**University of Florida**

**Department of Electrical Engineering**

**EEL 5666**

**Intelligent Machines Design Laboratory**

**Weekly Report 5**

**Summary**

Last week full buoyancy modulation was under consideration, but this would require most likely 1-2 bilge pumps in addition to another rigid bladder and therefore will not be used in the initial version of the vehicle. The advantages of the pitch alteration mechanism were deemed necessary to ensure diving and surfacing could be performed well, so CAD files for the TTec were made with Solid Works that will allow single servos to slide batteries linearly forward and aft in the side cylinders. In addition, CAD files for a slide in/out tray for the main cylinder were also constructed.

Fabrication of the initial wing design was started this week. Construction was initially delayed by the need for an extra-long drill bit (12 in) to form a single continuous hole for the string.

Wire connections to the exterior of the vehicle will be made with epoxy surrounding both sides of the hole (<http://home.comcast.net/~homebuiltrovs/howtos/sealingwireexits/sealingwireexits6.jpg>). Wires will be connected from the exterior at a single location. Extra wires will be included in the connection to ensure extensibility.

Consideration of the hardware to implement wavelet analysis on the vehicle has continued as well. Thomas found a circuit was obtained that will allow the 5V battery pack to power the 12V camera and 12V sonar. Various potential competitions that the robot could win were researched as well.

The first submersion test was unsuccessful due to leaks in the teflon-taped PVC screws which allowed about 4 oz of water in over the course of 5 minutes. Many approaches have been attempted by ROV hobbyists to address this issue. The most successful melted the PVC together or decided to use. For the next submersion test, the PVC screws will be sealed in place with silicon based sealant since it will form a seal, but is expected to be able to be removable. For the first test, the entire vehicle was submerged. For better troubleshooting, during the next test each joint will be tested individually before testing the entire structure.