Plant identification becomes snap

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Totara fern

Identifying New Zealand's unique native flora is set to become much easier with the launch of Flora Finder, a smart phone app developed by the University of Otago and MEA Mobile.

Dr Graham Strong, commercialisation manager from Otago Innovation, says Flora Finder will quickly identify 87 of the most common native trees and shrubs.

"The app allows you to add the plants you identify to a collection on your phone. It also uses GPS to show where you found them.

"If there is a plant you have been unable to identify using the app, it is set up in such a way that you can send the unknown leaf image to the University's Botany Department who will have one of their experts

identify it," he says.

"Not only do you get an app that will identify New Zealand native plants it will also give access to botanical experts."

Dr Janice Lord, one of the experts from the Department of Botany who has been involved in Flora Finder, says carrying a smartphone with an app make access to plant knowledge far easier.

"New Zealand plant species number in the thousands and books on the flora of New Zealand are cumbersome and expensive. The terminology and Latin names are also daunting, even for an expert," she says.

"This is a fun, easy-to-use app for tourists, trampers and casual walkers. We tried to include the trees and shrubs they would be likely to see and that might catch their eye."

There is a brief write-up on each of the plants contained in the app's library. Each is identified by its Maori name and its European common name, as well as alternative names in both languages, and its Latin name is also provided.

Developing the code for leaf shape recognition was one of the keys to making Flora Finder a reality, MEA Mobile Director Rod Macfarlane explains.

"Computers see images as a bunch of ones and zeros, not like humans who have been trained to instantly recognise shapes inside images. We quickly realised that speed was an issue so we had to pre-process the large database of images that the Department of Botany supplied.

"With some image processing tricks we turned all of the leaf images from that database into a new database of polygon approximations.

When a user takes a photo of a leaf we turn that into a digital approximation and then use shape matching algorithms to compare it to every leaf in the database. It worked quite well."

Dr Strong says the collaboration between MEA Mobile, Otago Innovation and the Department of Botany has been central to getting the Flora Finder app ready to go.

"None of the partners could have done it on their on their own. It required MEA Mobile's app expertise, the Department of Botany's knowledge and Otago Innovation's backing to make it happen."

An Android version is under development and there is scope to develop a Flora Finder for other types of plants as well.

Provided by University of Otago