

Our New Bi-Monthly Newsletter

As the team has grown and developed over the past 6 months many new technical ideas have been proposed and initiatives have taken place that facilitate our mission of “Developing technology and engineers to advance the marine industry”. The newsletter is our most recent initiative that we feel will facilitate this mission. We intend to use this as a means of communicating with our sponsors and the community as a whole, keeping people informed about our progress and the technology that we are developing. We hope to keep it informal, displaying plenty of pictures and even showing a little personality. Through reader feedback we hope to improve the content and appearance of this (approximately) bi-monthly circulation. Please direct any comments to uw2tt@engmail.uwaterloo.ca

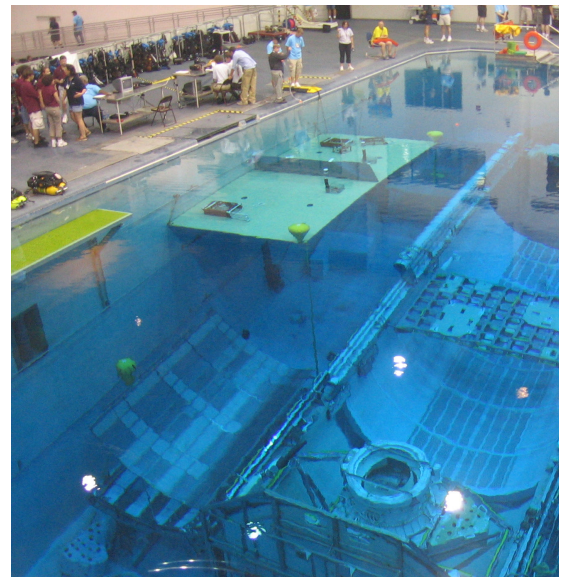
Jason Gillham
Team Leader

2006 MATE ROV Competition Results and Summary

Melanie Soltermann

The University of Waterloo Underwater Technology Team attended the 5th annual Marine Advanced Technology Education (MATE) Remotely Operated Vehicle (ROV) (underwater robot) Competition held at NASA’s training facility, the Neutral Buoyancy Lab, in Houston, Texas. Teams from across Canada and the United States and China entered into the competition. Much was learned about how the competition is run and we received plenty of positive feedback from the judges regarding our design. Since the team was ambitious, attempting to push the limits of currently available technology, we were unable to have a completed vehicle for the competition.

However, the components that have been completed as well as the designs that are in the process of being built significantly impressed the judges and the team received an award for “overcoming hardships with determination and resolve”.

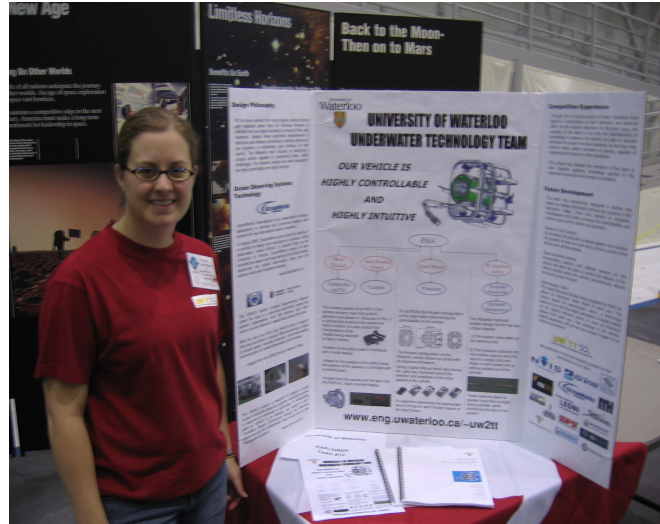


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We are continuing to build the vehicle and plan to have a completed system by the New Year. This year, the competition tasks were based on the construction of an Ocean Observing System. Ocean Observing Systems are sub-sea, stationary unmanned systems that collect and transmit oceanographic information to researchers on shore around the clock. In recent years a number of these systems have been designed, deployed and operated.

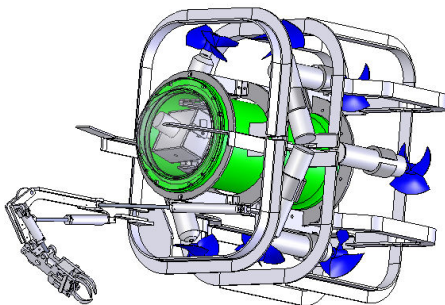
Next years competition will be held in St. John's Newfoundland and the theme will be arctic exploration. At the Marine Institute in St. John's there is an excellent facility for hosting this event. Three test tanks are available for use when designing mission tasks. One tank can generate a layer of ice over the surface, the second can generate a current and the third is capable of

generating waves. The team is excited to learn what the competition tasks will be for 2007 (expected in November) and we are focused on completing the base vehicle by the new year so that task specific modifications may take place.



Why Are Current ROVs Not Highly Controllable and Highly Intuitive?

Jason Gillham



(UW)²TT Vehicle Design

On previous coop terms I have had the opportunity to pilot ROVs in a controlled environment. Possibly it is my lack of gaming experience, however, there was a significant learning curve before a sufficient level of control was achieved. I had difficulty in knowing and remembering which joystick performed which function as well as coordinating motion between the joysticks.

Vehicles with pan and tilt camera functions were particularly difficult to control as the position of the camera could not be set while continuing to fly the vehicle. Frames of reference had to be oriented when the camera was not facing in the same direction as the vehicle was flying. The primary design philosophy for our vehicle is that it should be highly controllable and highly intuitive. Through the use of a single hand Industrial Steering Device, donated by Space Control, and a head mounted display, on loan from NVIS Inc., the vehicle under construction will satisfy this design philosophy.

(UW)²TT would like to thank the following parties for their contributions and support to our team.



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FEA/CFD Software



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Funding, engineering, and testing facility



www.burkert.com

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Acrylic dome



www.iqeye.com

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Printed circuit boards



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Industrial Steering Device (ISD)



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