



ECE ROBOSUB #4

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2016 AUVSI ROBOSUB




robosub



Preliminary Mission
and Scoring

A Pirate's Life for Thee

www.RoboSub.org



July 25-31, 2016

SSC Pacific TRANSDEC

San Diego, CA

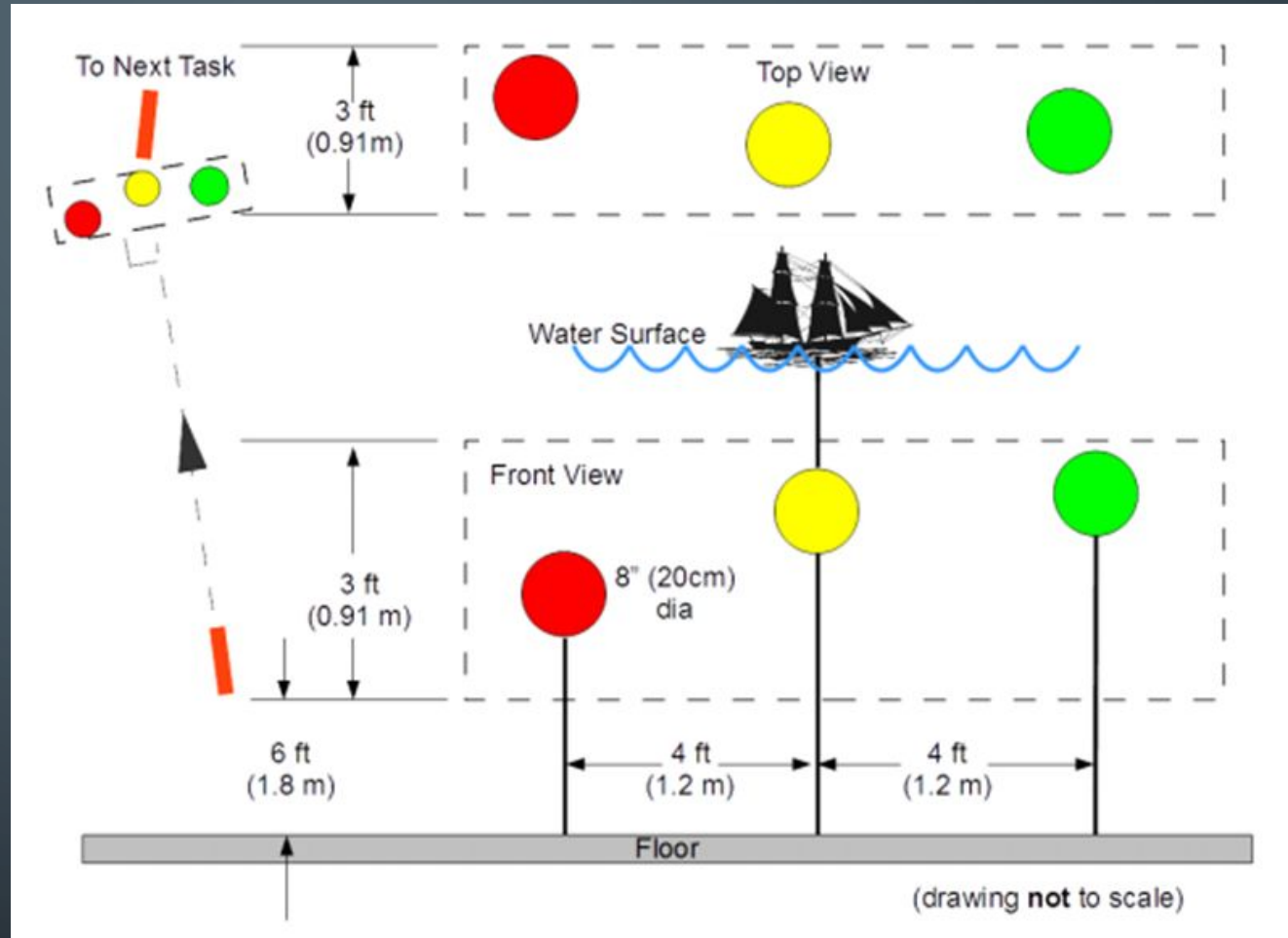


19TH INTERNATIONAL ROBOSUB COMPETITION AUVSI DETAILED RULES

- Touching a colored buoy sequence
- Navigating through colored channel
- Release markers into an open black bin
- Fire torpedo's in specified course heading
- Grab "treasure" and place it onto a table above surface

