Submersible Aerial Vehicle Design Study

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There have been many attempts at creating a submersible aerial vehicle, but these attempts have failed for several reasons. Most notably, these attempts did not perform sufficiently either as an aircraft or as a submarine and the transition between mediums (underwater, surface sea, airborne) was tedious in some cases, and slow in all. This study aims to test a design for a craft for seamless transit three ways: airborne, surface sea, and underwater. All previous designs had separate propulsion systems for air and water travel. Having two separate propulsion systems not only slows down the transition phase between air and water mediums, but also requires the craft to have enough space for two engine systems and their respective fuels. My design uses one propulsion system on tilt-motors for thrust in both air and water mediums and a gyroscope for stabilization and correction during flight. The current model is controlled via a remote controller and Arduino; the remote controller commands the H-tail setup and the Arduino manages the gyroscope. The H-tail is made of two rudders as vertical stabilizers and two elevons as horizontal stabilizers. This study is ongoing and the model is currently on its fourth iteration.

Awards Won:

Third Award of $1,000

Patent and Trademark Office Society: Second Award of $500