## 〈Attachment 1〉Challenge-Proposing City And Statement

**Challenge-Proposing City：**Selangor, Malaysia.

**Representative Agency：**Selangor Information Technology & Digital Economy Corporation (Sidec)

| No | Challenge |
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| 1 | Digitize Waste Management Environment Data on Cloud Using IOT Sensor. |
| 2 | Smart building - Installing GHG emission sensors such as flow meters to measure GHG emissions and address unnecessary power consumption. |

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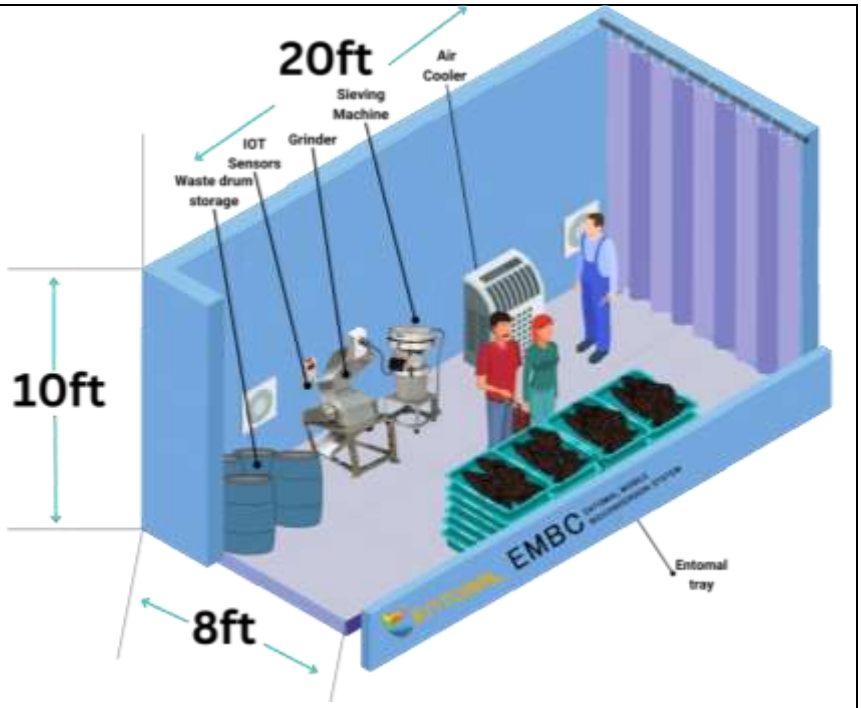
| **Challenge #1** | Digitize Waste Management Environment Data on Cloud Using IOT Sensor |
| **Statement** | **Background**<br>Selangor generate 15,000 tonnes of food waste daily, with a significant portion ending up in landfills. Selangor, Malaysia, has set a target to achieve a recycling rate of cooked food waste up to 15% by 2025. To meet this goal, the region is transitioning towards an integrated waste management system to reduce landfill dependency and explore innovative solutions such as Waste-to-Energy/wealth technologies.<br>The Selangor government has adopted a solution specializing in converting cooked food waste using Black Soldier Fly (BSF) Larvae to create valuable resources.<br>This solution, known as the Entomal Mobile Bio-Conversion System (EMBC), is a decentralized organic waste management system housed within a shipping container. It is actively addressing Selangor Municipal's food waste challenge in collaboration with a conglomerate in Subang Jaya. Each EMBC unit has the capacity to convert one ton of food waste per month. Plans are underway to deploy an additional 10 units within Selangor in 2024 to increase food waste management from the current 7% to the targeted 15% by 2025.<br>The EMBC solution is poised to benefit from the Bursa Malaysia Voluntary Carbon Mechanism for carbon credit trading by aligning its innovative approach with the country's evolving carbon market. The Bursa |

Carbon Exchange (BCX) provides a platform for trading carbon credits, including nature-based credits that are increasingly valued for their environmental and social benefits.

