ABSTRACT

Automation is a trending topic in the 21st century making it play an important role in our daily lives.The main attraction of any automated system is reducing human labour,effort,time and errors due to human negligence.With the development of modem technology ,smart phones have become a necessity for every person on this planet.Applications are being developed on android systems that are useful to us in various ways.Another upcoming technology is natural language processing which enables us to command and control things with our voice.Combining all of these,our paper presents a micro controller based voice controlled home automation system using smart phones.Such a system will enable users to have control over every appliance in his/her home with their voice.All that the user needs is an android smartphone ,which is present in almost everybody's hand nowadays,and a control circuit.When the first computers came around,achieving the level of sophistication so as to narrate commands using voice to a machine was only realised in science fiction.However with tremendous breakthrough in the field,we are at the precipice of truly using voice to interface with devices

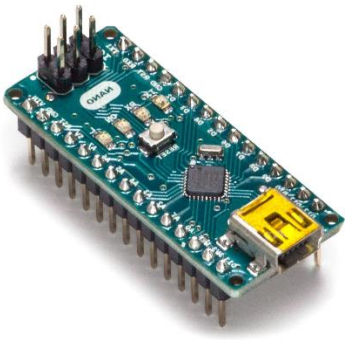
1.INTRODUCTION

This project focuses on building an Arduino Based Voice Recorder which can also be abused as a spy bug. Our spy bug uses a small microphone to record the voice and it stores the recorded voice onto an SD card. It will able to record audio clips that are 2 minutes long, each 2 minutes long clip would be numbered serially. Once powered up, the recording process will continue until the battery is dead or there is no more space to store the recorded audio. We also attached an LED with the Arduino that indicates the recording process has started.

Nuvoton's ISD1800 ChipCorder provides high-quality, single chip, single-message, record/playback solution with user-selectable durations of 6 to 16 seconds. The CMOS devices include an on-chip oscillator (with external control), microphone preamplifier, automatic gain control, anti-aliasing filter, multilevel storage array, smoothing filter, and speaker amplifier. A minimum record/playback subsystem can be configured with a microphone, a speaker, several passive components, two push buttons, and a power source. Recordings are stored in on-chip nonvolatile memory cells, providing zero-power message storage. This unique, single-chip solution is made possible through Nuvoton's patented multilevel storage technology. Voice and audio signals are stored directly into memory in their natural form, providing high-quality, solid-state voice reproduction

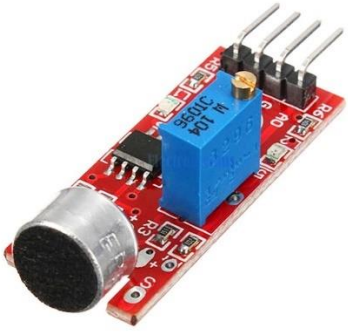
4.COMPONENTS

1. **Arduino Nano**



2. **Micro SD card**

3. **Sound sensor**



5.SOFTWARE

For designing our project, we used two softwares which are as follows:

1. Arduino IDE
2. Proteus

- **Arduino IDE software:**
  Arduino designs, manufactures, and supports electronic devices and software, allowing people around the world to easily access advanced technologies that interact with the physical world. Our products are straightforward, simple, and powerful, ready to satisfy users' needs from students to makers and all the way to professional developers.

Arduino uses a variant of the C++ programming language. The code is written in C++ with an addition of special methods and functions. The open-source Arduino Software (IDE) makes it easy to write code and upload it to the board. This software can be used with any Arduino board. We used Arduino IDE for uploading our code into Arduino nano so that it would get start. There are some steps to do programming in Arduino IDE which are as follows:

1.Open Arduino IDE software and create new file
2.Include libraries as per your need of project.
3.Do programming as per your project
4.Compile your code
5.If there are no errors then upload it to your specific Arduino board so that you can check your output on hardware itself.

Features of Proteus:

We are including only some of the most important features

Schematic capture :

Proteus capture combines a powerful design environment with full support for design re-use, assembly variants and a complete BOM reporting sub-system. Whether you are making PCBs or simulating embedded systems our schematic capture contains all the electronic design tools you need.

PCB design:

Proteus PCB Software combines Schematic Capture and PCB Layout modules to provide an affordable, powerful and easy to use suite of tools for professional PCB design.

