ABSTRACT

This study is aimed at investigating the effectiveness of two methodsfor speech recognition, the statistics-based feature extraction and the frequency-based feature extraction. The study of voice identification system was carried out by testing the samples of different human sounds.

The process of obtaining and analyzing the voice has several steps. First, the voice samples in the**wav** format were collectedand stored into the database. Second, the characteristics of those voiceswere extracted using statistical or frequencyfeature extraction methods. The statistical methods were conducted using the **SSC** method, autocorrelation and LPC, while the frequency method were carried out using FFT , STFT and RSD. Third, the results of the extraction werestored in a feature vector and then they were compared using euclidean distance, the distance value indicating the characteristics in common.

The experimentsused male and female voiceswhen they uttered letters, both vowels and consonants, and numbers. The results indicated that the best FFT algorithm was for the letters of female voices/vowels with the highest distance value among letters was 5.49 in average and the highest distance value for the consonant letters was 5.63 in average (with the FFT algorithm). The highest distance value of male voices/vowels was 5.23 in average (the FFT algorithm as well as) and the highest distance value for consonant was 5.36 in average. In addition, the best rate was the FFT with the highest average distance of 5.92.

Keywords : Voice recognition , statistics , frequency.