

## FORM 2 STEM PROJECT PROPOSAL

**Theme:** Achieving Sustainable Development Goals through STEM and Design Thinking

The Sustainable Development Goals of the United Nations that we would like to achieve : 3.9 (1-17)

Class: 2F

Teacher Advisor: Mr. Liu

Group Leader: Chan Tsz Him ( 4 )

Members: Lemuel Ma ( 18 )

Ben Liu ( 17 )

Tam Yu Ji ( 24 )

Identify the problem for achieving the SDG (No more than 100 words)

Some people breath in some toxic chemicals and cause death. This happens in both household and laboratories. For some odourless chemicals such as carbon monoxide, people cannot identify them with only smelling, so they may die due to different reasons. For example, if a fire is started in an area without enough oxygen, carbon monoxide is produced. Carbon monoxide is harmful to our body, so if we breath in too much carbon monoxide, we may die. For laboratory, people may carelessly store the chemicals wrongly, so there may be leakage of gas. If people breath them in, they may die.

How would you solve the problem? (No more than 200 words)

We can create a gas monitoring system to monitor different kind of gases in the air inside a room. When there is too much toxic gases inside the room, the system will warn the people around it to take actions. The monitoring system should consist of different kind of gas sensor to tell the controller about the gas in the air. The system can also warn the owner about the degree of leakage through the internet. Also, the system can detect smoke, so if the system is put inside the kitchen, and the chef forgot to close the fire, the system will also notify people around it.

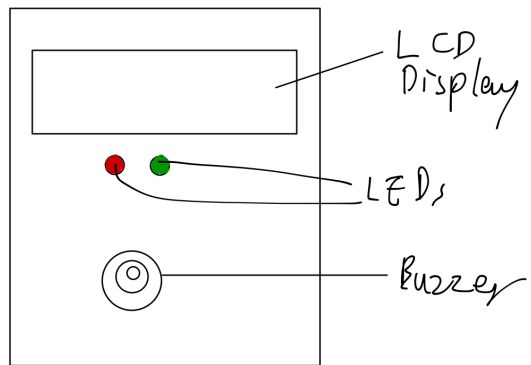
**Materials needed:**

Material	Qty.	Material	Qty.
1. Char Siu Board	1	11.	
2. MQ series sensor	1	12.	
3. Case	1	13.	
4. PCB	1	14.	
5. LED	2	15.	
6. Buzzer	1	16.	
7. LCD display	1	17.	
8. Arduino Board	1	18.	
9. Battery holder	1	19.	
10. 18650 battery	2	20.	

Is 3D printing required? ☒Yes/No

Is Laser Cut required? ☒Yes/No

## Design of our Prototype:



Front

