CowHelper – Application for monitoring animal herds

Team from University of Plovdiv "Paisii Hilendarski"
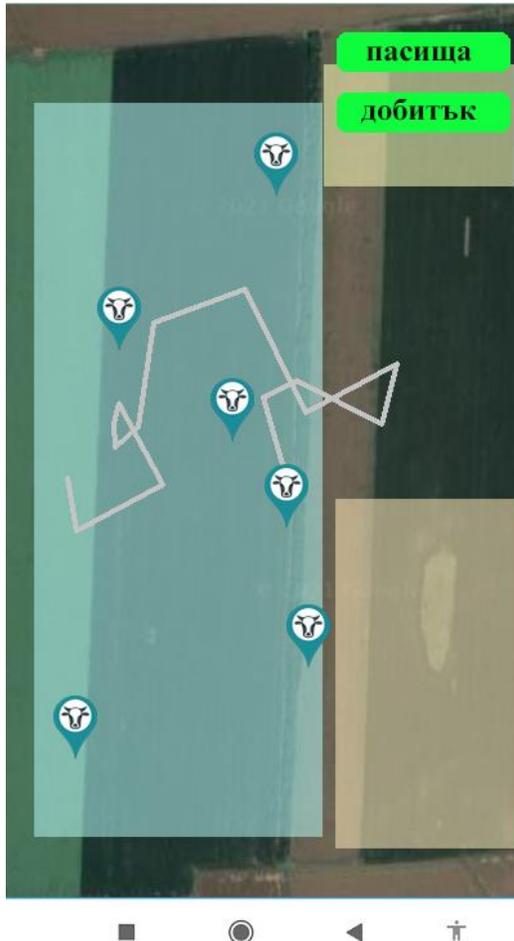
Figure 1: Animals and pastures.

❖ **Description**

The idea of this service is to provide information to the user about the condition and location of the animal herd. This is done through an Android application written in Java programming language and a remote database containing information - updated in real time by external sensors. The application allows tracking and visualization of a map showing the location of each animal in the herd. Each animal is represented by an icon marking its current location. When you click on any of the animals, you can visualize the animal movement for the last two hours (this interval can be changed in the settings). In addition to tracking the animals, the application shows the location of each pasture the owner included in the application. The available pastures can be traced in the application. Using the button at the top of the application, you can determine whether the pastures are visible on the map or not.

❖ **Use of the infrastructure**

For the operation of the application a set of sensors are used that are hung on the animals. The information from the sensors is transmitted via LoRa network which allows transmission of information over a longer distance with lower current consumption. A server located at the Rector's Office of the Plovdiv University of "Paisii Hilendarski" is used to store information. The database currently in use is MySQL. The test device used for the final Android application is Xiomi - RedMi Po 9.

❖ **Results and future work**

As a result, an application was made allowing real-time tracking and tracking history of the livestock. The application will be expanded by adding a set of different sensors to the animals. Temperature detection sensors will be added, as well as an acceleration detection sensor thanks to which analyzes will be possible. It is also planned to install sensors on the pastures in order to monitor the condition of the various pastures. In its next version, the application will be written as a personal assistant with the JASON technology, it will allow data analysis thanks to which more complex calculations and conclusions will be possible.

1. https://lora-alliance.org/
2. https://www.mysql.com/
3. http://jason.sourceforge.net/wp/