



SUSTAINABLE SMART MACHINE

Enhancing Technology, Advocating Sustainability

To tackle the issue of e-waste to achieve a more sustainable environment, a local small and medium-sized enterprise, METech Recycling Pte Ltd, introduced e-waste recycling smart bins, known as SG Recycle Smart Machines. These bins offer real-time data regarding bin fill levels, allowing for greater efficiency in waste collection and reducing unnecessary trips to check bins manually.

However, these bins rely on grid electricity and consume high power, resulting in increased carbon footprint which contradicts sustainability goals. Furthermore, deployment of the bins is limited to locations with grid electricity, restricting its scalability.

To address these issues, the team developed the Sustainable Smart Machine, a first-of-its-kind solar-powered e-waste recycling bin. Featuring an integrated solar power system, the bin operates independently off grid electricity, enabling deployment to more locations while significantly lowering carbon emission levels.

Innovators' Inspiration

"Our team collaborated with METech Recycling Pte Ltd to enhance the sustainability of their e-waste bins. We wanted to apply our engineering skills to make a real impact and create a greener world. Through this project, we drew closer as a team and had the opportunity to experience how it is like collaborating with external organisations to conduct site surveys. These experiences have better prepared us for the workforce. We hope to inspire others to stay committed to their goals and to always embrace feedback as a key to continuous improvement."

~ Samuel Tan Le Wen

What's So Special

- The Sustainable Smart Machine is designed to achieve long-term carbon neutrality by running on solar energy.
- The system itself is more environmentally friendly, reinforcing the message on sustainability. It serves as a greater encouragement on public recycling.
- The e-waste bins which were only deployable to locations with grid electricity can now be deployed in outdoor and remote areas. This increases the scalability of the service.

Members:

Samuel Tan Le Wen
Kavier See Wei Xun
Oh Kai Wunn Clayden
Wong Kai Kit
Lim Yu Heng Marcus

Course & College:

Higher Nitec in Electronics Engineering
ITE College West