

URC Senior Design Product Requirements

General Operation:

- R-1) Remote Controller will take the form of a submersible handheld device that interfaces directly with the UAV
- R-2) Remote will receive preformatted mission information from the UAV to display to the user
- R-3) Remote will transmit mission start and mission stop commands to the UAV
- R-4) Interface to the UAV will be wireless

Remote Control Platform:

- R-1) Hardware components include a microcontroller, touch sensitive LCD display and underwater wireless transceiver
- R-2) Device operations, including interface to the transceiver and user interface interpretation will be handled via microcontroller
- R-3) UAV feedback and diver commands will be handled with a touch sensitive back-lighted LCD display
- R-4) The interface to the LCD and the microcontroller as well as the transceiver to the microcontroller will be serial based.
- R-5) Separate hardware components will be mounted without modification in a waterproof housing
- R-6) Device will have the ability to be updated and reprogrammed by the URC.

Packaging:

- R-1) Packaging will be waterproof and water tight to a depth of 3 meters
- R-2) Packaging will be of a quality significant enough to handle normal wear-and-tear.
- R-3) Packaging will allow clear viewing and interfacing with the LCD touch screen
- R-4) Packaging will house the microcontroller, LCD display and interface to the underwater transceiver

User Interface:

- R-1) Interface will display mission data that has been preformatted by the software of the UAV and transmitted over the wireless link
- R-2) Interface will have the ability to display other preformatted data from the UAV, such as remaining battery power or software debug information
- R-3) The interface will allow a method of user input for commands to be sent to the UAV such as mission start and mission stop

Physical Link:

- R-1) The connection of the control device and the UAV will be an underwater RF link.
- R-2) The link will have a range of 3 meters
- R-3) The link will support a data rate of at least 10kbs
- R-4) The link will be maintained via an underwater transceiver physically attached to both the controller and the UAV

Power:

- R-1) The device will operate from power supplied by rechargeable batteries
- R-2) The device will have an operation time of at least 2 hours

Cost:

- R-1) The device cost should not exceed the UARC senior design budget of \$250