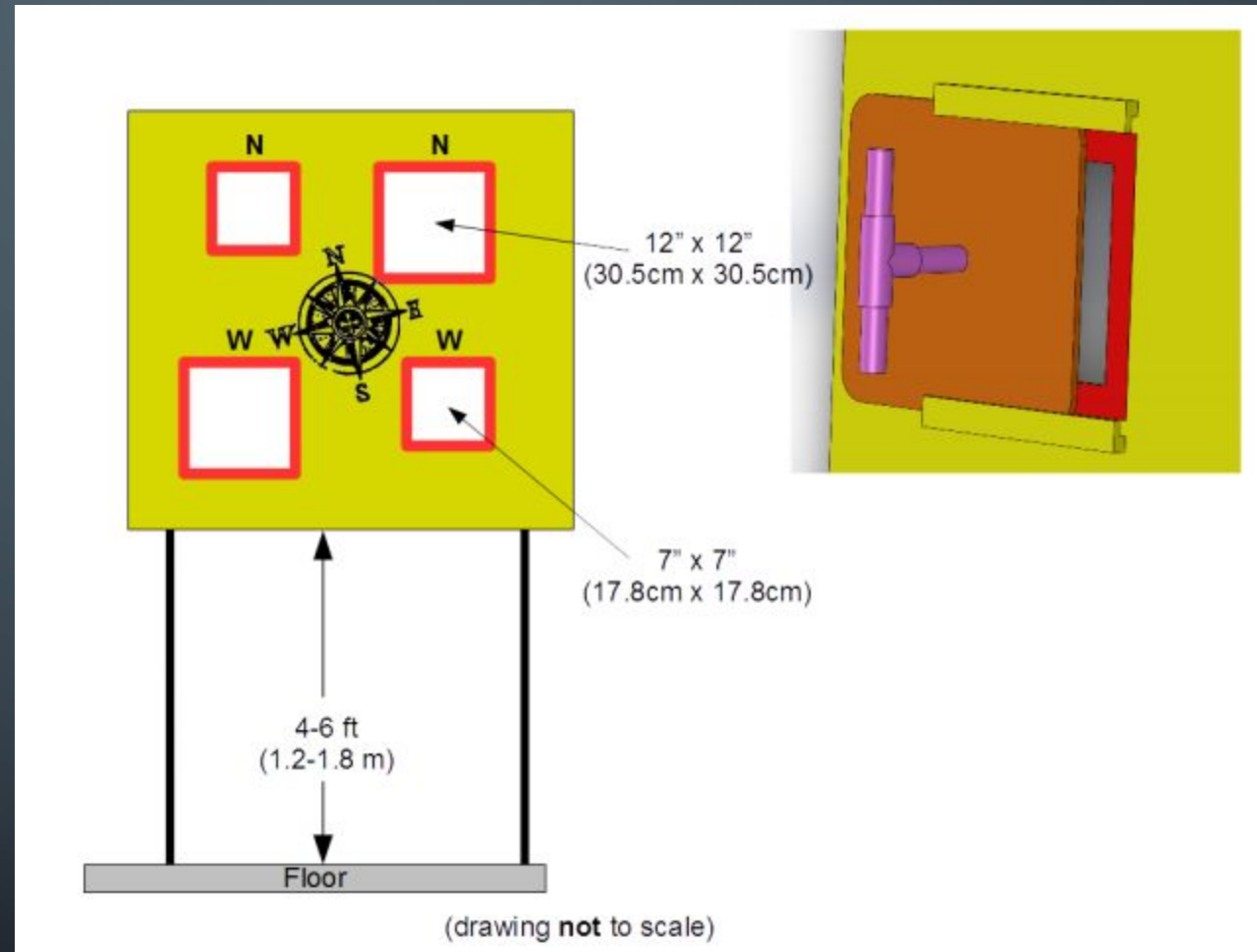
BUOY TASK

- Touch colored buoys
- Bonus points for touching red then green
- Bonus points for pulling ship underwater



TORPEDO TASK

- Four targets of different size
- One target covered
- Fire torpedoes through N then W to set course heading to NW
- Maximum points for using small targets and removing cover



