**Modification**:

-If $20,000 sonar must be implemented, we use sonar as a depth sensor (obstacle avoidance). Sonar placed below camera A.

-purchase USB powered switch for turning on NUC

-second camera w/ fisheye lens on rear

-claw moved to the rear of the UUV

-claw begins opened

-buy a barometer

**UUV Mission Procedure:**

(camera A at front of UUV, camera B at rear above the claw)

-UUV receives “power on” command

-camera A is used to identify floating noodle in pool (using three regional viewing)

-when object fills all three tridents of camera A’s FOV, send command (maybe #4)

~~-pause vision on camera A~~

~~-camera B is turned on~~

~~-when camera B finds the object, claw is activated and captures the object.~~

~~-camera B vision is paused~~

~~-camera A vision is resumed~~

~~-camera A returns back by reversing motors and identifying the second red noodle that is located at the starting position.~~

-Claw acquires target.

-camera A vision is paused

-camera B turns on

-Vehicle reverses back to starting position

**Fail Safes:**

-if mission has not started and communication is lost at beginning of mission for 5 seconds, UUV will:

-talk with Pi then to the arduino (maintain altitude) to continuously release water in the bowel system to surface and stop mission.

-if connection works, resume by taking in water by the bowel system.

-turns on camera B only once.

-if camera B is not on, turn off vehicle and surfaces UUV

-if sonar detects something within 6 inches away, stop motors and reverse. (break from loop and resume code).

\*\*\* One fail safe not accounted for is what happens when UUV hits walls. \*\*\*

**Caution:**

-change value of target to match value of purchased pool noodle.

-camera picks up light that the human eye does not see which may disrupt functionality.

**Future Considerations:**

-add more regions on top of the trident to allow for smoother and potentially slower rotations.

-Torpedo (Do next year 2019).