Submersible Drone for Hull Inspections

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Description

The control, power, and propulsion systems for a submersible drone will be designed, built, and tested in this project. The purpose of this submersible drone is to inspect the hulls of ships. The submarine will stream a live camera feed to the controller on shore, where images and videos will also be stored to a USB drive. The submarine and its controller will be powered with a rechargeable power supply and operate for at least one hour. Finally, the controller will communicate with the submarine via Transmission Control Protocol and User Datagram Protocol (TCP/UDP) over ethernet.

Inputs

- Controller with joysticks and buttons for input
- Submarine controls built on microcontroller reading input from controller over serial

Outputs

- Controller displays battery voltage and submarine depth and camera feed
- Images and videos will be stored locally on the controller

Specifications

- Power Supply with output voltage of 12 V ±5% with 100 mV ripple at 1 A load current
- Recharge time of less than 4 hours
- Minimum of one-hour long deployment time
- Custom PCB for the controller
- Minimum frame rate of 15 FPS

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