List of Open Items:

1. Test and refine code for detection of how far the trap is from the center of the frame

There is currently code that can detect the trap using the IR leds and a red trap. This code can output a radius from the trap to the center of the frame. We did not get as far as we wanted with testing it to see how accurate it is. This code can be found under the Colored Blob Detect folder. There is an additional element that was added to the code that we were just starting to test, which was when the UAV came close to the trap and was out of view of the cameras. There are some markers on the outer edges that helped us orient ourselves.

2. Make this data usable and relevant

Currently the data is just being printed out to us and shown through a GUI but we need to convert it to a distance or a velocity. We were figuring out how it to use it via mavros and whether it would be best to publish the data or use another method.

3. Control the UAV movement/position based on data through mavros commands

There are mavros plugins available to us that could be potentially useful in controlling the UAV based on the camera data. We were looking at the position and velocity plugins and weighing which one would be easier for use to provide more accurate control.

4. Adjust parameters on camera i.e. b_gain, r_gain, gain etc to provide better video

We were still having a bit of trouble getting the color camera to produce video with realistic color. The parameters may be a bit off and it differs greatly from indoors to outdoors. Need to adjust and record various setting for very sunny days at midday, afternoon and overcast days. The parameters i.e. exposure time will vary with these factors.

Requirements:

1. Locate Trap Precisely : Detection and Tracking of Payload

code for detection and tracking is on github. a few refinements may be needed for tracking but otherwise complete

2. Locate Trap Precisely : Communication of sensing via mavros

In progress. using mavros plugins to communicate with pixhawk