

SCROLLING ELECTRONIC NOTICE BOARD DISPLAY USING WIFI

¹G VEERA SEKHAR, ²A VAMSHI, ³H MADHUKRISHNA, ⁴K KUMAR SWAMY

^{1,2,3}Student, ⁴Assistant Professor

Department Of Computer Science Engineering

Dr.K.V.Subba Reddy Institute of Technology, Kurnool, AP

Abstract: Wireless digital notice board display to gather the information on display of LED matrix. This project can be also used in institutions or organization etc. but, sending notices day to day is a heavy process. This project deals with advanced notice board. In Our proposed system the user will enable to transmit notices wirelessly on a notice board using Controller WIFI Module with smart phone and users get auto notification using cloud. Its operation is based on microcontroller arduino When the user sends notice through smart phone simultaneously that message will get display on the LED display board and also through the cloud other users get auto notification on their smart phone.

I. INTRODUCTION

1.1. INTRODUCTION TO THE PROJECT

Notice Board is common information sharing medium in any institution or any public place like bus stations, railway stations and amusement parks. But putting on various notices day in and day out is time consuming. Additional man power is required to take care of this notice display board. This paper deals with an advanced electronic wireless notice board. Electronic notice board is a common device that is used to display information. The information or messages are displayed using LCD's and Graphical LCD's. The wireless system for LCD's is a method using Radio Frequency as transmission medium. The system consists of

two modules: transmitter and receiver. The transmitter module is used by a user to place a message through an input module PC/Mobile. The information is then transmitted using bluetooth technology to the receiver. It then will be decoded and displayed on electronic notice board.

In this world Mobile Phones and the related technologies are becoming more and more prevalent. Various technical arenas in the field of Telecommunication and Embedded Systems are becoming omnipresent in the people. 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 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. This in turn leads to a lot of deforestation thus leading to global warming. 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 whole process can be described from the transmitter and receiver section. The Bluetooth module receives a message from the authorized mobile phone and the message is extracted by the microcontroller from the Bluetooth module and is displayed on the matrix display board.

Serial to parallel communication is used for the entire process from Bluetooth module to Microcontroller and from microcontroller to the matrix display. And for the acknowledgement LCD display is used. The proposed system “Bluetooth based Wireless Notice Board using Arduino” is cheap, quick reliable and secured for any organization that requires to circulate notice regularly and reduce physical efforts. We are using Bluetooth technology. We can send notice from any location. This proposed system in this project has many upcoming applications in educational institutions and organizations, crime prevention, traffic management, railways, advertisements etc. Been user friendly, long range and faster means of conveying information are major bolsters for this application. By using this proposed methodology, we can enhance the security system and also make awareness of the emergency situations and avoid many dangers.

In past years, the Wi-Fi transceiver system has used from a many area in terms of mobile phones, personal computers, laptops are to be commonly used by the rich to something so it can be used. Now a day's people prefer wireless connection because they can interact with people easily and it require less time. The main objective of this project is to develop a wireless notice board that display message sent from the user and to design a simple, easy to install, user friendly system, which can receive and display notice in a particular manner with respect to time which will help the user to easily keep the track of notice board every day and each time he uses the system. Wi-Fi are the wireless technology used. All mobile phones has available in Wi-Fi network, then Wi-Fi network has been used to provide wide area network allows as to communicate with the information into text message through LED display to move the notice board. These services all themselves with one or more network ranges providers will give them a special code number that can

receive and monitor the information that their notice board send to them. This many-to-one network of information transmission has become quite popular and many a business has entered into this model with mixed results. This paper aims to propose industrial applications that will utilize the distinct advantages of the Wi-Fi.

II. LITERATURE REVIEW

[1] Ramya R, Bavithra N, Priyanka M, “Wireless Enotice board using Bluetooth technology” This paper explains E-notice board with the help of Bluetooth technology. This document deals with an innovative rather an interesting manner of intimating the message to the people using a wireless electronic display board which is synchronized using the Bluetooth technology. This will help us in passing any message almost immediately without any delay just by sending a SMS which is better and more reliable than the old traditional way of passing the message on notice board. This proposed technology can be used in colleges many public places, malls or big buildings to enhance the security system and also make awareness of the emergency situations and avoid many dangers.

