INF-3910-3-3 - COMPUTER SCIENCE SEMINAR: IOT SERVICES WITH LORAWAN NETWORK AND COMPATIBLE EMBEDDED DEVICES AND SENSORS

UNIVERSITY OF TROMSØ

Animal tracker project

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1 Introduction

This report describes the work that lays the foundation for our project. The project is about tracking certain animals in their natural habitat without hindering their way of living. The motivation for our project is the usefulness of the services provided by the system we develop.

1.1 Problem statement

The problem we want to solve is to gather and present data regarding the environment and migration patterns of the animals using the IoT devices. We want to make the IoT devices to fit as many species as possible. We will track animals by emitting GPS coordinates, accelerometer data, battery voltage and temperature from the wearers. All data will be delivered to a backend system through the LoRaWAN network. We will also make it scalable.

We will primarily focus on individually gather the four types of data from an arbitrary number of observational units; we will not focus on creating a mesh network of sensors or the aspect of fault-tolerance.

The complexity of the project is not too high for a practical completion. The technology needed is available. In addition, we have been in contact with Rovdata, a company that tracks wild animals for the purpose of population control and positional tracking. Va ikke vi i kontakt med en sauebonde fra Lyngen å?

1.2 Background

words

1.3 Member roles

The team members are Valter Berg and Thomas Bye Nilsen. The member agree on the tasks that are to be solved. Both members work on the sensors, each of which implements separate features that make up the sensor functionalities. Thomas design the format for data transmission between the sensors and the backend system and present the data on the backend system. Valter works on managing the sensors from the backend system, implements a map functionality and create the boxes the sensors will be contained in. Both members test contact potential users in a real-world setting. They also conduct tests on animals. Both members will update each other on the state of the project.

The rest of the report is layed out as milestone chapters, starting from milestone 2. The milestones are laid out on a timeline that incrementally builds a solution to the problem. Milestone 2 includes the project design.