Thesis: Wireless access point in a marine vessel

Background of thesis project
New and inventive functionality in marine vessels impose additional demands on wireless communication and data security. The thesis aim at evaluating various wireless technologies, where the aspects of performance and dependability as well as possible constraints such as the physical location of a wireless access point and possible impacts of various vessel materials will be important deliverables. Data security is an essential part of the thesis as well and a research of various means to protect the embedded system from unauthorized use (hacking) via the wireless access point will also be an important task.

Suitable background
- Embedded Electronic System Design
- Electrical Engineering
- Computer Science and Engineering
- Knowledge of marine vessels and the marine environment

Description of thesis work
- Study various wireless technologies and for each technology:
  - Investigate and evaluate performance and dependability
  - Investigate and evaluate suitable and non-suitable physical locations for a wireless access point
  - Study possible influences from other peripheral equipment (smartphones, VHF, radar etc.)
  - Investigate and evaluate strengths and weaknesses in terms of the data security of the wireless access point
  - Investigate various means to protect the wireless access point as well as the wireless data from exploits
  - Investigate and evaluate the feasibility of industrialization in the embedded environment of the existing marine products
- Investigate and benchmark existing wireless solutions offered by competitors

Thesis Level: Master

Language: English or Swedish (writing in English)
Starting date: Q1 2017

Last application date: 2016-12-04

Number of students: 2 (we believe the thesis work will benefit from the dynamics, dialogue and thoughts between two students, hence applicants applying in pairs will be prioritized).

About us
The Volvo Group is one of the world’s leading manufacturers of trucks, buses, construction equipment and marine and industrial engines under the leading brands Volvo, Renault Trucks, Mack, UD Trucks, Eicher, SDLG, Terex Trucks, Prevost, Nova Bus, UD Bus, Sunwin Bus and Volvo Penta.

With Volvo Penta, a world-leading supplier of engines and complete drive systems for marine and industrial applications, you will be part of a global and diverse team of highly skilled professionals who works with passion, trust each other and embraces change to stay ahead. We make our customers win.

The thesis work will be carried out within the department Vehicle Electronics at Volvo Penta.

Tutor: Jens Samsioe, jens.samsioe@volvo.com +46 313226543