**Explanation for PC → Pixhawk Process // THERE IS NO PI ON THE SUB**

* + PC → Raspberry Pi
    - Raspberry Pi communicates across various networks, can connect over ethernet creating a direct connection between them w/o having to worry about network lag / dropped packets n whatnot
    - The Pi acts as a bridge between the Pixhawk and NUCy
  + Pi → Pixhawk
    - Pixhawk collects data about flight and is able to execute flight commands
      * Not sure if autonomy will be performed on NUC or pixhawk
      * Pixhawk data is parsed by qGroundControl software (? probably)
  + NUC / Autonomy
    - Future home for autonomous actions
    - Likely going to use some form of OpenCV (C++ libraries exist!!) for image processing and target recognition
* PC → Raspberry Pi
  + The PC connects to the Pi via ethernet cable
    - Currently using the tether, a traditional ethernet connector to 8 pin (DIN?)
    - NOTE: when Pi configured for ethernet use, it will wait 120 s if connection is not immediately established
    - Use PuTTY/Cyberduck to SSH into Pi
      * See Raspi SSH Instructions for further info
* Pi → Pixhawk
  + Pixhawk is a microcontroller (think Arduino-like) that collects flight data and can execute piloting instructions
    - We use the NUC for our own software regarding autonomy but Pixhawk outputs .tlog files which contain telemetry data
  + qGround Control allows connection with the Pixhawk in order to be accessed to the pc from the pi
  + Pixhawk has no UI so Pi collects the data Pixhawk outputs and allows it to be accessed by PC with qGroundControl
  + NOTE: *Pixhawk has disconnecting bug? Look into*

**Block Diagram of PC → Pixhawk Process**

**Important Links**

<http://ardupilot.org/dev/docs/raspberry-pi-via-mavlink.html>

<https://www.ardusub.com/software/components.html>

<https://docs.qgroundcontrol.com/en/FlyView/FlyView.html>

<https://docs.microsoft.com/en-us/dotnet/csharp/language-reference/operators/left-shift-operator>

<https://opencv-srf.blogspot.com/p/introduction.html>

<https://imagenex.com/products/852-000-143>

