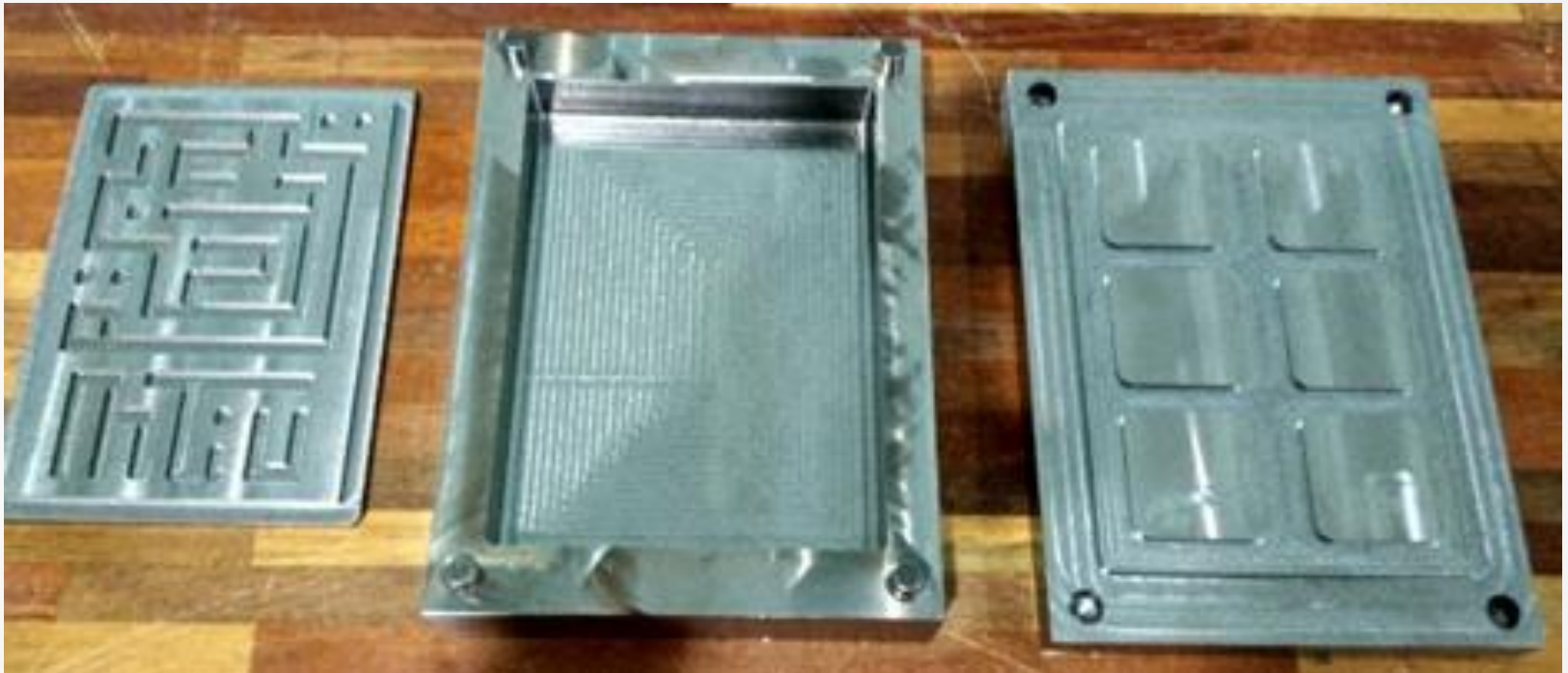
| Part | 2-dimensional Drawing | 3-dimensional Drawing | Sizes (mm) |
|---------------|--|---|--|
| Pattern Plate |  |  | <p>156.96 (H) x 114.96 (L) x 7 (W)</p> |
| Bottom Mould |  |  | <p>197 (H) x 147 (L) x 30 (W)</p> |
| Top Mould |  |  | <p>197 (H) x 147 (L) x 22 (W)</p> |



Figure 3: Burrs formation



Figure 4: Deburring using needle and standard files



Finished mould



Figure 8: HDPE plaque



Figure 9: PP plaque



Figure 10: PET plaque



Figure 11: Finishing process



Mohamad Faizuddin b. Hashim (2012492852) *Design and Fabrication of FKM Plaque By Hot Pressing And Using Waste Plastic Material* (2015)

2. Injection Moulding

- What is plastic injection moulding?
 - process of forming an article by forcing molten plastic material under pressure into a mould where it is cooled, solidified and subsequently released by opening the two halves of the mould. [12]
- Example of products made from plastic injection moulding:-

Plastic fork [13]



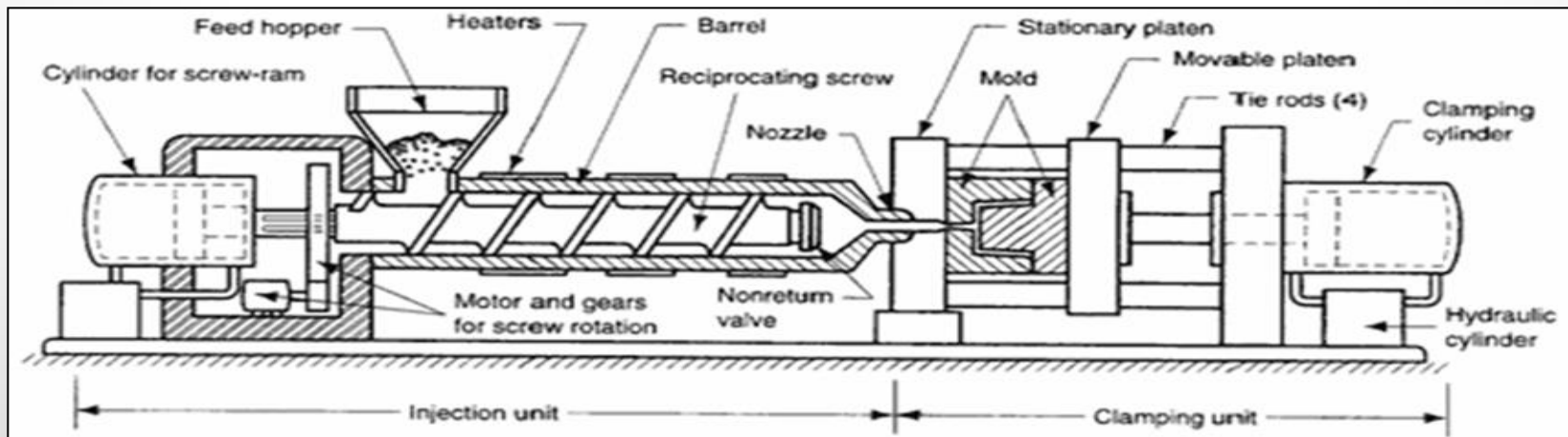
Precision syringe [14]

