Smart Voice Based Notice Board using Wi-Fi

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Abstract – Notice boards are one of the widely used ones ranging from primary schools to major organizations to convey messages at large. A lot of paper is been used and which is later wasted by the organizations. The main aim of this project is to design a Wi-Fi driven automatic display board which can replace the currently used paper-based notice board. It is proposed to design to send the instructions from android based application which uses the voice recognition feature to convert voice to text conversion. It also has feature of sending alert messages to selected contacts. The alert messages are SMS based and the contacts are fetched from the link created to collect the database.

Key Words: SMS (Short Message Service)

1. INTRODUCTION

The use of cell phones has rapidly increased over the last decade and a half. Upgradation in networking technologies has encouraged the development and growth of very dense networks. Notice boards are one of the widely used to convey messages at large. In this world, Mobile Phones and the related technologies are becoming more and more prevalent. Small innovative steps in making use of technology for regular purposes would have an adverse effect on the environment issues which we are presently concerned about.

The main aim of this project is to design a Wi-Fi driven automatic display Board which can replace the currently used paper-based notice board and conventional notice boards. It is proposed to design to receive message in display toolkit which can be sent from an authorized user using mobile phone. The device is capable to take input as speech or voice, it recognizes that voice and by using the voice to text converter application it converts the voice into text. The additional feature in this project is to send message personally. Currently the manual work is thrown away from human life. So, by using android app we don't need to type the notice by hand instead of that we only speak and that app converts speech into text and that text is displayed on notice board.

2. LITERATURE SURVEY

2.1 Yash Teckchandani, et al. in their paper "Large Screen wireless notice display system" they have emphasized digital display using GSM module. This paper proposes a method in which large screens like computer monitors or televisions can be used for displaying notices sent as text messages from a mobile phone. The proposed method uses Hypertext Markup Language (HTML) to present the output

2.2 Michal Swiatkowski, et al. in their paper "Student Notice board based on LED Matrix system" they have emphasized an application of LED in graphic displays. LED matrices are driven by 8-bit shift registers, which are controlled by micro-controllers. Communication between micro-controller and personal computer is over RS232 interface. This provides possibility to drive display over TCP/IP protocol.

2.3 Dharmendra Kumar Sharma, et al. in their paper "Small and medium range wireless electronic notice board using Bluetooth and Zigbee" they have emphasized a low cost, handheld, wireless electronic notice board by using ATmega32 microcontroller and different wireless technologies (Bluetooth and ZigBee). The notice board receives serial data from wireless module receiver and displays it on the graphical liquid crystal display. It realized common communication receiver hardware for notice board having compatibility with both wireless modules i.e. Bluetooth and ZigBee.

2.4 Ms. Snehal Langhe, et al. in their paper "Voice Based Notice Board" they have emphasized a designed system that contains transmitter section and a receiver section. Transmitter section consists of an android mobile phone. To transfer the information, the user needs to dictate the message through an android phone. The app will then display the words that is sensed and will send the data strings for the Arduino to process.

3. HARDWARE MODULE

In this project, we have used some hardware modules such as WI-FI module (ESP8266 MOD) for transmission and reception, Microcontroller Atmega328, LCD screen for display, Power Supply, Buzzer and mobile phone.

3.1 WI-FI MODULE (ESP8266 MOD)

The ESP8266MOD Wi-Fi module is a self-contained SOC with integrated TCP/IP protocol stack that can give any microcontroller access to your Wi-Fi network. The ESP8266MOD is capable of either hosting an application or offloading all Wi-Fi networking functions from another application processer.

Fig 1: ESP 8266 MOD

3.2 MICROCONTROLLER

The high-performance Atmega328 microchip 8-bit AVR RISC based microcontroller combines 32KB ISP flash memory with read while write capabilities, 1KB EEPROM, 2KB SRAM, 23 general purpose working registers, three flexible timer/counters with compare modes, internal and external interrupts, serial programmable USART, SPI serial port, 6 channel 10bit A/D converter, programmable watchdog timer with internal oscillator and five software selectable power saving modes. The device operates between 1.8-5.5 V.

Fig 2: Atmega 320

3.3 LCD Screen

LCD electronic displays are an excellent way of conveying information visually. The display boards are widely used in all sectors ranging from advertisements, schools, colleges, health and security etc.

Fig 3: LCD Display board.