**https://entomal.com/embc/**


20ft
Air Cooler
Sieving Machine
Grinder
IOT Sensors
Waste drum storage
10ft
EMBC
Entomal tray
8ft

**Issues and Challenges**

Limited Waste Management Technologies and Carbon Knowledge:

1. Identifying suitable IoT sensors for comprehensive data collection.
2. Streamlining data management processes to eliminate manual input.
3. Enhancing understanding of international Carbon Exchange mechanisms.

**Objectives**

To improve the digitalization and data collection of EMBC to achieve the policy of

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| | both Selangor government & central government.<br>● Integrating IoT technology for real-time monitoring of environmental data within EMBC.<br>● Automating data linkage to EMBC's current platform.<br>● Aligning innovative solutions with Malaysia's evolving carbon market through the Bursa Carbon Exchange (BCX).<br>**Expected Effectiveness**<br>1. Implementation of IoT sensors for real-time monitoring of temperature, humidity, carbon emissions, ammonia levels, and power usage.<br>2. Cloud integration for streamlined data management, enhancing decision-making and reporting efficiency.<br>3. Strengthened collaboration with Malaysia's Bursa Voluntary Carbon Mechanism for sustainable waste management practices.<br>4. Potential scalability by deploying IoT systems across multiple EMBC containers to boost waste processing capacity while considering cost-effectiveness of IoT solutions. |
| **POC testing field and Scope** | EMBC is located at Sunway Lagoon, Selangor.<br>Cabin Size: 20 feet x 18 feet |
| **Duration** | Jul to Dec 2024 |

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| **Challenge #2** | Smart building - Installing GHG emission sensors such as flow meters to measure GHG emissions and address unnecessary power consumption. |
| **Statement** | **Background**<br>Selangor, a carbon-positive state, identifies Energy, Transport, and Construction as key sectors contributing to emissions. The state aims to transition to a low-carbon model by leveraging innovative solutions in these sectors. Challenges exist in the energy sector due to market structure limitations, but significant progress can be made in urban areas by implementing low-carbon strategies to measure, manage, and mitigate GHG emissions.<br>Selangor is committed to achieving net-zero emissions by 2050 in some of its cities. A key success factor is the accurate reporting of GHG emissions. Tracking of GHG emissions in all sectors must be undertaken through the deployment of carbon reporting<br>mechanism for industries and development of framework for GHG calculations to allow for better low carbon planning at the local level.<br>Under the National Low Carbon City Masterplan (NLCCM), seven of Selangor's city and municipal councils have been identified for further action towards reducing carbon emissions. However, Selangor state currently does not have a GHG baseline inventory, which is important to assess current carbon footprint and address future |

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| | emissions.<br>**Issues and Challenges**<br>- Commitment to achieving net-zero emissions by 2050 in select cities necessitates accurate GHG reporting.<br>- Lack of GHG baseline inventory hinders effective emission reduction strategies.<br>- Need for carbon reporting mechanisms and GHG calculation frameworks for improved low-carbon planning at the local level.<br>**Objectives**<br>Introduce and implement energy-efficiency improvements in Selangor's government buildings- Sidec by Installing GHG emission sensors such as flow meters to measure GHG emissions, with the objective of reducing energy consumption and carbon emissions while maintaining cost-effectiveness. Aim for scalability across multiple local government buildings for broader impact.<br>**Expected Effectiveness**<br>1. Anticipated 15-20% reduction in electricity consumption.<br>2. Comprehensive data collection from various sources for detailed emission analysis.<br>3. Visualized dashboard tools for flexible data interpretation.<br>4. Benchmarking capabilities enabling comparison with industry standards for continuous improvement.<br>5. Behavior analysis to identify and address unnecessary power consumption. |

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| | 6. Scalability potential for implementation across multiple sites.<br>7. Introduction of innovative technologies to enhance energy efficiency and sustainability practices in government buildings. |
| **POC testing field and Scope** | Sidec's office in Shah Alam, Selangor, covers 14,000 sq ft and consists of 8 commercial units. Each unit has its own electricity meter. Around 4-5 units use a lot of electricity mainly for air conditioning and lighting. The POC will focus on these units to test and analyze their high power consumption. |
| **Duration** | Jul to Dec 2024 |