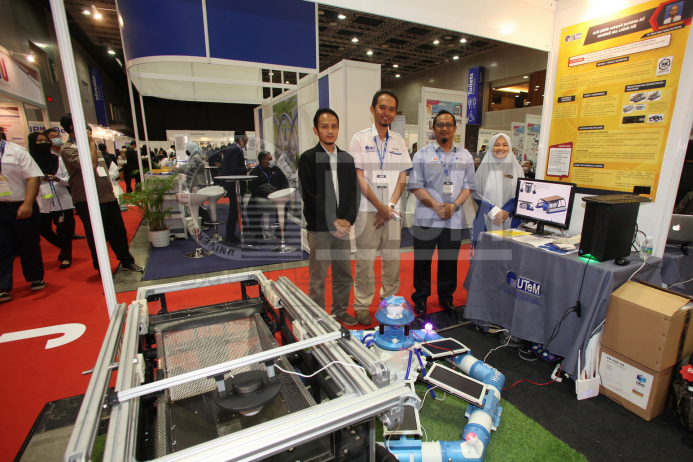
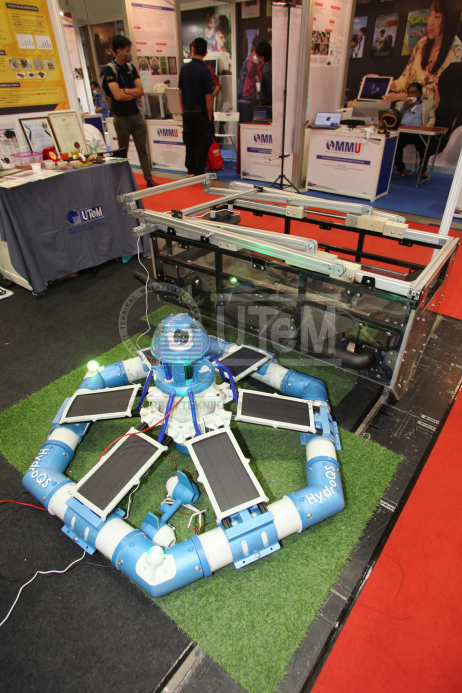


UJOM









UTeM



USEFULNESS AND APPLICATION

- Suitable for use for packaging in food storage
- **Good strength**
- Environmentally friendly material
- Highly durable product for long-term applications

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UNIVERSITY OF MALAYSIA SERDANG

UNIQUELY | ENVIRONMENTAL

- Produced from natural and renewable resources
- **Biodegradable** (compostable, breaks down faster than other plastic materials)
- **Single material** - Good design flexibility
- **100% Independent** - Imported & controlled
- **Safe** - Non-toxic
- **Highly Resistant** - Water, heat, acid
- **Highly Durable** - For long-lasting and re-use

PERFORMANCE CHARACTERISTICS

- High mechanical and thermal stability
- High tensile strength
- High modulus
- High elongation
- High impact strength
- High heat resistance
- High chemical resistance

DIAGRAMMAL TRENDS

- **Highly resistant** - water, heat, acid
- **Highly durable** - for long-lasting and re-use
- **Highly resistant** - water, heat, acid
- **Highly durable** - for long-lasting and re-use

MARKET AND COMMERCIAL POTENTIAL

• The use of bio-based materials in packaging is increasing rapidly in Malaysia and other Southeast Asian countries.

• The market for bio-based packaging materials is projected to reach **US\$ 1.7 billion** by 2025.

• **High growth** - 15% CAGR (2020-2025)

• **High demand** - for sustainable and eco-friendly packaging solutions.



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 MALAYSIAN MALAYSIAN
 UNIVERSITY



CO-RESEARCHERS Mahalingam Kalidoss, Ridwan bin Asyraf, Asongku Khalid Ridwan bin Asyraf

ABSTRACT / PRODUCT DESCRIPTION

A smart city beneficial to manage assets, resources and services efficiently. The natural resources which can be used to produce the waste and plastic are critically decreased. Therefore, the smart system to sort the waste and plastic are highly demand. Therefore, the smart recycle bin is a product which can recognize and sort the waste automatically such as paper, plastic, bottle, metal and others. This product is generated by using smart sensor system with the artificial intelligence to sort the waste effectively. The IoT system are integrated with the smart recycle bin to ensure the air quality and waste level can be monitored by the authorities.

ENVIRONMENTAL FRIENDLINESS

SMART

- Conserve natural resources
- Protect ecosystems and wildlife
- Reduce raw material demand
- Saving energy
- Cutting climate changing carbon emissions
- Cheaper waste collection & disposal
- Increase high quality recyclable material

NOVELTY / INVENTIVENESS

- A smart sensor system to detect recyclable trashers such as paper, plastic, glass and metal.
- The automatic trash sorting system to locate the trash based on materials detected and dump to the designated bin
- The non-touch sensor to sense the trash and open the bin for hygiene purpose.
- Bin capacity monitoring system to provide real time bin status
- Automatic bin location for effective and environmental friendly trash collection
- Web dashboard for effectiveness trash management system with real time data
- Truck collector alert systems through short message using Telegram apps
- Connectivity through open Wi-Fi server
- AC power supply and solar system to mount the device at various places without

USEFULNESS AND APPLICATION

- Simple installation
- Compact device
- Public accessibility
- User friendly
- Full system (6 in 1 device)
- Direct interaction
- Intelligent decision algorithm
- Fast response

PRESENTATION AND DEMONSTRATION / PUBLICATION

- Intelligent Trash Sorting System: CRLY2021 W00461
- Patent drafting with agent
- SMART RECYCLE BIN SYSTEM (i-BIN) in Progress of International Virtual Innovation & Investment Challenge

MARKET AND COMMERCIAL POTENTIAL

- PKT BIRD SWGG
- MEAS, MPHT, MPJ, MPAG et al etc
- SWM Environment Sendirian Berhad
- ICES Auro Technologies P.T & KOKKA
- Residential and industries

CONTACT INFO

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