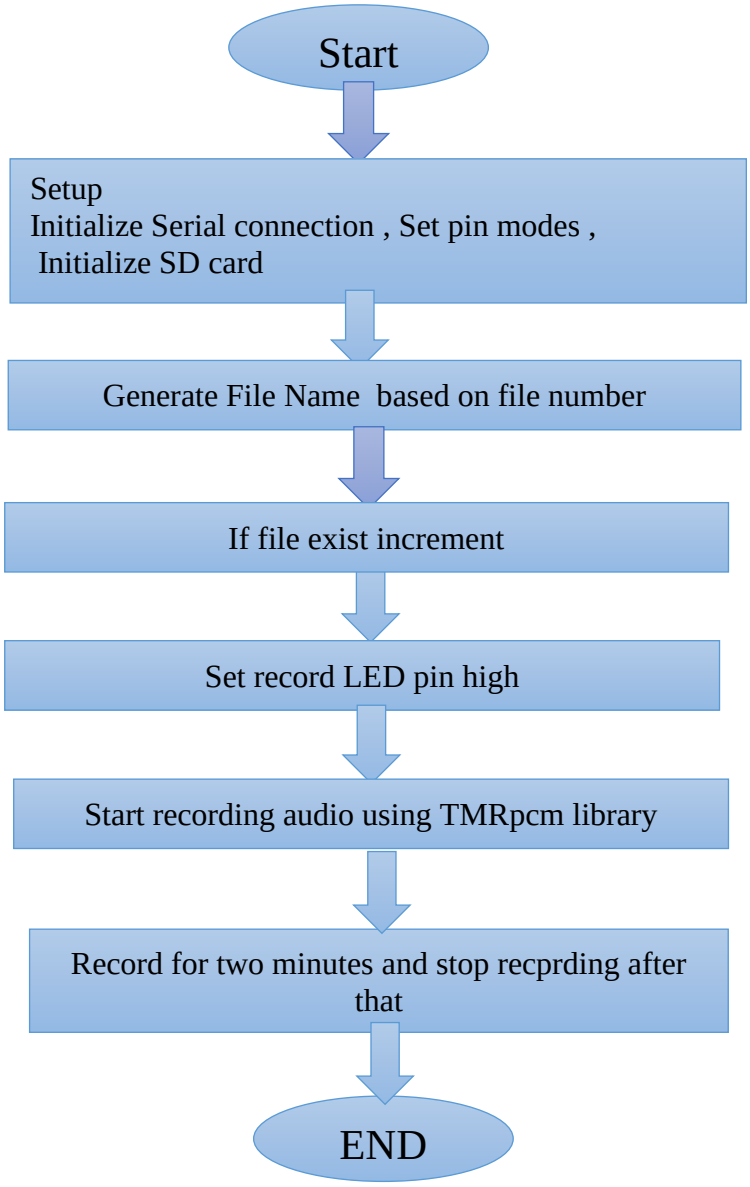
Virtual System Modelling (VSM):

Proteus Virtual System Modelling (VSM) blends mixed-mode SPICE simulation with world leading fast microcontroller simulation. It enables rapid prototyping of both hardware and firmware designs, in software. You can Design, Test and Debug your embedded projects in the Proteus electronic circuit simulator before a physical prototype is ordered.

6.METHODOLOGY

Since the application of the technique will be very useful for the person. We can have very useful. This device can be used to detect sound and record it.

