

THESIS PROJECT

MEASURE COASTAL CURRENTS USING FLOATING MARKERS – DEVELOPMENT PROJECT

THE SWEDISH SEA RESCUE SOCIETY

Swedish Sea Rescue Society (SSRS) is responsible for 70 percent of all sea rescues in Sweden and receives no government funding. The Society is financed by membership fees, donations and voluntary work. In recent years, the Society has doubled the number of sea rescue stations, tripled the number of rescue volunteers available and built 70 modern rescue vessels. This expansion has enabled Swedish Sea Rescue Society to meet its goal of departing within 15 minutes or less from the time an alarm is received. The Swedish Sea Rescue Society has more than 100 000 members.

SSRS also develop new technologies to enable faster and safer rescue operations. In this thesis project, you will work directly with the head of innovation. You will work in a creative, makerspace atmosphere with a short distance from idea, through development, to testing and implementation.

TASK

Better data on coastal currents would be helpful in many cases, from finding people lost at sea to controlling oil spills. The Swedish Sea Rescue Society, alongside Ericsson, the Swedish Maritime Administration and SMHI, are exploring putting sensors in floating markers, primarily to make sure that the markers remain in the right position after ice winters - a task that currently means visiting 5000+ markers yearly by boat for physical inspection. The project has settled on LoRa with its long range and low power, but also low bandwidth for communications. We have deployed a LoRa base station in Långedrag, Göteborg.

How might currents be measured by means of floating markers? Could this be done by measuring attitude and position with high precision? Possibly with RTK or PPK GPS? Can this be done with low power consumption and low bandwidth, scheduled communications? There is ample room for batteries in the markers, but they have to last for the markers operative life (7-10 years).

The objective of this thesis project is to develop a hardware/software/algorithm solution to calculate coastal currents in a floating marker, with an eye to low power consumption.

Final delimitations are made in consultation with the thesis supervisor and contact person at the client. Both student and client should be aware that academic relevancy is mandatory.

Prerequisites

The thesis project is suitable for students within the field of electrical/software/computer engineering or similar.

Scope

The project can be adapted to Bachelor or Master level, 15-30 hec.



Location

Göteborg

Reimbursement for travel expenses within Västra Götaland

Yes

Contact Miljöbron

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Application

Please e-mail CV, cover letter and course record with grades, to ex-jobb@miljobron.se. State clearly what project you are applying to. Also, please let us know if you are interested in any of our other listed thesis projects.

Apply as soon as possible! Recruitment is ongoing!



Miljöbron är en ideell organisation som förmedlar projekt mellan företag och studenter. Projekten har miljö och hållbar utveckling gemensamt. Genom Miljöbron får studenter kontakter och arbetslivserfarenhet, samtidigt får företag hjälp att utveckla sitt hållbarhetsarbete.