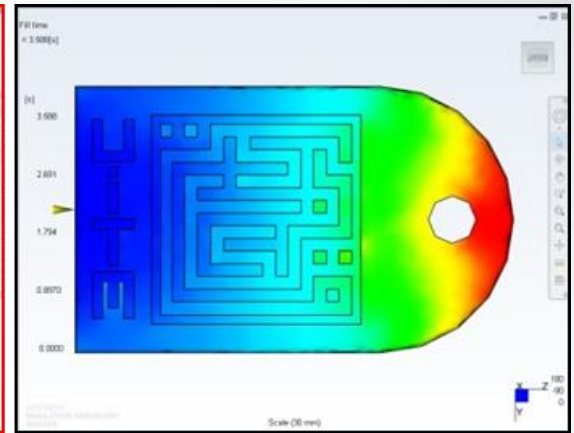
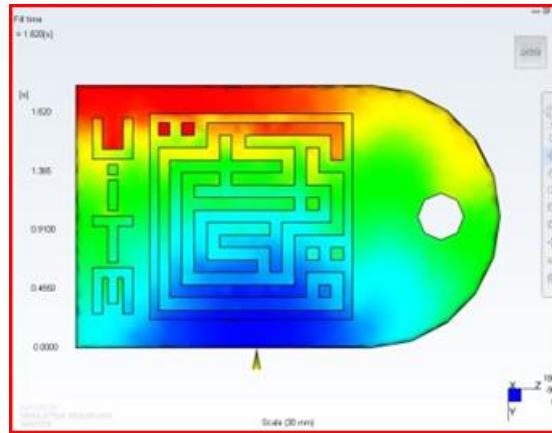
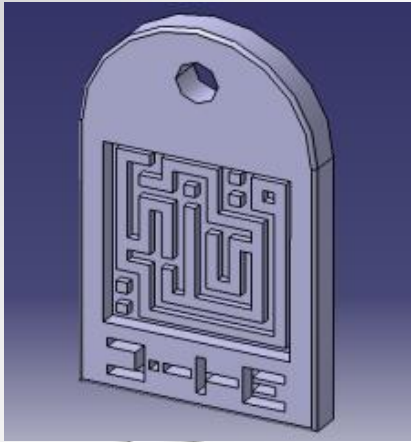


Audi lamp holder [14]

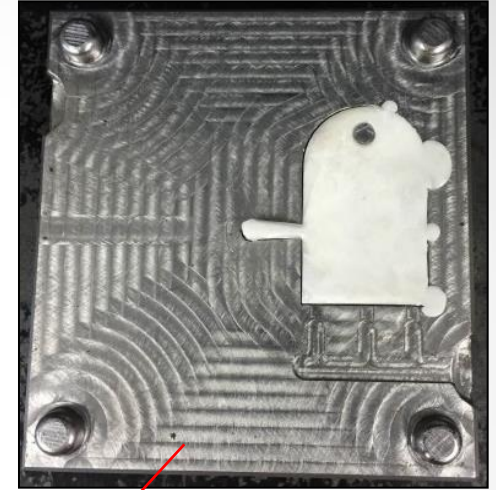


- Schematic diagram of an Injection Moulding Machine [20]:-





Mould and pattern for Injection Moulding

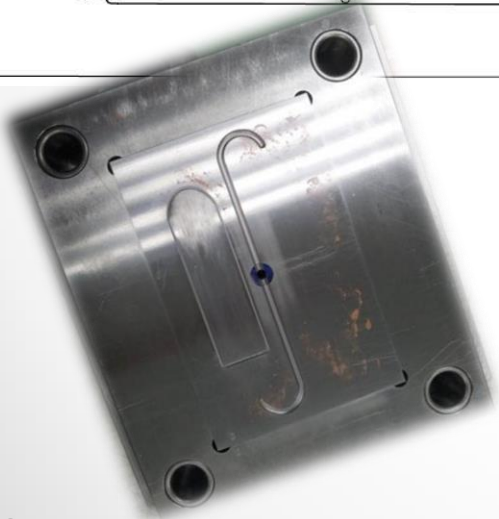
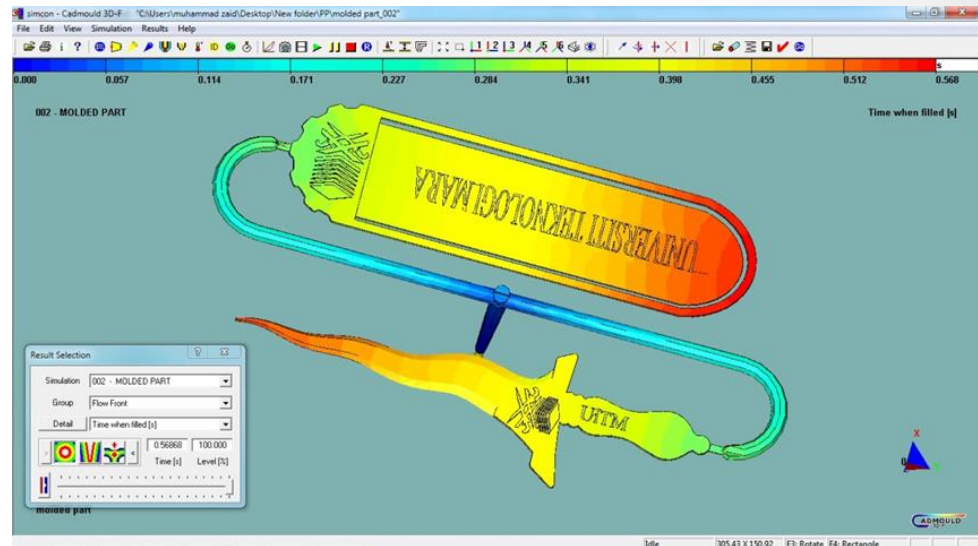
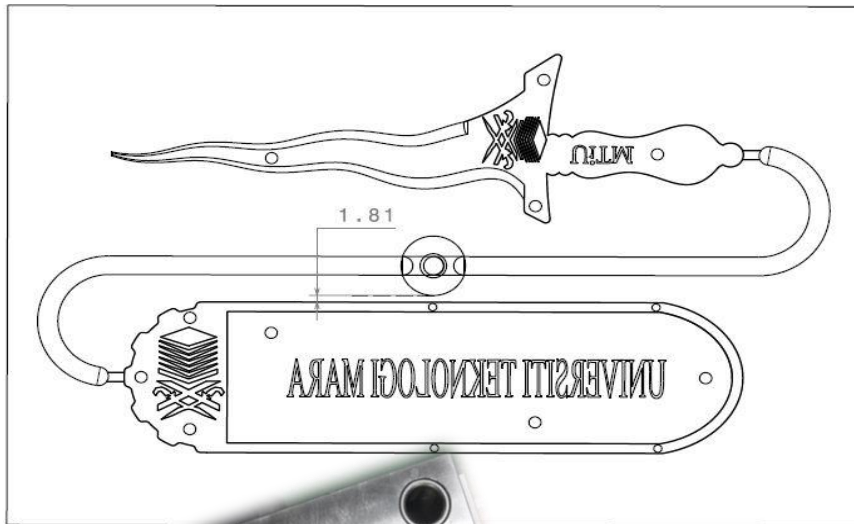


