



Voice controlled Smart Notice Board

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ABSTRACT— *The notice boards are important thing to publish the notices in institutes/organization or public places like hospitals, railway stations, bus stands etc. The Notice boards are used to display the information in an effective way to the people. Now a day mostly notice boards are of paper sticking type, but the use the paper sticking type notice board is wastage of lot of time, paper and labour and it is not easy to update the messages instantly on the notice board. So, to overcome from these drawbacks of the paper sticking type notices boards, we propose entirely new concept of notice boards based on Internet of Things (IOT) technology, which makes the process of posting the notice much easy and efficient. This project deals about an advanced Hi-Tech wireless Notice Board. This system is enhanced to display the latest information through an Android application of smart phone or tablet.*

Keywords: *Arduino, Android application, Bluetooth module, Mobile, Notice board.*

I. INTRODUCTION

Humans have been constantly innovating to make their lives easier and work efficiently. Over the last few decades wireless communication has changed human's lives in unimaginable ways by enabling human to be able to communicate with other humans as well as devices. In modern

world, a man can control cameras and change their view angles by click of a button on the cell phone using wireless network. However, still there are many unexplored applications of the wireless communication that can make people's lives much easier.

Paper consumption is the superlative reason for forest degradation and notice is an indispensable requirement for public places or organization to get connect/communicate with people in one way or both. Hence to maintain these things we can use latest technologies. Since there are many easy configurable, low power consuming wireless technologies (like Wi-Fi, Bluetooth) are available, a wireless electronic notice board system can be used replacing the need of paper notice board. Since the world is stepping towards digitization, the need of wireless digital notice board is found. Wireless electronic notice board is a perfect replacement of paper notice board providing easy maintenance, probability and access.

We come across situations where we urgently need to display notices on a screen. For areas like railway stations and other such busy facilities the station master/announcer need not have to type every announcement message manually on the screen. So here we propose an innovative android based notice display system

that allows the user to display notices without typing them manually. Here the announcer/administrator may speak out the message through his/her android phone; the message is then transferred wirelessly and displayed on the screen. To demonstrate this concept we here use an LED screen to display messages. The LED is interfaced with an 8051 family microcontroller. We also use a Bluetooth receiver to get the android transmitted messages, decode them and send them to the microcontroller for further processing. The microcontroller then displays the message on the LED screen. The entire circuit is powered by a 12 V supply through a transformer. This innovative system can be used in a variety of places including railway stations, schools, colleges, offices for displaying emergency announcements on the screen instantly by just speaking out the message instead of typing it for each every time. So this is how voice based notice board project is very useful in various organizations.

implementation of the idea of wireless communication between a mobile phone and an ATmega328 controller. In this system work, designing a system which consists of display unit, and android device using wireless technology. The display unit consists of LED display that can be interfaced with ATmega328 microcontroller. Bluetooth is an open wireless protocol for exchanging data over short distances from mobile devices, creating Personal Area Networks (PANs).It can connect several devices, overcoming problems of synchronization. Bluetooth will receive the signals sent by the Android application (mobile phone), and then send these signals to the microcontroller. In order to implement this system,

we need to use an Android application that is capable of performing the following Functions:

- Convert voice data to text.
- Send this text to microcontroller via Bluetooth for displaying on notice board.

HC-05 BLUETOOTH MODULE

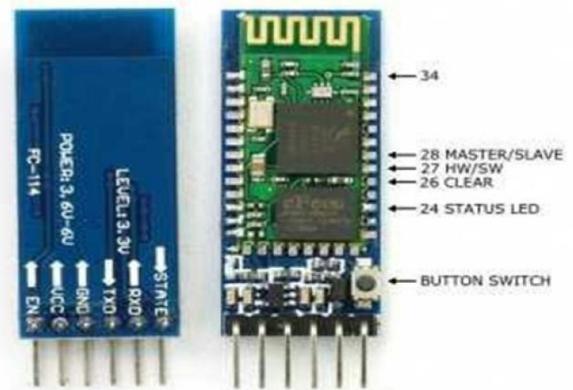


FIG2. HC-05 BLUETOOTH MODULE

The HC-05 Bluetooth Module has 6pins. They are as follows:

ENABLE

When enable is pulled LOW, the module is disabled which means the module will not turn on and it fails to communicate. When enable is left open or connected to 3.3V, the module is enabled i.e. the module remains on and communication also takes place.

