



SmartCycle

BioFuel

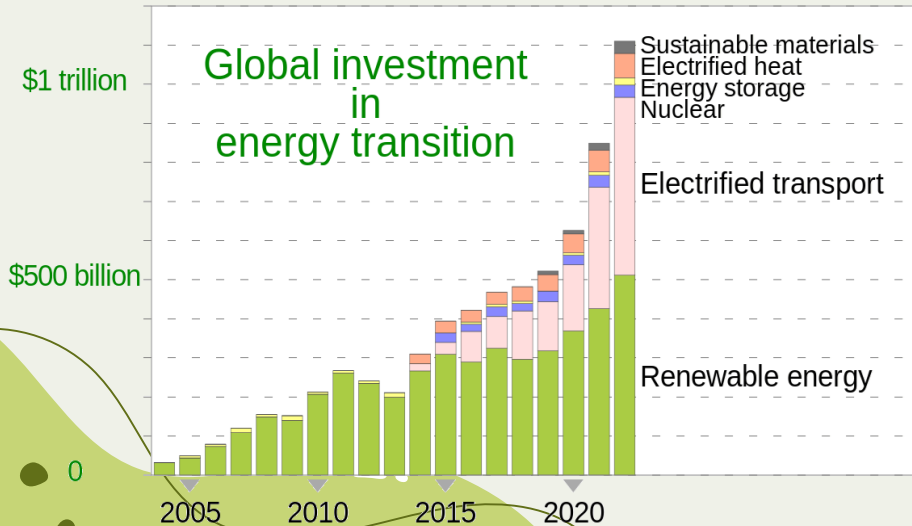
By SJK(C) Yuk Chai



Problems Statement

Problem – Limitation of current renewable energy

Although, we might think renewable energy is widely used in the world but in fact the total energy generated using it is just 16%, mainly because implementing renewable energy requires much land and money to build it.



Problems Statement

Too much on our plate

The amount of edible food waste dumped in Malaysia has been consistently high over the past three years.

Year	Solid waste* generated in Malaysia (tonnes per day) *including food waste	Food waste (tonnes per day)	Types of food waste (tonnes per day)	
			Inedible (eg. bones and fruit skins)	Edible (eg. leftover meat and vegetables)
2019	38,120	16,964	12,893	4,071
2020	38,294	17,041	12,952	4,089
2021	38,219	17,007	12,926	4,081

Source: Solid Waste Management and Public Cleansing Corporation (SWCorp)

