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Digital birdhouses make studying owls easier



© 2017 EPFL / Alain Herzog - Octanis students and their digital birdhouse

22.05.17 - EPFL students have developed a system that can detect when barn owls fly into and out of their nests, without disturbing the birds. Their invention could soon be installed in some of the 350 birdhouses that biologists have set up in the Swiss region of Broye.

Switzerland's barn owl population is under close watch. These animals are being threatened by a sharp decline in the number of barns and farms where they can build their nests. But biologists didn't have a practical, unobtrusive method for observing the animals in their natural habitat – until now. Students from EPFL's [Octanis association](http://octanis.org/) (<http://octanis.org/>) have developed a prototype that can record when birds fly into and out of their birdhouses using a sensor installed at the entrance.

The students came up with the idea after speaking with Isabelle Henry, a researcher who previously studied under barn owl expert Alexandre Roulin at the University of Lausanne. "Biologists wanted to be able to study barn owls inside their nests, but existing systems were too cumbersome and didn't always work well," says Sam Sulaimanov, an electrical engineering student at EPFL and president of Octanis. So the students devoted some of their spare time to building a simple device that consists of a printed circuit board and an antenna. Once the sensor is installed at the entrance to a birdhouse, it can detect when birds enter or leave, provided the birds have been tagged with tiny computer chips.

Better than a GPS

The students' system is light, cheap and can be used year-round. Its battery lasts for six months – a major advantage over existing GPS-based systems with shorter battery lives, since that means data can be collected without having to disturb the birds or capture them regularly. With these digital birdhouses, biologists won't need to visit the birdhouses as often in order to get detailed information on the owls' behavior before mating and on how often they feed their chicks. "We have 350 birdhouses set up between Lausanne and Morat, so this type of system could be extremely useful. We are delighted that these budding engineers have taken on this project," said Roulin. The initial prototype will soon be installed in a birdhouse for real-world testing.

Innovation outside the classroom

Digital birdhouses are not the only invention to come out of Octanis. Its members have also built a rover that was tested in the Antarctic last winter. These projects give EPFL students an opportunity to explore their ideas and conduct experiments outside the classroom; most of the work is done in the prototyping labs in EPFL's Mechanical Engineering building. Octanis is open to all EPFL students regardless of their field of study. Members can try out welding, 3D printing and even programming. "EPFL courses are extremely demanding, so it's important to be able to take time to work on fun personal projects," said Sulaimanov. "Here we feel free to make mistakes and test different solutions without having to worry about the impact on our grades – which enables us to learn a lot!"

Learn more at octanis.org (<http://octanis.org/>)

An Open Night is held every Tuesday at 7:30pm on the 3rd floor of the Mechanical Engineering building

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Source: Mediacom

LINKS

[Octanis association](http://octanis.org/) (<http://octanis.org/>)

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