VCC

Supply Voltage 3.3V to 5V.

GND

Ground pin.

TXD & RXD

These two pins acts as an UART interface for communication .

II. SYSTEM DESCRIPTION & WORKING

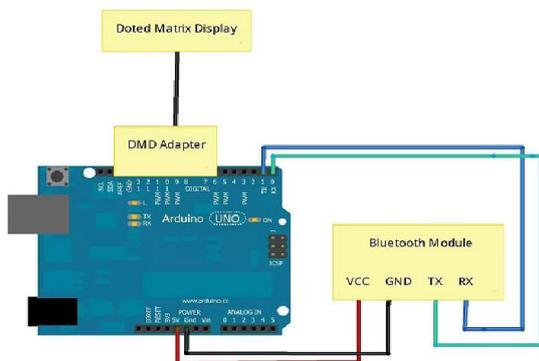


FIG.1. LED BOARD CONNECTION TO BLUETOOTH MODULE VIA ARDUINO UNO

There exists a need of electronic notice board that enables efficient way to the user for displaying notice. By considering increasing compactness of electronic systems, there is a need of embedding two or more systems together. This system is an

STATE

It acts as a status indicator. When the module is not connected to / paired with any other Bluetooth device, signal goes Low. At this low state, the led flash continuously which denotes that the module is not paired with other device. When this module is connected to/paired with any other Bluetooth device, the signal goes High. At this high state, the led blinks with a constant delay say for example 2s delay which indicates that the module is paired

BUTTON SWITCH

This is used to switch the module into AT command mode. To enable AT command mode, press the button switch for a second. With the help of AT commands, the user can change the parameters of this module but only when the module is not paired with any other BT device. If the module is connected to any other Bluetooth device, it starts to communicate with that device and fails to work in AT command mode.

Bluetooth SPP (Serial Port Protocol) module, designed for transparent wireless serial connection setup. Serial port Bluetooth module is fully qualified Bluetooth V2.0+EDR (Enhanced Data Rate) 3Mbps Modulation with complete 2.4GHz radio transceiver and baseband. It is used for the transmission of data from android device to microcontroller.

ATmega328

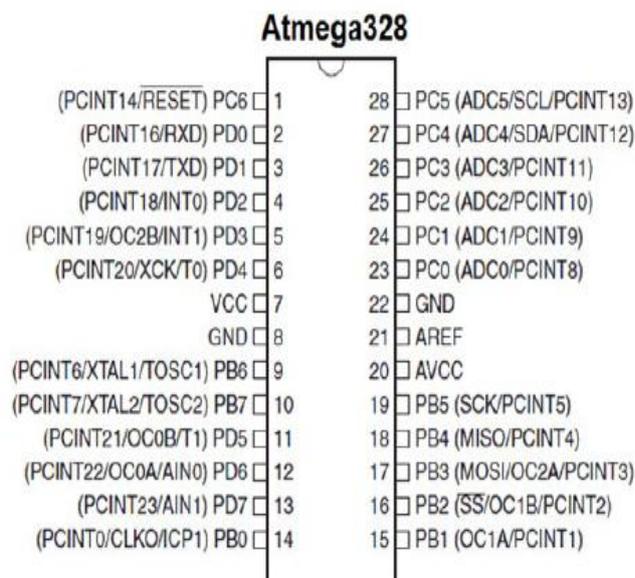


FIG3.ATMEGA 328 MICROCONTROLLER PIN DESCRIPTION

The Atmega328 is a very popular microcontroller chip produced by Atmel. It is an 8-bit microcontroller that has 32K of flash memory, 1K of EEPROM, and 2K of internal SRAM.

