

Projektförslag för kandidatarbete

Safe remote-control solution with 5G for MARV-Marine Autonomous Research Vehicle

Background

The Swedish Sea Rescue Society (SSRS) perform thousands of rescue missions along the Swedish coast every year. SSRS has more than 70 rescue station along the Swedish coast in order to guarantee that the time until the rescue teams arrive at the accident site is as short as possible. At the accident site it is very beneficial to use small boats that ease the rescue mission. For this particular purpose a small specifically designed water yet, the Rescue Runner (RR), was developed. It has been shown to be very useful in rescue missions where safety is of the outmost importance. However, a major problem is to get the RR to the accident site. Driving it there is very tiresome, bigger boats are not big enough to bring the RR and trying to toll it would destroy the RR. Therefore, SSRS together with Chalmers students have investigated how it would be possible to get the RR to follow the leader boat out to the accident site in an autonomous way. The projects have previously been called Follow Me and has focused on how the RR can follow the leader boat in open water. Preliminary results show the possibility redesigning the RR and achieving a follow me function installed on the RR (<https://vimeo.com/185011755>). The department of Electrical Engineering at Chalmers have bought a Yamaha WaveRunner in order to continue this collaboration with SSRS and broaden the scope of the project. The end goal is to be able to autonomously navigate out from the harbor, follow the leader boat and at the accident site safely dock to the leader boat. The rescue staff can then switch to manual control and use the RR for the rescue mission.



Figure 1 MARV - Marine Autonomous Research Vehicle

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Problem description

Today, there must be a person sitting on the MARV - Marine Autonomous Research Vehicle in order to guarantee safety. The project goal is to, together with Ericsson, implement a remote-control system that fulfil all safety requirements for remote controlling a unmanned vehicle.

Suitable background: TKAUT, TKELT, TKMAS, TKDAT,

Group size: 3 to 6 students

Number of groups: 1

Prerequisites: Basics of Automatic Control, Electrical Circuits, Mechatronic Systems, Programming

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