Alex Shah

Project 7 - GPS

2024-04-07

Revised 2024-05-03

EN.605.715.81.SP24

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Requirements

This project requires adding a GPS module to a raspberry pi on a flight capable drone. The GPS module should capture GPS data, send the data over wifi, and be displayed on a host device.

Design

Using the flight capable drone from previous assignment, the raspberry pi, power bank, and Gmouse GPS module are secured to the drone and connected over USB. On the pi, GPS packages are installed and while the drone and pi are powered, the GPS data is sent to the remote host using ssh to remote into the pi.

Implementation

In order to use the GPS module we first need to install some packages and verify devices.

// remotely connect to pi e.g.

$ ssh user@IP

// make note of tty address to verify the gps module is connected and functioning

$ ls /dev/tty*

> */dev/ttyACM0 is present after inserting the gps module*

// install relevant packages for gps data

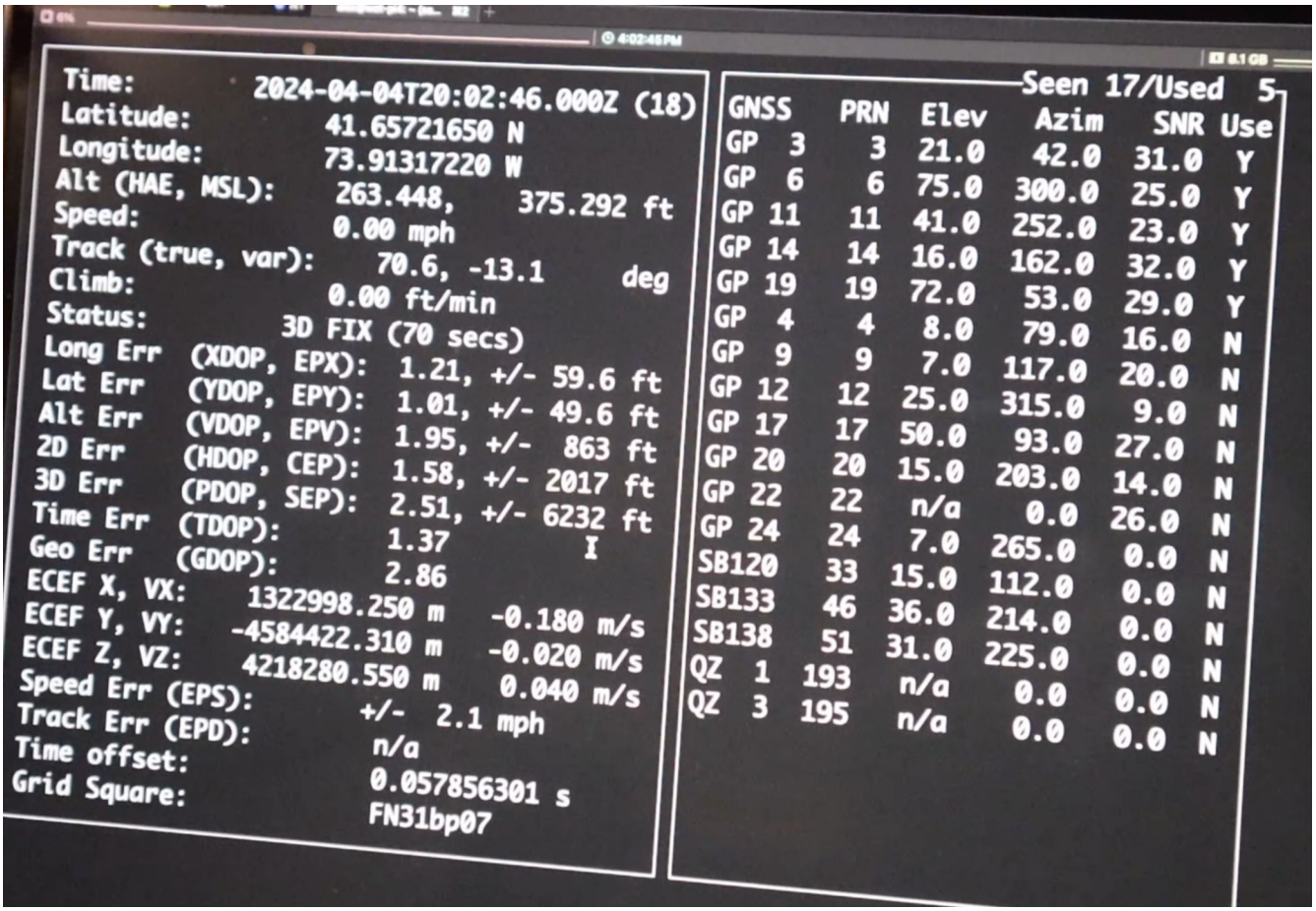
$ sudo apt install gpsd gpsd-clients

//restart the pi

$ sudo reboot now

// connect to the pi again and view gps data remotely on the host

$ cgps -s



Demo

~~The flight capable drone had to be benched due to wind and rain, but the gps module works perfectly when pointed out a window.~~

~~https://drive.google.com/file/d/1bZFdHpuU_0rdDhxGUd_88utlLs4X3bIN/view?usp=sharing~~

May 3rd, 2024:

I took the drone out and flew it successfully while capturing gps data on a remote machine over wifi: https://drive.google.com/file/d/1_PYzoN338i3Q3Mi7xRHLReDeQW_Hef0u/view?usp=sharing

References

https://raspberrypi.stackexchange.com/questions/68816/how-can-i-set-up-my-g-mouse-usb-gps-for-use-with-raspbian