Good morning. Today, I would like to introduce out STEM project proposal to you.

Firstly, as you can see, there are 17 sustainable development goals. This time, the topic we have chosen is Goal 3 – Good Health and well-being.

Within Goal3, there are 13 sub-goals. We have chosen goal 3-9 Reduce illness and death from hazardous chemical and pollution.

To be more specific, what problems are we solving? From the news on February 21, someone got carbon monoxide poisoning. In the US, every year, at least 430 people died from accidental CO poisoning.

However, why can't people identify those toxic gases and stay away from them? Some chemicals such as carbon monoxide are toxic but odorless. It is difficult for us to identify them with only out smells. In household, it is almost impossible to implement a well-developed system to detect gases as they are normally expensive.

How can we achieve the goal? We may develop an air monitoring system. We may divide the system into two parts, one is the daily maintain part and the warning signal part. For daily maintain, the sensor will keep on detecting the gas in the air around the device and check if it contains the specific gas. It will update the data of control panel from time to time.

There are a total of 3 panels, namely the local Ip address connection, Bluetooth connection and char siu online interface. Firstly the ip address connection, you can visit the IP address assigned by the router. It will display a table to show the data. Secondly the Bluetooth connection, when the smart phone connects to the module inside the device. With the app created with app inventor, it will show the data of the sensor automatically. Lastly the charsiu board, and we don't have to explain much about it. It is to show by sending data to object blocks.

For the materials we need for this project, firstly is the charsiu board to send data to object blocks. Secondly, the gas sensors to detect the designed gases. Thirdly, the Arduino board to coordinate everything. With the help of the ethernet shield on the Arduino board, it will be able to host an ip address and display data to users in the most stable and fastest way. Also there is a Bluetooth module to send the data from the device to our smart phones. In case there is no connection can be made, the data can be shown on the LCD display of the device. Also, we need some LEDs and buzzer to warn the user about the danger. As the device is portable, there will be a battery holder so that the device can run without plugging to the power source.