TheStar graphics



6.5 Pictures of the Project

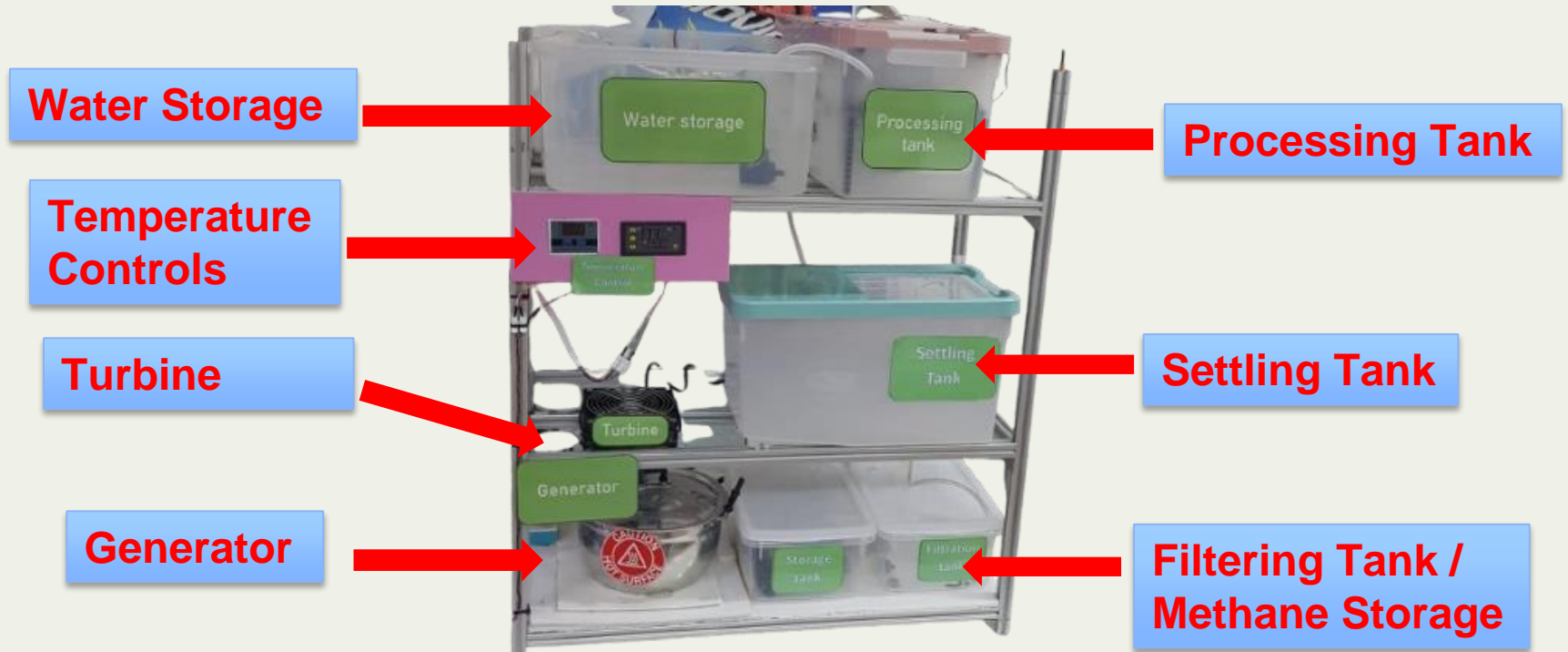
1st layer



2nd layer

3rd layer



6.5 Pictures of the Project - Front View





Engineering & Stability of Structures Parts & Components





We used a variety of affordable material to build up the project:
Here are some of the main one used.


Picture	Name	Quantity Used
	Lego Mindstorms EV3 Brick	1
	Lego Mindstorms EV3 Motor	2

Picture	Name	Quantity Used
	T-slot aluminum beam	18
	Water Pipe	4



Engineering & Stability of Structures Parts & Components



Picture	Name	Quantity Used
	Water Pump	3
	Storage containers	5

Picture	Name	Quantity Used
	Exhaust Fan	1

PROGRAMMING

<p>Application</p>	 <p>The logo for LEGO education, featuring a black hexagonal shape with a white square in the center containing a red square, positioned above the text 'LEGO education'.</p>	 <p>The logo for MIT App Inventor, featuring a stylized robot head with orange and white stripes, positioned above the text 'MIT APP INVENTOR'.</p>
<p>Function</p>	<p>Lego Mindstorms EV3 Software is a programmable robotics kit that is based on Lego building blocks. It is the third-generation edition of Lego Mindstorms. The EV3 includes computerized bricks, modular centers, motors, and other parts that can be used to create mechanical systems</p>	<p>MIT App Inventor is a high-level block-based visual programming language, originally built by Google and now maintained by the Massachusetts Institute of Technology. It allows newcomers to create computer applications for two operating systems: Android and iOS, which, as of 25 September 2023, is in beta testing.</p>

7. PROGRAMMING - MIT App Inventor

```
when Button2 . Click
do
  if BluetoothClient1 . IsConnected
  then
    call Notifier1 . ShowMessageDialog
    message "!(There is a malfunction in the system shutting a...)"
    title "System Error!!"
    buttonText "Shut Down"
  else
    call Notifier1 . ShowAlert
    notice "Connect first!"
```

```
when Screen1 . Initialize
do
  set Connect . Elements to BluetoothClient1 . AddressesAndNames
  call Screen1 . AskForPermission
  permissionName "Permission BluetoothScan"
```

```
when Connect . BeforePicking
do
  set Connect . Elements to BluetoothClient1 . AddressesAndNames
```

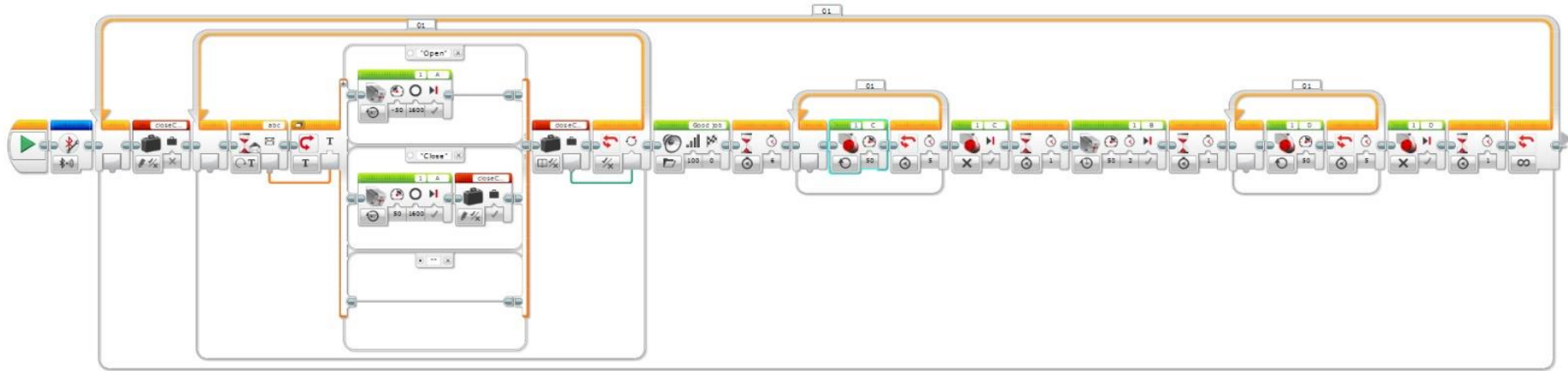
```
when Connect . AfterPicking
do
  evaluate but ignore result call BluetoothClient1 . Connect
  address Connect . Selection
  if BluetoothClient1 . IsConnected
  then
    set . Text to "Connected"
  else
    call Notifier1 . ShowAlert
    notice "Connect first!"
```


```
when Disconnect . Click
do
  call BluetoothClient1 . Disconnect
  set . Text to "Disconnected"
```

```
when Close . Click
do
  if BluetoothClient1 . IsConnected
  then
    call BluetoothClient1 . SendBytes
    list call EV3Mailbox1 . PackTextMsg
    name "abc"
    text "Close"
  else
    call Notifier1 . ShowAlert
    notice "Connect first!"
```

```
when Open . Click
do
  if BluetoothClient1 . IsConnected
  then
    call BluetoothClient1 . SendBytes
    list call EV3Mailbox1 . PackTextMsg
    name "abd"
    text "Open"
  else
    call Notifier1 . ShowAlert
    notice "Connect first!"
```

