COMP 3980
ASSIGNMENT 3 – GPS

November 9, 2015

INTRODUCTION

1. Scope & Purpose

The product is a GPS program used to communicate with the GPS dongle and using the open-source daemon GPSD. The dongle is used for scanning satellites which contains information about each satellite it scans. The GPS program gets the information from the dongle, which then interprets the data and displays it onto our program in a mapped graph.

Key features include the ability to connect/disconnect from the program, read the data from the dongle, and to view the information on the screen after it has been scanned.

The user guide will cover connecting to the daemon and disconnecting from the daemon when you want to stop reading satellites.

WORKSPACE

1. Workspace

For the purpose of this assignment, in order to run the program you have to be on the raspberry Pi. However the program has the capability of running on a Linux based computers where the GPS dongle can be connected. The computers have to be set up to run the GPSD daemon.

PROCESS

1. Setup computer

Make sure you have installed all the libraries needed for the GPS program to run. You can use this command to install the library on your Linux computer depending on the version of you have.

- apt-get install gpsd

apt-get changes depending on version of Linux

2. Connect

To run the program, you have to navigate to the directory where your executable is in. You then have to kill all the gpsd working with the following command:

sudo killall gpsd

and re-connect before running the program with the following command:

sudo gpsd/dev/ttyUSB0 –F /var/run/gpsd.soc

***You don't have to add sudo if you're in the root**

Once you have executed that command, follow with this command.

./dcgps

3. Scan for Satellites

Make sure you are not blocked by any concrete walls and are out in the open in order for the gps dongle to scan the satellites.

4. Interpret Readings

After scanning the satellites, a list is populated on the screen showing each satellite that has been scanned in order of being scanned going from top to bottom.

- Time Stamp(UTC) - Time stamp when a satellite is found in Coordinated Universal Time
- Latitude/Longitude – Only prints when there is a fix (more than 2 satellites visible)
- PRN – a unique code for the each satellite. Prints in degrees, minutes and seconds.
- Elevation – height above sea level in kilometres.
- Azimuth – angle distance from the north point of the horizon to the point of the horizon intersected by the device's line of altitude
- SNR – signal versus noise (how much noise per signal)
- Used flag(Y or N) – if the flag has been used

5. Disconnect

Once you finish with the program or have any troubles you can click the Q key and you're back to your terminal for a fresh start.