Mohd Shafie b. Juahir (2011425494) *Design and Fabrication Of FKM Keychain by Injection Moulding Of Waste Plastics* (2015)

Industrial scale Injection Moulding @ FKM



Keris and Bookmark Product Development



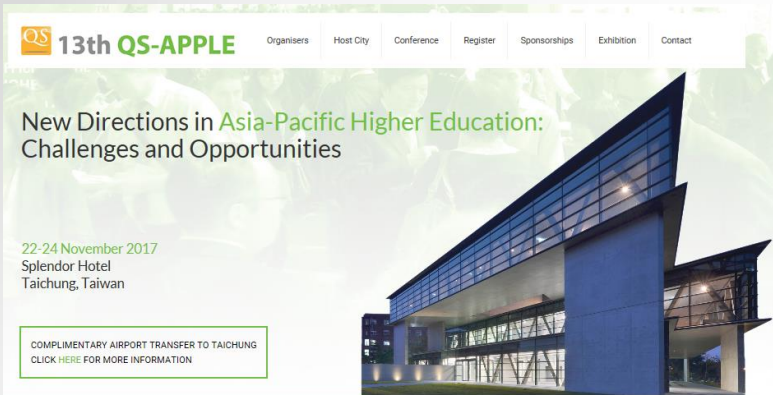
Muhammad Zaid b. Hasim (2009654102) *Design and Fabrication of Interchangeable Turning Sprue Bushing in Multi Cavity Mould Family* (2013)



Muhammad Syakir b. Abdull Rahim, (2012488768) 'Production and Market Study of FKM Product " Keris Envelope Opener (2016)



Souvenir for participants during RISE 2015 & Majlis Kemuncak Bulan Inovasi 2015



13th QS-APPLE: A reflection on the growing importance of higher education in East Asia today

The 13th QS-APPLE conference and exhibition successfully concluded on 24 November 2017 in Taichung, Taiwan. We would like to express our deepest gratitude to all participants for your continuous support towards this dynamic event!

The conference is more than just sessions and workshops; it also helps bring together outstanding academics from across the globe, allowing them the rare opportunity to network, expand their professional circle and secure partnership deals with universities from other parts of the world.

This year's conference gathered over 400 academics from 143 institutions in 30 countries. Participants not only gained valuable insights and shared the latest knowledge through the interactive and engaging conference programme but also expanded their professional network through various social activities. In addition, a total of 69 papers were presented during plenary and parallel sessions, and exhibitors from various universities around the world had the opportunity to



Souvenir for InQKA to delegates during 13th QS-Apple Expo in Taichung, Taiwan, 22 – 24 Nov 2017



F1
in Schools
 2018 World Finals
 Singapore

FKM Staff preparing the red keris

Souvenir for Aeroteam from SMKS9 Shah Alam for Final F1 in School STEM Challenge in Singapore, Aug 2018



Muhammad Hussain Ismail

July 22 at 10:44 AM · 🧑🏻 · 📌

Dapat permintaan sebanyak 200 unit keris plastik sebagai cenderahati kepada peserta2 di Borneo Jazz Festival, MIRII dan kempen #recycleproject mereka. Terima kasih Dr Noorul diatas promosi keris kami dan antara inisiatif kami meningkatkan kesedaran dalam program kitar semula plastik. Produk keris plastik antara projek yang dibangunkan dari FYP2013, dan masih dimanfaatkan utk kelas2 amali, fyp dan juga mass production utk program2 dlm fkm dan uitm. Bila dapat tempahan, terpaksaalah bukak production line sampai ke rumah.. Terima kasih geng2 THE INJECTORZ, oerator pengeluaran tak bertauliah, hehe Nurkhairina Mohd Nasar..dan juga staf2 pentadbiran.. Inn Syaa Allah, ada rezeki kita sama2 kongsi rezeki



