Software Team Meeting - 2/6

**Meeting Agenda**

1. Run through ideas/concepts for ATR subsystem making note of inputs, outputs, and high-level functions in Black Box diagram(s)
2. Assemble ideas into schematics for Systems Overview deliverable

**Accomplishments**

**Notes**

* Research using Yolo machine learning framework and how we can tailor the framework to our image classification
* It might be a good to idea to touch on the black-box diagram of the hardware subsystems, in particular, the avionics, guidance, and autopilot subsystems that the hardware team has developed
* We can then develop a functional diagram as to how the flow of information in our software subsystem will operate and additionally, high-level framework (pseudocode) of ATR algorithms

**In Progress**

Researching:

* Hardware Avionics, Guidance, and Autopilot subsystems to understand inputs and outputs of the hardware that the software team will be integrating their solutions with
* Yolo, an Open-Source machine learning framework to determine how we can use ML templates for training our particular images of non-critical and critical targets
* Co-processors such as Raspberry Pi and Arduino and how they can interface with the Autopilot subsystem
* OpenCD software application that can be used to convert images captured in zoom cameras into a readable format for the ML framework

**Next Steps**

1. Reach out to Dr Mahalingam and ask about any restrictions of using open-source machine/deep learning algorithms, and other open-source data; present some machine learning frameworks and ask about restrictions on Monday

**Questions/Concerns**

1. What are the differences between the Arduino and co-raspberry co-processors; the advantages to both? Look into using Arduino and integrating with the Pixhawk
2. How will the data collected by mission planner and atmospheric software differ?

**A: The Mission Planner software is located in the Ground Control station and is the brain of the UAS; it’s a feedback control system that receives data from in-flight sensors on kinematics (velocity, altitude, rotation) and compares the information to the desired trajectories and flight paths to ensure that the UAS stays on course**

1. At a high-level, how will we characterize the flow of information for our block diagrams?