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Voice Controlled Wireless Electronic Notice Board Using Android

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Abstract: *The Advanced mobile technology opens the Scope to the widely usage of android app. The websites are disappearing more and the mobile phones are most prominent. It's the time to change from the websites and to the other things like apps, which has become the part of our daily routine. In this paper we are introducing voice to text .apk file and it controls the Arduino by sending commands. It works on all the android platforms. Main concept of Voice controlled wireless electronic notice board is to show the messages on the scrolling display panel and to control them by using our voice commands. Previously we had seen GSM based electronic notice board; however by using speech controlled Notice board with Bluetooth technology has the additional advantage of ease of use.*

User has to speak through the "voice Arduino control" app in order control the messages displayed on notice board. Voice recognition is done by the Android. Firstly, user has to install this App application in his/her smart phone or laptop. For displaying purpose, we used P10 module led matrix display panel. The message will be scrolled like in railway stations. Bluetooth technology used for wireless part of the communication; it is used in this system to transmit and receive data wirelessly between the two connected devices.

This helps us in transmitting any message with in a fraction of a second and also helps in eliminating any delay by simply sending a voice command which is much efficient compared to any other traditionally method of transmitting the message. Thus the proposed technology can be used in many of public places such as the shopping malls or commercial buildings like hospitals to alert the security system and also increase the awareness of the regarding emergency situations and avoid any possible dangers.

Keywords: *Arduino, Voice Arduino control, P10 matrix display, Bluetooth module, Notice board*

I. INTRODUCTION

Notice boards are commonly used in elementary schools, malls, public places and Key attachments for sending messages publicly. A Paper is used a lot and this alone Wasted. This gives a great possibility of deforestation Indicates dangerous weather changes occurs. A little creative Decisions in using innovation for the common man. The benefit positively affects the problems of the land are and are concerned. The primary goal of the work is to develop the remote notification system that displays any note The client's Android application is transmitted through the gadget. Deals with Bluetooth remote piece related interface for transmitting and receiving information between two devices

II. PROPOSED SYSTEM

By looking at the above it will become clear that, there is a need for an electronic notification board that creates an effective way for the user to display the notification. With a view to increasing the cohesion of the electrical systems, it is necessary to connect two or more systems together.

This paper is mainly for an introduction to the idea of wireless communication between a mobile phone and an Arduino controller devices. For this project, we must build an embedded system that includes a P10 matrix display unit and a sound device that uses wireless technology. The display unit contains any type of display that can be connected to a microcontroller. The audio device is a microcontroller-controlled speaker that converts the Converter-To-Speech (TTS) converter. The system can be used in colleges, schools, offices, train and commercial stations as well as in public areas and also in hospitals for alerting the security in case of emergency.

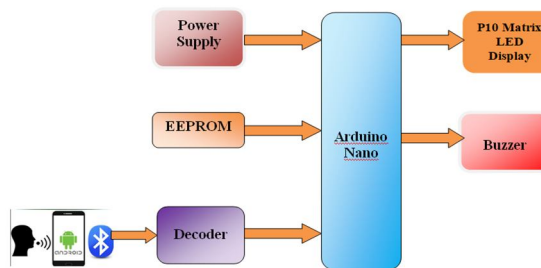


Fig. 1. Block diagram

A. About Block Diagram

There is a need for an electronic notice board that allows an effective user to display the notification. With a view to increasing of the cohesion of electrical systems, it is necessary to connect two or more systems together. This program is the implementation of the concept of wireless communication between the cell phone and the ATmega328 controller.. The display unit contains an LED indicator that can be connected to the ATmega328 microcontroller. Bluetooth is an open wireless protocol for data exchange at short distances from mobile devices, creating personal area networks (PANs). It was originally named as the wireless alternative to RS232 data cables. It can be connect several devices, overcoming the sync issues. Bluetooth will receive the signals sent by the Android device (mobile phone), and then send these signals to a small controller. To use this application, we need to use an Android application that can perform the following functions: Convert voice data to text. Send this text to a microcontroller via Bluetooth for display on the notice board. The HC-05 module is an easy-to-use Bluetooth SPP (Serial Port Protocol) module, designed for transparent serial setting. Used to transfer data from android device to microcontroller ATmega32 In 28 pin IC. We can design our system using other controls as well but with the use of Atmega328 system size can be greatly reduced. Input from android is sent via a small Bluetooth controller to display it on the bulletin board. In this PIN program. 2 & 3 is used for the purpose of transmission and receipt. Buzzer is used when a notification is about to be displayed, used for public attention. As at bus and train stations used in the hospital. The P10 LED Display Module is well suited to design any size of outdoor or indoor LED display board. This panel has a total of 512 high-intensity LED lights mounted on a plastic housing designed for the best display results. Any number of such panels can be integrated into any row and column frames to create an attractive LED signature board. The size of 32 * 16 modules means that there are 32 LEDs in each row and 16 LEDs in each column. So there is a total of 512 numbers of LEDs present in each module unit. Arduino software application is used to voice control. It is basically used to control arduino by sending voice commands. will be inbuilt with the ability to convert text into text conversion when the text is sent sequentially to the arduino you are processing. It will be available in the play store. we can download easily

B. Working Principle

Working operation is very simple, we have Android application and Bluetooth module, in order to successfully connect with the Bluetooth module, you need to pair the HC-05 module with the android app. Once connected, we can send the message we want to display, once the message has been sent, Arduino will process the cable and convert it into a signal that the 74HC595 shift resistor can detect, after the data has been sent to the shift. resistor, ready to display. Arduino is the heart of the circuit. processes all data sent by the Bluetooth module. The p10 module is widely used in day-to-day operations and is used in professional activities such as in stores for advertising purposes, and in shopping malls to inform the safety and management system of parking spaces and hospitals to alert safety in emergencies.