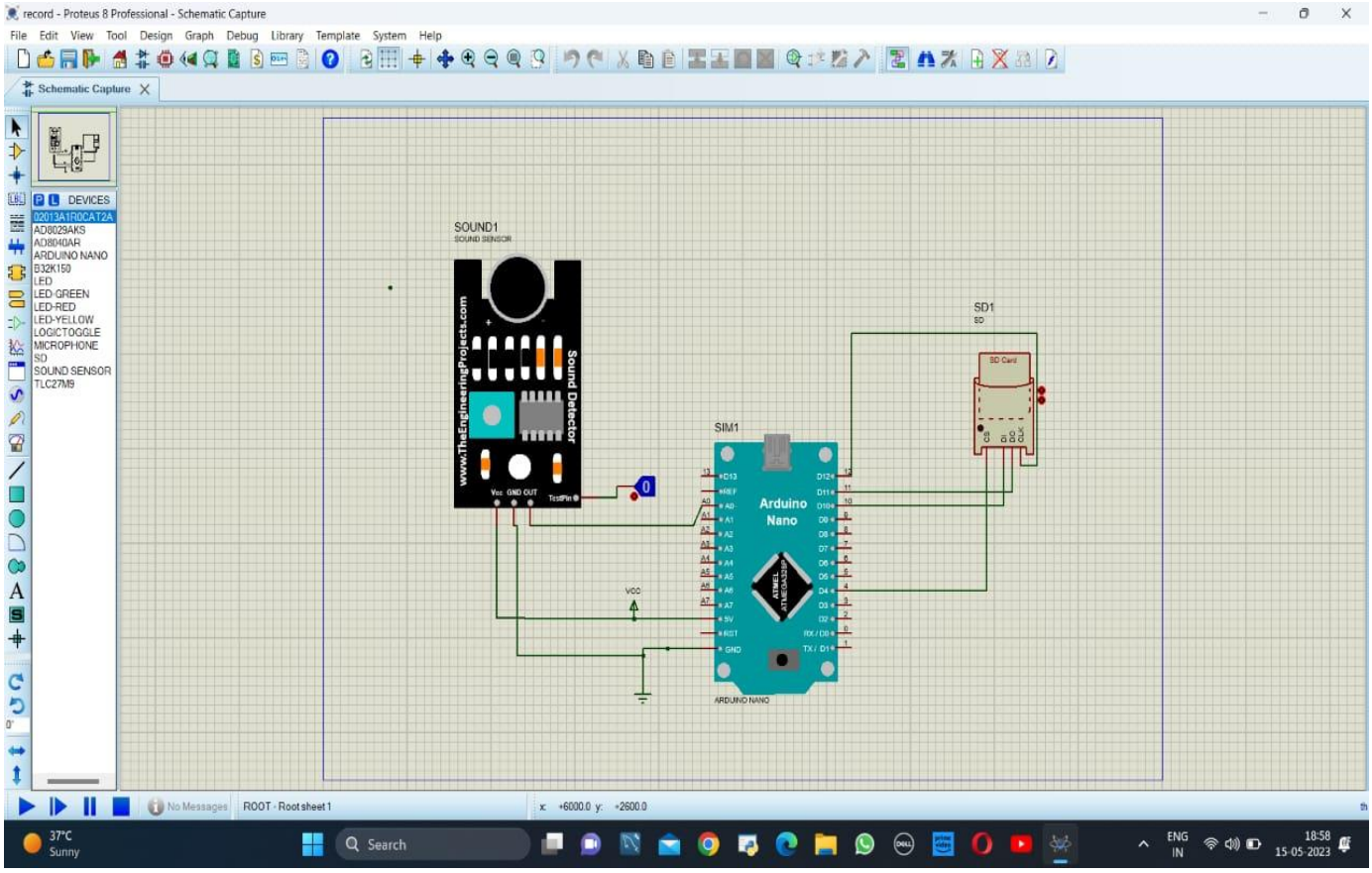
Flowchart:



WORKING:

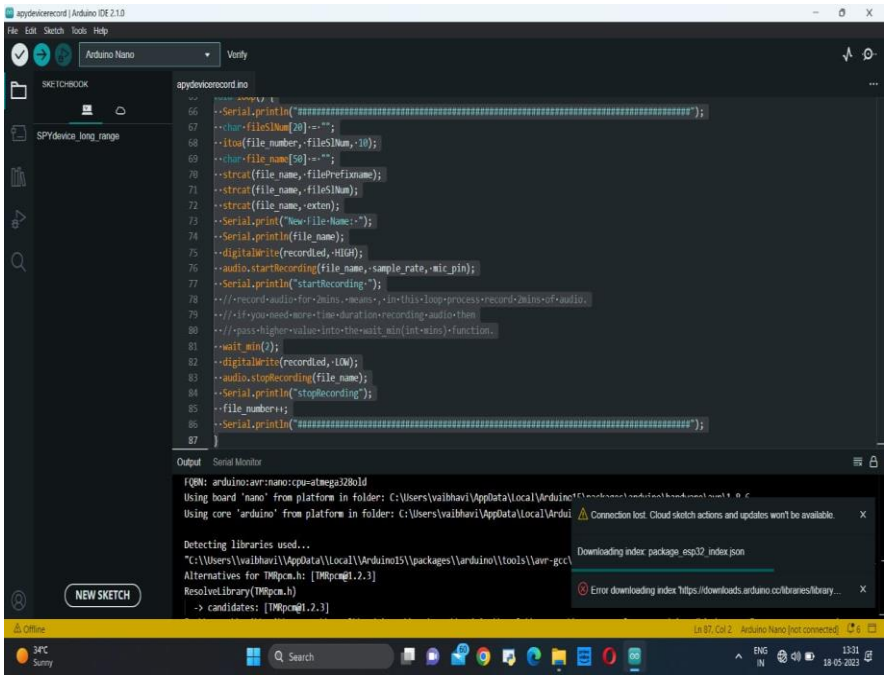
- Sound sensor : It converts the detected sound the vibration and converts it in the signal. Similarly, the sound sensors convert the vibration into audio signal (voltage and current proportional) with the help of a microphone.
- **Arduino nano :** It communicates with sensor and sd card according to given instructions.
- **Sd card module :** It is used to store the sound detected from in audio format.

