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QUIETUDE: Library Peace Maintenance

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***Abstract*:- This project is the construction of a sound equipment in the library. The audio receiver in the library is a device that displays a notification on the mobile screen whenever a sound is heard. Sensors detect sounds, such as laughter, banging on doors, and clapping. The project could also identify a sensitive voice that can identify high- volume speakers and alert us by moving the hand of the clock and activating the alarm system.**

This app can be used both at school and in libraries wherever the sound is monitored.

This Android app gives you a circular gauge where the width of the sound is displayed in the form of a color-changing screen. If the sound exceeds safe levels and the signal is greater than the limit value then it displays the signal in the form of red, yellow, green indicators and their range can be predetermined based on the sensor analysis time. So after watching the audio, a notification message appears on the screen of the administrator or user who has installed the app. As a result noisy areas can be easily located.

1. INTRODUCTION

We have all met someone who speaks loudly which prevents us from focusing on what we were doing. From offices to libraries and reading noise has always been a problem. To help solve this problem, we present to you today an audio recorder with an automatic recording system. This device notifies users whenever it hears a loud noise (if the sound exceeds certain limits), and automatically records the sound and saves the recorded sound in a file.

In this way, we can find out who made the noise and punished them or let them hear their loud voice to see that they were always doing wrong. In this project we are trying to provide the features of existing programs, (according to the textbooks) into a single App so that they are cheap and easily accessible.

2. LITERATURE SURVEY

Automation of Noise Detection Using Internet of Things

Introduces sound system automation using Arduino Nano, battery, LCD panel and buttons. C programming language is used to organize the activities of this App. This app can be run using a tool called Pick2kit and PROTEUS. The proposed sound tracking system can be used in libraries, offices and classrooms to identify people with noise so that appropriate action can be taken.

Noise Detection and Alert Notification for School

The increase in noise in the classroom proves to be a problem for school / teacher. It's hard to make sure the class is quiet all the time. For this project, an IoT-based approach to noise monitoring in the classroom has been proposed. The process of obtaining data with the help of Arduino fulfills the purpose of periodic information analysis. Finally, Unusual Notification Module warns user / teacher in an unwanted situation.

Low cost Device for Online Monitoring of Noise in Libraries using Internet of Things

The main purpose of the proposed project is to record noise levels in confined spaces and to inform users when permitted limits are passed. Therefore, a set of less expensive tools, such as free software and less expensive technology, was used. It has been noted that both embedded systems have developed, utilizing the Internet of Things concept, providing a satisfactory supply by providing a better environment for concentration.

Neuromorphic Pitch Based Noise Reduction for Monosyllable Hearing Aid System App

This paper demonstrates the complex complexity of the hardware- oriented neuromorphic pitch based reduction (NR) algorithm as well as the implementation of computer hardware for hearing aid Apps. The proposed NR design consists of a voice-based voice detector (voice-based VAD) for speech detection and a neuromorphic sound shortcut to improve speech. Pitch-based VAD was upgraded to ANSI S1.11 based on the design of the filter bank and utilized monosyllable and nonlinear energy operator (NEO) features to improve VAD accuracy. A neuromorphic attenuator of sound reduces background noise through features of the human auditory system and speech signals. Imitation results show that the proposed algorithm has better SNR and PESQ performance than other NR voice-based algorithms based on non-persistent background audio.

Analysis and Assessment of Noise Pollution in Libraries

The noise is polluting. Unlike other environmental issues, noise pollution continues to increase, and there is a short period of decay. In this paper, seven libraries located at various locations within the university campus were examined. In each case, the levels of sound were continuously measured every 30 seconds for at least 3 hours. Sudden high noise levels are also recorded every five minutes during this test. Medium sound pressure level, (L p), equals continuous equal power level, (L eq), sound exposure level (SEL), above the numerical values (L 10), (L 50), and (L 90) and count between in the work. Test results show that most of these areas suffer from high noise pollution.

Voice Activity Detection in Non-stationary Noise

Algorithms are available to get the most reduced voice function in the SNR or in a non-stationary audio environment. This paper suggests a new way of

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integrating into such an environment. The method is based on the SNR integration of selected small band of input speech and this integration is performed through a specific function called SAF (total opening function). The results show that the algorithm can provide a reliable result for obtaining voice function at low SNR even when there is a constant noise.

Noise Pollution Measurement System Using Wireless Sensor Network and BAN Sensors

Introduces the design and development process of the Noise Pollution Measurement System which includes a Wireless Sensor Network (WSN) and a Body Access Network (BAN) that can measure noise pollution levels and monitor its health effects on people. The WSN network and the BAN developed in this paper can be used by government agencies on a large scale to identify the dangers of uncontrolled noise levels and their impact on human health. All sensory data can be processed, stored and analyzed in a central government data center, where authorities can access real-time information and statistical data, allowing them to make smarter decisions and corrective action in the short term.

Environmental noise monitoring using source classification in sensors

In this paper feasibility study is introduced with a new monitoring concept in which the acoustic pattern phase of the wireless sensor algorithm is used to automatically provide a limited sound level to various audio sources. The supervised audio source category is read in a small number of personally defined recordings and the read separator is used to automatically detect the intended audio source function in the presence of interfering audio sources. The sensor is based on a low-cost single-board computer-sized credit card with microphones and electronic devices associated with wireless communication. Measurement results and audio source information are transferred from scattered sensors in the measurement area to the cloud service and the audio portal is used to detect ratings for users.

