

Non-technical User Manual for IMU

Operation:

Step 1: Power IMU with batteries or the header,

Step 2: Power the Pi and open communications or view the VNC output and open the “programming window”, which will allow easier access to the output file later.

Step 3: Navigate the Pi to the correct directory

Step 4. Pair Bluetooth IMU with Raspberry Pi

Step 5. Give it the UUID of the IMU’s click and a number for seconds to record for, if not given a valid entry for seconds the program will run indefinitely, a “-1” input will suffice if you wish for the program to run indefinitely.

The syntax is as follows:

```
>./IMURecording [UUID] [seconds (double)]
```

Example >./IMURecording 77:C2:4C:96:C1:AD 15

The Pi will now read from the IMU device for 15 seconds. The data will be printed to both the programming window and a csv file called “IMUData.csv”. The IMU outputs values every tenth of a second so the number of entries will be equal to 10 times the seconds it has been set to run for, 150 in this case. IMUData.csv is overwritten if this line is run, so be sure to copy your results if you need them and do not wish to use another file name.

Step 6: The IMU is now recording, any movements you wish to record should now be performed

Step 7. Type CTRL+c to quit the program, this can be used when the program is running indefinitely and when it has a designated runtime.

Step 8: If you can view the VNC, look in the “IMURecording” file and you will be able to view IMUData.csv, which contains the data you just recorded.

Trouble Shooting:

If Bluetooth is not connecting, disable the power supply from the IMU and turn Bluetooth on the pi on and off again or restart the pi completely. This will reset all sensors.

If the pairing has been successful but the Pi believes the IMU offers no services then you may have to remove the device from the Bluetooth settings completely and reconnect to the IMU each time the program is run.

If the program is unable to detect the UUID you have given it and is asking you to use “sudo hcitool lescan”, ensure that it is spelt correctly and that the Bluetooth and Pi are paired before running.

If data is beginning to drift and not representing what is happening with the IMU, disconnect the power supply to turn it on and off again.

If the program is producing a segmentation fault, it means you have given a UUID but not a runtime, simply add a “-1” if you have no particular runtime in mind.