BROKEN CHAIRS



TOILETRIES BOTTLES



CRUSHER MACHINE



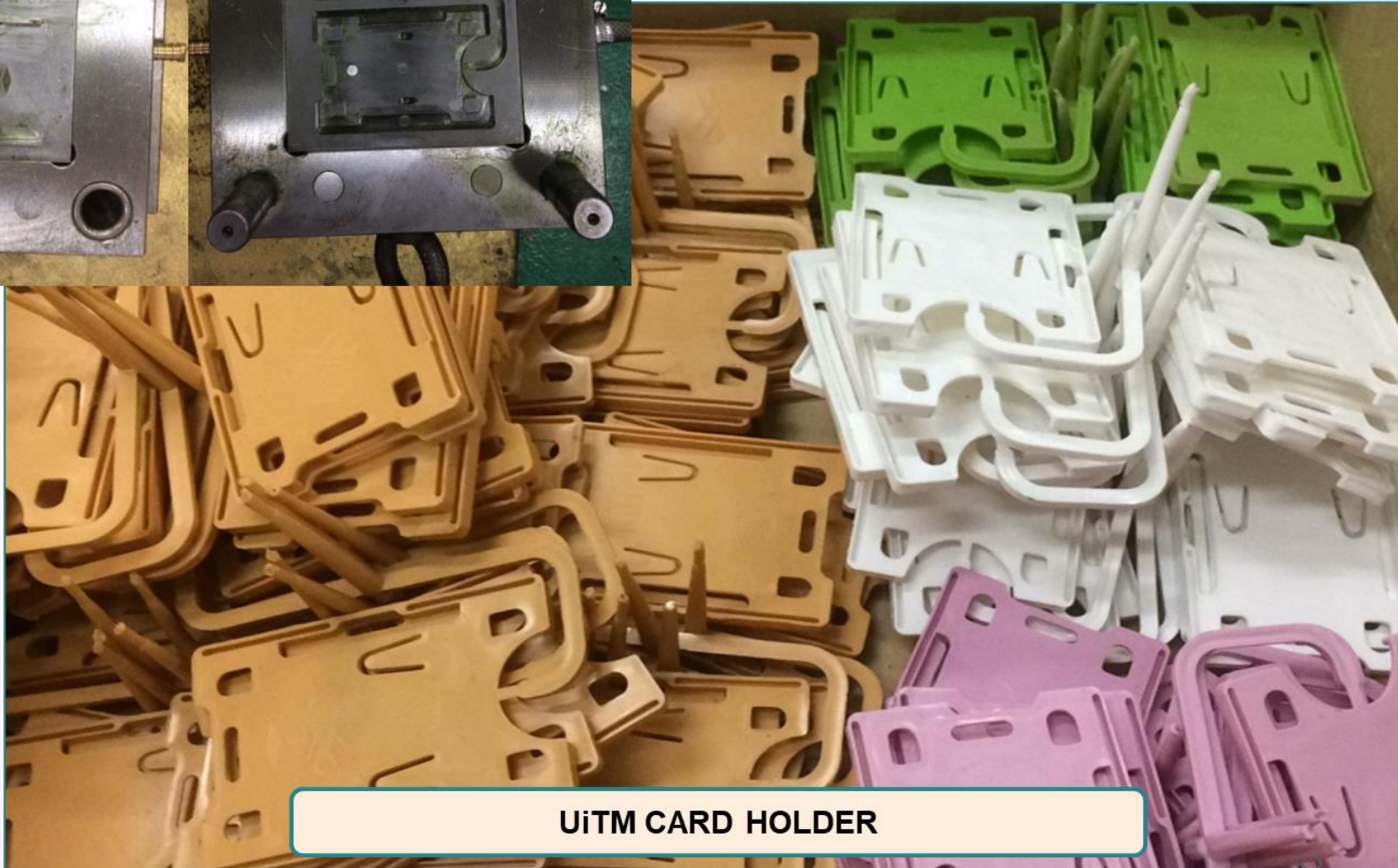
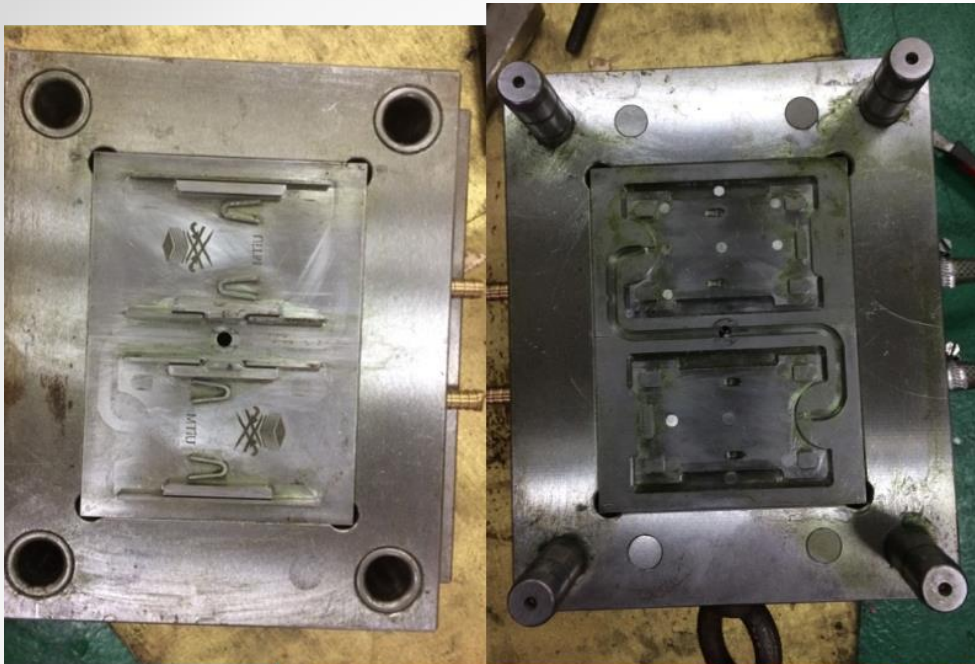
RHDPE FLAKES



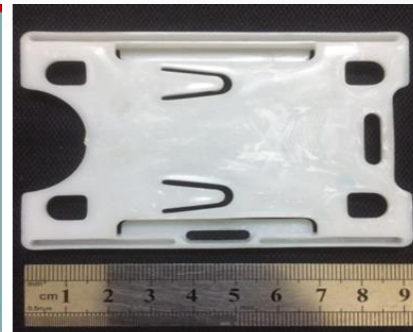
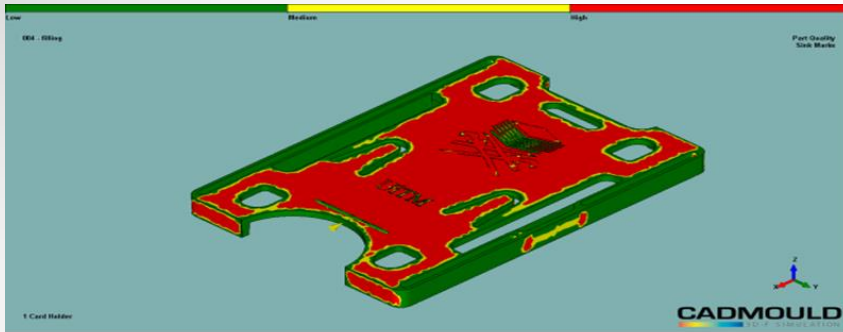
RPP FLAKES



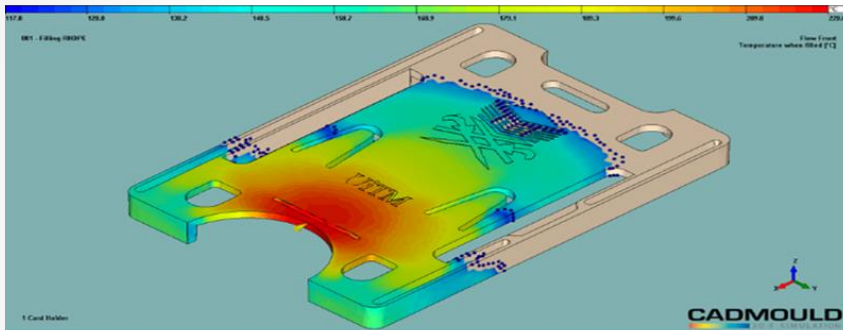
Siti Najihah binti Rahmad (2015217522)
Thermal Behaviour and Injection
Moulding of Waste Plastic (2018)



