Smart In-Car Display

`status` `active`

Smart In-Car Display

📝 Table of Contents

😳 About

This repo contains circuit, firmware for Smart In-Car Display Project.

🏁 Getting Started

These instructions will get you a copy of the project up and running on your local machine for development and testing purposes. See deployment for notes on how to deploy the project on a live system.

Prerequisites

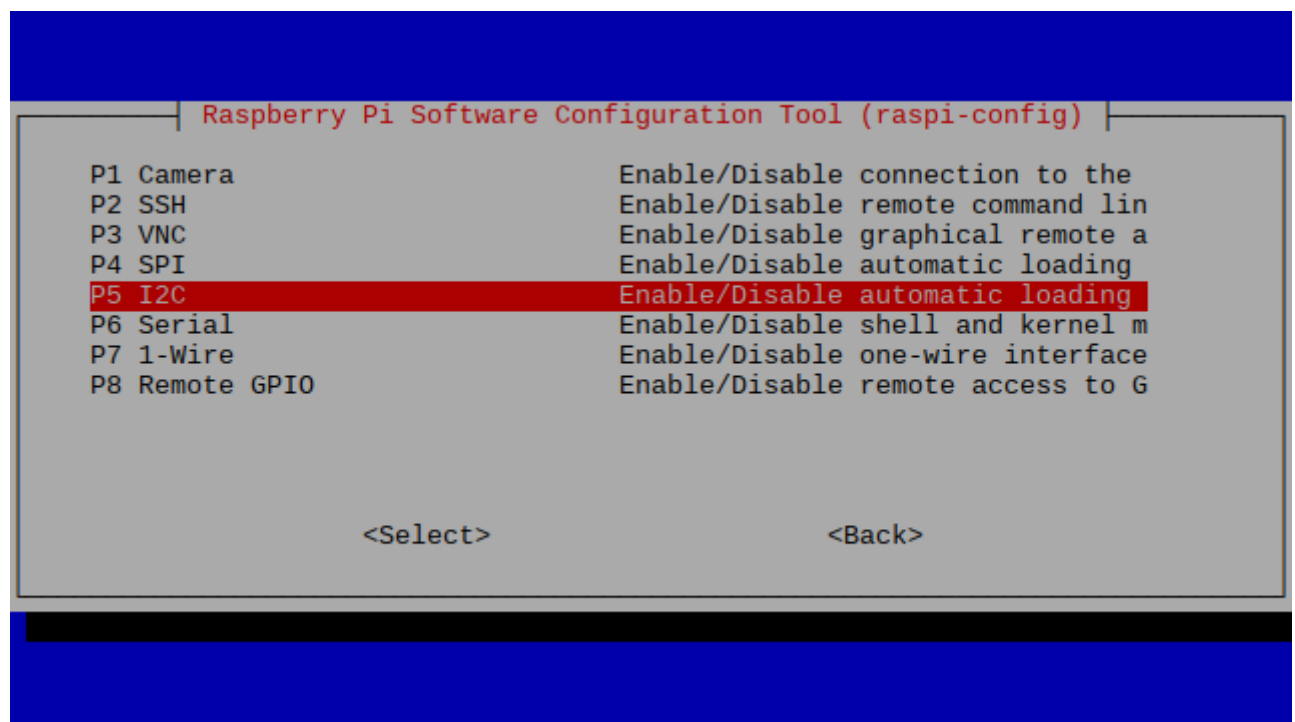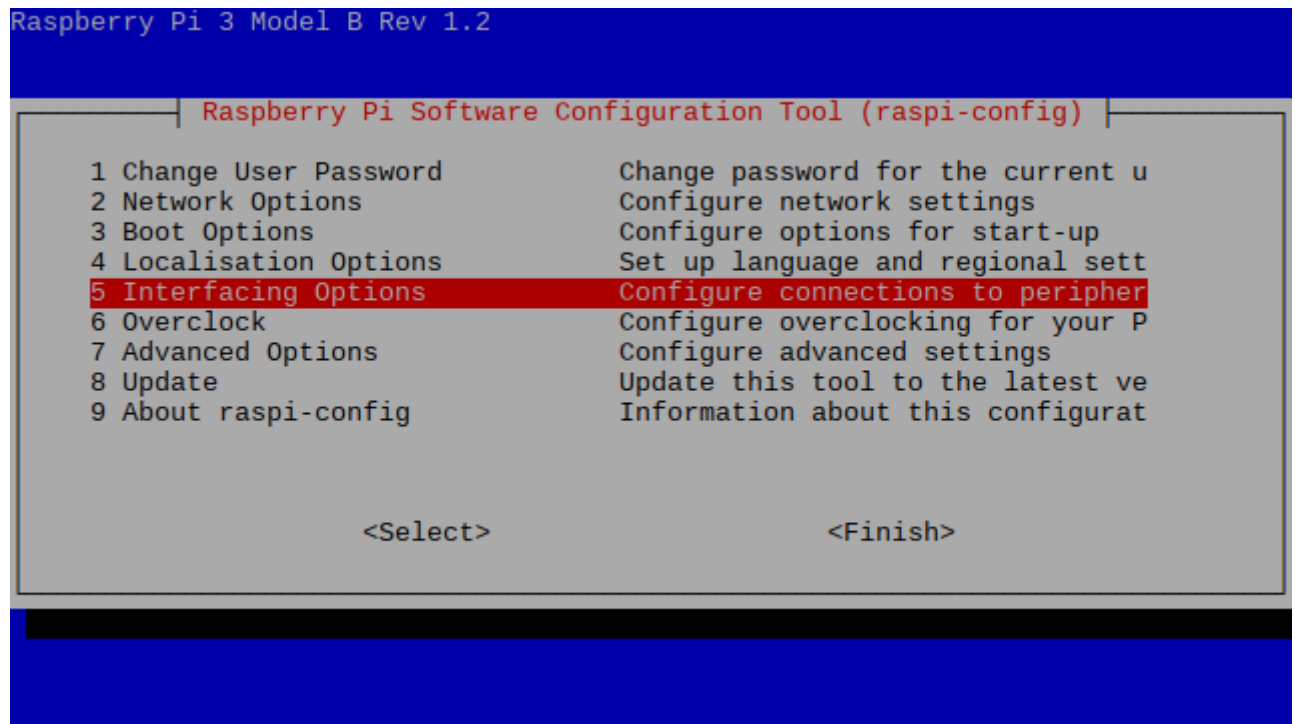What things you need to install the software and how to install them.

```
- Raspberry Pi Zero W
```

