

Milestone 1: Project concept

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In this project I will design, develop and test an animal tracker system. The users of the system will be able to look at the migration patterns over time along with the temperature displayed on an interactive map. The sensors are meant to be used on animals such as sheep, wolfs and reindeer, though all animals that can wear a collar can use it. By looking at the patterns, herd owners or nature supervisors can adjust grazing rate in an area or move individuals if needed. When the animals are herded, the user can increase the update rate such that the position is presented with low latency to find them. A notification will be pushed to the back-end system if no movements have been recorded because it can indicate that the individual has been hurt or is no longer alive.

Both members will work on the sensor side. Thomas will look at change in position and Valter will work at displaying the data in a meaningful way.

The market potential is present. There already exist companies that deliver similar systems with some differences. Some sheep herders already use a similar system. The complexity is not too high for a practical completion. At a first glance, the challenge is to duplicate the sensors to a fordable cost.

The system will consist of a set of sensors, a back-end system and a dashboard that displays sensor data. The sensors will gather position, movements, temperature and battery voltage. Each sensor will deliver the data to the back-end system through the LoRaWAN network at an adjustable rate. The rarer the sensor data is pushed to the network, the longer the sensors can last without battery replacements.

The positions will be pinpointed on a map, given a point in time. The system can be tested by having the sensors worn by humans or placed in cars. In a real-life scenario the sensors can be tested in cold environments. The goal is to register movements and change in positions over large distances, along with periods with no movements. For a real system, the sensors will be embedded into collars.