Boat Controller Project

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Context and aims

The increasing reliance on unmanned vehicles requires the use of control circuits able to keep control over complex vehicles in real world conditions. Unmanned Areal vehicles (UAV) are therefore often equipped with a flight controller able to keep the airframe stable using a range of sensors and control logic.

While control circuits for UAVs are widely available and affordable this is not true for unmanned boats. The Boat controller project consist of designing the required hardware and software to control a unmanned radio controlled boat.

Design and solution

After defining the system structure and developing a list of requirements the PCB of the Boat controller was designed. Two prototypes where designed. The first PCB was mainly used in order to understand the implications on PCB design and to identify problems in the design. Further this first would act as a backup in the case that the building process would be heavily affected by the Covid pandemic.





Read SD and get nex GPS target

Prototyping and testing

The assembly of the boat controller required some prototyping due to some minor design mistakes. After solving these issues the microcontroller was programmed.

Due to the covid restriction the boat controller needed to be tested by isolating different modules of the system and testing those separately.

- GPS
- IMU
- RC
- SD
- Control logic



Further work

reduce control strength

Change targe heading

Command accuators

Record available data on SD

- Implementation of more complex functionalities:
 - Live telemetry
 - Active stabilisation
 - Logic for sailing
- Implementation of a more advanced microcontroller