Installation and Configuration

A step by step series that covers how to get the Firmware running.

Raspberry Pi Firmware Pre-Reqs

1. Download and install the latest Raspberry Pi OS Desktop image to your SD card
2. Open the terminal and execute the following command `sudo raspi-config`
3. Then follow the following pictures to enable I2C bus on you raspberry pi
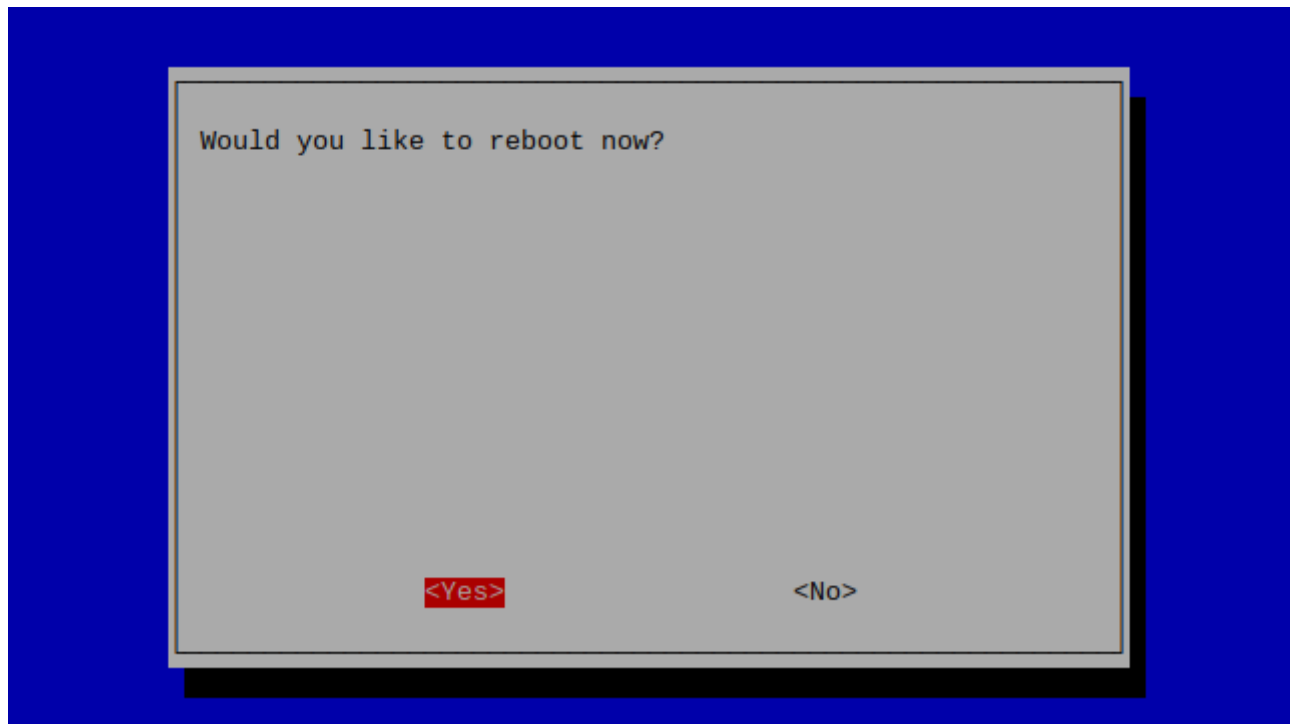
-
```
Raspberry Pi 3 Model B Rev 1.2




        |    Raspberry Pi Software Configuration Tool (raspi-config) |

        1 Change User Password          Change password for the current u
        2 Network Options               Configure network settings
        3 Boot Options                  Configure options for start-up
        4 Localisation Options          Set up language and regional sett
        5 Interfacing Options           Configure connections to peripher
        6 Overclock                     Configure overclocking for your P
        7 Advanced Options              Configure advanced settings
        8 Update                        Update this tool to the latest ve
        9 About raspi-config            Information about this configurat



                    <Select>                      <Finish>
```

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```
        |    Raspberry Pi Software Configuration Tool (raspi-config) |

        P1 Camera                       Enable/Disable connection to the
        P2 SSH                          Enable/Disable remote command lin
        P3 VNC                          Enable/Disable graphical remote a
        P4 SPI                          Enable/Disable automatic loading
        P5 I2C                          Enable/Disable automatic loading
        P6 Serial                       Enable/Disable shell and kernel m
        P7 1-Wire                       Enable/Disable one-wire interface
        P8 Remote GPIO                  Enable/Disable remote access to G



