Requirements

Physical Materials

- Air Traffic Controller (ATC) computer
- Drone
    - Raspberry Pi
    - MicroSD card
    - Pixhawk
    - Pixhawk GPS attachment
- Virtual Reality (VR) headset

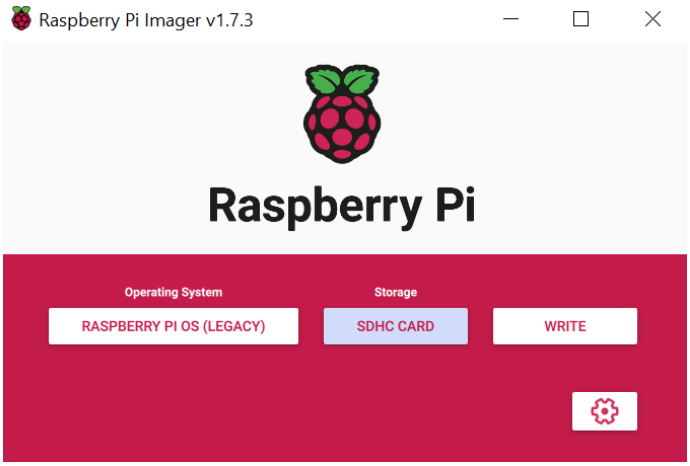
Packages and Libraries

- ATC
    - Python 3.7
    - Mavlink
    - Mavproxy
    - Motive eSoftware
    - QGroundControl
    - Rospy
    - Paho mqtt
- Master Pi
    - Python 3.7
    - Mosquito
- Drone Pis
    - Python 3.7
    - Paho mqtt

Steps

Installation

1. Install the Raspberry Pi OS
    a. Download the Raspberry Pi Imager from: https://www.raspberrypi.com/software/
    b. Run the imager and select the *Raspberry Pi OS (Legacy)* from the other OS options, insert and format a microSD card, then select *write*.



2. Following the steps from https://varhowto.com/install-ros-noetic-raspberry-pi-4/, install ROS Noetic
    a. Do not install ros-noetic-desktop-full, ros-noetic-desktop, etc. Instead, install individual packages and dependencies and build them

3. Make sure you have Python 3.7 installed on your Raspberry Pi and ATC computer.

Physical Connection Steps

1. Connect the Pixhawk to the Pi through UART&ITCB using pins 1 or 2(red wire), 3(yellow wire), 4(blue wire), and 5(black wire).

Dependencies