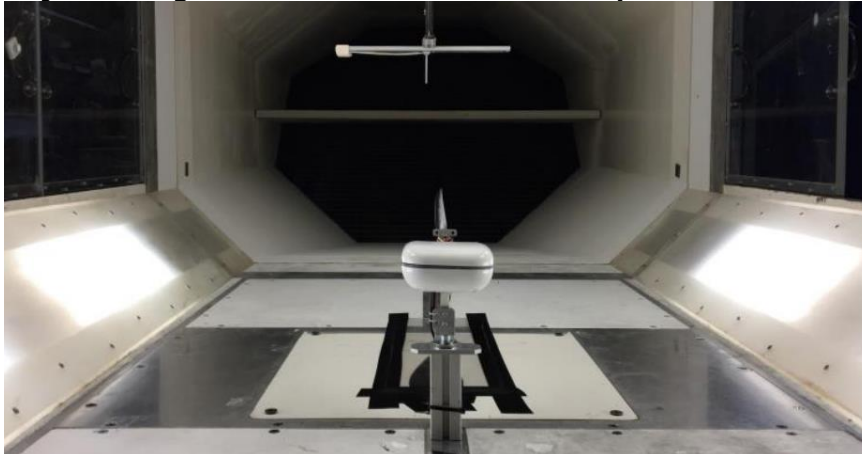


Projektförslag för kandidatarbete inom Tillämpad mekanik



Images shows the test bed for propeller performance evaluation in Chalmers L2 Wind tunnel. - Optimering Av Drivlina För Drönare Avsedd För Effektiv Sjöräddning, M. Magnusson R. Sönniksen

Propulsive integration on a Search and Rescue Drone Aircraft

Background

As regulations regarding drones beyond visual range are maturing, the demand for long range operation of smaller drone have increased. One such implementation is search and rescue at sea emergencies as in currently the design target at Chalmers. One of the key limitation of operational range of this blended wing body drone is the propulsive systems efficiency.

Problem and Target

Different integration strategies have a strong impact on the drone aerodynamics, control and stability. The students are to develop and compare several possible propulsive configurations to maximize the drones effective propulsive efficiency, while taking into consideration secondary effects on the manoeuvring capability of the aircraft.

Method

The students will primarily utilise Chalmers large scale wind tunnel together with an existing test bed. Commercially available propellers, motors, ECS and batteries will constitute the base of test configuration, but students will also implement new motor integration, propeller position by 3D-printing new bodies.

Students Requirement:

Students should be comfortable in CAD and matlab/Python.

Potential Students

M, TD, F, Z

Gruppstorlek: 4-6

The work can be divided if needed. There are many potential configuration and the experimental investigation can be expanded if there is possibility to it.

Handledare: Isak Jonsson

Examinator: Carlos Xisto