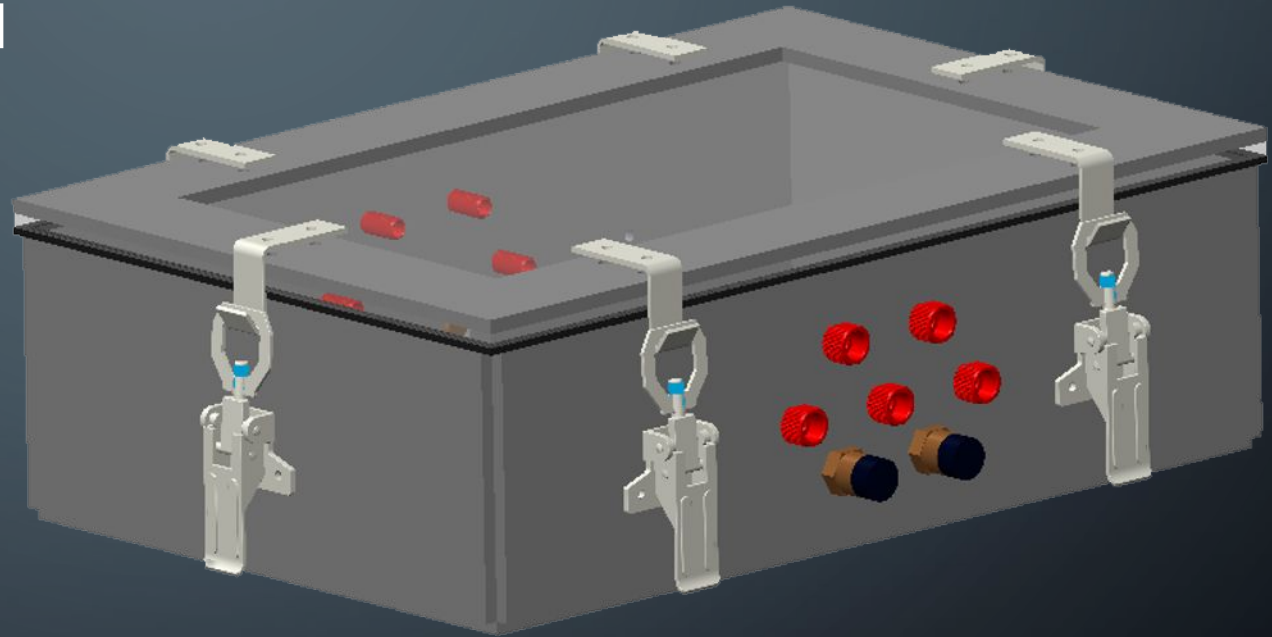
NEW ZOTAC

- Zotac ZBOX CI520 Nano Plus
- 5 x 5 x 1.77 inches
- I3 processor, 64GB SSD, 4GB RAM
- special passive-cooled chassis
- 6 USB ports, working wi-fi



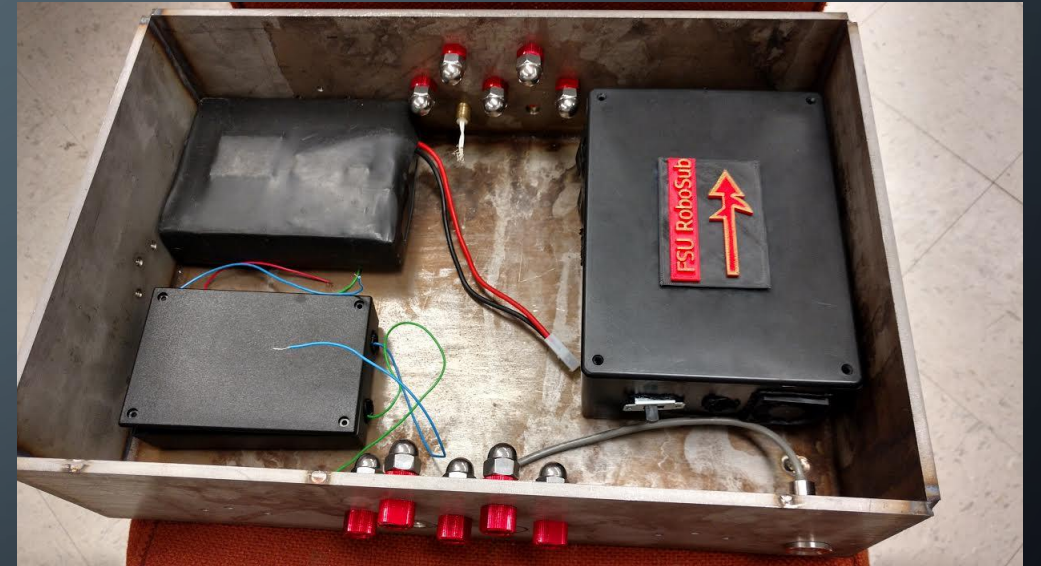
NEW HULL

- Smaller design for decreased buoyancy
- Clamped cover for easier removal of the lid
- Waterproof electrical cable penetrators instead of Seacon ports



