

Implementation of Voice to Text Conversion Using Smart Device

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Abstract:

Advertising has gone digital in recent years. Digital screens are being used in large stores and shopping malls. With the aid of the internet and Python software, we came up with the concept of using voice to text conversion and then displaying it on an electronic board. During working hours, the Display System is aimed at colleges and universities for displaying day-to-day information continuously or at regular intervals. Because it is a wireless system, it has the ability to show flash news or announcements more quickly than a standard notice board. It shows a speech-based display board with a commonly used Wi-Fi module to enable the communication of showing messages on the display board using a python software that converts voice to text.

Keywords —Node MCU, python program , Arduino IDE, ESP8266 Wi-Fi module, Notice Board.

I. INTRODUCTION

Everyone in our world need a pleasant way of life. People are increasingly accustomed to having ready access to information in today's connected environment. People want to be informed and up-to-date with the newest happenings happening around the world, whether it's through the internet or television. People nowadays prefer wireless connections since they can readily engage with others and it takes less time. The primary goal is to

create a notice board that shows messages contributed by users. This suggested user-friendly system may receive and display notices in a certain order based on date and time, allowing the user to keep track of notices on the board throughout the day.

Everyday life advertising is becoming more digital. Digital screens are being used in large stores and shopping malls. Aboard addition, digital boards in trains and buses display information such as platform numbers and ticket information. People

have become accustomed to having the world at their fingertips. Over the years, the use of mobile phones has skyrocketed. Control and communication have become crucial in every corner of the globe. This inspired us to utilise a cell phone to convey a spoken message, which we would subsequently display on an electronic board.

II. PROBLEM STATEMENT

Many people in contemporary society have access to cutting-edge technology. As a result, the wall notice board is obsolete and has numerous shortcomings.

a. The notifications were written on a wooden notice board that was hung on the wall. The electronic notice board's purpose is to give users easy access to announcements and articles outside of the college's walls, wherever and whenever they need to know. In many areas of life, such as educational institutions and public utility locations, electronic display boards are quickly becoming accepted and used. Due of the difficulty in building signposts and physically hanging papers on buildings, advertisements often have this issue. Every electronic board has a wired system by design.

b. Among other restrictions that surround the typical notice board, it is not easily accessible. As a result, the suggested Online Notice Board system must be adopted in order to digitally transform the traditional notice board and make it available online, therefore addressing the drawbacks of the traditional notice board.

III. METHODOLOGY

Python program for speech recognition, Node MCU, Wi-Fi Module, LCD Display, Serial connection device, Laptop, Speaker, and Power Supply are the seven main parts of this system. The AVR microcontroller family includes the Node MCU. The Node MCU serves as the project's beating heart since it plays a crucial role in supporting the analogue signal's properties. It differs from other microcontrollers since it has an integrated Wi-Fi module, or source on chip (SOC),

as opposed to other development kits that require a separate Wi-Fi module.

In this system user can run the program and program will take voice command as input from laptop mic that voice will be convert into text then using internet text will be send to the firebase database. Node MCU will receive the data from firebase database and display the data then users can see the data.

A. Block Diagram of proposed system

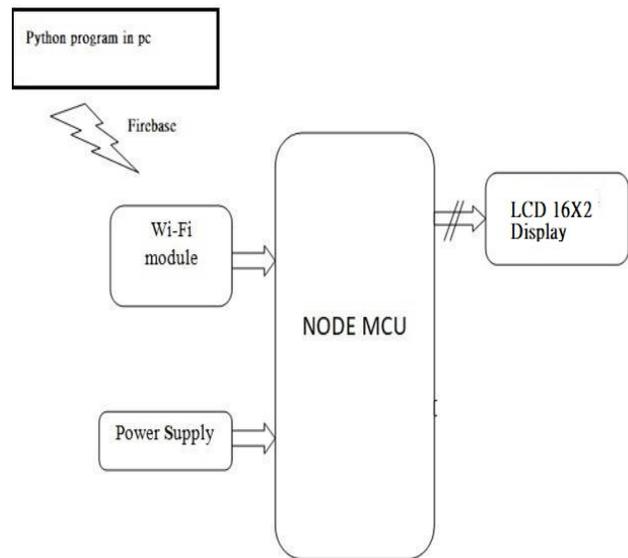


Fig 1.0 overall integrated system for voice to text noticeboard.

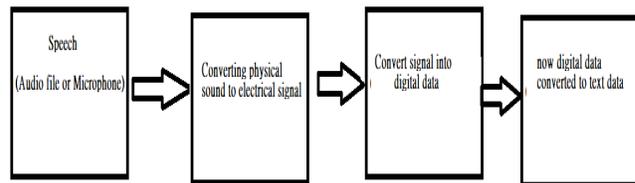


Fig 1.1 Python program working model

B. Firebase Database

A database located in the cloud, the Firebase Real-time Database, stores data in JSON. Every connected client receives a real-time

synchronization of the data. When we create cross-platform applications using our iOS and JavaScript SDKs, all of our customers share a single Real-time Database instance and instantly get updates with the most recent data.

