

REU Presentation:

Week 8

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This Week's Progress

- We were unable to do water testing this past Sunday.
- Integrated flare and pipeline code with the sub's code.
- Worked on bombing run code.

Problems with the AUV

- Power cables improperly hooked up Friday
- Delivered 24 V to a device limited to 12V
- Lost downward camera
 - New camera is being shipped – to arrive Monday

The Bombing Run

Airplane



Tank



Battleship



Factory



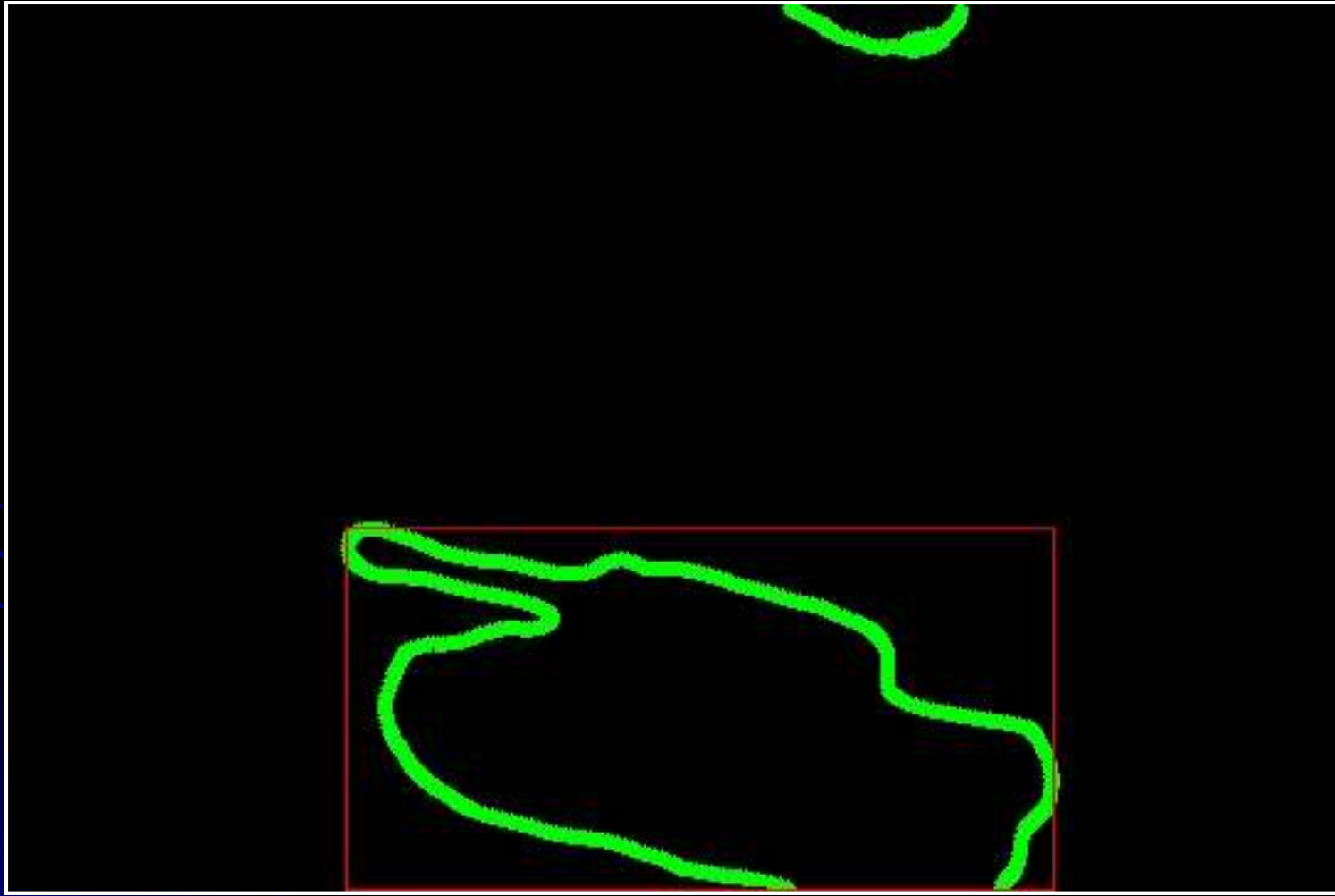
Ideas

- Team members think simplest method will be the best
- Explored using gradient histograms to distinguish the objects
 - My code failed to provide usable results
- Wednesday, started to focus on contour fitting

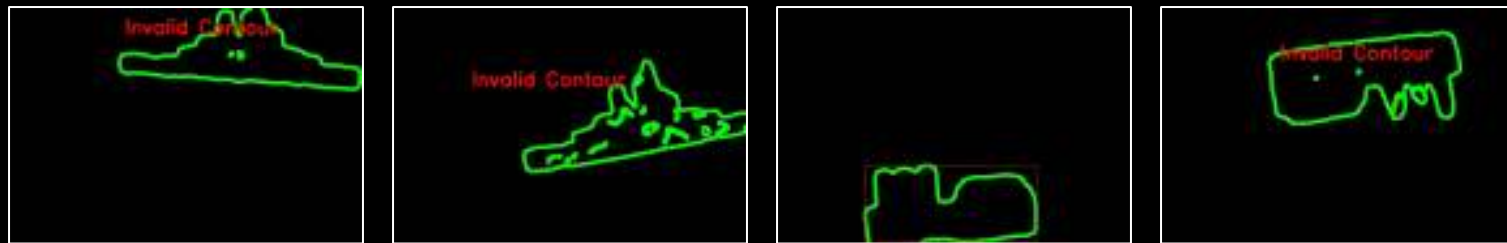
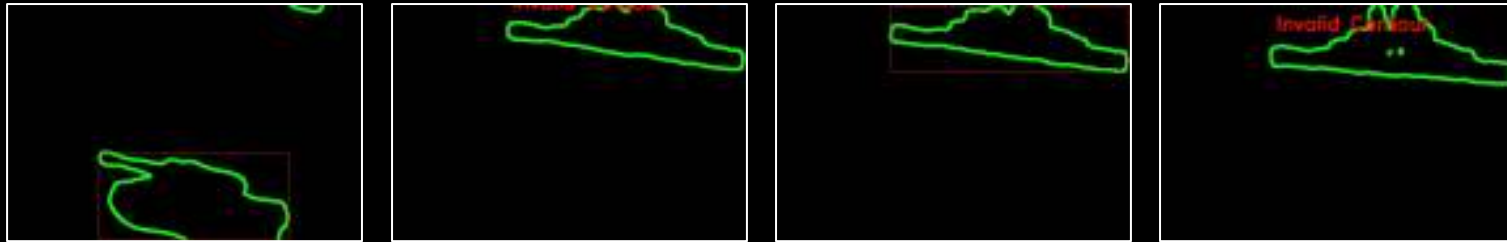
Contour Fitting Method

- First extract the red color from the image
- Use Canny filtering followed by OpenCV's contour fitting
- Draw a box around contour, and take the ratio of the width and height of the box to make a guess at the object
- Implemented currently to find the airplane

Results



Results



The Next Step

- Run code on larger test set to generate more accurate ratio values
- Test processing speed of the code
- Explore the use of histograms to distinguish between the factory and tank
 - Current data shows the two have extremely similar height-width ratios

Other Goals

- Create code to line up AUV with the bins to remove the chance of approaching at an angle
- Create Trackbar interface with code to easily adjust color and thresholding values while the code is running

Goals for Next Week

- Finish bombing run code!