                    <Select>                      <Back>
```
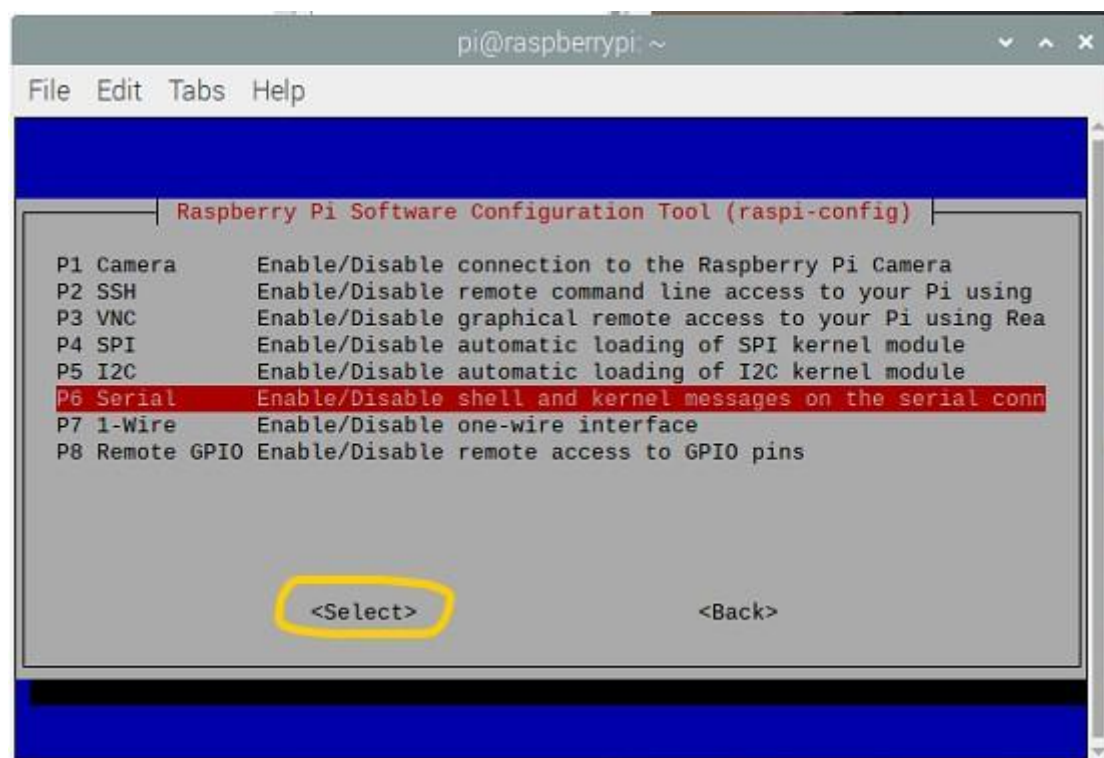
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- Then do the same for Serial(UART)

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Configuring Raspberry Pi and Running the UI

1. Copy Firmware folder to the desktop of your Raspberry Pi, open the terminal of your Raspberry Pi and execute the following commands

- `sudo apt-get update`
- `sudo apt-get upgrade`
- `sudo apt install python3-pip`
- `sudo pip3 install pillow`
- `sudo pip3 install python3-dev`

