

ERAT – being smart about trapping

In Eastbourne and the Bays there are numerous traps in place to control predator numbers. But maintaining these requires constant monitoring and regular in-person checks to empty traps and reset them. To reduce effort and improve efficiency, ERAT (Educating Residents About Trapping) has started trialling smart traps with the help of Rona Bay resident Oliver Seiler. The advantage of these smart traps is that they can report catches via a wireless network. The person monitoring the trap can then receive an email or txt message and clear and reset the trap, instead of leaving the trap unarmed until the next time they service their trapline.

Some traps get a lot of activity while others don't and knowing which ones need attention can save time and ensure that traps are brought back into action faster. Automated monitoring also helps with getting a timely notification when there is lots of activity, for example during a mast season.

ERAT uses a number of self-resetting traps (A24, AT220) that do not need to be manually reset after each catch. For those traps, it's not clear how many times they have caught something. For the trial, one of the AT220 traps has been fitted with a sensor that counts the number of catches and reports them to a visual dashboard. It also reports the exact time of the catch, which helps with data collection and better and faster understanding of how pests move within the area.

LoRaWAN - the technology behind it

The sensors are using LoRaWan, a wireless network technology that supports long distance data transmission over several kilometres. The sensors run on a small battery that lasts many months, or on a small solar panel. Basically, LoRaWan works similar to wireless internet at home, but for smart sensors with a much further reach.

Oliver set up a LoRaWan network at his home in Rona Bay when he wanted to monitor his beehives which are at some distance from the house, out of wifi coverage. Monitoring the temperature inside the beehive allows him to see whether his hive is breeding and is in good health without having to open it. He has since installed a number of other sensors, including for weather observations, air quality and inside his mailbox to notify him when there's mail.

In Eastbourne there is currently good network coverage in the wider Rona Bay area, including Matiu/Somes and parts of the Seaview and Petone shoreline. This could relatively easily be enhanced with another gateway in an elevated position and there are even some new satellite based gateways that provide global coverage.

TTN – where to get it

The website thethingsnetwork.org combines many LoRaWan networks and anyone can register their sensors there and use the network for free.

Sensors can be bought off the shelf ready to go, or home-made using very affordable components with some basic electronics skills. This also offers a great learning opportunity for anyone interested in multi-discipline STE(A)M education and skills.

Many regions in Europe now have good coverage of these networks, and communities, schools and individuals can run their own environmental sensors and citizen science projects. Some councils use LoRaWAN networks for providing their services and have opened them up to citizens and communities. Innovative solutions, for example monitoring council rubbish bins, moisture levels in plant beds or parking sensors, allow councils to save money and focus resources on where and when they are needed most.

If you are interested or have any ideas that that would benefit from smart sensors, please get in contact at ttn.eastbourne@gmail.com

Oliver Seiler on behalf of MIRO