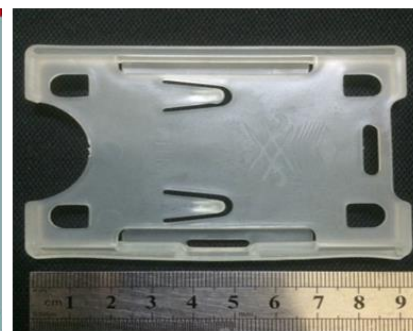
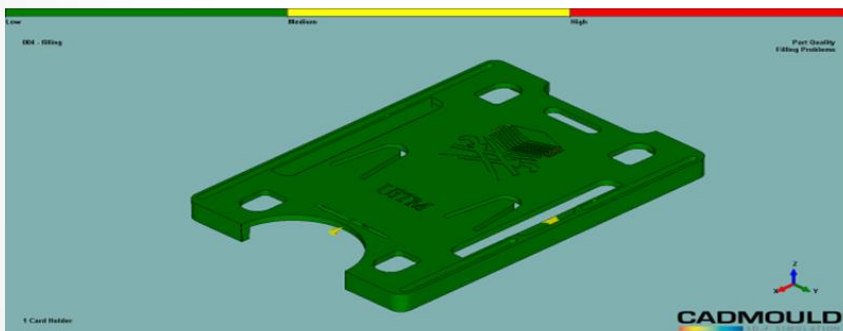
UITEM CARD HOLDER



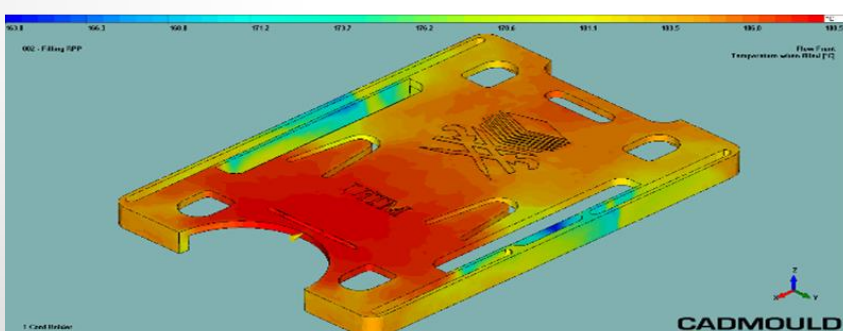
Sink mark



Short shot



Warpage



Flash

Mechy Card Holder® from Waste Plastics

Mohd Helmi Omar¹, Siti Najihah Rahmad¹, Shahidan Mohamad¹, Raja Roslan Raja Mohamed², Muhammad Hussain Ismail¹

1. Faculty of Mechanical Engineering, UiTM Shah Alam, Selangor
 2. Faculty of Applied Sciences, UiTM Shah Alam, Selangor



INTRODUCTION

Despite a number of 3R (**R**educe, **R**euse and **R**ecycle) programs and projects have been increasingly carried out by the government and private sectors, the **level of awareness** among **Malaysian** is still **low** compared to other countries. Towards **sustainable technologies, promoting recycle activities** by utilising available facilities in government sector such as university, could be an added value in **increasing the level of awareness**. In this recycling activity, a product, namely **Mechy Card Holder®** has been successfully mass produced by **injection moulding process from waste plastics**, mainly collected from **household bottles and broken plastic furniture**. Apart from focusing on production, a series of recycling awareness is also being organized in collaboration with other sectors in order to convey the message clearly to the community. It is hoped that the card holder has a great potential to be commercialized, particularly for usage of UiTM students and staff in the future, besides promoting recycling awareness message to the users.

WHY RECYCLE ?



- ENERGY SAVING
- MATERIAL CONSERVATION
- REDUCE LANDFILLS PROBLEMS
- SAVE THE ENVIRONMENT



OBJECTIVES

- To create awareness to the public about the importance of recycling of plastic waste through innovation activities
- To help government aspiration towards environmental issues.

PLASTIC WASTE ISSUES

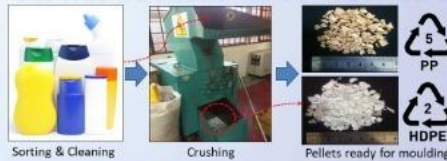


KNOW YOUR PLASTICS

| | | | | | | |
|--|--|--|--|--|--|---|
| | | | | | | |
| PET Polyethylene Terephthalate | PE-HD Polyethylene (high density) | PVC Polyvinylchloride | PE-LD Polyethylene (low density) | PP Polypropylene | PS Polystyrene | Other Bisphenol A and others |
| Releases endocrine disrupting chemicals like acetaldehyde over time, as well as toxic antimony, use once only. | Additives & softeners used in this plastic have never been tested for safety. Do you feel lucky? | The most toxic plastic, leaching phthalates, carcinogens, dioxins & more, linked to reproductive problems, diabetes, organ toxicity and cancers. | Relatively chemically non-reactive, these plastics degrade very slowly and present a burden to the environment for centuries. Do you feel lucky? | Additives & softeners used in this plastic have never been tested for safety. Do you feel lucky? | These plastics leach extremely toxic brominated flame retardants over their entire lifespan. | Bisphenol A mimics the effects of the hormone estrogen and is linked to infertility & developmental damage. |

Source : <https://www.peterest.com/pin/31110028674039111/>

HOW TO RECYCLE THEM?



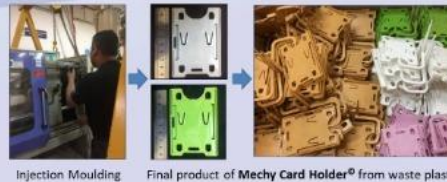
Recycle Awareness Activities



PRODUCT DEVELOPMENT

Benefits & Market Potentials

- Alternative source of consumable raw materials to run lab and sharing session
- Promoting KIK activity via recycling awareness and activities
- Alternative source for income generation activity to the faculty
- **Mechy Card Holder®** to be considered as items to be sold in all Koperasi UiTM



<https://youtu.be/ZxwAgyR2MBo>






iidx2018

Invention, Innovation & Design Exposition 2018

"Championing Innovation Revitalizing Communities"

This is to certify that
MOHD HELMI BIN OMAR
SHAHIDAN BIN MOHAMAD
SITI NAJIHAH BINTI RAHMAD
MUHAMMAD HUSSAIN BIN ISMAIL
RAJA ROSLAN BIN RAJA MOHAMED

has/have been awarded

GOLD

for the Invention/Innovation/Design of
CARD HOLDER FROM WASTE PLASTICS

at
INVENTION, INNOVATION & DESIGN EXPOSITION 2018

24 - 28 SEPTEMBER 2018
DEWAN AGUNG TUANKU CANSELOK (DATC)
UNIVERSITI TEKNOLOGI MARA
SHAH ALAM, SELANGOR
MALAYSIA

KBal

PROFESSOR DR. HADARIAH BAHRON
ASSISTANT VICE CHANCELLOR (RESEARCH & INNOVATION)
UNIVERSITI TEKNOLOGI MARA




Certificate
of AWARD



2000 pcs to Pusat Asasi UiTM, Dengkil



Jun 2019



SCAN ME
FOR REGISTRATION!

