GALLU: Developing speech recognition resources for Welsh

This paper describes the GALLU research project which is developing further speech recognition resources for Welsh. The project is jointly funded by the Welsh Government, and S4C, the Welsh television channel. It aims to create a speech recognition system within Julius, an open-source large vocabulary speech recognition decoder. The paper will focus on speaker recruitment, recording material design, database recording using a specifically designed application for mobile devices, the training of an acoustic model within HTK, and the implementation of the system within Julius.

A new iOS and Android application has been developed for mobile devices in order to collect the data required to train the acoustic models for the speech recognition system. This is called "Paldaruo", which is Welsh for "nattering". Users of the Paldaruo App record themselves pronouncing prompts which have been designed to include all of the phonemes of the language. The recordings are sent automatically to a server from the app, and kept as a corpus of speech data which will be made freely available by the end of the project.

In the short term, to illustrate the application of the speech recognition software, we will run the software on a Raspberry Pi computer and users will speak into a connected microphone to control the movements of a toy robotic arm. We hope that Welsh coding clubs for children will be able to use this as a teaching resource.

This paper documents the developments in the project thus far including anticipated uses of the resources for further research. Delegates will be invited to contribute their voices to the Paldaruo App as it is hoped that a wide range of accents will be represented in the corpus.

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