

Master thesis

Wireless mesh network implementation for flying sensor array

Bitcraze designs and manufactures exciting flying open development-platforms for hobbyists and universities. Our current platform, the Crazyflie Nano Quadcopter, has a worldwide user-base consisting of thousands of users.

DevPort is a development company focusing on technology management, project assignments, and expertise in mechanics, electronics and software for high-technology systems and products.



Thesis background

To increase the versatility of the Crazyflie Nano Quadcopter we would like to enable mesh-networking for communicating. This would allow users to distribute units over large areas and to retrieve data from them even if the receiving end is not in range.

We will use this technology to investigate creating dynamic sensor networks made up by small quadcopters containing sensors. Our first step towards this is looking at mesh-networking for sending commands to the sensor network, as well as sending data back to the host. The mesh needs to be fairly low latency, but most importantly it needs to be dynamic to handle moving nodes.

Thesis goal

The goal of the thesis is to investigate mech technologies and implement a basic mech-networking stack using the nRF51 from Nordic Semiconductor. The implementation should prioritize the following:

- Dynamic mesh
- Low latency
- Low power

Required competence

We are looking for two enthusiastic applicants that are studying at a Masters program in Electrical or Computer engineering or equivalent. Good skills in C programming are required. Previous experience with embedded platforms and/or networking is meriting.

Start date: Summer/fall 2014

Location: Lund/Malmö

Payment: 10 000 SEK / person

Supervisor: Emma Fitzgerald, PhD Electrical and Information Technology LTH

Contact: Tobias Antonsson, Co-founder at Bitcraze AB
0703 85 47 51, tobias@bitcraze.se
Niklas Eklund, Design Engineer DevPort AB
0705 09 14 96, niklas eklund@devport.se

Send applications to niklas.eklund@devport.se marked “Master thesis”.