Biodiversity is essential for the processes that support all life on Earth, including humans. Without a wide range of animals, plants and microorganisms, we cannot have the healthy ecosystems that we rely on to provide us with the air we breathe and the food we eat.

The Great Otway National Park is a vital habitat located in southern Victoria. Many species that have been driven to extinction in other areas of Australia still survive in the habitats of the Otways. Without decisive action these precious species could vanish from our forests and heathlands forever.

One of the governments current conservation projects is a feral pig and deer eradication program, trying to eliminate destructive trampling and competition with endangered animals for food and water.

Existing technologies to track animal movements include: hidden cameras which is expensive and only cover a small area; GPS tagging which is labour intensive and invasive; and direct observation which can scare away shy animals. Passive acoustic monitoring, on the other hand, can mitigate a lot of the issues by overcoming line-of-sight requirements while being both less labour intensive and less disruptive to the environment. However, current audio monitoring approaches requires human analysis of individual recordings to identify animal sounds and can take up to hundreds of hours.

Introducing project Echo. Our product will provide another way to track animal movements by installing a series of small, remote microphone sensors powered by solar and integrated using Wi-Fi 6 Mesh connectivity. When an animal makes a vocalisation, the microphones can pick it up and relay it in real time to our cloud servers using 5G networking technology.

Our solution will analyse the transmitted animal sounds with artificial intelligence technology that can automatically and accurately classify the species of animal which made the vocalisation. The deep neural networks behind our AI technology are specifically designed to recognise and categorise different animal species in a particular area. We can then display the location data as well as past vocalisations through our web app, to provide visual representations of long-term movements.

Our solution's design emphasises ease of installation, high scalability and adaptability, low maintenance and disturbance to the natural habitat. We hope our technology will make a big impact in the field of conservation by providing a cost-effective tool to monitor and track both invasive and endangered species. By overcoming the limitations of traditional monitoring systems and providing conservationists and researchers with valuable data, our technology will help protect unique ecosystems across the globe.