A Cloud-Based Māori Pronunciation Application #93

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Background

Prior to Māori becoming an official language of New Zealand in 1987, the language was seeing a large decline in fluency.

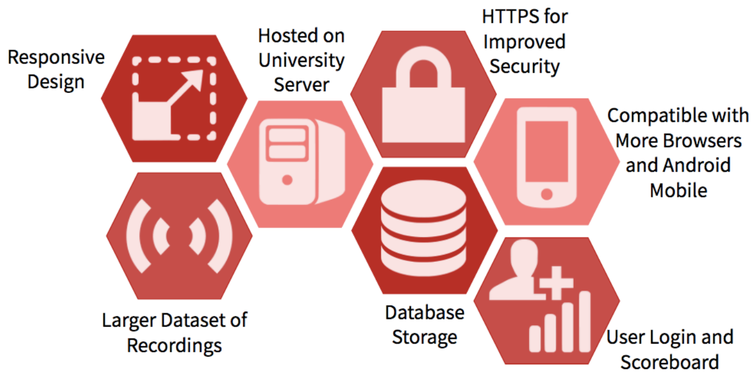
Restoration efforts saw the language increasing in speakership but the generations who spoke no Māori had taken their toll. Very few people who were teaching Māori were first language speakers, and this led to changes in some pronunciations. This is seen within the community as a loss of culture.

The MAONZE group, researchers tracking changes in the Māori language, created MPAi as a means of reverting these changes.

Project Aims

The project is to create a web-based Māori pronunciation aid. The aims were to build a responsive easy-to-use interface to the basic functionality that was already present, and to incorporate some key gamification features into the web app.

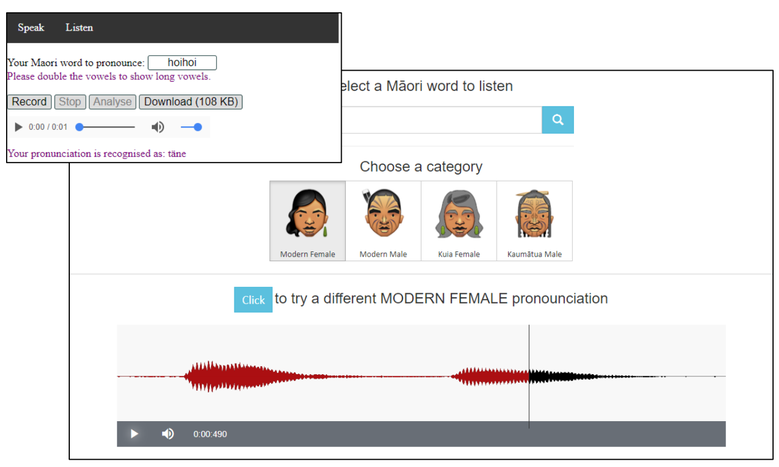
Additionally, MPAi now supports more common Māori words and phrases.

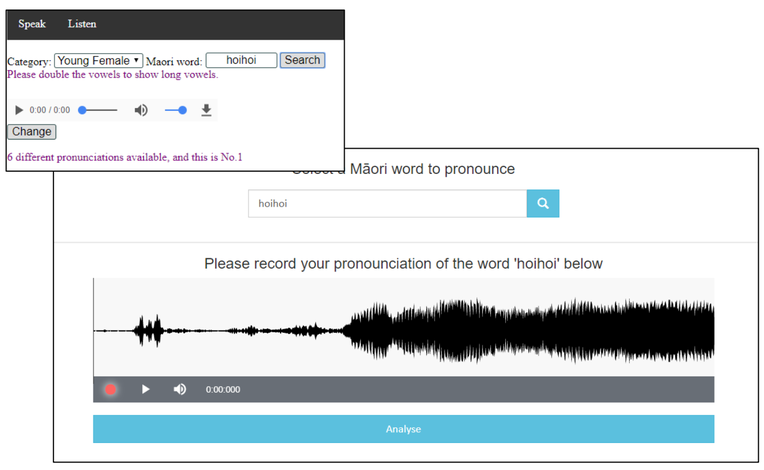


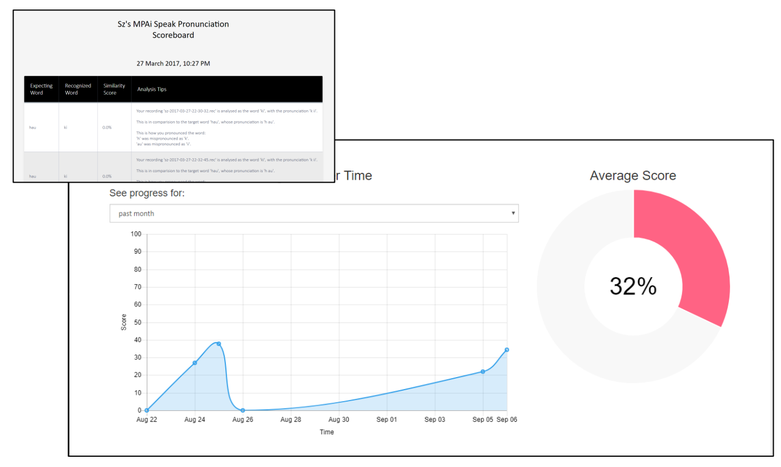
Web-based MPAi

The remodeled web-based MPAi is a responsive web site, hosted on a Windows web server within the University of Auckland. It can be accessed at mpai-speak.uoa.auckland.ac.nz from anywhere within the university network.

