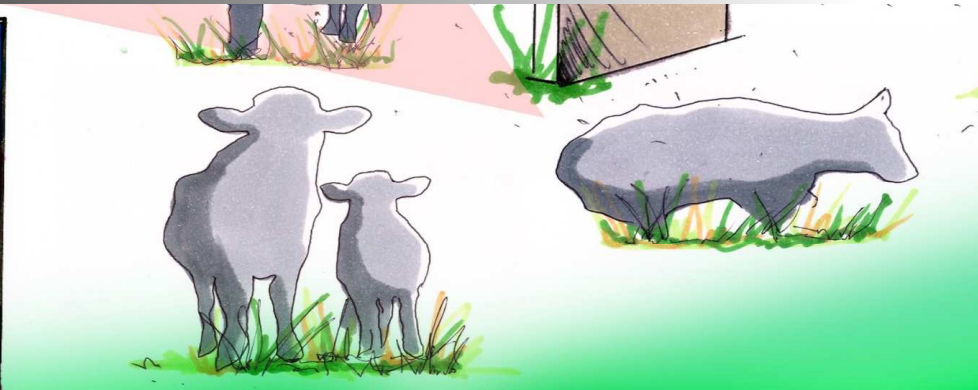


Presentation Helsinki 2019-01-17

Project eSTRUS



CHALLENGES FOR MODERN LIVESTOCK PRODUCTION

THE PROBLEM

- In the past farmers used to have time to evaluate the status of their livestock.
- But the number of animals per farm have increased resulting in less available time per individual animal.
- Resulting in animal welfare degradation and decreased overall knowledge of the status of the animals.
- How to do this without increasing work load?
- How to do this without being a technical expert?
- Animals are not machines. They say a lot without words... Can technology understand them?



SOLUTION FOR MODERN LIVESTOCK PRODUCTION

THE SOLUTION

Technology can help to quantitatively measure:

- Behavior
- Health
- Performance

The animals behavior will tell you about their health status, if they are in heat, if they are pregnant and whether it is time to give birth.

BMP Innovation is introducing a platform solution that will inform the farmers, in time, the status of their individual animals without increasing the farmers work while at the same time saving money.

Our technical solution to replace the farmer's eyes and knowledge on a large scale.



OUR SOLUTION – A VERSATILE PLATFORM

THE SOLUTION

The platform includes a patented proprietary embedded technology solution capable of using several different types of IRT camera modules.

- **Embedded Processing**
- **IPRs secured**
- **Tech ready Level 7**

The solution is developed for the farming environment, IP67, easy to use, automated, flexible and durable.

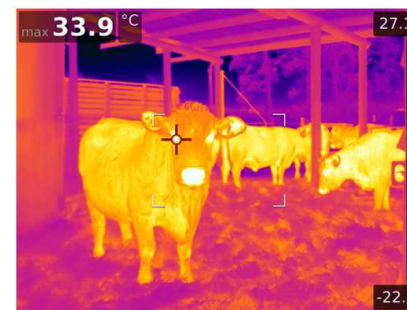
The data generated from the camera solution will be calculated in the sensor platform itself and will detect events such as irregular behavior and temperature, providing just the important information needed for the farmer.



Version 2: September 2018

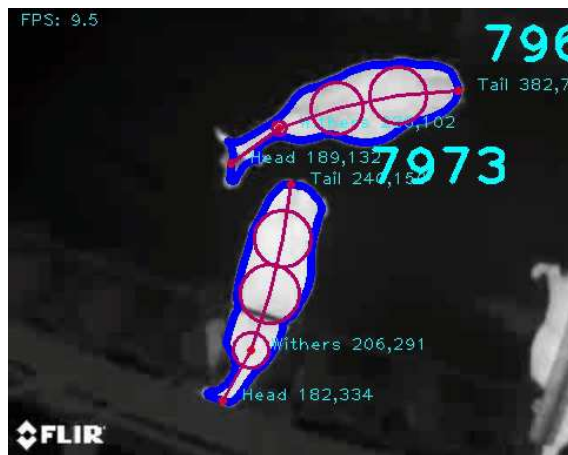


Version 1: November 2017



What does it do?

Detects, identifies, measures, tracks, quantifies movements, specific behaviours, shapes and patterns in individual cows, even within a herd. It is also radiometric.



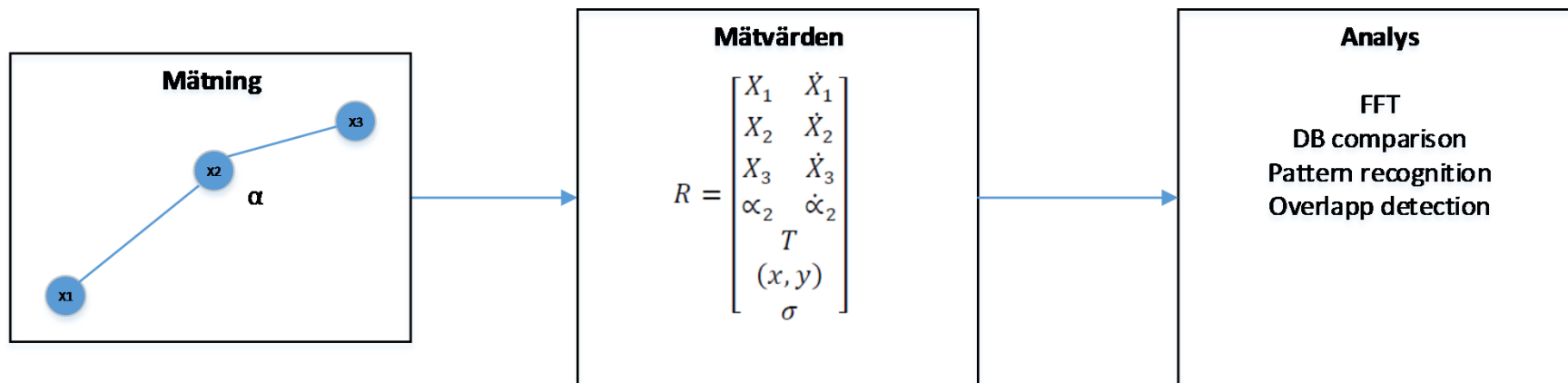
IMAGES

The image is processed and each individual is separated, tracked and points of interest are identified. Here Nose, Withers and Tail



