Sub vocal Speech Recognition System based on EMG Signals

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Abstract
This paper presents results of electromyography (EMG) speech recognition which captures the electric potentials that are generated by the human articulatory muscles. EMG speech recognition holds promise for mitigating the effects of high acoustic noise on speech intelligibility in communication systems. Few words have been collected from EMG from a male subject, speaking normally and sub vocally. The collected signals are then required to be filtered and transformed into features using Wavelet Packet and statistical windowing techniques. Finally, the concept of neural network with back propagation method has been used for classification of data. Using windowed signals and the trained neural network an arduino operated bot was controlled as an application to demonstrate the future scope of the paper. The success rate was 73%.

References


Index Terms

Computer Science
Signal Processing

Keywords

Emg  Sub Vocal Speech  Neural Network  Electromyography