

Public PhD on Autonomous Shipping Solutions for Coastal Communities

Project

A major cost associated with short range shipping comes from crew and port handling. Autonomous shipping can therefore enable new transport and supply chain opportunities that were not economically feasible before. This is a promising opportunity for coastal communities in Fosen.

This project aims to explore autonomous shipping solutions that can benefit the Fosen region and other coastal communities. Kim Alexander Christensen will be employed at Fosenregionen, doing his PhD with TrollLabs (NTNU) in Vanvikan and in Trondheim. In Vanvikan, he will collaborate with Fremtidens Industri (FI), Maritime Robotics and other local partners on a lab/test site. In Trondheim, he will be a part of the new SFI Autoship research community and their harbor facilities at Nyhavn. 50% of the financing will come from the research council of Norway (RCN) through its public PhD program.

The task is to build and run a physical ship drone platform and its supporting units (docking/catcher station etc.) This will be done with a focus on prototyping and testing how different solutions will work in reality. The initial test case is a cargo/postal delivery platform that can connect parts of the Fosen peninsula currently separated by water in an efficient way. The test case is deliberately general so that it can be expanded to address multiple possible opportunities for local businesses in year 3 and onwards. Fundamentally we aim to build a test environment for Fosen companies in e.g. Manufacturing, food and seafood production or with other logistic needs, to explore how autonomous cargo shipping could open massive innovation gains and create competitive advantages.

The project can increase the autonomous shipping expertise in the region in multiple ways. First, it will further connect Fosenregionen to a cutting-edge research and development community at NTNU (SFI Autoship with many national partners and TrollLabs, one of the most innovative labs at NTNU). Second, a PhD project in this area will be able to dive deep into the issues of autonomous shipping and build a concrete platform that can address these issues. The project will build new knowledge and showcase the future digital Norwegian coast in Fosen. It will connect with the local industry, and hopefully generate follow-up projects that can attract talent and ultimately make the Fosen region more connected. Kim will live in Fosen a considerable part of the project duration and is open to continue working there if the project proceeds after the PhD is completed.

Milestones

Year 1: We will set up labs and test sites on both sides of the fjord, both in Vanvikan and in the Trondheim Harbor. Initial ship- and support equipment prototypes will be built.

Year 2: A more refined setup will be built based on the knowledge gained from the previous year. The setup will be modular to facilitate testing multiple concepts (based on the needs of local collaborators, see year 3).

Year 3: The testing is expanded to include other areas of the Fosen region. Local collaborators will be brought in to identify good opportunities for use of the technology. Year 4: Tying it up. The focus will be on helping initiate new projects in the region and completing the thesis.