**Classification of Sex based Speech Differentiation in Healthy Human Beings based on Voiced and Unvoiced Components**

**ABSTRACT**

Background/Objective: The objective of the present study is to classify a given speech signal by using energy as a ­differentiating parameter into voiced and unvoiced components due to the fact that the voiced components have a ­higher energy than their unvoiced counterparts. Method/Statistical Analysis: This is accomplished by dividing the speech ­signal into frames and by computing the short time energy of each frame. The recorded speech signal is segmented and then the energy component of these frames are obtained and then classified into voiced and unvoiced components. The ­current ­protocol involves 44 subjects, both males and females of no known vocal pathology. Predefined set of words, both in Kannada and English were recorded in a noise proof environment which was then separated into voiced and unvoiced ­components using MATLAB tool. Findings: The results proved a successful discrimination of the speech signal into voiced and unvoiced components based on the statistical parameters calculated for voiced as well as unvoiced components thereby providing a definite cue towards an automated approach to differentiate the speech into voiced and unvoiced components using statistical parameters. Application/Improvements: Such an approach can further be useful in various speech processing as well as speech recognition applications.

***Keywords:*** Frame-by-frame Processing, Short Time Energy (STE), Voiced Speech, Unvoiced Speech, Windowing