Where the old tool was a proof of concept, MPAi is a fully featured website. Users can log in and track their scores over time, with their scores stored on an SQLite database. A Video.js media player is used to play and record high quality .wav files on a variety of browsers and devices.







MPAi contains a database of 'gold standard' recordings – audio recordings of fluent first language Māori speakers pronouncing each word in the dataset.

Speech recognition is done through an HTK-based tool. The accuracy of the user's speech is used to generate a percentage score, which is recorded on a scoreboard.

The scoreboard allows the user to see the general accuracy of their pronunciation at a glance, and to track their improvement over time.

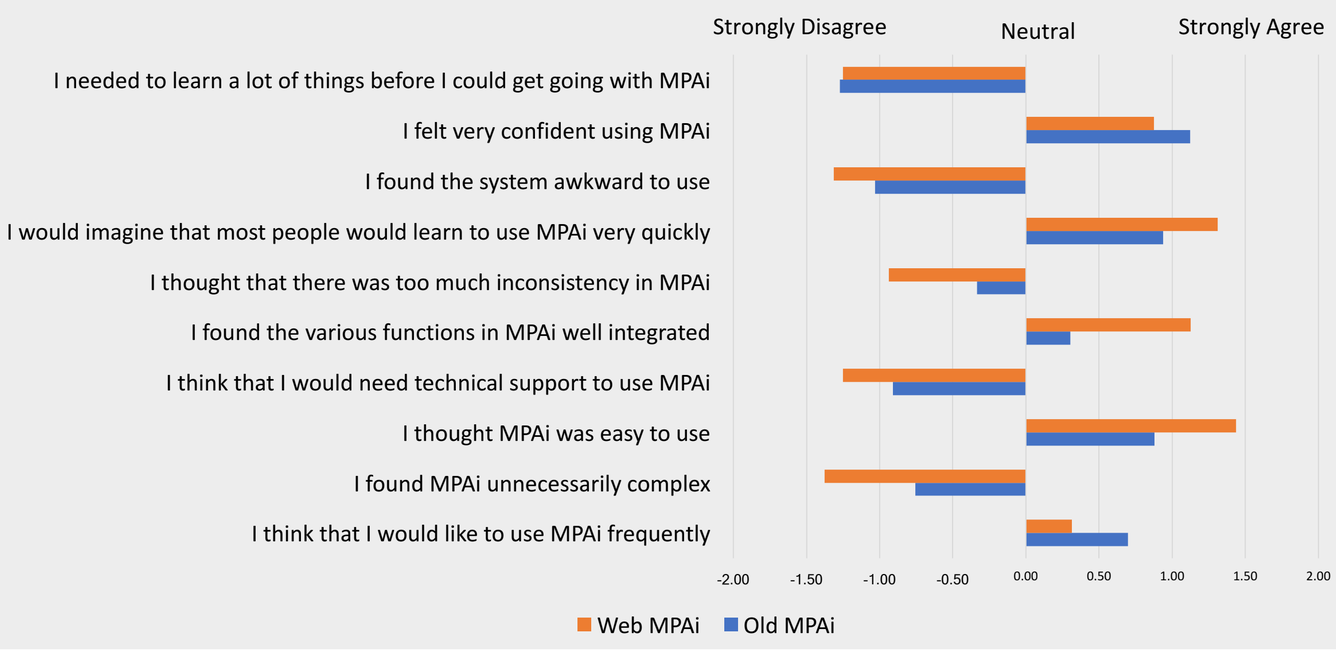
User Evaluation

A usability study was undertaken on staff and students from both the Māori language and Engineering faculties.

The participants were asked to:

- Create a new user on the system
- Listen to a recording from a fluent speaker
- Analyse their own speech
- View their overall scores

Following this, the participants filled out a survey that had been created for a past version of MPAi, so the results can be compared. Especially in the interface-based categories, Web MPAi performed significantly better than past versions.



Future Work

- Improve accuracy of the speech recogniser
- Add support for Apple devices
- Further gamification, such as a level system
- Test pronunciation within sentences
- Other features from past MPAi versions, such as a Formant plot

Conclusions

A functional and visually appealing website has been created to help users develop their existing skill in Māori, and to assist in the pronunciation of common words. It makes use of a responsive, gamified design to allow the 'gold standard' audio to be listened to and to allow the user to assess themselves against it. When surveyed, users skilled in Māori language and in software design have both found the app to be highly effective as a learning tool.

Acknowledgements

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