[2] Dharmendra Kumar Sharma, Vineet Tiwari, “Small and medium range wireless electronic noticeboard using Bluetooth and ZigBee” this paper introduces Notice Board using Bluetooth and ZigBee technology. When information exchange occurs between people via a network, then authentication and security of data have more priority. This paper introduces a low cost, handheld, wireless electronic notice board by using Atmel's ATmega32 microcontroller and different wireless technologies (Bluetooth and ZigBee) and their performance analysis based on the parameter such as range, BER (bit error rate), RSSI (Received signal strength indicator), signal attenuation and power consumption. The notice board receives serial data from wireless module receiver and displays it on the graphical liquid crystal display. We have realized a common communication receiver hardware for

notice board having compatibility with both wireless modules i.e., Bluetooth and ZigBee. We used KS0108 based 128x64 graphical LCD as display element. [3] M. Abila Mary, B. Pavithra, R. Sangeetha, Prof.T.C. Subbu Lakshmi, "GSM based wireless noticeboard using Arduino" In this paper built a Noticeboard using GSM technology. The GSM based notice board is aimed at the colleges and universities for displaying day-to-day information continuously or at regular intervals during the working hours. Being GSM-based system, it offers flexibility to display flash news or announcements faster than the programmable system. • To develop a GSM based notice board whose contents can be updated through an SMS which realized through an embedded system with microcontroller. • To design a project simple, easy to install, user friendly system, which may receive and display notice in a very specific manner. • SMS based notice board incorporating the widely used GSM to facilitate the communication of displaying message on notice board via user's mobile phone. • SIM 800 GSM modem with a SIM card is interfaced to the ports of the Arduino with the help of AT commands. [4] Pallavi M. Banait, Nikita P. Bakale, Mayuri S. Dhakulkar, Bhushan S. Rakhonde, "Cost effective Android based wireless notice board" IJETER International Journal of Emerging Technologies in Engineering Research. In the day-to-day life, smart phone is gaining a wide range of importance in its usage and is portable. Thus, an android smart phone can be for the purpose. An android application is installed in the user's smart phone which permits the transmission. At receiver end, a low-cost microcontroller board (Arduino Uno) is programmed to receive and display messages in any of the above communication mode. Using the developed system, two different applications for displaying messages on a remote digital notice board and wireless person calling has been implemented. The developed system will therefore aim in

wirelessly sharing the information with intended users and also helps in saving the time and the cost for paper and printing hardware.

EXISTING SYSTEM

In the current situation the notice boards are being managed manually through a keyboard or any other devices. This is a time taking task to put up notices on the notice board. This wastes a lot of resources like paper, printer ink, man power and also time. The existing system is based on GSM technology so it requires SIM card to send the messages on notice board. In the existing system is also holds international roaming capability of GSM, so we can send message to receiver from anywhere of the world and requires extra charges. The drawbacks of this type of systems are: as there is no password any one can send the message to display and also when there is a network problem the GSM doesn't work.

PROPOSED SYSTEM

Technology is affecting every characteristic of our society and in such case we use this in many institutions. A Digital Notice board is a very innovative system for any organization. In our proposed system, the digital notice board allows the user to display the notices wirelessly. The system uses a Wi-Fi module for communication purpose, connected to Arduino Board and a LED screen display. The system consists of a simple buzzer so as to get notification of new notice as an alert signal. For displaying the notice a webpage has been created with the IP address that is generated only when the credentials like network name and password are similar and the user can access the webpage before sending the notice. All the programming related to the system had been done using embedded language. The Notice board also sends an acceptance to the user by displaying the current existing notice in webpage. Initially, the programs are executed. After successful execution of the programs an IP

address is generated. With the help of IP address we can access the webpage. The webpage includes the text area in which we can enter the message and can be updated. And also contains additional features like changing the levels of brightness and delay time of the scrolling text. The sent message is received at Wi-Fi module, which then transmits it serially to the LED matrix. Finally the message is displayed on the LED Display.