4. SOFTWARE USED

4.1 ARDUINO IDE

Arduino Integrated Development Environment (IDE) is a cross platform application that is written in programming language Java. It is used to write and upload programs to Arduino board. It employs the program to convert the executable code into a text file in hexadecimal Encoding that is loaded into the Arduino board by a loader program in the board's firmware.

4.2 ANDROID STUDIO

Android Studio is the official IDE for Android application development, based on IntelliJ IDEA. Android Studio offers: Code templates to help build common app features. Rich layout editor with support for drag and drop theme editing.

4.3 FIREBASE APPLICATION

Firebase is a mobile and web application development platform. Firebase Analytics is a cost-free app measurement solution that provides insight into app usage and user engagement. Formerly known as Google Cloud Messaging (GCM), Firebase Cloud Messaging (FCM) is a cross-platform solution for messages and notifications for Android, iOS, and web applications.

4.4 EAGLE

EAGLE is a scriptable electronic design automation (EDA) application with schematic capture, printed circuit board (PCB) layout, auto-router and computer aided manufacturing (CAM) features. It allows back-annotation to the schematic and auto-routing to

automatically connect traces based on the connections defined in the schematic.
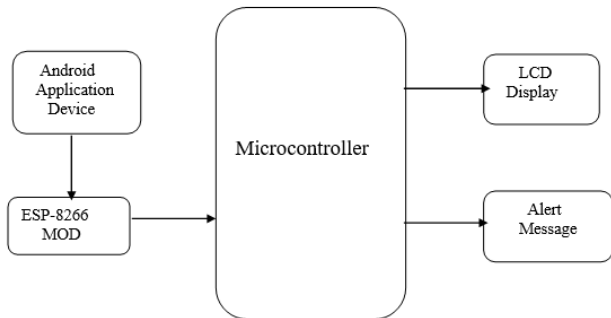
5. BLOCK DIAGRAM

Fig 4: Block diagram of voice-based notice board

The proposed system will work like when the user wants to display or update the notice board. This system uses Wi-Fi based wireless serial data communication in displaying messages on a remote notice board. The Wi-Fi connected to the microcontroller will receive the signal and process it to display on notice board. Speech to text conversion using android device captures user's voice, and converts it into text format. The display device receives the notification stored it and display. Using GSM module messages will be sent to the selected users.

6. WORKING

1. Open the application and establish connection with Wi-Fi module. Then select whether alert message is to be send or announcement on display board.
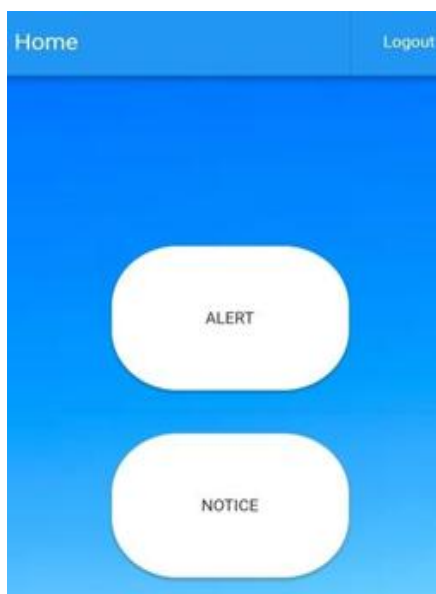