MORE COMPACT ELECTRONICS

- Electronics box for improved space usage
- Better insulation so circuits don't overheat
- Space conservation for new hull dimensions
- Fans for improved airflow and heat dissipation



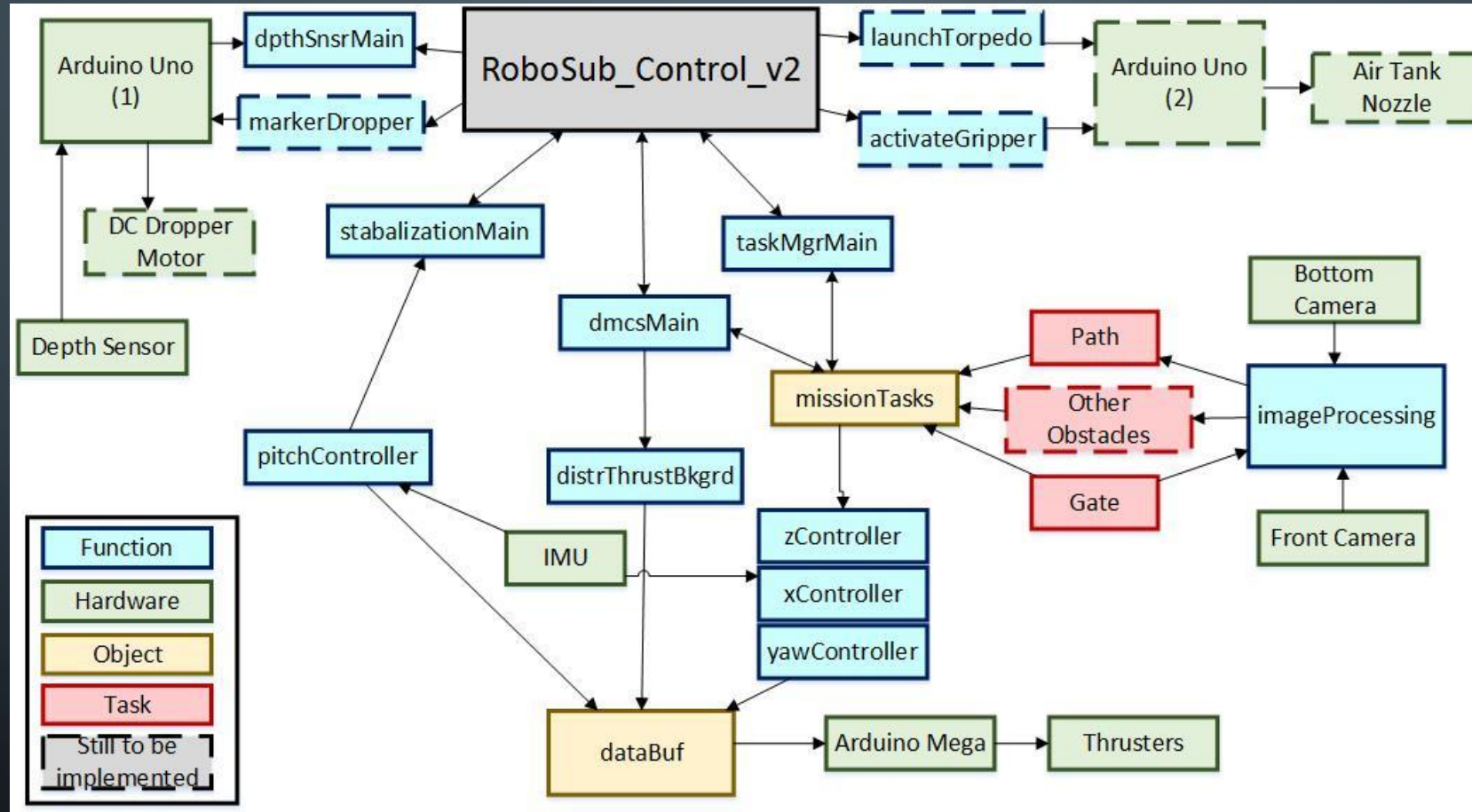
CLAW DESIGN



- 3-D printed prototype
- Revised design with a more curved contour
- Larger gripping surface
- Bigger tolerance for a better fit to actuator