III. DESIGN OF HARDWARE

Arduino Uno

The Arduino Uno is a microcontroller board based on the ATmega328 (datasheet). It has 14 digital input/output pins (of which 6 can be used as PWM outputs), 6 analog inputs, a 16 MHz ceramic resonator, a USB connection, a power jack, an ICSP header, and a reset button. It contains everything needed to support the microcontroller; simply connect it to a computer with a USB cable or power it with a AC-to-DC adapter or battery to get started.

The Uno differs from all preceding boards in that it does not use the FTDI USB-to-serial driver chip. Instead, it features the Atmega16U2 (Atmega8U2 up to version R2) programmed as a USB-to-serial converter. Uno board has a resistor pulling the 8U2 HWB line to ground, making it easier to put into DFU mode.

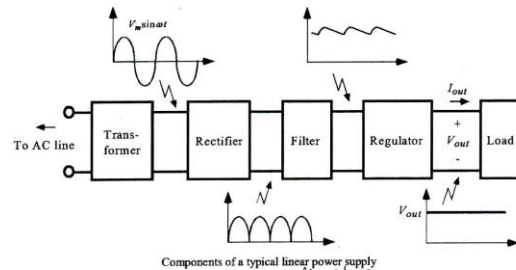


Fig: ARDUINO UNO

POWER SUPPLY

The power supplies are designed to convert high voltage AC mains electricity to a suitable low voltage supply for electronic circuits and

other devices. A power supply can be broken down into a series of blocks, each of which performs a particular function. A d.c power supply which maintains the output voltage constant irrespective of a.c mains fluctuations or load variations is known as “Regulated D.C Power Supply”.



LED MATRIX DISPLAY

LED-based signage and matrix displays are bringing new dimensions of versatility and eye-pleasing visual effects to a growing number of outdoor and indoor applications. Recent advances in LED technology have even made it difficult to distinguish still images on their high-quality displays from traditional printed or painted billboards. In this tutorial, Texas Instruments takes a detailed look at the essential technical principles of LED display systems and the engineering considerations required to design them using arrays of discrete LED lamps.

LED driving basics

First we will compare the various LED driving circuitries to determine the best method.

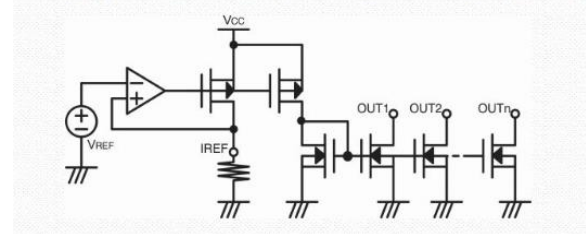


Figure :Comparing three LED driver circuits

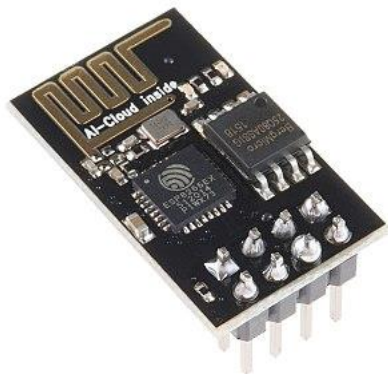
ESP8266 WIFI

The **ESP8266** is a low-cost [Wi-Fi](#) microchip with full [TCP/IP stack](#) and [microcontroller](#) capability produced by

Shanghai-based Chinese manufacturer, Espressif Systems.^[1]

The chip first came to the attention of western [makers](#) in August 2014 with the **ESP-01** module, made by a third-party manufacturer, Ai-Thinker. This small module allows microcontrollers to connect to a Wi-Fi network and make simple TCP/IP connections using [Hayes](#)-style commands. However, at the time there was almost no English-language documentation on the chip and the commands it accepted.^[2] The very low price and the fact that there were very few external components on the module which suggested that it could eventually be very inexpensive in volume, attracted many hackers to explore the module, chip, and the software on it, as well as to translate the Chinese documentation.^[3]

The **ESP8285** is an ESP8266 with 1 MiB of built-in flash, allowing for single-chip devices capable of connecting to Wi-Fi.^[4]



IV. PROJECT DESCRIPTION

This project proposes the design of dot matrix led display using Micro Controller.