2. For announcement option, click on listen which will use speech recognition to convert speech into text. The converted text is then sent to the display board.
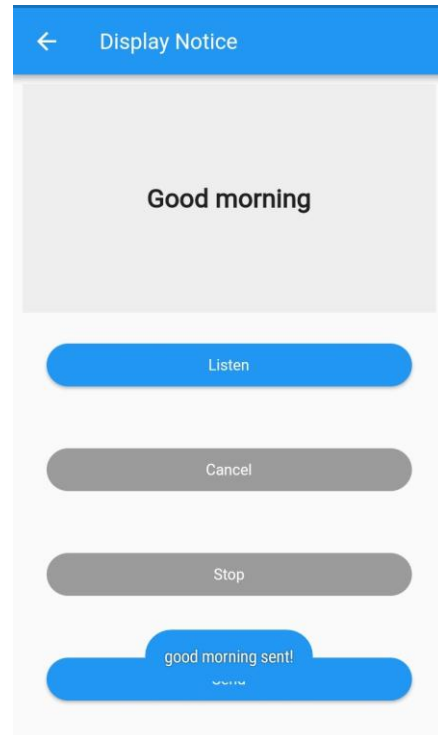
3. For alert option, the database is collected using the online form shared using link. After filling the form, the database stores the information and it is available in the alert feature.
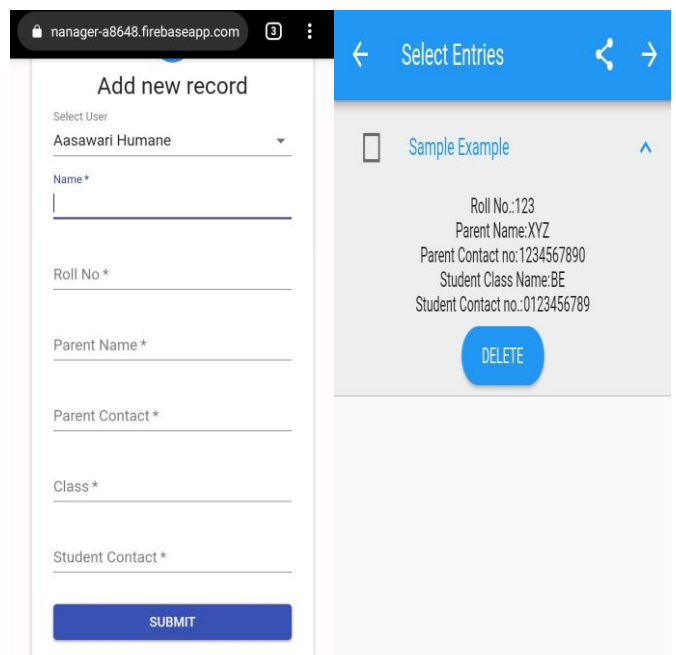
4. After selecting the user the number is extracted from the available information and the speech to text conversion converts speech into text message and that message is sent. Multiple users can be selected for sending messages.
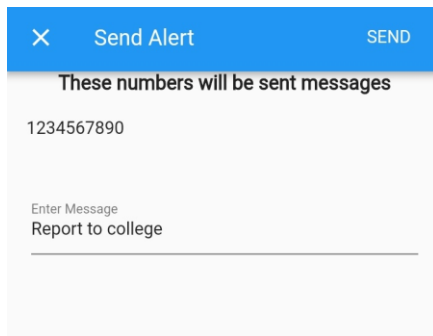
7. ADVANTAGES

1. Being WI-FI transceiver system, it offers flexibility to display flash news or announcements faster than the programmable system.

2. Problem related to direct manual update of notice board is removed.

3. Notification can be delivered within seconds.

4. Efforts of re-programming are reduced.

5. No printing and photocopying costs.

6. Thus, saves time, Energy and finally environment.

8. APPLICATIONS

1. It is used in colleges to display the placement news, circulars, daily events, etc.

2. To display the nursing homes using the staff attendance availability of the doctors, list of the specialized doctors and no of patients etc.

3. To display the room rents, available rooms and AC or NON-AC rooms details in hotels.

4. To display the food items and menu offers in restaurants and cafes.

5. To display railway stations scheduling time and platforms by the railways.

9. CONCLUSION

By using the concept of this technology in the field of wireless communication we can make our communication more efficient and faster, with greater efficiency we can display the messages and with less error. In this system the technological advancement of the notice board is proposed that will help in saving time and resources and making the information available instantly to the intended person with additional feature of sending alert messages. The system is simple, low cost and easy to use that interacts with the intended users instantly.

REFERENCES

[1] Yash Teckchandani, G. Siva Perumal, "Large Screen Wireless Notice Display System" 2015 IEEE International Conference on Computational Intelligence and Computing Research.

[2] Michal Swiatkowski, Klaudiusz Wozniak, and Lukasz Olczyk, "Student Notice board based on LED Matrix system", International Students and Young Scientists Workshop Photonics and Microsystems, 2006.

[3] Dharmendra Kumar Sharma, Vineet Tiwari, Krishan Kumar, B. A. Botre, S.A. Akbar, "Small and Medium Range Wireless Electronic Notice Board using Bluetooth and ZigBee", IEEE Indicon, 2015.

[4] Ms. Snehal Laghe," Voice based notice board", International Engineering Research Journal (IERJ), Volume 2.