

ROV FINAL CLASS REPORT

In Partial Requirement for

Mrs. Ylitalo's Advanced STEM Course

Ashley Community Schools

I. Names and Contributions

Ezra - Grunt work: carrying materials. Observations, assembled various components

Karah - Drew original and final design. Helped cut, measure, and assemble frame for prototype and final design. Application for camera. Taped all the wires to make neat.

Doug- Wiring, assembly, camera and special tools.

Marcus - Wiring, assembly, helped install camera

Tyler - Drew the final design

Jacob - Measured, cut, and applied noodles for buoyancy of ROV. Helped solder

Nicholas - Retrieved items in pool including the ROV itself.

McCoy - Cut PVC for prototype. Brainstormed frame designs. Fed wiring through piping.

Jessica - Research and observed first prototype

Gabe - Brainstormed during planning

Tasha - Cut PVC and brainstorming

Mrs. Slowinski - allowed the generous use of her pool

Ms. Christianson - provided specialized materials

Mrs. Ylitalo - provided opportunity to do this project

II. Materials

three bilge pump motors	propeller bag with three propellers
three PVC motor mounts	three adapters
two lengths of shrink wrap	three bolts, three nuts
one fuse holder with fuse	three hex nuts
stress relief bag with 3/8-inch dome long	one hex wrench
3/8-inch dome short	three DPDT switches
two 1/2-inch dome short stress reliefs	1 meter of 18-gauge wire
two threaded PVC slips	1/2 inch pvc pipe
one PVC cross	Various 1/2 fittings
8 feet of red and black power cable	Underwater scope camera
25 feet of 18 gauge, six strand tether wire	Kitty Litter scoop
Control box with four screws	Hook
32 terminal ring connectors	Electrical tape
Pipe wrap insulation	Heat gun, soldering gun

