**Setup the Navio2**

* Follow this link to setup the navio2 hardware

https://docs.emlid.com/navio2/ardupilot/hardware-setup/

**Setting up Raspberry Pi 3b**

* Flash memory card with preconfigured image from navio2 website
* Follow the steps from navio 2 website to configure the image for an ardurover

<https://docs.emlid.com/navio2/common/ardupilot/configuring-raspberry-pi/>

**Setting up the Ground Control Station**

* Mission Planner (only for Windows)

<http://ardupilot.org/planner/docs/common-install-mission-planner.html>

**Configuring Autopilot using mission planner**

* Follow the link below to setup rover (Skid steering configuration)

http://ardupilot.org/rover/index.html

**Connecting to RPI using SSH**

* Connect phone to same network as raspberry is configured to connect. Use android application “Fing” to find IP address of navio 2, also we can use nmap utility.
* Using windows application “Putty” SSH using the ip obtained in above step.
* Follow navio2 docs to configure the autopilot <https://docs.emlid.com/navio2/ardupilot/>
* If using configured image network credentials should be

**Username : hartznetwork**

**Password : sunnyday**

**Setting up Live Video Feed Service**

* Setup motion on a web server

<https://pimylifeup.com/raspberry-pi-webcam-server/>

* If unable to access video (gray screen is observed)

Refer the below discussion and try the command ***“sudo modprobe bcm2835-v4l2”*** to rectify the situation.

<https://raspberrypi.stackexchange.com/questions/60669/unable-to-open-video-device>

**Setting up Flask Server and IoT platform**

* The below link offers the basic instruction for setting up an ioT platform using Flask

<http://www.instructables.com/id/From-Data-to-Graph-a-Web-Jorney-With-Flask-and-SQL/>

**Setting up Remote Page**

* Use below link to control understand controlling rover from web interface

https://circuitdigest.com/microcontroller-projects/web-controlled-raspberry-pi-surveillance-robot

**Understanding tracking on web interface**

* Use below link to get a gist of google maps apis can be used

http://www.instructables.com/id/Raspberry-Pi-Location-Tracker/

**Understanding programming for web interface**

* HTML crash course for absolute beginners

<https://www.youtube.com/watch?v=UB1O30fR-EE>

* CSS crash course for absolute beginners

<https://www.youtube.com/watch?v=yfoY53QXEnI>

* Javascript for absolute beginners

<https://www.youtube.com/watch?v=vEROU2XtPR8&list=PLillGF-RfqbbnEGy3ROiLWk7JMCuSyQtX>

**This Project uses python 2 for its operation kindly ensure you install dependencies for python 2 only.**

**Note :**

* Tunneling local server to the internet for removing access restriction
* Can be done using Pagekite or Ngrok

**Reference Links used to add various features on the web interface**

* **UI Tab feature**

<https://codepen.io/samarkandiy/pen/AiGjs>

* **Flask Buttons**

<http://www.instructables.com/id/Python-WebServer-With-Flask-and-Raspberry-Pi/>

* **Flask Database**

<http://www.instructables.com/id/From-Data-to-Graph-a-Web-Jorney-With-Flask-and-SQL/>

* **Graphs using Python and sqlite**

<https://www.fontenay-ronan.fr/dynamic-charts-with-highcharts-sqlite-and-python/>

* **Multiple Tabs**

<https://codepen.io/samarkandiy/pen/AiGjs>

* **Side by Side divisions**

<https://jsfiddle.net/c6242/1/>

* **Data display**

[http://www.instructables.com/id/From-Data-to-Graph-a-Web-Jorney-With-Flask-and-SQ/](http://www.instructables.com/id/From-Data-to-Graph-a-Web-Jorney-With-Flask-and-SQL/)

* **Image Gallery**

<https://www.w3schools.com/css/tryit.asp?filename=trycss_image_gallery>

* **Button**

<https://www.w3schools.com/css/css3_buttons.asp>

* **Flask error**

<https://stackoverflow.com/questions/31252791/flask-importerror-no-module-named-flask>

* **Maps**

<https://developers.google.com/maps/documentation/javascript/adding-a-google-map>

* **Asynchronous update location**

<https://www.shanelynn.ie/asynchronous-updates-to-a-webpage-with-flask-and-socket-io/>

<https://blog.miguelgrinberg.com/post/easy-websockets-with-flask-and-gevent>

* **Installing socket libraries for python**

Pip install flask-socketio

pip uninstall python-socketio

pip install python-socketio

Pip install eventlet

* **If conflict arises between sqlite and socket go to below link**

<https://stackoverflow.com/questions/393554/python-sqlite3-and-concurrency>