Detection And Reduction Of Noise That Affect The Speaker

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Abstract— *In this project we are going to detect and reduced the noise of any speaker by using several active as well as passive filters. Many times the speaker faces problem due to gaussian noise and some other aspects. Gaussian noise is nothing but unwanted sound signal made by signal received by the receiver or background sound signal that is atmospheric or air etc. In this project due to addition of this background sound in the original signal the speaker produces unwanted sound. In order to build an efficient reliable speaker testing equipment which is able to determine type of noise due to this arrangement of system we can find several parameters of speaker like SNR, Resonance, frequency response. For user purpose we are adding Graphical User Interface of the noise which is present in the speaker can be displayed. The reduction of noise is implemented using filters and result will be displayed on matlab.*

***Index Terms*— gaussian noise, resonance, frequency response, SNR.**

I. INT RODUCT ION

We propose a system that detects noise signal in the speakers, Such as white noise, pink noise, Gaussian noise, rub and buzz noise. Under the laboratory environment, speaker recognition and testing has made great progress. But in real life, the performance of speaker testing system is vulnerable to various factors, especially environmental noise and background unwanted signal. Due to this noise performance of the speaker is reduced and it provide undesirable output. That can harm our ears. This paper studies the performance of speaker identification system when the tester suffers from the background unwanted sound. So we propose the method using different noises and pre-emphasis filter process normal speech and test the speakers. So this system is based on reducing this unwanted noise that will provide efficient output .Type of noise is also determined by the system.

II. LIT ERATURE SURVEY

The literature related to the research topic has been reviewed in order to find out work carried out by various researchers. There are many systems for noise detection for speaker. This depicts the status of the work of selected researchers who specifically developed or experimented with noise detection implemented for speaker.

Jalal Taghia, Rainer martin *et.al.*,[1] "A Frequency domain adaptive line enhancer with step size control based on mutual information for harmonic noise reduction", In This Paper the frequency domain adaptive line enhancer is used as a single-channel noise reduction system removing harmonic noise from noisy speech.

S.Haykin *et.al.*,[2]"Two-step noise reduction is based on soft mask for robust speaker identification".This paper includes that in noise conditions the problem of speaker identification. The advantage of the new noise reduction algorithm for some noise samples and signal-to-noise ratios was shown.

kenji kashihara, Kensakufuji *et.al.*,[3] "Active noise control system

using cascade connection of finite and infinite impulse response filter as a noise control filter".In this paper, The system shortens the distance from microphone to noise detection. Primary noise is detected by microphone. Secondary noise is detected by another microphone called error microphone. Noise is delayed at secondary microphone than primary .

Tao Zhang, Fred M ustiere, Christophe M icheyl *et.al.*,[4]"Intelligent Hearing Aids." This proposed machine learning for speech enhancement, individualization and customization of signal processing algorithm. With wireless connectivity to other devices and seamless connectivity to ther internet enable portable device like smart phone. Xiaojia Zhao, Yuxuan Wang, DeLiang Wang *et.al.*,[5]"Robust speaker identification in noisy and Reverberant condition." In Propose system SID performance get improve over related system in a wide range of reverberation time and SNR .Remove background noise through binary masking using a deep neural network classifier . Then perform SID with speaker models train in selected reverberant condition, using bounded marginalization and direct margin.

M d.Rabiul Islam , M d.Fayzur Rahman, M uhammad khan, *et.al.*,[6]"Improvement of speech enhancement techniques for robust speaker identification in noise." In this proposed system Start end point detection,silence part removal by wiener filter,Frame segmentation and windowing technique for pre process. Improvement of performance of the speaker and noise removal.
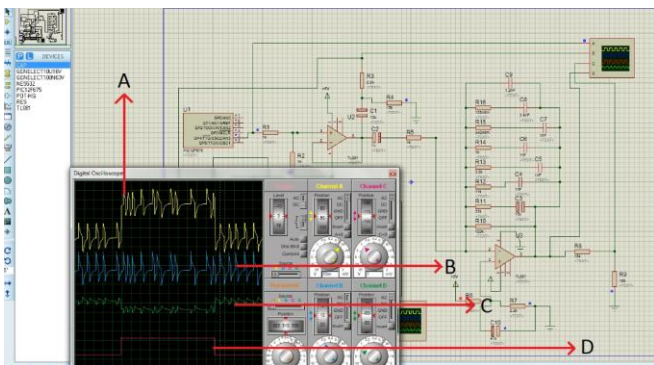
III System Block Diagram
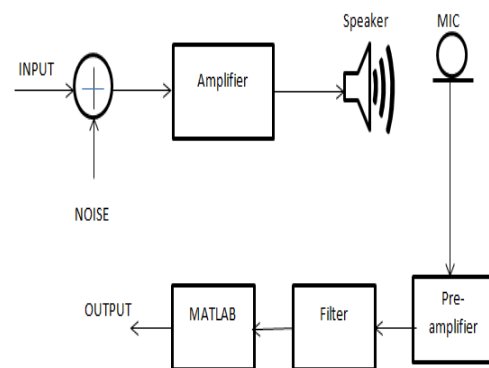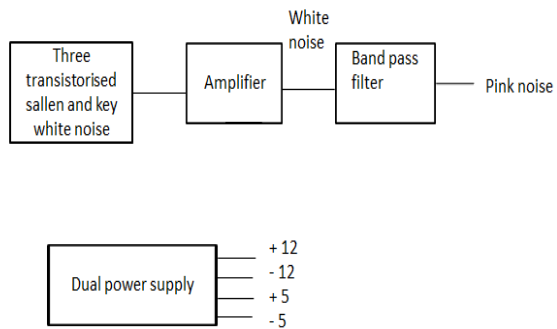
IV system workflow

1. Initialize system
2. Generate the input from matlab
3. Generate noise
4. Add the input signal and noise
5. After amplification send signal to the speaker
6. Capture signal using mic
7. Amplify the signal
8. Filter out the noise from the signal

C. Waveform

V. FUTURE SCOPE

In order to detect various noise that affects the speaker we can build full touch screen display for the speaker testing, which is known as human computer interface and also we can use it in hearing aids

VI.   CO N CLU SIO N

This project will detects type of the noise that affects the speaker, such as white noise, pink noise , Gaussian noise. Result will be shown in the form of waveform on the matlab, by plotting frequency response, other graphs in it and also name of the noise is mention. After detection of noise the filter will remove the noise. Clear wave output will obtain.It will also remove background noise, Rub and buzz noise. The size of database is around 500Bytes for each sample of Noise.

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