PLASTICS: FROM FANTASTIC TO CRISIS

5/5/19 (SUNDAY)
SMART CLASSROOM LVL 6, TOWER 1
KOMPLEKS KEJURUTERAAN MEKANIKAL

Interactive Session

Remagining Plastic : Don't Waste, Innovate!
By Prof Madya Dr Muhammad Hussain Ismail

Be a Greenometer Not Terminator:
What's My Plastic Carbon Footprint?
By Dr Azlin Mohd Azmi

Hands-On
Aesthetic Plastic: Plastic Into Art

COMMITMENT FEE: RM5

FOR ANY ENQUIRIES IQA - 019 3097393
KINDLY CONTACT US: TUN - 013 6934407



Recycle Awareness Activities



With SoJE & Warisan Alam Sekitar Malaysia (WASM) at UiTM, 19 April 2017



Booth Exhibition at Karnival STEM @ UiTM, 28 Aug 2018 officiated by the Deputy Minister of Education, Mrs Teo Nie Ching



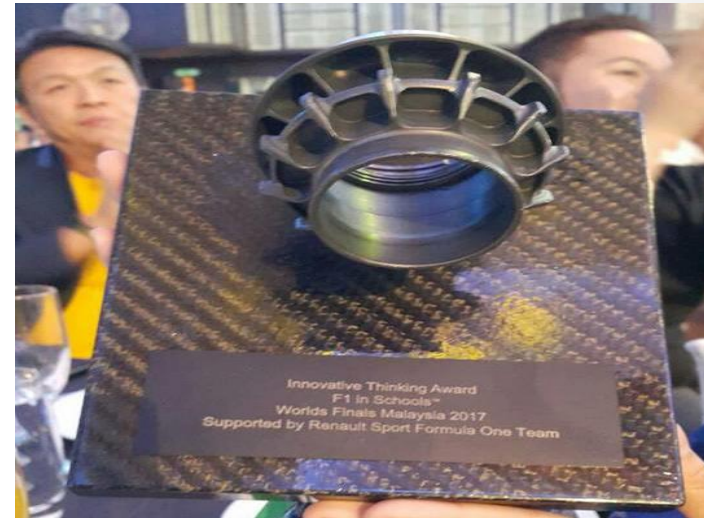
Sharing session at SMKS9, Shah Alam, 11 July 2018

Achievement



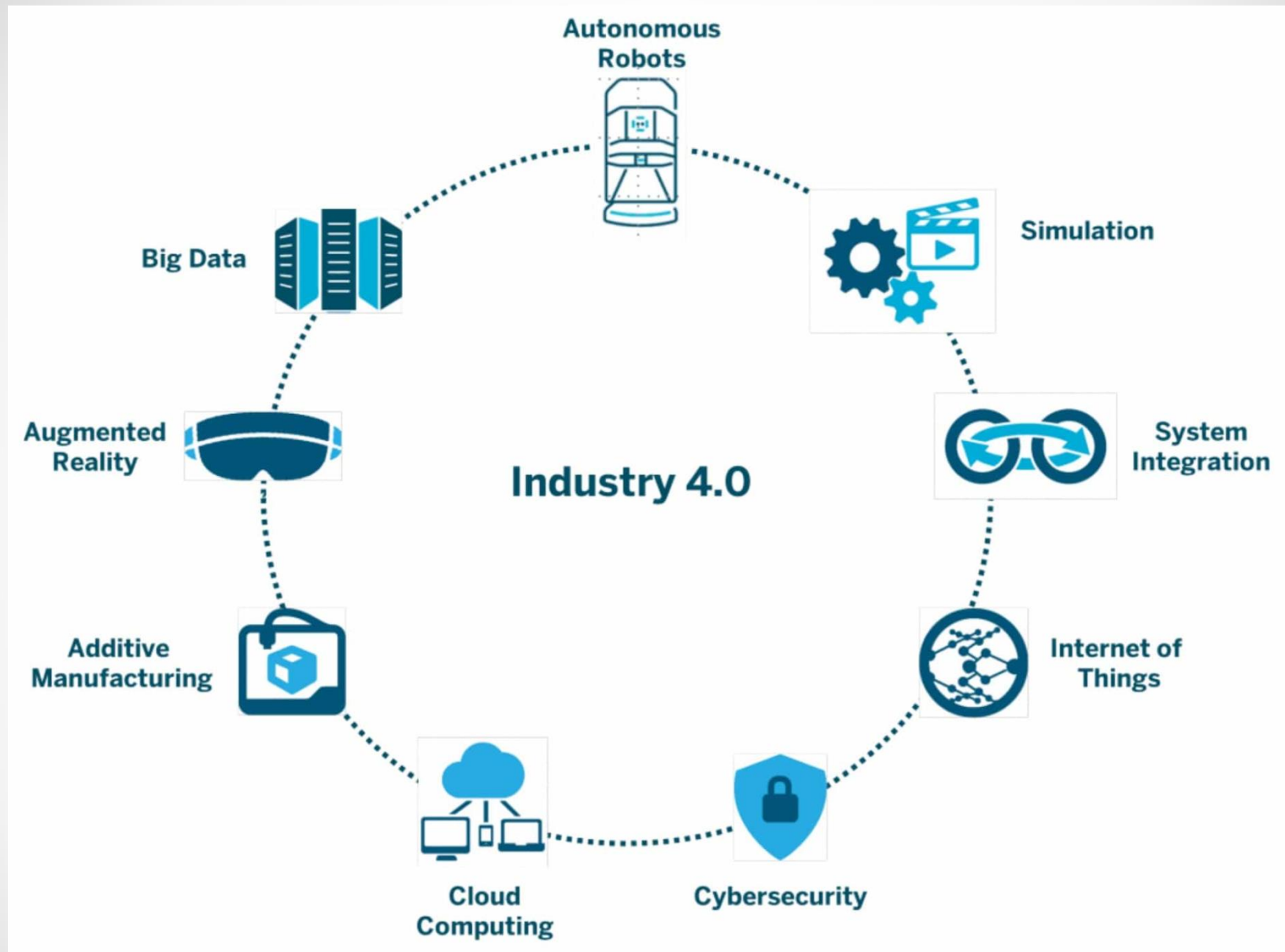
- Recycle Awareness Day with School of Junior Engineers (SoJE) and Warisan Alam Sekitar Malaysia (MASM)...NST, 19 April 2017

