CHAPTER IV

RESULT AND DISCUSSION

This chapter consists of the results and discussion obtained from this project. The results will be discussed in this chapter. It will discuss how the implementation of hardware and software designed and wired. The functionality of Implementing Smart Range Hood using IoT and Node MCU will be tested and the result will be explained.

4.1 PRINTED CIRCUIT BOARD (PCB) CIRCUIT DESIGN

4.1.1 Automatic System

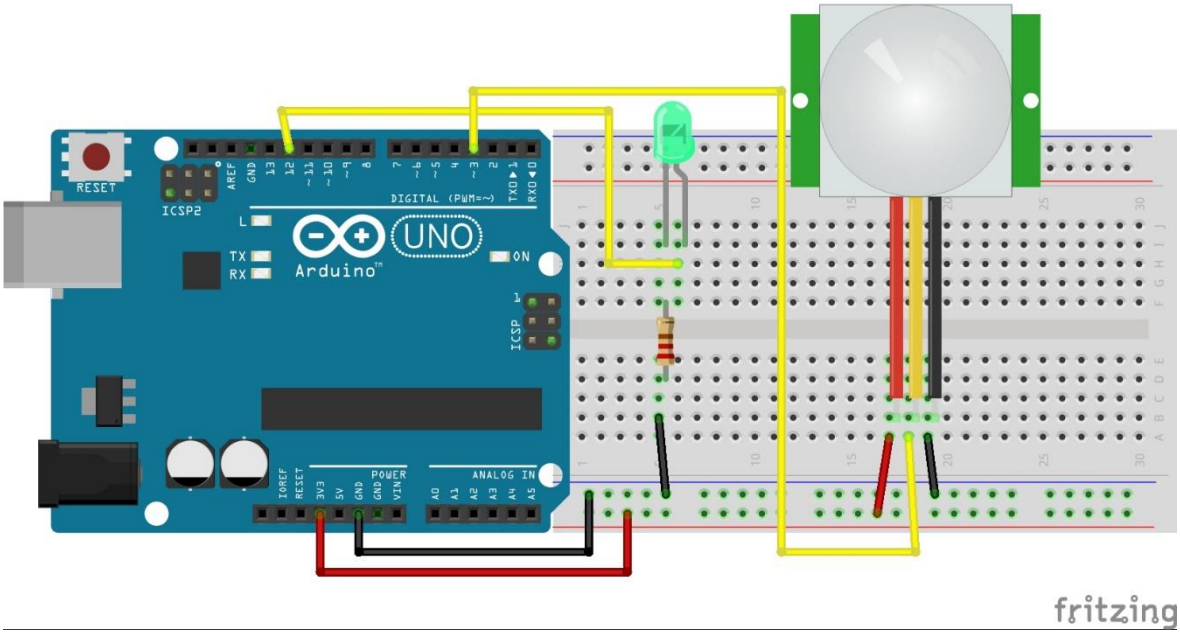

Figure 4.1.1.1: Diagram connection of PIR Motion sensor with LED Light Bulb function.

According to figure 4.1.1.1 describe how PIR Motion Sensor with LED Light Bulb function connected. There are Arduino Uno, breadboard, PIR Motion Sensor, LED light bulb. The Arduino is used to analyze the LED light bulb, and turn-on or turn-off a LED light bulb according.