- It is a 28 pin IC.
- We can design our system by using other controllers also but by using Atmega328 the size of the system can be reduced to great extent .
- The cost of the system also gets reduced.
- The input from android is sent over the microcontroller via Bluetooth for displaying it on notice board.
- In this system pin no. 2&3 are used for the transmission and reception purpose.

By executing powerful instructions in a single clock cycle, the device achieves throughputs approaching 1 MIPS per MHz, balancing power consumption and processing speed.

ANDROID DEVICE

Android is a mobile operating system developed by Google which is used by several smart phones and tablets. For giving the data in the form of speech we can use speech recognition app in android device.

LED DISPLAY

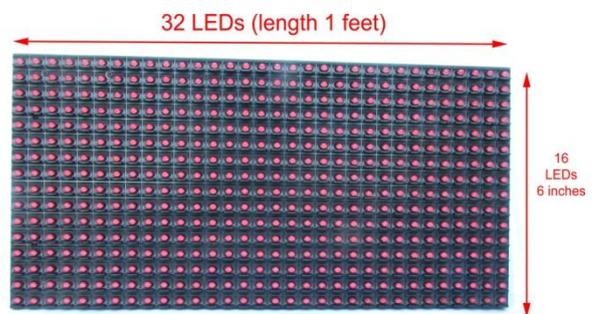


Fig.4.Front view of DMD LED Board

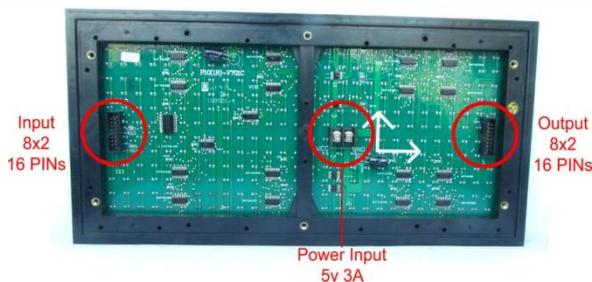


FIG.5.BACKVIEW OF DMD LED BOARD

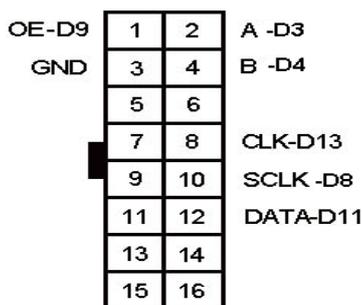


Fig.6. pin Diagram of P10

- This provides step by step approach to driving a Dot Matrix Display (DMD) Panel with an Arduino.
- The DMD is a 512 pixels single colour LED display arranged in 32x16 layout, a 16 pin (2x8) IDC connector is used to interface with Arduino.
- In order to drive the 32x16 Dot Matrix Display Panel from Arduino, the DMD library for Arduino is required.
- The Freetronics DMD library is able to write letter and text on the display board with limited function, variable string and text centering is not supported.

III. ADVANTAGES

- Helpful for handicapped people.
- Low cost.
- User friendly & Easy installation.
- Less power consumption.

IV. DISADVANTAGES

- Range is limited to 10 meters.
- Compared to GSM module max signal rate is low i.e. 1Mb/s.

V.APPLICATIONS

- It can be used in colleges, schools, bus stands and railway stations.

- Industries where we can control machines by just saying instructions.
- Military applications.
- It can be used in malls & highways for advertisement purpose.

VI. CONCLUSION

In this paper 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. The system is simple, low cost and easy to use that interacts with the intended users instantly.

- By introducing the concept of wireless technology in the Field of the communication we can make our communication more efficient and faster
- With greater efficiency, we can display the messages with less errors and maintenance.
- This system can be used in college, school, office, railway station and many other places for commercial as well as personal use.
- Wireless operations permit services, such as long range communications, that are impossible or impractical to implement with the use of wires.
- It provides fast transfer of information and is cheaper to install and maintain. It also provides user authentication in order to avoid any misuse of proposed system.

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