We can store and sync data amongst our users in real-time using the Firebase Real-time Database, a NoSQL database. The developers have real-time control over a sizable JSON object. The Firebase database gives the application the most recent value of the data as well as modifications to that data using a single API.

country where the author is based (e.g. Causal Productions Pty Ltd, Australia).

Email address is compulsory for the corresponding author.

C. Hardware & Software Specification

1. Node MCU :An open source LUA-based firmware called Node MCU was created for the ESP8266 Wi-Fi chip. Node MCU firmware includes an ESP8266 Development Board/Kit (also known as a Node MCU Development Board) in order to explore ESP8266 chip capability. Since Node MCU is an open source platform, anybody may edit, change, or construct own hardware. The ESP8266 Wi-Fi enabled chip is part of the Node MCU Dev Kit/board. Espressif Systems created the low-cost TCP/IP Wi-Fi chip known as the ESP8266. Espressif Systems created the low-cost TCP/IP Wi-Fi chip known as the ESP8266. You can consult ESP8266 Wi-Fi Module for additional details about this device. On the Node MCU Development board, the ESP8266's features are removed. Node MCU Development Board combines Node MCU (LUA based firmware) with ESP8266 (wifi enabled chip) chip, making it a stand-alone device for IOT applications. Node MCU Development Board v1.0 (Version2), which often has a black coloured PCB, is Version2 (V2) available for Node MCU Dev Kit. The Node MCU Dev Kit's board features analogue (A0) and digital (D0-D8) pins similar to those on an Arduino. It supports UART, SPI, I2C, and other serial communication protocols.

2. Serial Communication:This LCD screen is 16 by 2 and has an I2C interface. It can show up to 16*2 characters. Typically, microcontroller-based Arduino LCD display projects quickly exhaust their pin resources, and the soldering and connecting of the wires makes things much more difficult. I2C is the communication interface for this 16*2 LCD panel. It signifies that the LCD display just requires the following pins: VCC, GND, SDA, and SCL. At least 4 digital and analogue pins on the controller will be spared. When parallel communication is impossible due to the expense of cable and synchronization issues, this approach is used to transport data across large distances or at very low data transmission rates. Because most computers have one or more serial ports, serial communication is popular because no additional hardware is required to connect an instrument to a computer or two computers together other than a cable.

3. I2C LCD Display :This LCD screen is 16 by 2 and has an I2C interface. It can show up to 16*2 characters. Typically, microcontroller-based Arduino LCD display projects quickly exhaust their pin resources, and the soldering and connecting of the wires makes things much more difficult. I2C is the communication interface for this 16*2 LCD panel. It signifies that the LCD display just requires the following pins: VCC, GND, SDA, and SCL. At least 4 digital and analogue pins on the controller will be spared.

4. Wi-Fi Module: Express if System created a low-cost Wi-Fi microchip with a complete TCP/IP stack and microcontroller functionality. With the use of Hayes-style instructions, this tiny module enables microcontrollers to join a Wi-Fi network and establish straightforward TCP/IP connections. The ESP8266 is a very affordable and user-friendly tool for connecting our creations to the internet. The module may function as a station (connect to Wi-Fi) and an access point (create hotspots), allowing it to simply retrieve data and post it to the internet, making the Internet of Things as simple as feasible. Your project might access any information that is available on the internet since IT can also retrieve

data from the Internet utilizing APIs, making it smarter.

5. Arduino IDE: A cross-platform programmed created in C and C++ functions are called the Arduino Integrated Development Environment (IDE). Programs are created and uploaded using it to boards that are compatible with Arduino. Using certain code structure guidelines, the Arduino IDE supports the languages C and C++. A software library from the wiring project is provided by the Arduino IDE and offers a variety of standard input and output operations.

IV. RESULT

The Experiment was conducted for the proposed system. The Node MCU is powered with the 3.3V power supply. User sends the notice through Python program and the Node MCU which has the inbuilt Wi-Fi receives the sent notice. Python program first takes the voice from user and then it converts it into the text then node mcu receives the data from database and then show to the LCD display within few second.

V. APPLICATION OF NOTICE BOARD

- An online notice board is a location where users may post various sorts of messages and alerts, such as advertisements, announcements, and information.
- It may be shown on digital devices such as computers, tablets, and mobile phones.
- This online notice board initiative is extremely beneficial to all types of users, including both existing and new users.

VI. CONCLUSIONS

By applying the notion of wireless technology into the field of communication, we may improve the

efficiency and speed of our connection. We'll be able to show the messages with less problems and upkeep. This system is suitable for usage in colleges, schools, offices, train stations, and both business and personal purposes. The technical document above demonstrates how to create and modify a voice-controlled Android-based wireless notice board.

VII. FUTURE SCOPE

- Other LCDs that can display more characters can be used in place of the 16x4 LCD display.
- Breaking news may be flashed in real time, together with the notice messages, date, and time.
- Currently, only one message may be displayed at a time; however, this limitation can be solved by employing several LCDs to display various messages.
- This system can also be secured using a password.

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