- `sudo python3 -m pip install --upgrade pip setuptools wheel`
- `sudo pip3 install hyperpixel2r`
- `sudo pip3 install Adafruit_DHT`
- `git clone https://github.com/pimoroni/hyperpixel2r`
- `cd hyperpixel2r`
- `sudo ./install.sh`
- `cd ~/Desktop/Firmware`
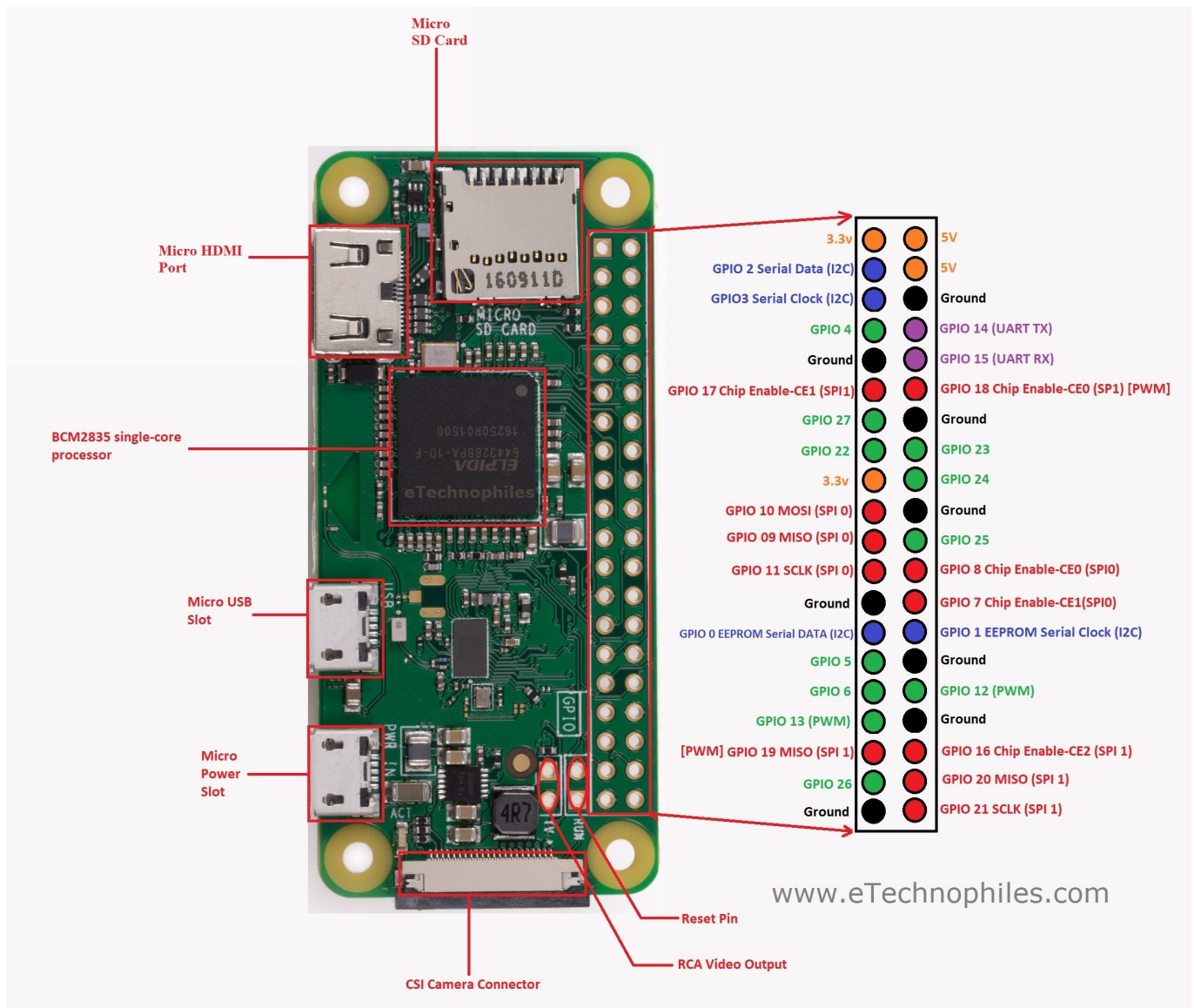- `sudo chmod a+rx starter.sh`

1. To run the program just double click on starter.sh file
2. or execute `python3 /home/pi/Desktop/Firmware/Firmware.py`

🔨 Testing

1. The Firmware can be tested on Raspberry Pi 3B, 3B+ or 4B with the following modifications
2. Connect the sensor as shown in the Circuit Diagram section below.

