CSCE- 5612 Embedded Hardware

Project Milestone – 4

Name: Manasa Varala

Student Id: 11727461

Name: Komatineni Meghana Chowdary

Student Id: 11599585

1. Validation Plan

Once all the major things in the part of this assembling is done, then we are good to go for this kind of validations and then we are going to run some of the multiple validation steps where we can get to know more about any flaws or stuff like that and which can be very ensuring kind of that to we can see that whether everything is working. We can use some of the of the multimeters to kind of checking the continuity of the power too all across the power and the signal lines.

After assembly, we are going to verify the base of this continuity of all the traces that are using with this multimeter. We are going to test the I2C OLED like by using some of the sample codes and we can confirm the UART and it's reception like from the main camera. And here the GPIO toggling going to be verified using some kind of an LED test.

Validation Checklist:

- **Continuity Check:** Between MC pins and the header
- **Voltage Check:** Here the 3.3V power stability like under the load
- **I2C Check:** Display detection using I2CScanner
- **UART Loop Test:** Serial based test that is going in between computer and XIAO
- **GPIO Toggle Test:** LED on/off test via digitalWrite using some code

Continuity Test:

- Check GND, 3.3V, and also the communication of all of the pins using some multimeter stuff.

Sensor & Communication Testing:

- Validating the UART with some of the barcode input using a paper or screen

- Use `i2cdetect` just to confirm that the camera and the sensor presence

Power Validation:

- Measuring the regulated voltage and also the output from AMS1117 (expect 3.3V ±0.1V)
- Checking the MC input voltage for all the stability and stuff while we keep load.

System Validation:

- ML model tested using TensorFlow Lite runtime and other things too
- Display output which is going to confirm that the recommendation part is working and also giving the main billing a success