Abstract

In a controlled environment, we can implement a speaker recognition system using MFCC and Vector Quantization. So, the main objective of this paper is to develop a speaker recognition system using MFCC and Vector Quantization (VQ) in a noisy environment, when the input speech utterance is given through a microphone. Normalised Least Mean Square Adaptive (NLMS) Filter is used to improve the performance of the system in noisy environment. So the NLMS Adaptive filter is used to reduce the background noise from input speech signal and then the filtered signal is given to the Feature Extraction phase. For implementation simplicity, it is developed as Text-Dependent Speaker Recognition System with 10 speakers, each speaker locally recorded database is used for training. The performance of the proposed system tested in noisy environment with and without using the NLMS adaptive filter and improved recognition evaluated using Equal Error Rate (EER).

References
1. Salina Abdul Samad, Aini Hussain, Khairul Anuar Ishak “Improved Hybrid Speaker Verification in Noisy Environments Using Least Mean-Square Adaptive Filters”.
10. Prof. Vaishali M. Karne, Prof. Akhilesh Singh Thakur, Dr. Vibha Tiwari “Least Mean Square (LMS) Adaptive Filter For Noise Cancellation” International Journal of Application or Innovation in Engineering & Management (IJAIELM) , ISSN 2319 – 4847.
15. Dr. Sadaoki Furui “Speaker recognition” Sadaoki Furui (2008 ), Scholarpedia ,3 (4 ):3 7 15
17. “A Novel Windowing Technique for Efficient Computation of MFCC for Speaker Recognition” Md Sahidullah, Student Member, IEEE, Goutam Saha, Member, IEEE.
18. Paresh M. Chauhan, Nikita P. Desai “Mel Frequency Cepstral Coefficients (MFCC) Based Speaker Identification in Noisy Environment Using Wiener Filter”
19. Jorge MARTINEZ*, Hector PEREZ, Enrique ESCAMILLA, Masahisa Mabo SUZUKI “
Speaker recognition using Mel Frequency Cepstral Coefficients (MFCC) and Vector Quantization (VQ) Techniques” -1-61284-1325-5/12/$26.00 ©2012 IEEE.


**Index Terms**

Computer Science  Pattern Recognition

**Keywords**

Least Mean Square, NLMS Adaptive Filter, Vector Quantization, Equal Error Rate (EER).