Mobile App for Noise Measurement based on Wireless Sensor Network

It is proposed to design a sound detection system integrated with Android devices as a simple control based on Wireless Sensor Network (WSN) and Internet of Things (IoT). The audio sensor will capture the sound in the classroom and be sent to the gateway and stored on a stored server with Android as the location of the displayed data. The results of the proposed study, if the density exceeds 59 dBA and the density exceeds 59 dBA, will receive a notification of the status of the dialog box and vibrate on the android device and display sound intensity information in the form of a graph with a decibel unit unit volume and time/min.

3. PROPOSED METHODOLOGY

The proposed method used is described jointly in this structure. The first step is ambient audio processing and storage in the form of audio data. Audio analysis is performed, when the audio volume becomes larger than a certain audio range and a warning message appears on the controller screen. which can be used to find noisy areas.

We have implemented the following modules for analysis, and prediction.

- Noise detection
- Comparison with fixed sound value
- Warning popup

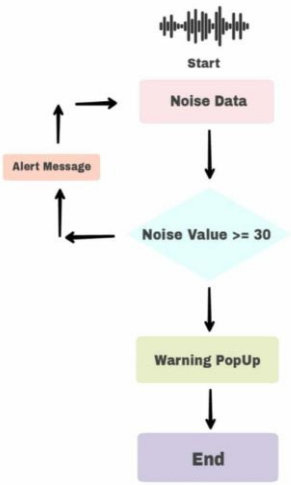

Fig. 1: Flow of Proposed Methodology

Noise Detection

This device notifies users whenever it receives a loud noise (if the sound exceeds certain limits). Whenever the detection module detects a confusing non-continuous input signal, the alert process is activated and the input audio is stored in the form of audio data.

These files cover the heart of the project.

Comparison with fixed sound value

We will implement a separate code in our code to save prices and install the Software Serial Library. After this, we will set up Arduino Pin modes and Bluetooth baud rate. Following this, we will set up a loop function where we will create a 'if status' that checks the incoming number from Bluetooth. This number is used to set the threshold level of the audio sensor. If the median value is greater than the boundary value then it represents the red, yellow and green range.

Warning popup

When the value reaches the limit, a warning message appears on the screen of the administrator or user who installed the App. As a result noisy areas can be easily located.

4. RESULTS AND DISCUSSIONS

This App is only available to Android users, who can find it for free in the Play Store. Installing one of the best apps to measure noise levels on your smartphone can help you to gain a better understanding of how loud is and how often you encounter sound levels that might put your hearing in danger.

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All user interface and output screens- Sensing Area:
This Android app gives you a circular gauge used by other apps, a screen that changes color when sound exceeds safe levels, and a working line graph. It can be scaled and can include a wide menu of options.

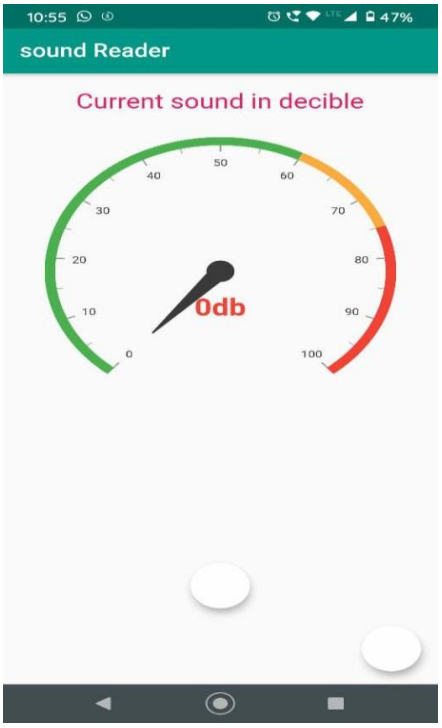

Fig. 2:Sensing Area

Recording Area:
The recording area is the part of the App where the sound is recorded by pressing a button (Record) and by clicking the stop button to record the recording status. This noise is stored to further process and predict the noise levels.

Zone-based indoor mobile noise monitoring

The rapid development of many world economies has encouraged many countries to move forward in industrial development. Some of the sound sources are electrical appliances in our homes and offices. There are also external audio sources that create examples of discomfort including traffic, construction sites and industries. This paper looks at new methods used to monitor audio output levels. It uses a method that involves the use of cell phones to measure and monitor exposure to house noise in four key areas. Cell phones have been used to improve the way data is collected.

Fig 3

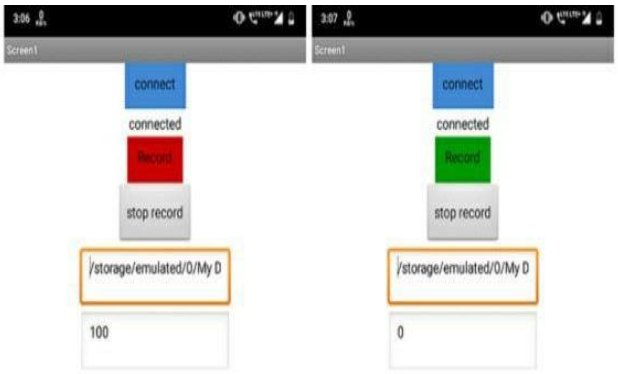

Fig. 4

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5. CONCLUSION

The following conclusions has been derived from this App:

- Knowing that concentration is a major step in doing any work that requires a peaceful environment. This app monitors audio and helps students learn in a quiet environment.
- Experts find it really difficult to find audio locations and this app helps them to know where the audio section of the library comes from.
- There is no Internet speed in the library so, Bluetooth will work well. If there is a lack of internet speed in the library, Bluetooth will work well.

For future, we recommend to expand this App for following purposes:

- Security system for your home, office, or store.
- Statistics of barking dogs.
- Use as a door buzzer
- As spy intent.
- As a source of victory in cheating on tests.

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