Our project aims at monitoring the content of certain toxic gas in the air that can cause harm to human, which is the goal 3-9 in the Sustainable Development Goal of the United Union. We could often see that some people in the community died of breathing in toxic gases and according to National Center for Environmental Health of the United States, every year, at least 430 people die in the U.S. from accidental carbon monoxide poisoning, which is odorless, so people are difficult to identify it.

Our project creates a system that contains sensors that can detect several toxic gases using MQ sensors. When certain gas is detected, our system would notify the users using several methods.

Firstly, it would immediately produce sound using the buzzer and warn the people around it to conduct corresponding safety measures.

Secondly, there is a display (using a 2004 LCD display) showing the content of each specified gases in the air. This could provide them necessary information to conduct various safety measures.

Thirdly, the user can check the gas content remotely on their smartphones. We make use of 2 different technologies, including a Bluetooth module (for near connection) and an ethernet module (for distant connection). These could let the user know the real time data even they are not at home.

How does our system satisfy the competition topics?

First, some elderly has less safety consciousness. They may not be aware of potential dangers around them. When they did some dangerous actions, such as taking hot water bath using hot water boilers that use liquefied petroleum gas or natural gas, which is commonly used in some country such as Turkey, in a closed environment that may produce carbon monoxide. The system could give out warning to them and the people outside the bathroom. This could help them carry out safety measures and avoid accidents.

Secondly, we could apply a sensor that detect coal gas in our home. When there is a gas leakage, it could tell the user not only to carry out safety measures, but also to tell them to close the gas pipe to prevent further leakage. This can also help reduce the coal consumption.