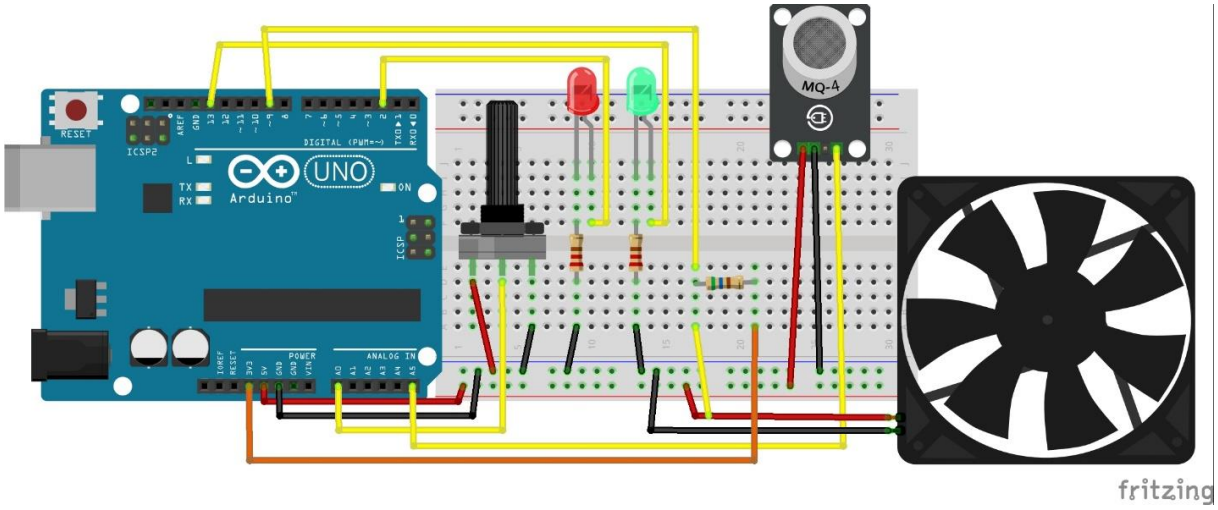

Figure 4.1.1.2: Diagram connection of MQ-2 sensor with fan speed function.

According to figure 4.1.1.2 describe how MQ-2 sensor with fan speed function connected. There are Arduino Uno, breadboard, MQ-2, fan, resistor a10k. The MQ-2 uses power supply and resistor A10k to be supplies power and control fan's speed. The Arduino is used to analyze the fan speed, and turn-on or turn-off a fan according.

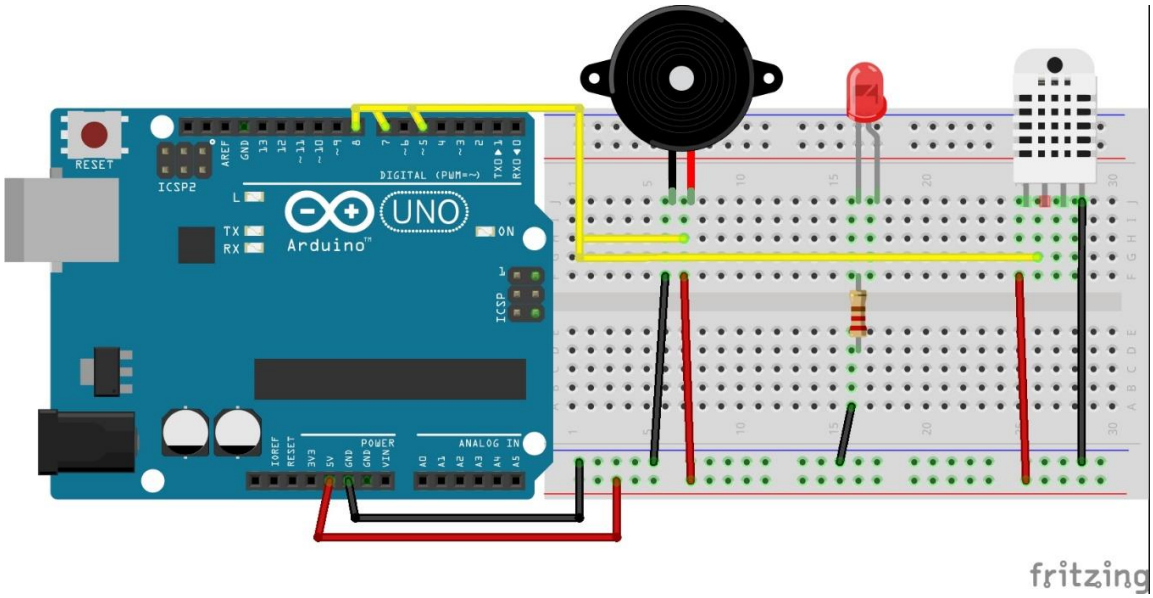

Figure 4.1.1.3: Diagram connection of DHT22 / AM2302 Module or Temperature and Humidity Sensor Module with Buzzer function.

According to figure 4.1.1.3 describe how DHT22 / AM2302 Module or Temperature and Humidity Sensor Module with Buzzer function connected. There are Arduino Uno, breadboard, DHT22 / AM2302 Module or Temperature and Humidity Sensor Module, Buzzer, LED. The Arduino is used to analyze the buzzer, and turn-on or turn-off buzzer to control alarm sound according.

