

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Buying the tool and using the existing tool

The tools that the author has include jumper cables to connect the electrical functional, breadboards as connector between one sensor and another, LED lights as alert when the Gas Sensor mq-5 exceeds the specified limit, resistors to hold up voltage to the LED lights. the tools purchased include WEMOS D1 as storing the code as well as programming with Arduino IDE to run the tool perfectly, MQ-5 sensor for detecting H₂, LPG, CH₄, CO, Alcohol, DC 5V mini-fan to neutralize the leakage gas, buzzer as alert when the Gas Sensor mq-5 exceeds the specified limit.

3.2 Planning for design box Gas Leak Detector

The author makes a box from used cardboard and wrapped in white paper to make it look nice and in the best shape possible.

3.3 Manufacturing server IoT

The author using Website Thingspeak to store the value of gas sensor mq-5 and upload the value of gas sensor mq-5 in periodically. The results of thingspeak server in the form of graph.

3.4 Manufacturing Bot to Send SMS Notification

Telegram bot is an API (Application programming interface) that allows a programmer to integrate two different applications simultaneously, in this case a Telegram chat application with other devices. So the usual telegram chat is in the application right by humans (human users), with this BOT Telegram, chat can be replied by a program. With this BOT Telegram API, it can connect between telegram chat and a system. Creating the Program

Several steps that must be done :

1. Create a new channel in thingspeak to store the value data from Gas sensor mq-5
2. Create new Account and bot in Telegram to send SMS notification when the gas exceed the specified limit.
3. Create the code with C programming in arduino IDE to display the value in the serial monitor in arduino IDE nor in thingspeak website and commands bots in telegram to send notification messages.

3.5 Sensor and System Testing

The author Test all sensor in this project (MQ-5, buzzer, mini-fan) and make sure all the sensors work properly.

The author also testing code Arduino program and make sure the value of the gas sensor is in the thingspeak graph field.