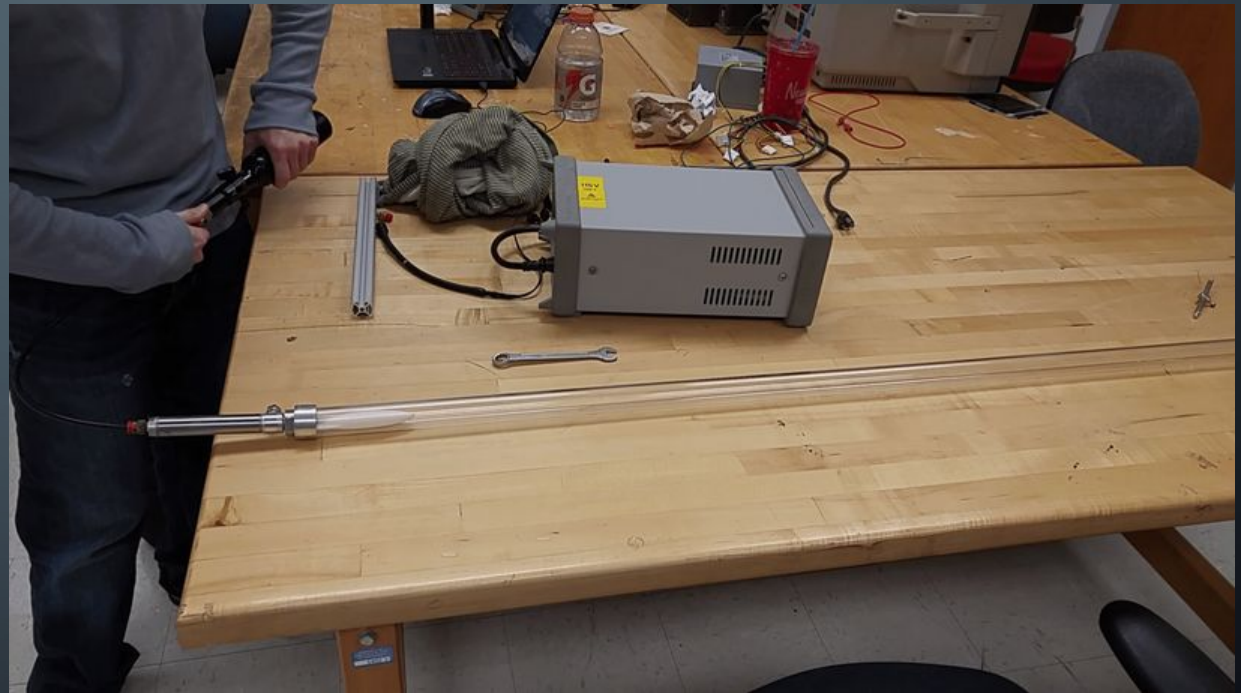


CODE FLOW CHART



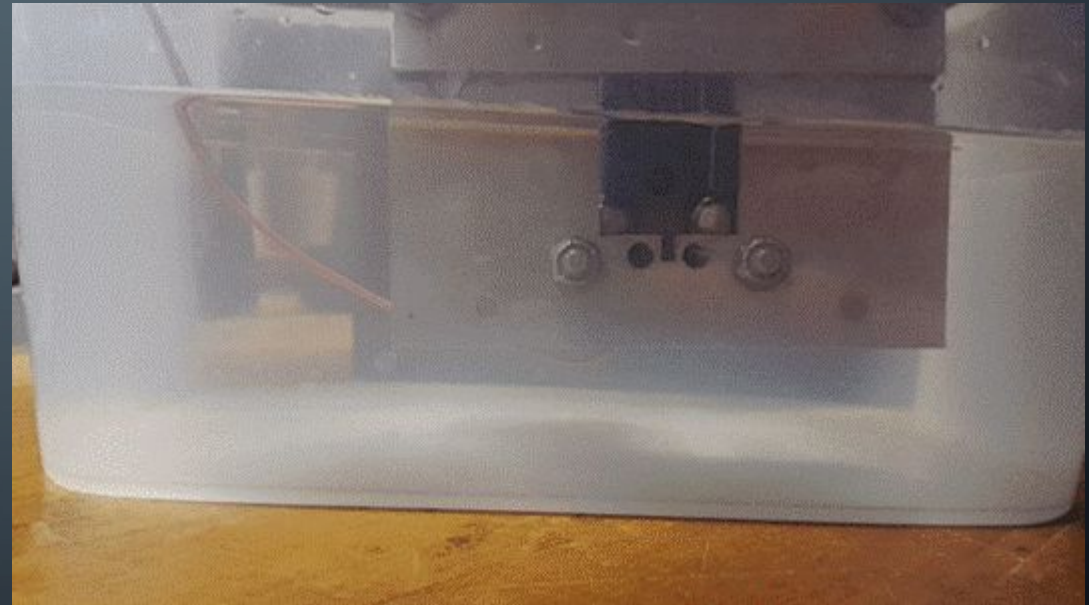
Semi-Working Subsystems

- ME has purchased and tested 2 new subsystems
 - Torpedo
 - Marker Dropper