4.1.2 Manual System

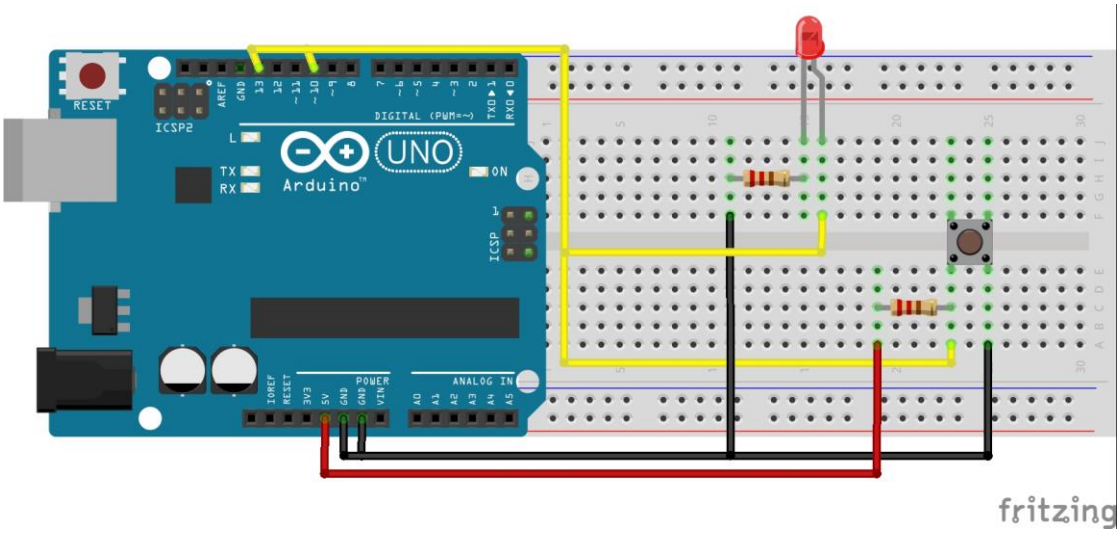

Figure 4.1.2.1: Diagram connection of Switch Button with fan LED Light Bulb function.

According to figure 4.1.2.1 describes how the Switch button with led light bulb function connected. There are Arduino Uno, breadboard, switch button, led light bulb. The Arduino is used to analyze the LED light bulb, and turn-on or turn-off a fan according.

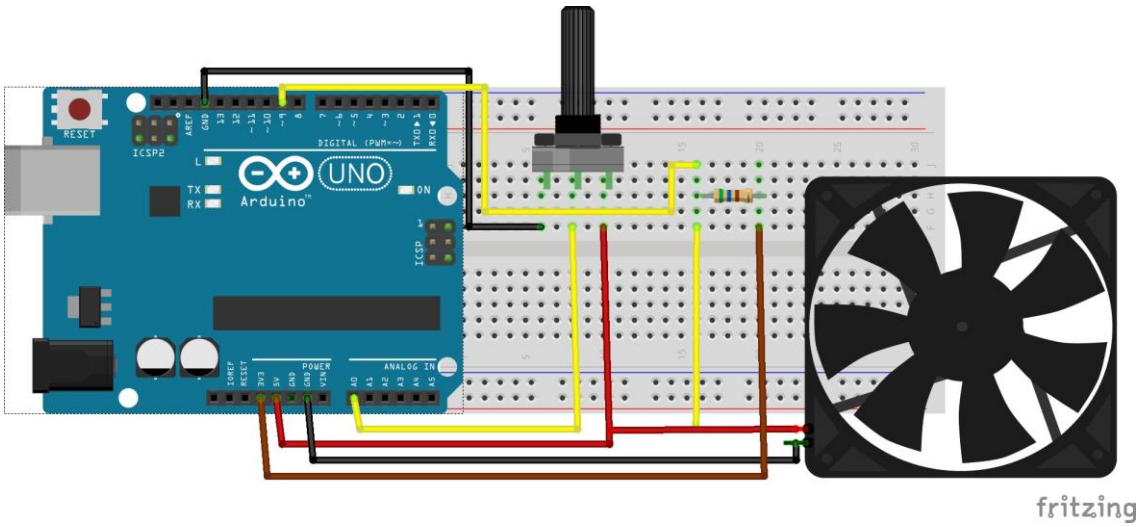

Figure 4.1.2.2: Diagram connection of resistor control with fan function

According to figure 4.1.2.2 describes how the resistor control with fan function connected. There are Arduino Uno, breadboard, fan, resistor a10k. The fan uses power supply and resistor A10k to be supplies power and control fan's speed. The Arduino is used to analyze the fan speed, and turn-on or turn-off a fan according.

