

WHERE DO MY STEAKS COME FROM?

DIGITANIMAL - Animal Welfare and the Internet-of-Things: smart agri sensors enable the monitoring of animal's lives

Animal welfare and meat quality labels are a hot topic for retailers as well as for consumers. How can they be sure about claims of good rearing? A new sensor technology will soon allow to record over a cow's lifetime its breeding and feeding to be traced back to the origins.

The collar with the green box at the cow's neck is designed to be worn by cows grazing far and wide. The device connects them to a temperature sensor and to an electronic sensor, both stored in the box. Signals detailing the animal's location and condition, based on activity and its body temperature are transmitted to an Internet cloud, which further streams the data, directing information to the farmers' home computers or smartphones. This is how DIGITANIMAL, the smart farming solution from SensoWave, a company based in Madrid, offers a perfect system for the surveillance of animal herds — not just hundreds of kilometres away from the farmer's house, but also in the stables next door. Consumers in future could also benefit from the innovation, because, in a later phase, they might track back where their steaks come from while finding data on the living conditions of the cattle providing their beef. Any potential disturbance or lack of feed — any kind of harm to the animals' welfare — can be detected remotely, and addressed as quickly as possible, by sending a notification to the farmer's terminal. Finally, all the important events of each cow's life, from birth to slaughter, can be recorded. These data can even be edited and could soon be provided to consumers, who take the well-being of the animal more and more into account. It's a reality check on the origins of their steaks.

Carlos Callejero, CEO and co-founding partner of DIGITANIMAL has won a CommBeBiz Award for further business coaching. 'Our colleague Rubin came from a cattle farm and he was once very depressed, because they had lost many animals due to a lack of surveil-

lance,' Carlos Callejero remembers to the team-member who had the initial idea. The physics PhD graduate and MSc in optics, who has been working for several years in the sensor hardware industries and in the optical sector, immediately liked the idea of offering a solution for cattle breeders — deploying a low-power technology with new connectivity standards.

Until recently, the rather complicated energy supply systems for remote areas, using conventional batteries, have made these kinds of applications difficult. Now, more than 150 farms in Spain are already using the novel technology from the young sensor company, and it is set to keep growing: 'We collaborate with experimental farms and institutes in Spain and France, such as IDELE and INRA, in order to develop new features. Commercially we are just in the process of creating a distribution network in Spain, France, Ireland, Germany and Slovakia, and have registered interest from SouthAfrica, Brazil, Mexico, Australia, New Zealand and the Arab countries. One of our last calls even came from Oman with a demand for camel monitors,' reports the CEO smiling.

The data, which are recorded from the field can be transmitted from Internet clouds to tablets or computers without a classic radio or WiFi connection. Within the EU, the DIGITANIMAL based devices are networked to 'SigFox' — operators offering antennas for plug and play, and an IOT data connection standard that is able to speed up data flow rates. Low-energy devices enable this technology. 'This new connectivity quality is unique,' highlights Carlos Callejero, whose firm also benefits from the marketing efforts that the antenna network operator is providing.

It's not only farmers who will benefit from the smart innovations in agrotechnology, but also feed suppliers and vets. The agro sector is only one of several pillars on which Carlos Callejero is working with his

11-member team. The low-power sensors that his firm specialises in, can also be used to monitor and to train workers in hazardous industries and in remote places. 'I always have a vision and start to dream, my team is making my dreams true,' the company CEO confesses. Formerly he worked with defence applications: 'But soon we were looking at the civil sector and for niche markets such as health, safety or training systems.'

One of the new fields already identified by him is organic farming. Carlos' company has started to contact organic farms to convince them to try a new eco-system with consumers. The latter could get the QR-code on a product label, allowing them to do a reality check on the conditions the animals were in when they grew up in the fields. Moreover, there are management platforms coming up suited to grazing animals — providing information about where the cattle will find the best feeding conditions. The manager became acquainted with the smart-agri sector through the EU's smart-agri business accelerator. It taught the young entrepreneur how to raise a business and how to set priorities.

Constantly looking towards new opportunities, the inventor recently learnt from the European Space Agency (ESA), that its Copernicus Programme is using satellite images to verify pasture quality. In Carlos' opinion, this approach could easily be adapted to guide the animals to better grazing places. The necessary guidance systems still need to be developed. Will it be sounds, or brushing robots that lure the cattle? 'We will see,' Carlos Callejero says, laughing. The CommBeBiz Award that his agrotech firm has won, will be a 'source of inspiration' to him. The Awards network not only connected the Spanish developer and inventor to new software platforms, but has also led him to potential customers in the fields of smart technology bioeconomy innovations.