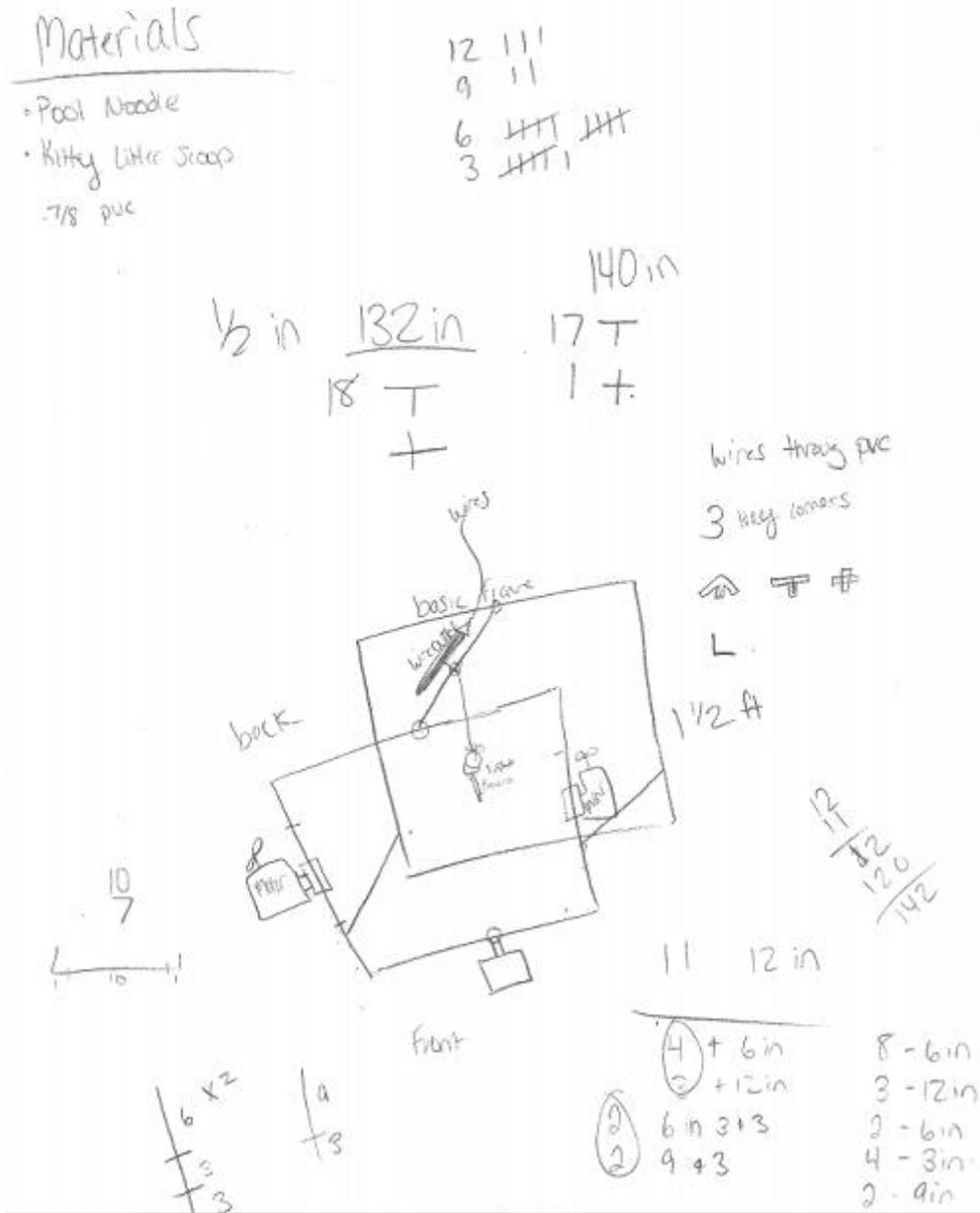
III. Process

The ROV building process began with a basic design of our prototype. After said design was approved, the actual construction of the ROV had been initiated. We had created a list of necessary materials to accurately represent the needed items. After acquiring these items we assembled the various in depth components of the ROV, these included the switches, motors, and the control box. We then measured out the PVC and cut them to length in preparation to assemble said ROV. Once assembled we mounted the motors and fed their wires through the pipes, we also mounted and wired the camera as well as the scoop and hook. Afterwards we attached pool noodles to the top of the ROV in order to garner some amount of buoyancy. After two test runs and minor adjustments, we had a finished product.

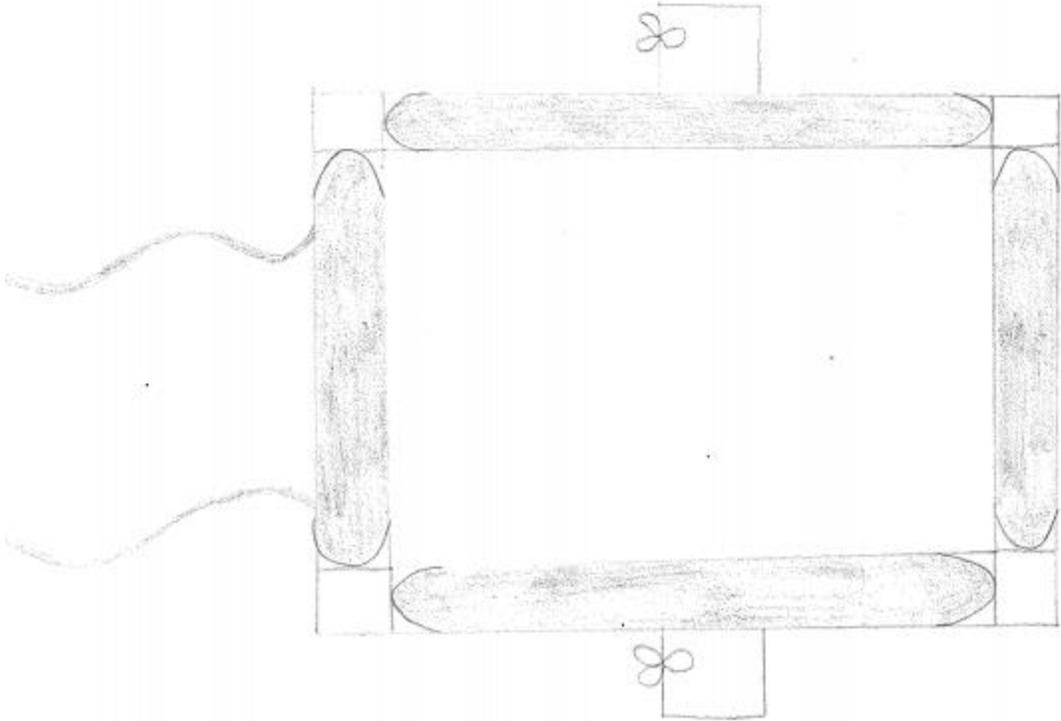
IV. Lessons

- Research! This helps expand your knowledge and provides other possibilities.
- Create sketch of project before any building has been done or materials have been bought.
- Build a prototype that portrays the project that is to scale with it.
- Teamwork is key.
- Communication from separate parts of the project is valuable.
- Consider all perspectives of a problem.
- If you do not succeed, modify and try again.
- Use the engineering design process when problem solving.
- Don't rush. Take it slow and be precise.
- Manage time. Take advantage of all of the time you have to be productive