C. Software tools

- 1) *Arduino*: Arduino is an open source software and mainly used for editing Arduino system. Arduino is designed to perform electronics are easily accessible to artists, designers, hobbyists and anyone interested in creating collaborations objects or places.
- 2) *Arduino voice control APP*: By using this app you can transfer numbers, letters or strings using your voice. Click on the Bluetooth icon to connect with one of the paired devices. After a successful connection, you can click on the microphone icon to speak a word or phrase. You can use the following program in Arduino to read the phrase found in the serial monitor

D. About Flow chart

Initially the Bluetooth terminal is turned on and it should be connected to the device by entering the correct password. If the password is correct then the initial message will be displayed which we written in the code. After that the user has to send his/her voice commands through the android app. This app will convert voice to text and sends the data serially. If numbers of characters are less than 100 then the message will be displayed on the P10 LED matrix display panel. As it is Notice so the message will be Scrolling. If the number of character are greater than 100 then the previous or old message will be displayed

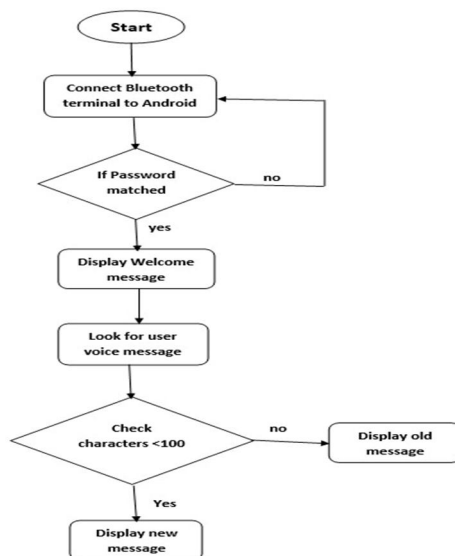


Fig. 2. Flow Chart

III. RESULTS



Fig. 3. Hardware results

A. HC-05 bluetooth LED status

The internal LED indicates the current state of the module.

- > Fast charging (about 5 times per second) - module is open and waiting for connection or pairing
- > One quick download and every 2 seconds - the module has just paired with another device
- > Duplicate fast light every 2 seconds - connected to another device

B. Default setting

Default settings for new modules

- >Name = HC-05
- >Rule number = 1234
- >Baud level in connection mode = 9600 *
- >Baud level in AT / Command mode = 38400

Not all modules have the same protocols. If you can not find the connection mode that works with 9600 try some baud prices. The 38400 is also standard.

The above values can be changed but for now we will leave the default settings and try connecting to another device.

C. Pairing HC-05 to Android

In my case, the Android device is a Smart phone. Before making a connection between the blue tooth machines must be paired. So, with Arduino and HC-05 enabled, on an Android device;

- >turn on the Bluetooth icon,
- >refresh the devices and HC-05 should be listed,
- > click on HC05 and enter the password "1234" assuming you have a default password



Fig. 4. Pairing with Android APP

D. Connecting to the APP

Connecting an Android device to HC-05 creates a serial communication channel very similar to a serial monitor in Arduino IDE. I use a Bluetooth terminal correctly called Arduino Voice control. Download it from Google Play Store Download, install, and turn on Bluetooth Terminal.

- > open the menu,
- select "Connect device - Not secure",
- click on "HC-05" from the list it will be automatically connected

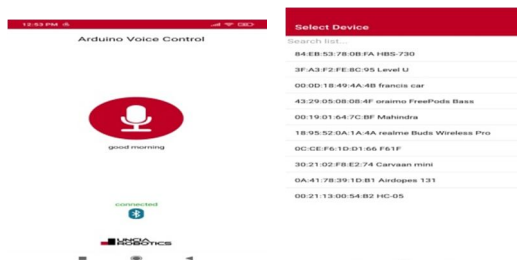


Fig. Connecting to the App

IV. FUTURESCOPE

The main purpose of our project is to show the various alerts we have received using Bluetooth technology but since Bluetooth is limited, the app is limited to a specific location which is the main effect of our system.

The Bluetooth Based Electronic Notice Board is connected to Wireless fidelity and the network width can be increased. The addition of other active parameters such as date and time can be made and the provision for displaying several notifications at once can be achieved from the notice board. A list of specific automated notifications can also be created by our own to be displayed daily as a notification if 'reception' or various positive thoughts can be made. The design can be easily customized with advanced user interaction. There may also be an option for each student to connect his or her cell phone to a Bluetooth modem so that a notification is visible on their cell phones. We may have detailed information about who sent the message, whether the message was read or not by the recipient. Another improvement that can be made to the current model is the addition of a buzzer and led to alert the recipient that a new message or notification has not been read.

V. CONCLUSION

We conclude that by introducing the concept of wireless technology in the field of communication we can make our communication more efficient and faster, with greater efficiency we can display messages with fewer errors and better maintenance. We introduced how to use Bluetooth technology in mobile phone printing and explained the application for mobile printing. In this project, By introducing this concept in the field of communication we can make our communication more efficient and faster, with greater efficiency. We can display the message with minor errors and corrections. The system can be used in colleges, schools, offices, train and commercial stations as well as in public areas.

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