4.2 SMART RANGE HOOD DEVICE HARDWARE AND SOFTWARE DESIGN

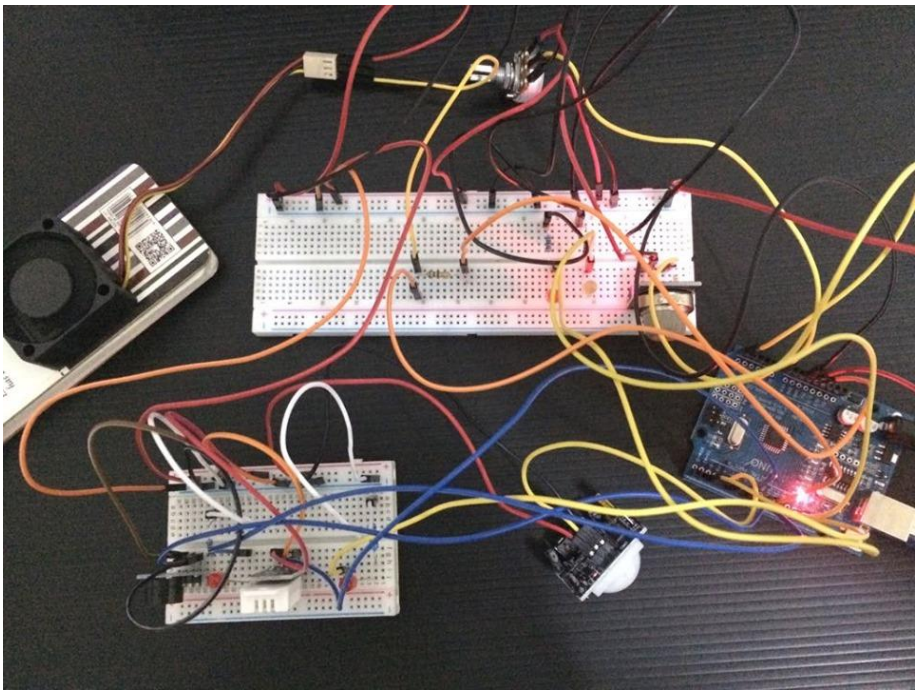

Figure 4.2.1: Circuit of Smart Range Hood on Arduino Uno

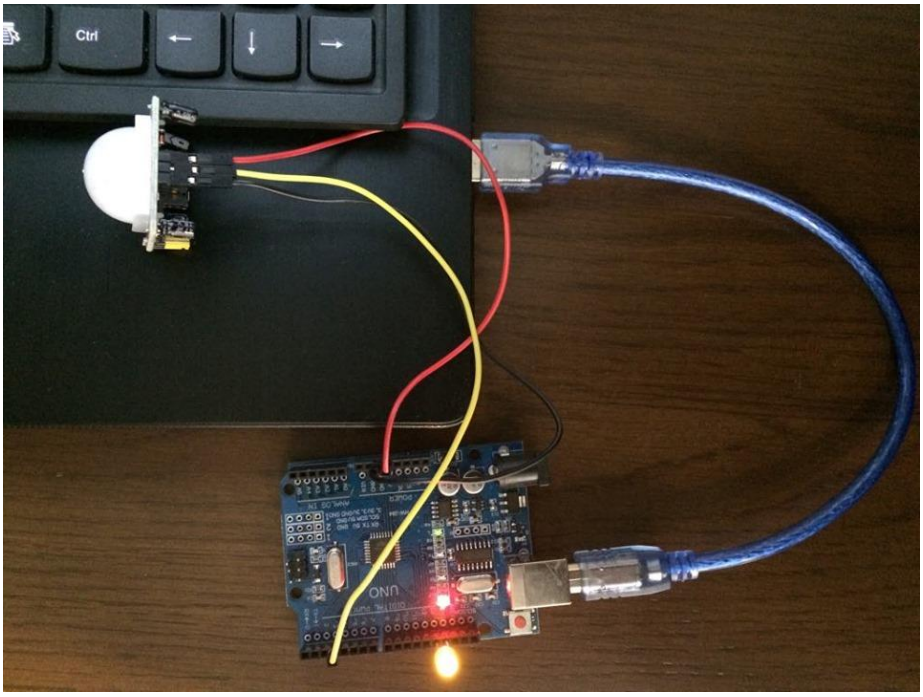

Figure 4.2.2: Circuit of PIR Motion Sensor on Arduino Uno

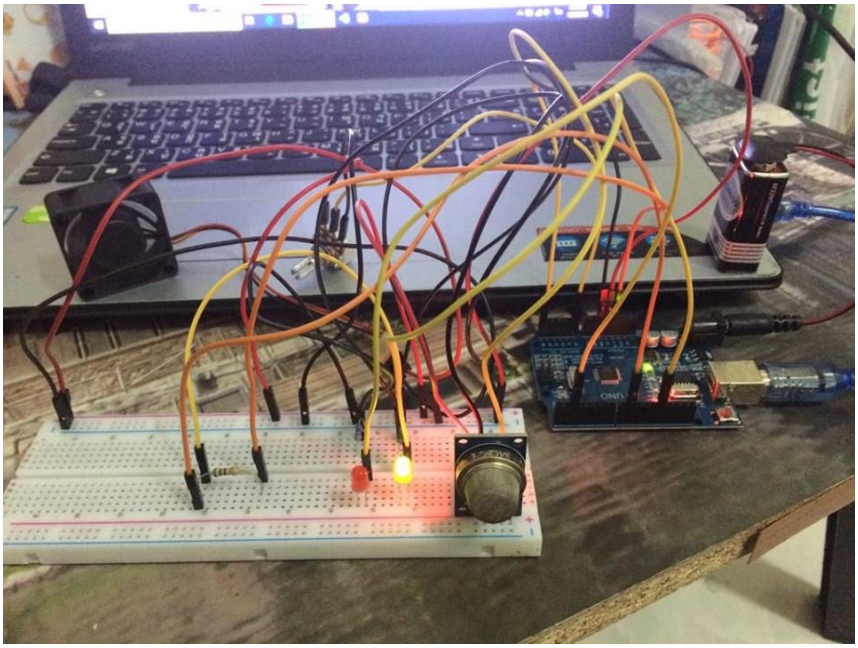

Figure 4.2.3: Circuit of MQ2 Sensor on Arduino Uno

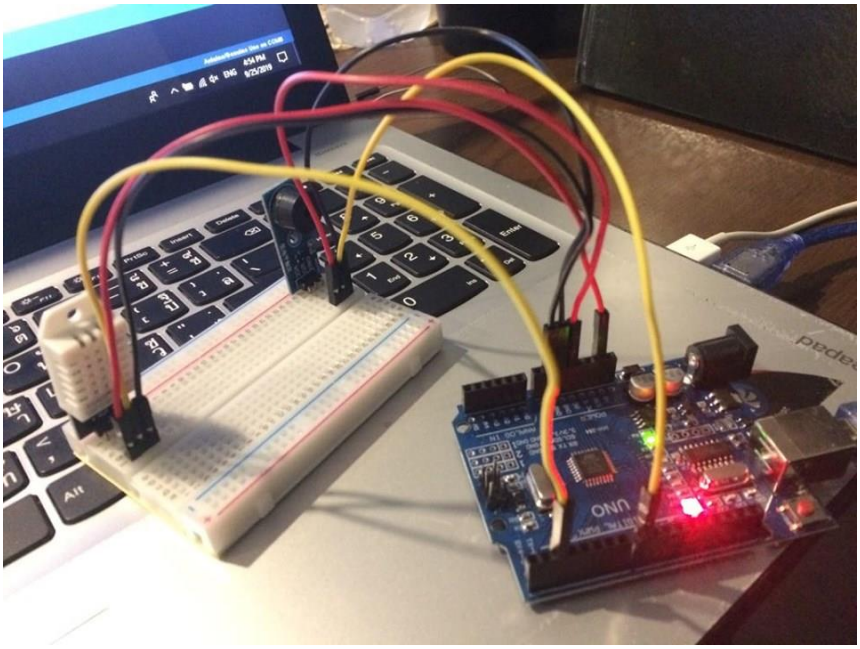

Figure 4.2.4: Circuit of DHT22 / AM2302 Module or Temperature and Humidity

According to figure 4.2.1, 4.2.2, 4.2.3, and 4.2.4 show the location of the circuit of Smart Range Hood and PIR Motion, Smoke, Temperature located. We locate here because of easy to see and fine the circuit. Use the box to be the case and protect anything to harm circuit. For PIR Motion in the in front of because is easy to detect human movement and MQ-2 in the on top center between both of two gas stove because is easy to detect smoke when human cooking. And the last one is DHT22 or Temperature we located near MQ-2 because is easy to detect Temperature thoroughly.