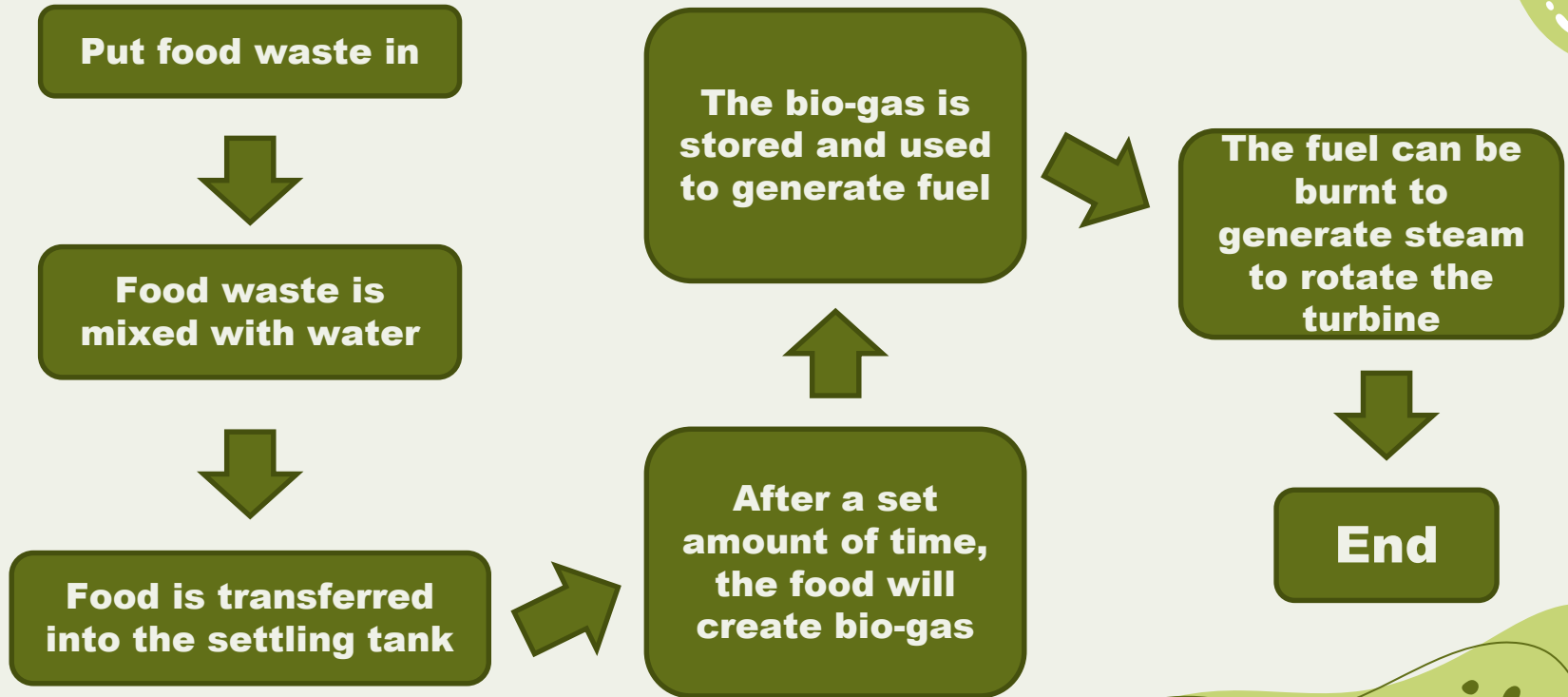
7. PROGRAMMING – Mindstorms





Live Demo

Prototype Design & Flowchart



“Turning waste into power, fuelling a greener tomorrow!”



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