Impact of RECYCLING awareness and sharing



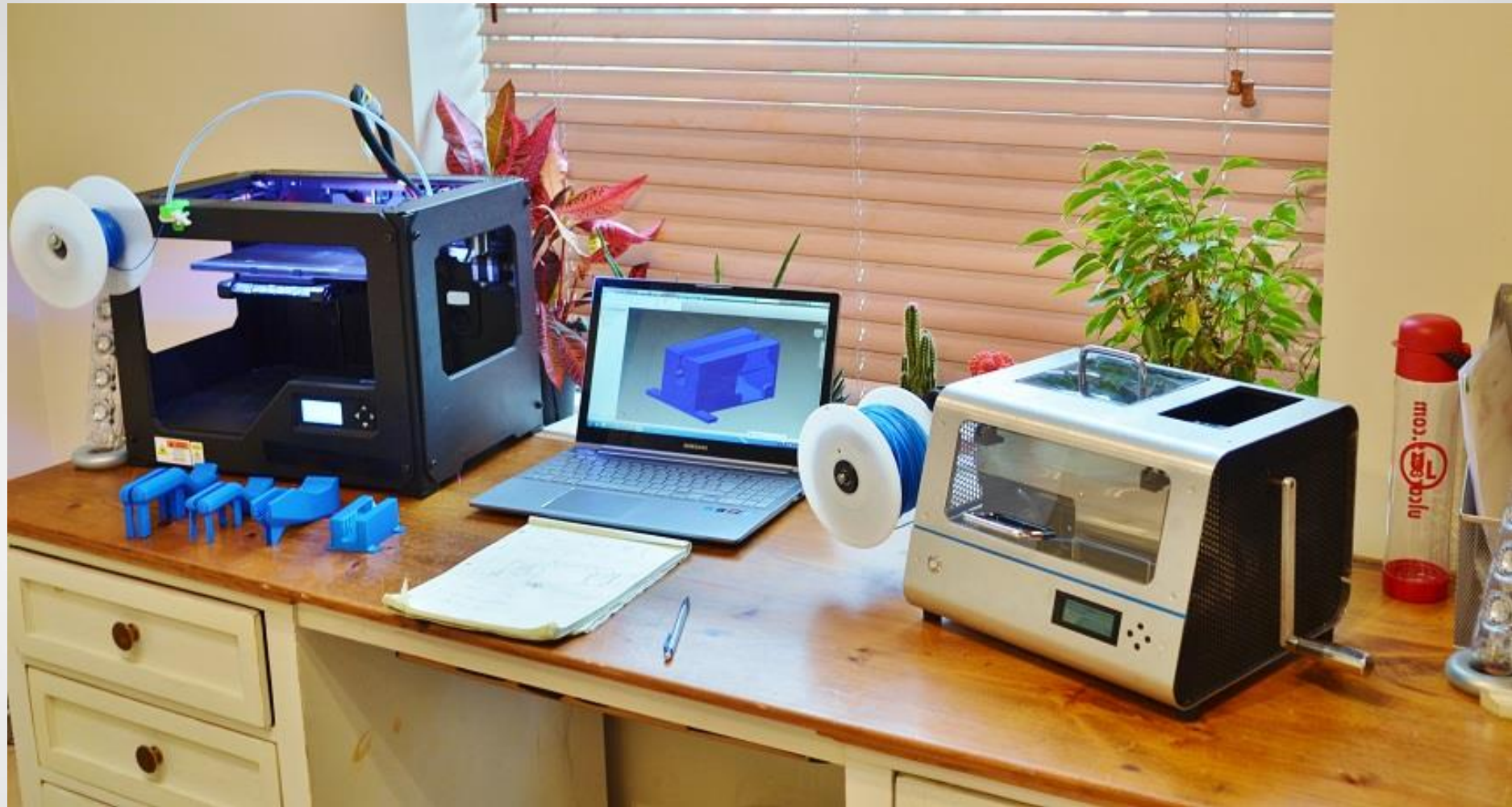
FKM has been **mentoring SMK Seksyen 9 F1 in Schools team** since 2010 through **Engineering Automotive Education and Innovation** activities. For 2017 F1 in Schools event, the faculty facilitated in fabrication of mould and demonstration for injection moulding of waste plastic bottles. It is the best examples how the **STEM** education is nurtured through simple activities. Students have experienced basic plastic processing and they are really excited with the products that they produce by themselves (200 pieces within 2 hours).

https://www.youtube.com/watch?v=ZVBIJPsNmSo&index=1&list=UUir8DuSVOjT4N_rlI69924Q



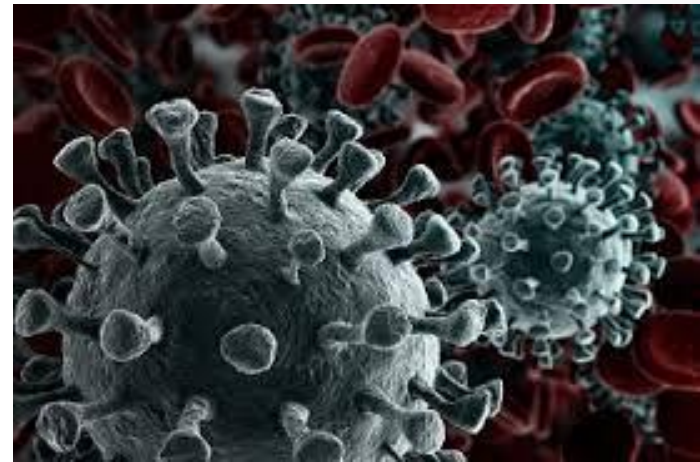
3D Printing





<https://www.sciencenewsforstudents.org/article/3-d-recycling-grind-melt-print>

Face Shield Innovation to Our Frontliners



by :

Muhammd Hussain Ismail
Faculty of Mechanical Engineering
Universiti Teknologi MARA

Malaysian 3D printing and design communities are coming together to produce face shields for frontliners facing the Covid-19 pandemic.

HOME / MALAYSIA

With face shields in short supply, Malaysians bring 3D printers into Covid-19 fight

Monday, 23 Mar 2020 06:53 PM MYT
BY IDA LIM



Malaysian volunteers have come together to use 3D printers and other methods to make much-needed face shields for medical personnel. — Picture via Facebook/Husni Fair /3D Printing Malaysia Community for Covid-19 Group

KUALA LUMPUR, March 23 — Volunteers in Malaysia have come together as a community to crowdsource the use of 3D printers and other methods to make much-needed face shields for those fighting the spread of Covid-19, to help meet demand for the single-use disposable personal protective equipment (PPE).