Implementation

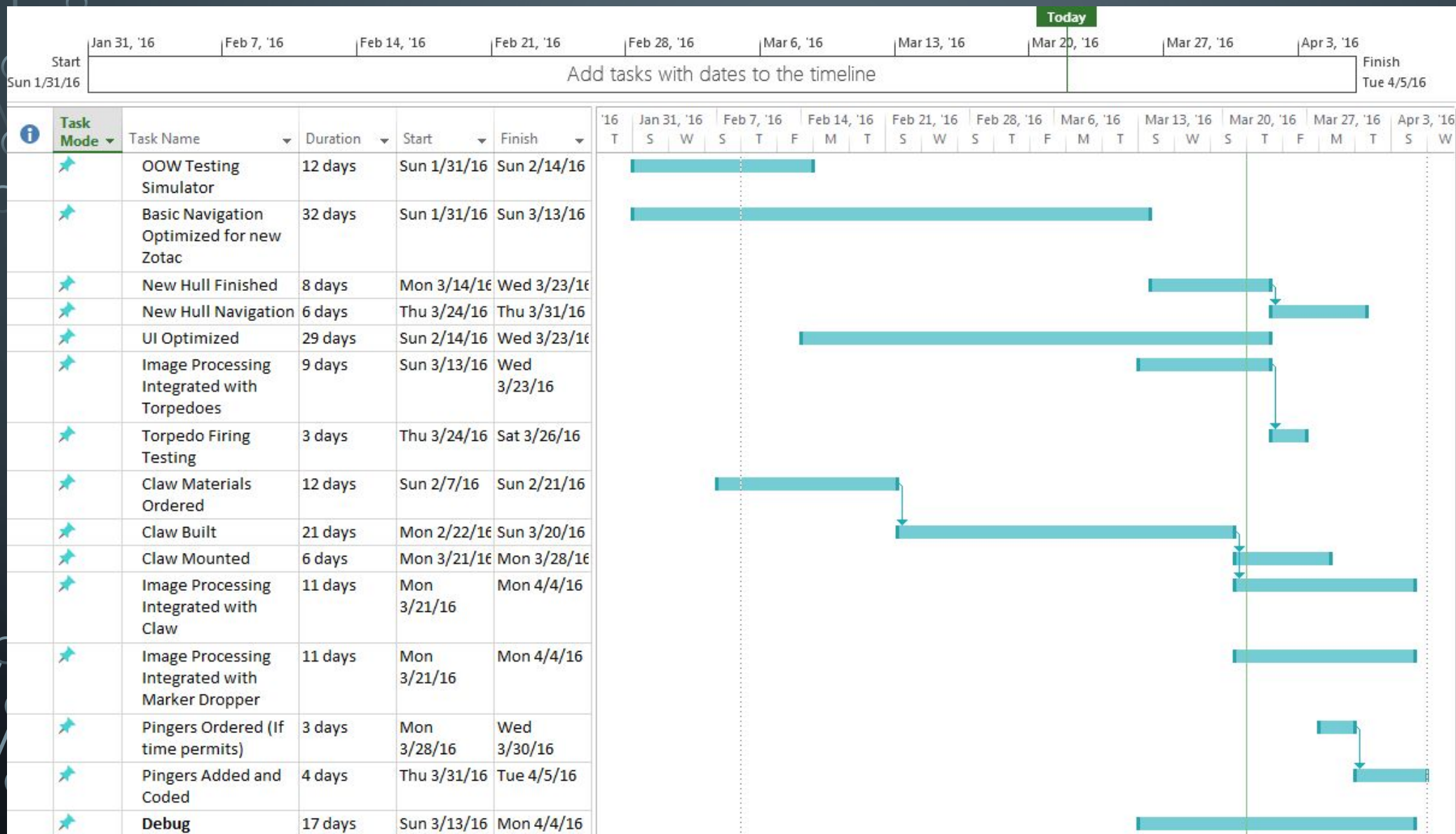
- Code written for Arduino board
- No communication with the rest of the sub
- Creating working functions on Zotac to transfer data