🔌 Circuit Diagram

- RPi 3,4 GPIOs Pinout

Circuit

> Pins connections

DHT22 Inside	Raspberry Pi
DOUT	GPIO16
VCC	5V
GND	GND

DHT22 Outside	Raspberry Pi
DOUT	GPIO18
VCC	5V
GND	GND

MPU6050	Raspberry Pi
SCL	GPIO5(SCL)
SDA	GPIO3(SDA)
VCC	3.3V
GND	GND
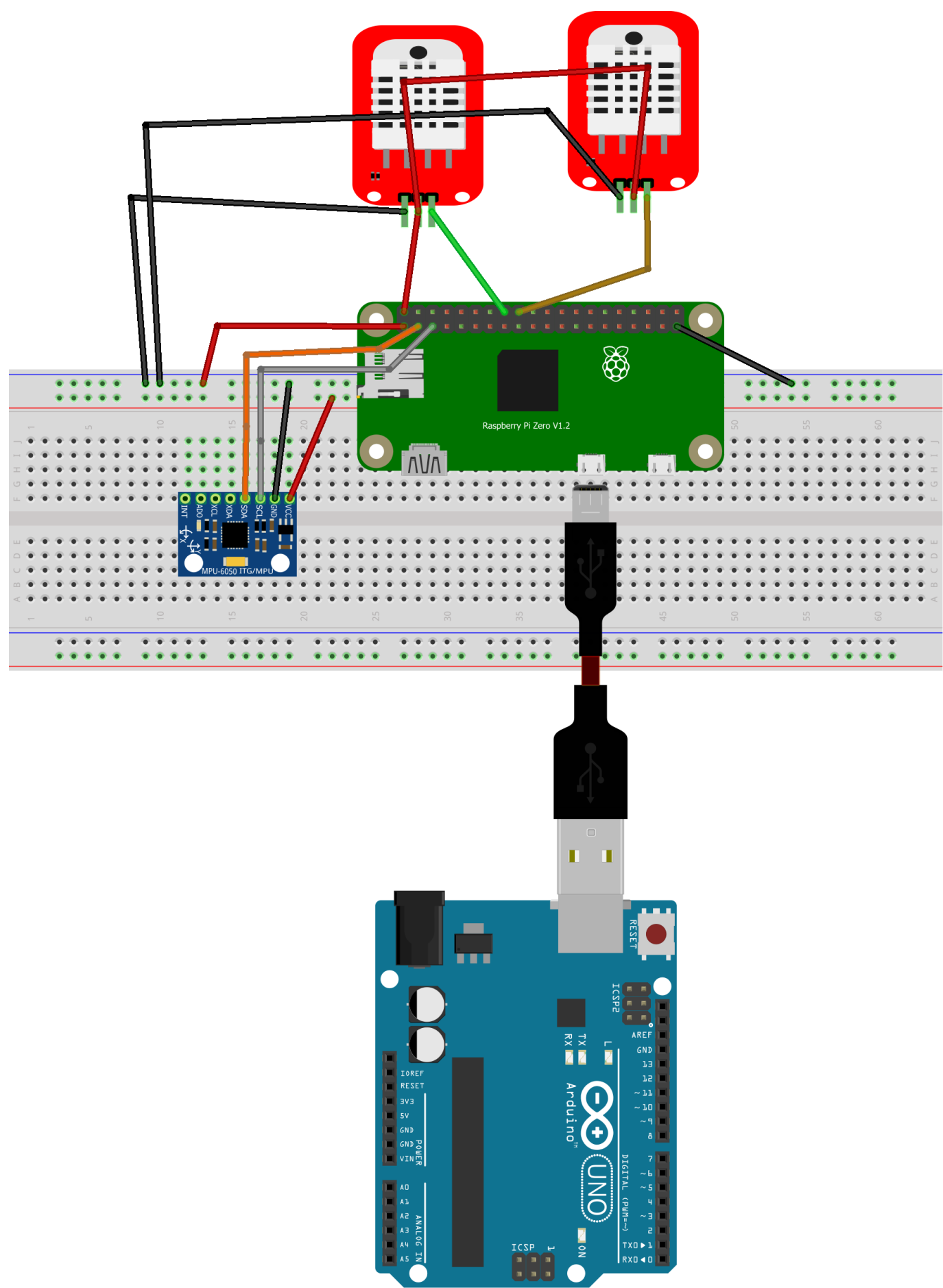
Components Used

1. Raspberry Pi Zero W
2. Hyperpixel Display
3. DHT22 Modules
4. MPU6050
5. Any Arduino
6. USG OTG Cable

⚒ Built Using

- Python3 - Raspberry Pi FW
- Flutter - Cross-Platform Smartphone App Development Framework

✍ Authors

- @Nauman3S - Development and Deployment