Gidda Reddy Gangula, Study of speech analysis parameters for speaker recognition, M. Tech. Theis, Department of Electrical Engineering, Indian Institute of Technology Bombay, 2006.

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*Abstract* - The objective of this project is to study speech analysis parameters to improve the performance of speaker recognition systems. Towards this end, peak amplitudes of the speech signal and Harmonic plus Noise Model (HNM) parameters are investigated. The investigated HNM parameters include maximum voiced frequency, pitch, and relative noise band energy. Distribution of these parameters is studied, using statistical moments and correlation coefficients. HNM parameters have shown good variation across the speakers and may be useful for speaker recognition. Speaker recognition experiments were conducted on HNM parameters using VQ algorithm, with Mahalanobis distance measures. The experiments have shown that the performance of speaker recognition based on HNM parameters is comparable to that of well established Mel Frequency Cepstral Coefficients (MFCC). Further, the performance of the speaker recognition is improved by using MFCC and the three HNM parameters together.