

Drones for Humanity

1.0

Test Plan

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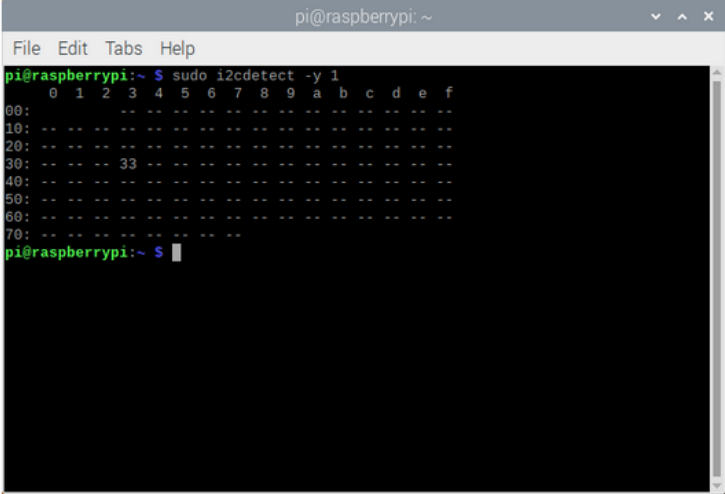
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1. Testing

1.1. Thermal Camera

Testing the thermal camera is not too difficult. There is an included library for the chosen thermal camera called i2c-tools. A test function can be called from this library from the command prompt and if the camera is connected correctly, the terminal will display something similar to this:

A terminal window titled 'pi@raspberrypi: ~' with a menu bar (File, Edit, Tabs, Help). The command 'sudo i2cdetect -y 1' has been executed. The output shows a grid of I2C addresses from 00 to 70. Most addresses are marked with '--', indicating no device is present. Address 33 is marked with '33', indicating a device is present at that address. The cursor is on the line for address 70.

```
pi@raspberrypi:~$ sudo i2cdetect -y 1
 00:  --  --  --  --  --  --  --  --  --  --  --  --  --  --  --  --
10:  --  --  --  --  --  --  --  --  --  --  --  --  --  --  --  --
20:  --  --  --  --  --  --  --  --  --  --  --  --  --  --  --  --
30:  --  --  33  --  --  --  --  --  --  --  --  --  --  --  --  --
40:  --  --  --  --  --  --  --  --  --  --  --  --  --  --  --  --
50:  --  --  --  --  --  --  --  --  --  --  --  --  --  --  --  --
60:  --  --  --  --  --  --  --  --  --  --  --  --  --  --  --  --
70:  --  --  --  --  --  --  --  --  --  --  --  --  --  --  --  --
pi@raspberrypi:~$
```

Credit: makersportal.com

1.2. Neural Network

Testing a neural network is quite difficult, we can only say whether the neural network is accurate at predicting what we want it to predict. The accuracy it is given could be slightly off, or somehow wildly incorrect. It really comes down to using it to predict real life attempts, even if a testing dataset is used, the neural network might behave unpredictably in actual use.

1.3. GPS Chip

The avionics team is in charge of testing the chip itself, so the CS part of the team can trust that the chip is working. Testing that the class itself works can be done by sending out the drones GPS location through the GPS Chip class.

1.4. Ground User System

Similar to the GPS Chip Class, the Ground User System can be tested turning it on and waiting for the GPS location to come through. Since the only user input is done through the thermal camera, there should be no worries about the GPS Chip or Ground User System behaving badly on input, as long as all GPS locations are supported.