FCULTY OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF ELECTRICAL AND COMPUTR ENGINEERING

DIGITAL SIGNAL PROCESSING

ENCS4310

Phase #1

Simple Hi/Bye word recognition

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Section: 1

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› **Introduction**

This phase aims to build a software system that can recognize the ‘Hi’ and ‘Bye’ words spoken from different individuals, no matter if they are females or males.

› **Problem specification:**

There was a problem in differentiation between ‘Hi’ and ‘Bye’ in some cases. Sometimes, the system gave ‘Hi’ as a result of the spoken record while it was ‘Bye’ and vice versa.

› **Data:**

Many records were being gathered for the two words, with diversity between female records and male records (Phase two will be focused on this issue, while phase one didn’t do).

› **Evaluation criteria:**

The main criterium is the energy for both words. There were two folders: train and test folders. For train folder, it had 8 records for ‘Hi’ and 8 records for ‘Bye’. The total average of the energy for the whole records was evaluated, then the average for ‘Hi’ records and the average for ‘Bye’ records were evaluated separately. Finding the average of the energy was to compare between these averages and the averages of the records in test folder. According to this comparison, the results were recognized.

› **Approach:**

To solve the problem, the records have been clarified more than the first attempt. This solution is important to evaluate the average of the energy accurately for the ‘Hi’ records and compare them with the energy of the ‘Bye’ records.

› **Results and Analysis:**

The results were very good comparing with what was expected. For ‘Hi’ word, the system failed in some cases to recognize the word because it is pronunciation is almost the same of ‘Bye’ word. However, for ‘Bye’ word, all the results were identical which means that the system could recognize it well.

› **Development:**

There will be a gender recognition system built on phase one. In addition to converting this software system into a hardware one using some devices like Raspberry Pi with LCD and a microphone.

› **Conclusion:**

This phase helped us to become more familiar with many concepts in Digital Signal Processing like energy and zero-crossing rate which made students able to deal with any system built using such these concepts.

› **References:**

https://www.youtube.com/watch?v=aczsVEtAkps&list=PLnyw1IVZpaTsFgcU2QlK9x2jU8vIFaRBl. Accessed on 15/4/2021 at 10:00 pm