Graphical User Interface

The manual control button initializes the joystick to control the drone, the user is prompted to enter the axis order in which they’d prefer. The host field is dynamically updated depending on the host it lives on but this can also be manually configured using the Update Host button. The port field indicates the port number for the socket that the sensor data will flow through, depending on the server setup this port must be manually configured using the ‘Update Port button’. Upon changing these parameters, the user will be presented with a message indicating whether of not the update was successful. After communications are successfully established the drone is ready to be manually controlled and the GUI will begin to update the plots based on the sensor information.

The Graphical User Interface (GUI) allows the user to display information about the current flight of the drone such as an Altitude versus Time plot, verify communications between the controller and raspberry pi are established and settings for the physical controller and WiFi connections. The GUI pulls the data for the Altitude vs. Time plot from the Raspberry Pi using serialized dictionaries at regular intervals, the serialized dictionaries allow for easy expansion in the case of an additional sensor being added to the drone. If any sensors were to be added in the future the data that these sensors provide could be easily plotted on the GUI thanks to the serialized dictionaries.

 