MEASUREMENTS

The point are measured, the movement categorised and analysed



SCALABILITY AND VERTICALS

OUR PLATFORM

SAME PLATFORM - DIFFERENT APPLICATIONS

Dairy and Cattle industry

- Calving pen surveillance
- Calf surveillance
- Body Condition Score (BCS)
- Biosecurity, e.g. Bovine Respiratory Disease (BRD)
- Estrus detection

Pig industry

- Biosecurity (automatic high fever prediction) and quarantine monitoring
- Body Condition Score (BCS)
- Growth prediction
- Size and weight evaluation
- Biosecurity, e.g. African Swine Fever



PIG INDUSTRY

OUR PLATFORM

Our innovative non invasive solution enables a breeder to get a real-time estimation of animal conditions.

Our smart camera platform makes the image processing IN the camera to extract ONLY RELEVANT DATA. (see image 1)

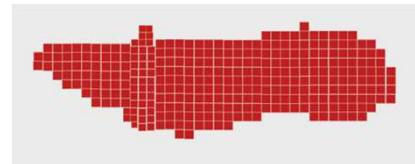
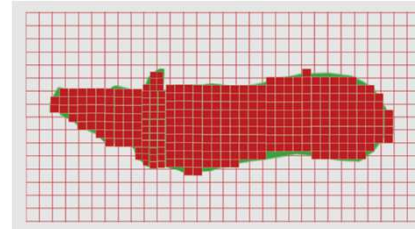
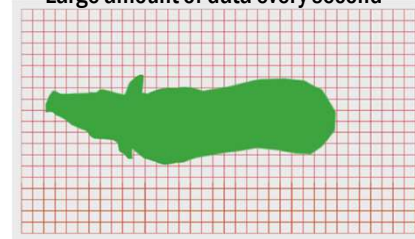
Condition monitoring

- Temperature
- Size, Length, Weight
- Detection and identification of abnormalities

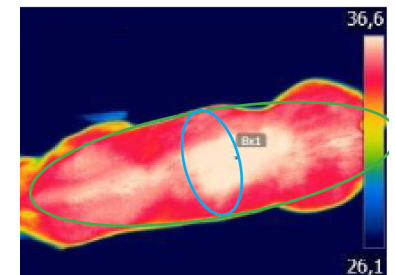
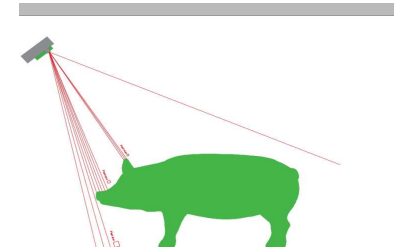
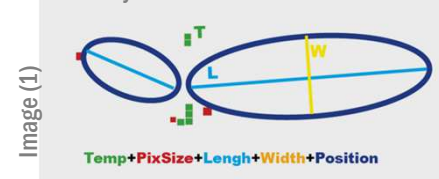
Group Dynamics and movement analysis

- Movement and dynamics of a group
- Detection of abnormal behavior of individuals, even within a group

Large amount of data every second



Very small amount of data sent



Different Temp within the herd

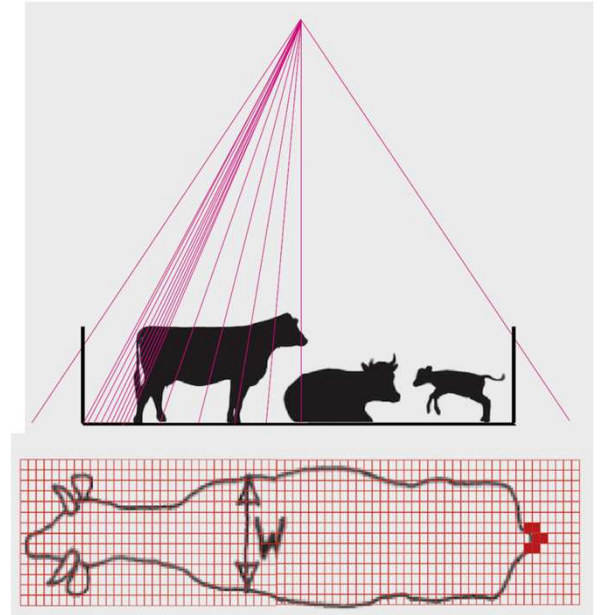


DAIRY AND CATTLE INDUSTRY

OUR PLATFORM

The solution is based on IR technology, behavior pattern recognition, and image analysis and it:

- ▶ Decreases the risk of stillbirth and other birth problems by monitoring around the time of parturition
- ▶ Provides real-time monitoring of several different behavior patterns.
- ▶ Complications while giving birth, calf does not stand, post birth complications



Project status update, eStrus

Activity	Status
Basic Technology Research	✓ Done
Research to prove Feasibility	✓ Done
Overcoming Known Problems	✓ Done
Technology Development	✓ Done
Technology Demonstration	✓ Done
Full Specs, TLR-7	✓ Done

THANK YOU

