

Poultry Digital

Tech innovations shaping the future of poultry

What the newest tech promises to do for your flock

Inside the Technology issue | A snapshot of some of the most innovative poultry tech • How genetics are overcoming small-scale production challenges • Q&A with an industry leader in data analytics • Robots get down and dusty • Lasers keep the wild birds out and your birds safe



Robots – the new frontier in poultry production

While uptake is slow, robotics promises to improve poultry production efficiencies and ultimately boost food security

Words Glennis Kriel

They might not be in line with our movie-informed ideas of what a robot should be like – such as Data in *Star Trek* or R2-D2 in *Star Wars* – but robots are playing an increasingly important role on poultry farms. By improving production efficiencies, they are boosting food security, improving animal health and welfare as well as contributing to better labour conditions and farm profits.

The French company Octopus Robots, last year launched two entirely autonomous robots. These bots very much resemble Hollywood's animated rubbish-collecting bot Wall-E, as their primary functions, depending on the model, are either to clean and disinfect poultry houses or turn and aerate poultry bedding. But the bots are also modular – perhaps making them more like a Transformer – allowing users to turn them into several versions with the ability to perform different tasks.

Besides their primary functions, the robots are equipped to collect, analyse and store data – with sensors, cameras and other systems – through which they may help to improve record keeping and traceability on farms. The bots continuously measure environmental factors, such as temperatures, humidity, carbon dioxide and ammonia levels, alerting farmers in real-time of deviances and potential problems.

Frédéric Pradelle, chief marketing officer at Octopus Robots, says that robots are boosting biosecurity by performing tasks much more efficiently than would have been possible with manual interventions.

“Repeated avian flu outbreaks, the increase in zoonotic disease, the development of multi-drug-resistant organisms and the risk of bioterrorist attacks,” he says, “are harsh reminders of the crucial need to act quickly and effectively during a disease outbreak. By reducing human contact with birds, removing human error





and doing tasks more efficiently, robots, such as ours, are becoming an invaluable tool in this on-going battle.”

Pradelle identified navigation as the biggest challenge in developing this type of technology: “You cannot use global positioning systems indoors, so we have had to develop a navigation system that combines the use of shape detection and recognition, triangulation and anti-collision systems, to mention only a few. Our technology is inspired by autonomous-vehicle technology.”

Other developments

Another company that has created a robot that will greatly improve efficiencies on poultry farms is Metabolic Robots. Their robot is similar to the fictional Hal 9000 from 2001: A Space Odyssey, in the sense that it is a smart computer that manages, measures, monitors and controls functions. Unlike Hal 9000, however, the robot can be switched off by the push of a button.

So how does the robot work? Ziv Dubinsky, CEO of Metabolic Robots, explains that the computer improves feed efficiency and, in effect, flock uniformity by taking over feed-line motors and adjusting the location and frequency of feedings: “The computer is installed on existing infrastructure,” he says. “It controls the feed motors via algorithms and uses sound and light effects to draw birds to empty feeders and drinkers.”

The technology is primarily aimed at the broiler market, as feed efficiency is higher in the layer industry and with mother flocks where timers are used to feed the birds two to three times a day. Dubinsky estimates that the feeding robot could reduce feeding costs by at least 5 percent, thanks to improved feed efficiency: “Total savings will be higher, as animals are

“Dubinsky estimates that the feeding robot could reduce feeding costs by at least 5 percent, thanks to improved feed efficiency”



OCTOPUS ROBOTS | Able to turn and aerate poultry bedding, with the minimum disturbance to birds

generally more healthy, having access to feed when they want and need it.”

The system’s prototype was able to alert farmers of any trauma or pathogens that affect trackable feeding patterns in the flock and this feature has now been improved to suggest the type of infection, pathogen or trauma when the computer is connected to a broiler weight platform and a water-flow sensor.

“Farmers often recognise a health threat too late,” says Dubinsky, “so we have equipped our robot to not only give early warning of such threats but also to identify the specific threat or infection so farmers would know what remedy to use. At the moment, we are also working at combining an environment controller into the system to create a full barn robotic farmer, as well as a food-safety animal-welfare monitor.”

Various other robots have also become commercially available, ranging from bots that use artificial intelligence to debone a chicken in two to three seconds – almost like the Terminator

Poultry Digital

Click on the link below for
the full magazine

<http://5mpoultry.uberflip.com/i/949998-poultry-digital-march-2018/0>

Tech innovations shaping the future of poultry

What the newest tech promises to do
for your flock

Inside the Technology issue | A snapshot of some of the most innovative poultry tech • How genetics are overcoming small-scale production challenges • Q&A with an industry leader in data analytics • Robots get down and dusty • Lasers keep the wild birds out and your birds safe