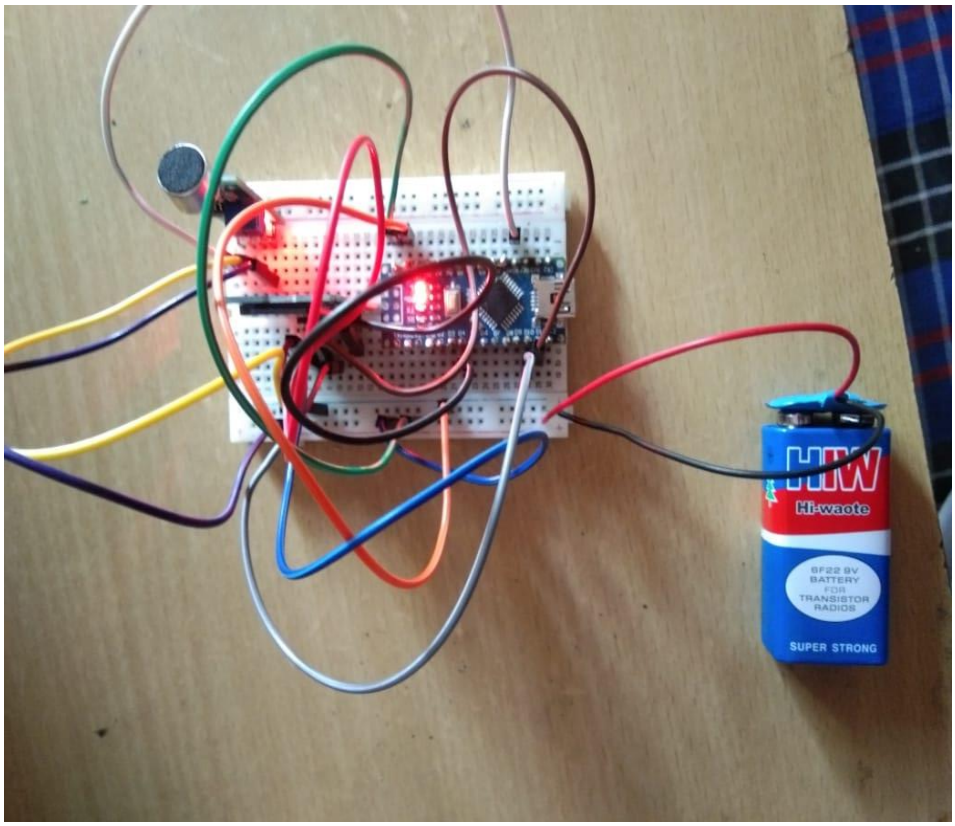
8.CIRCUIT DIAGRAM:



9.SIMULATION RESULTS

1) Firstly, we simulated our program code in Arduino IDE software which is as shown below:




HW
Hi-waote
6F22 9V
BATTERY
FOR
TRANSISTOR
RADIOS
SUPER STRONG

13.CONCLUSION

Spy bug technology, also known as covert listening devices, has a long history and continues to evolve with advancements in miniaturization, signal processing, and wireless communication. While these technologies have legitimate applications in areas such as law enforcement and national security, it is crucial to balance their use with ethical considerations and legal regulations to protect individual privacy rights.
Throughout this literature survey, we explored the historical development of spy bug technology, its technical aspects, applications, detection and countermeasures, ethical considerations, and potential future advancements. It is important to note that the use of spy bugs for illegal activities or invading someone's privacy is not only unethical but can also have legal consequences.
As technology progresses, future recommendations for spy bug development should focus on areas such as enhanced signal range and quality, miniaturization and disguise, remote activation and control, power efficiency and longevity, intelligent listening and filtering, encryption and secure communication, integration with sensor technologies, and the establishment of ethical guidelines and legal frameworks.

Ultimately, the responsible and lawful use of spy bug technology should prioritize the protection of privacy rights, ensuring that surveillance activities are conducted within legal boundaries and with proper authorization. It is essential to strike a balance between security needs and individual freedoms, promoting a society that values privacy, transparency, and ethical practices.