SMART SCHOOL SMART BINS

01 WE DESIGN **A STEM WORKSHOP**

02 WE DESIGN **A SMART BIN**

03 WE MAKE SCHOOL AND STUDENTS **SMARTER**

**04** WE DEVELOP STUDENTS' **DESIGN THINKING**

05 WE DEVELOP STUDENTS' **PROBLEM-SOLVING SKILLS**

The objective of this project is to develop a smart waste bin that detects the height of rubbish in a bin. This is achieved by the use of Arduino and ultrasonic sensors. Results after the detection are shown by LED bulbs and signal will be sent through Wifi system for waste treatment. Therefore, the Smart Bin can allow smarter waste treatment for a better world.
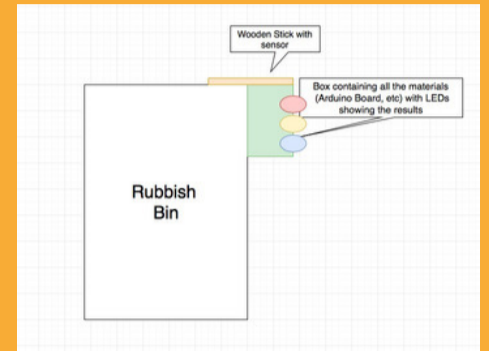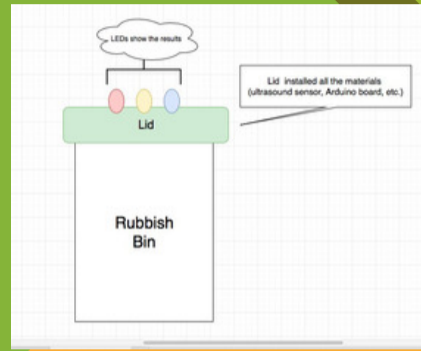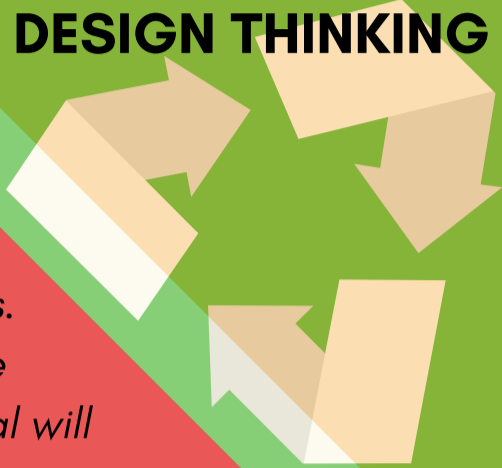
DESIGN RATIONALE

ARDUINO + ULTRASONIC SENSOR + WIFI MODULE
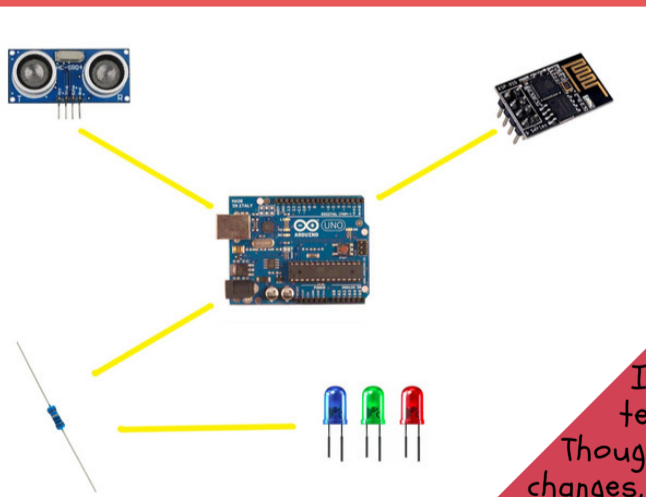
RUNDOWN OF THE WORKSHOP

Stage 1: Introduction to "Smart City" and Inquiring Problems of Waste Treatment

Stage 2: Design of Students' Smart Bin

Stage 3: Programming + Maker Workshop

Stage 4: Merging Distance Sensor with Rubbish Bin

Stage 5: Testing and Evaluation

DIFFICULITIES & LIMITATION

I have enhanced my experience by putting knowledge into practice. Also, I passed the torch to next generation and was helping to gradually achieve smart city.
—Karis

I found that building a good technical project needs teams. Though plans always fall behind changes, a team can provide alternative solutions from various aspects like Education, Engineering and Design. — Shing

Curious to figure out, despite the fact that our theme is "Smart City", actually we were responsible for planning and implementing STEM workshop of "Smart City" for students. This task never seemed easy to me, without technical support received, the construction of the Smart Bin would not be successful. --Eunice

I have experienced designing a STEM workshop with several limitations, including students' limited knowledge, school's requirements and our team's limited skills. Problem-solving skills are the generic skill that I developed throughout the project. --Brandon

To learn from each other, and get valuable experience !
--Being

As a technician, I found that this project not just need consider the feasibility of the product but also the feasibility of teaching the students how to make the product. So it is a quite challenging task. -- Cody

1 Our Team
We have limited skills, knowledge and technical support to implement our design. Integrating Wifi module to our design was the most challenging part.

2 Our School Partner
Our school partner has limited experience in organising STEM workshops. We have to prepare materials, like Arduino boards, ultrasonic sensors, connecting wires, etc.

3 Our Students
Our students are S.1 students with nearly no understanding of programming. It is very challenging to translate complicated programming language into simpler form that they can understand.