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E-90 Topic Selection Memo

Underwater Remotely Operated Vehicle

The college currently has an Underwater Remotely Operated Vehicle (uROV) built by Alexey Rostapshov and Tyler Strombom '06. However, the uROV has shorted out and is plagued by several design problems including unnecessarily complicated wiring. I intend to re-design and re-engineer the current uROV in order to both simplify its current set-up and to make it once again fully functional. Secondly, depending on the extent of the redesign required, I intend to update the current uROV to a more sophisticated level. Given that the work proceeds rapidly, I intend to enter the same competition that Rostapshov and Strombom were attempting to enter before their model shorted out.

The major concern with the current uROV is that it has a tendency to leak even at low depths. Unfortunately, watertight couplers for the wiring, while available, are very expensive. Therefore I intend to by few or none, instead attempting to redesign the uROV to be more waterproof. Additionally, because the uROV is already built, any additional costs would be in the purchase of additional components to improve the uROV or replace totally destroyed equipment.

Finally, it is possible that, after I perform a full inspection of the old uROV and determine the necessary redesign work, I will want to instead build a new uROV. However, in this case, Professor Everbach has already expressed his willingness to let me cannibalize the current UROV for a new one provided that the plans are reasonable. Therefore, while more materials would need to be bought, most of the expensive electronics would be reused, bringing down costs.

I plan to work with Professor Carr Everbach on this project.