

FM4017 Project

Title: Exploration of LoRaWAN Sensors and Infrastructure for IoT Applications

USN supervisor: Hans-Petter Halvorsen

External partner: Altibox

Task background:

Data from different LoRaWAN Sensors located at USN needs to be stored and monitored. In this project the LoRaWAN Infrastructure from Altibox should be used and data should be stored and monitored.

Since the autumn of 2018, the Altibox and Altibox partnership has expanded the LoRaWAN Sensor Network in Norway and currently has coverage for more than 1,000,000 households in 100 municipalities. The LoRaWAN Sensor Network is a natural extension of the fiber network with major synergies of established infrastructure and the development continues. Altibox and Partners now offer IoT Access as a commercial service, so that more people can use the Sensor Network for their own sensors. More information:

<https://www.altibox.no/iot/>

Task description:

Examples of activities that should be performed:

- Get an overview of LoRaWAN and other relevant protocols used in IoT in general and in context of this work.
- Get an overview of the Altibox LoRaWAN Infrastructure and tools, and other tools useful within the IoT and LoRaWAN area with pros and cons for each of the tools.
- Logging and Monitoring of Data using available LoRaWAN sensors.
- The system should be Open-source and should be available at GitHub with proper documentation.
- Microsoft Teams and GitHub should be used during project planning and development.
- The system should be properly documented in form of a technical report, documentation on GitHub and e.g., on YouTube.

The main goal with the project is give an overview of available tools and to get data (temperature, humidity, etc.) from the sensors in an intuitive and user-friendly way for end-users using these tools.

More project details and activities will be discussed in collaboration with Altibox when the project starts. For online students it is possible to adapt the activities and the content of the project so it can be adjusted to the activities that are relevant for the company that you work in.

Collaboration with another LoRaWAN project is also expected.

Student category: IIA (both for Campus students and Online students)

The task is suitable for students not present at the campus (e.g., online students): Yes, but some time on campus to install and configure the hardware may be expected, then most of the project can be done online. A mix of Campus students and Online students is also possible.

Practical arrangements: None

Signatures:

Supervisor (date and signature):

Students (write clearly in all capitalized letters + date and signature):