V. Sketches and Pictures of ROV



Project planning sketch by class



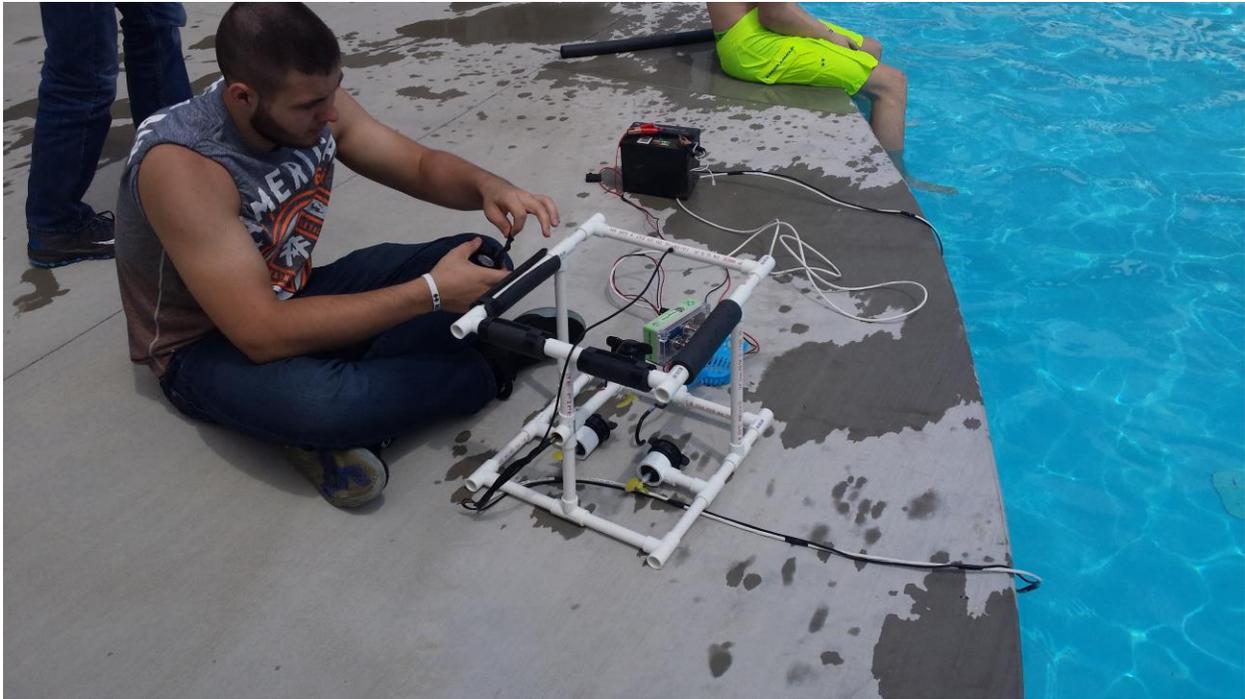
Top view of ROV with floatation noodles on



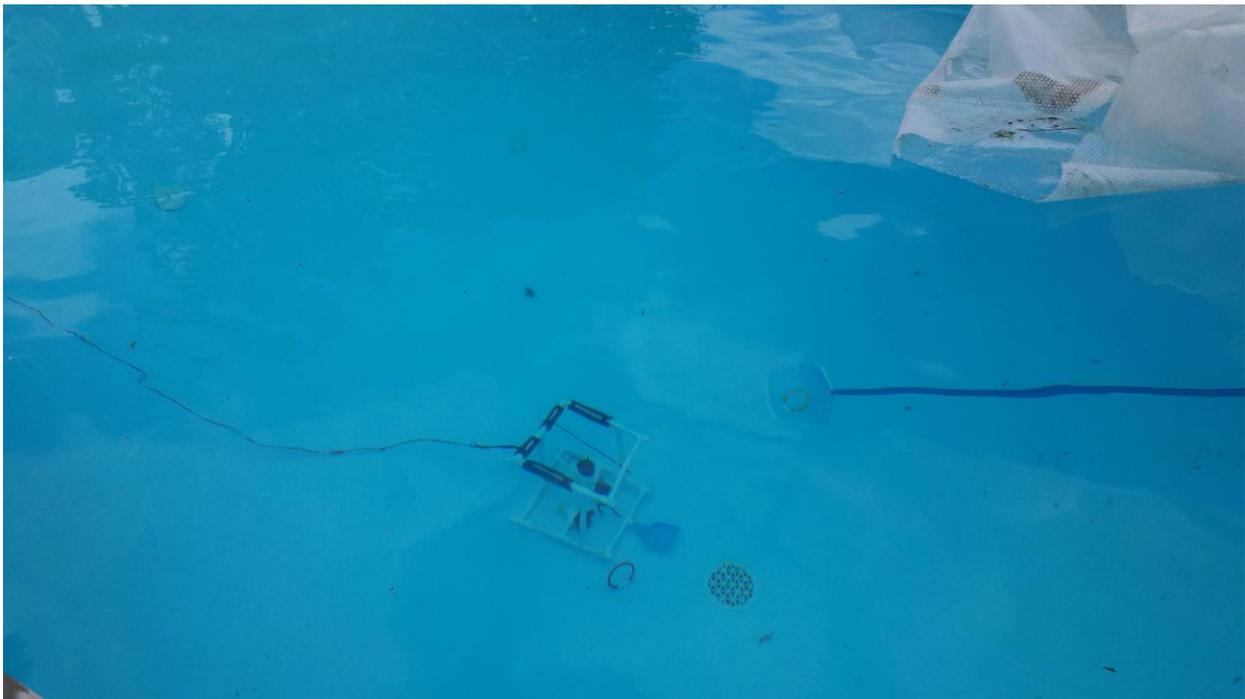
View of ROV in pool with hands on the controls



Rov first test run



ROV Test #2- Back with attachments



ROV trying to maneuver and pick up swim rings with attachments