Problem 1: Thermal Imaging Sensor

When we first got the thermal imaging sensor, we first tried to test it by taking the temperature of a human body. However, the first problem that we bumped into is that when the person is wearing a jacket, thermal imaging sensor will not be able to pick up body temperature.

Solution:

Since this is a hardware limit by the Thermal Imaging Sensor, we make the assumption that the thermal imaging sensor must face the person’s face in order to get their temperature and determines if they are a human or not.

Problem 2: Thermal Imaging Sensor

Human body temperature is greatly affected by ambient temperature.

Solution:

Did multiple testing on human body temperature under different ambient temperature. After all the testing, it seems that the body temperature falls within the range of ambient temperature + 7 to ambient temperature + 15. Upon coming up with this solution, we have to make the assumption that anything within the range of ambient temperature + 7 and ambient temperature + 15 but has to be below 37 degree. This will still cause error since there are objects that within this temperature range.

Problem 3:

On our original design for the ultrasonic sensors, we were getting a lot of error values when we place the ultrasonic too close to each other and when we tilt the ultrasonic sensor at approximately 40 degree, the ultrasonic sensor was not able to detect anything.

Solution:

We redesign the way to put the ultrasonic sensor by putting 1 ultrasonic sensor on the shoe, 1 right below the knee, 1 on the chest and 1 on the stomach. However, this solution will solve this problem but it will be not as convenience as it was for the visual impairs.