Facebook user Nurfaiz Foat had on March 21 posted his idea to mobilise Malaysians to use 3D printers to print the plastic face shield holders and simple readily-available materials to make face shields for distribution to frontliners, using a design — adapted from Josef Prusa's original design — which he said takes 40 minutes to print for each plastic holder.



IN MALAYSIA

JUST IN POPULAR

18 minutes ago
KTMB urges No 9173 ETS train passengers with Covid-19 syyt to get screened

20 minutes ago
Sarawak has ordered PPE for hospitals battling Covid-19, sa minister

56 minutes ago
Nestle Malaysia reports one C positive case

1 hour ago
PM thanks cops in special Poi message (VIDEO)

1 hour ago
Pusat Bantuan Malaysia

Covid-19: Malaysian 3D printing enthusiasts produce face shields to aid frontliners in fight against pandemic

FACEBOOK
Monday, 23 Mar 2020
7:10 PM MYT
By Qishin Tariq



Face shields for those fighting the Covid-19 pandemic are in short supply, prompting the Malaysian 3D printing and design communities to make DIY ones for frontliners. — AFP

Malaysian 3D printing and design communities are coming together to produce face shields for frontliners facing the Covid-19 pandemic.

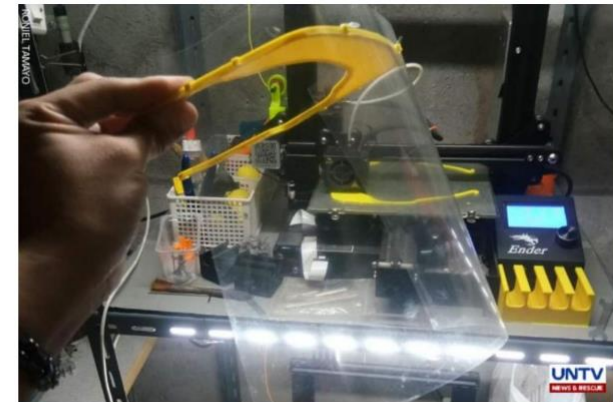
MinNature Malaysia founder Wan Cheng Hui, who started the Facebook group 3D Printing Malaysia Community for Covid-19, said the self-funded group aimed to help frontliners by creating face shields using 3D printing, laser cutting or DIY builds.

On the FB group's page, he noted that this production method had some limitations including cleanliness during fabrication and sterilisation after.

He said most makers did not have controlled environment settings, so all visors made would have to be sent to a centralised collection point where it would be disinfected using ultraviolet (UVC) light.

Volunteers donate 3D- printed face shields for frontliners

UNTV
Aileen Cerrudo
UNTV News 24 March 2020



MANILA, Philippines — There is an apparent shortage of personal protective equipment (PPE) supply in the country amid its deadly battle with COVID-19.

Some private hospitals have resorted to using old linen as improvised masks due to the supply deficit.

And like an unexpected twist in a movie, a group of individuals banded together to help the country's frontliners by providing PPEs through 3D printing.



Recommended Reading

WORLD
New Jersey slaps terror charge on man over alleged supermarket cough threat

ATHLETICS
Coe suggests world athletics championships could slip to 2022

BOXING
Fury-Wilder rematch to be pushed back due to coronavirus

OTHER SPORTS
Interview: Surfing chief says Games will be most relevant ever, after 'rogue wave'

CORPORATE NEWS
Singapore to shut bars, limit gatherings to counter coronavirus spread

1st phase

Printed by AA3D Print

2nd phase

Starting March 24, 3D printing activities have been conducted at several residential locations



Total Collection:
Almost RM 8k, less
than 24 hours

**thank
you**
for your support

We deliver to our Heroes by stages



1st Batch to KK Jenjarom, Hospital
UiTM Sg Buloh

From us;



Fakulti
Kejuruteraan Mekanikal



| No | Location | 3d print unit | No of prints |
|--------------|------------------|---------------|--------------|
| 1 | Sementha | 1 | 10 |
| 2 | MTC TTDI Jaya | 1 | 7 |
| 3 | P. Perdana | 3 | 21 |
| 4 | Seksyen 7 | 1 | 11 |
| 5 | Seksyen 13 | 1 | 4 |
| 6 | Padang Jawa | 1 | 4 |
| 7 | AA3D, S.Jaya | 8 | 50 |
| TOTAL | | 16 | 107 |

Data as 25th March, 1:00 am

3rd Phase

- **Mass Production by Injection Moulding (IM)** using FKM Industrial Scale machine : capable in producing 700 – 1000 pcs /day
- **Issues** : Cost for mould making, estimated RM10k



Injection moulding machine at FKM



<https://www.youtube.com/watch?v=hpzau2r2Eao>

CNC of Injection Mold, March 26 (Completed in 3 days)

MY MAXIS 2:50 PM 96%

 #KitaJagaKita
@gamusofficial

Fakulti Kejuruteraan Mekanikal UITM Shah Alam bersama menjayakan Pencetakan 3D Pelindung Muka untuk Frontliner yang diinspirasi oleh 3D Printing Community Malaysia for Covid19, projek di FKM ini diketuai oleh Prof. Madya Muhammad Hussein Ismail.

[Translate Tweet](#)



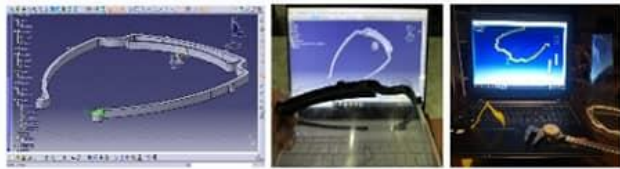
**Ideation & Execution
(March, 26)**



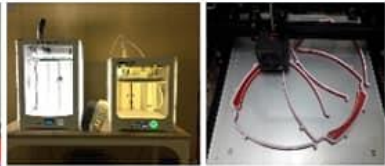
200 units of face shields to P.K. UiTM, Shah Alam

27 March 2020, 4:00 pm





(A) DESIGN HOUZ



(I) 3D PRINTING



(II) COLLECTION



(III) DISINFECTION

UVGI

(IV) DELIVERY



(B) PLAN FOR INJECTION MOLDING



Thank you ☺

Delivery Locations



Ikut dengan getah sekiranya perlu



- Untuk menggantikan plastik penghadang muka, ia boleh ditukar menggunakan MESIN BINDING biasa (21 lubang)