Underwater Testing

- Sub to be Water-proofed this weekend
- Updated PID controller implemented
 - New hull with different dimensions
 - Testing for new K values
- Testing subsystems functionality underwater

GANTT CHART



TEAM BUDGET SPENDING RECORD

Budget

<i>Item</i>	<i>Amount</i>
Initial Budget	\$700.00

EXPENSES

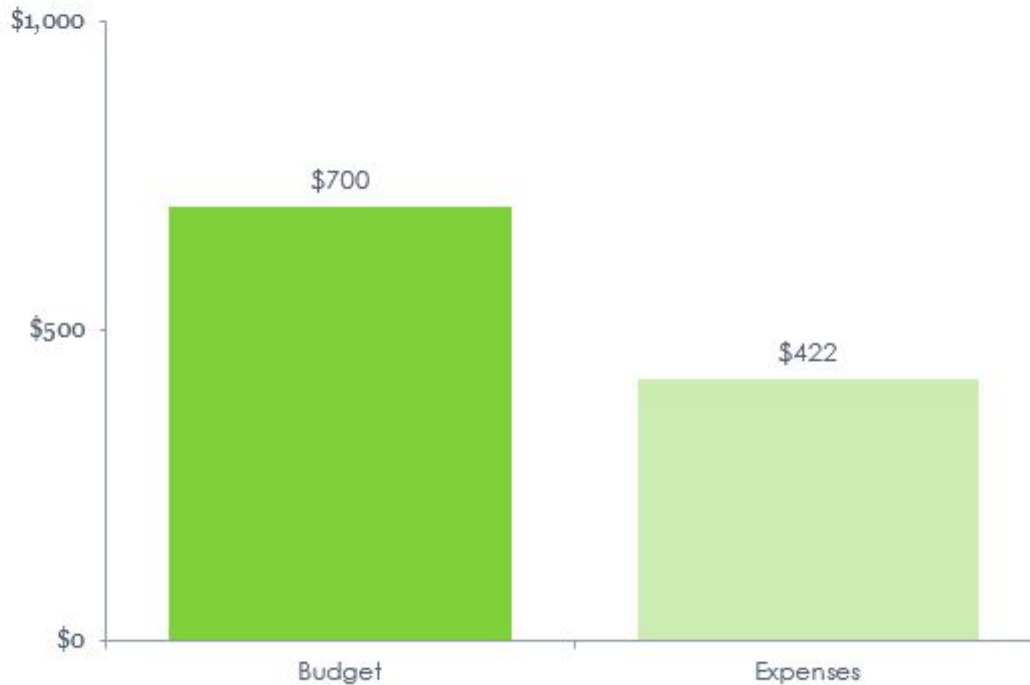
<i>Item</i>	<i>Amount</i>
Canakit Motor Controller	\$45.54
Zotac Mini PC	\$333.24
HDMI Cable for Zotac	\$42.99

PERCENTAGE OF BUDGET SPENT



SUMMARY

<i>Total Allowable Budget</i>	<i>Total Expenses to Date</i>	<i>Balance</i>
\$700	\$422	\$278



FUTURE WORK

- Finish integrating image processing with torpedo, claw, and marker dropper
- Attach Claw, Marker Dropper, and New Hull to frame
- Test systems in water
- Refining systems for new hull shape and dimensions

CONCLUSION

- New Zotac
- New hull
- Mechanical integration with code
- Testing systems

QUESTIONS ??