BLOCK DIAGRAM:

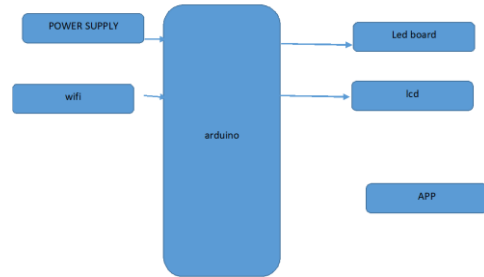


Fig 6.1 block diagram

WORKING:

In our project we use power supply, Arduino UNO, LED module, wifi esp8266 and mobile application. After uploading the program in Arduino UNO, we will give them external power supply. Due to that all functions of equipment's are on. At that time, we will pass the notice/SMS which we want using mobile. Then this notice/SMS will receive by Bluetooth. And by using Arduino this notice/SMS will display on digital notice board.

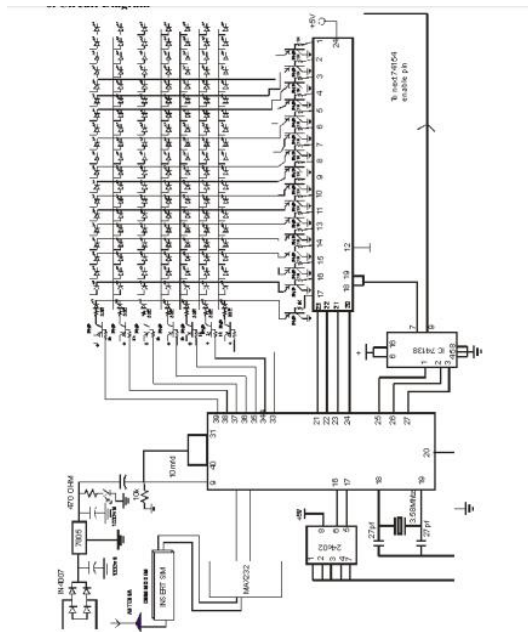
APPLICATIONS

1. In Industry 2. In Offices 3. In college 4. In Hotel

FUTURE SCOPE

1. This proposed system has many upcoming applications in educational institutions and organizations, crime prevention, traffic management, railways, advertisements etc.

CIRCUIT DIAGRAM



V. CONCLUSION

As the technology is advancing every day the display board systems are moving from Normal handwriting display to digital display. Further to Wireless display units. This project develops a wireless notice board system with Bluetooth connected to it, which displays the desired message of the user through an SMS in a most populated or crowded places. Here 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 and with less errors and maintenance.

REFERENCES

- [1] Ramya R, Bavithra N, Priyanka M “Wireless Enotice board using Bluetooth technology”, IJERT 2018.
- [2] Dharmendra Kumar Sharma, Vineet Tiwari, Krishnan Kumar, et.al, “Small and Medium Range Wireless Electronics Notice Board using Bluetooth and Zig Bee”, IEEE INDICON 2015.
- [3] M. Abila Mary, B. Pavithra, R. Sangeetha, Prof.T.C. Subbu Lakshmi “GSM based wireless noticeboards using Arduino”, IJARTET 2019.
- [4] Pooja Pawar, Suvarna Langade, Mohini Bandgar “IOT Based Digital Notice Board using Arduino ATMega328”, IRJET 2019.

[5] Pallavi M. Banait, Nikita P. Bakale, Mayuri S. Dhakulkar, Bhushan S. Rakhonde “Cost effective Android based wireless notice board”, IJETER 2018.

[6] Gaurav Bhardwaj, Gunjan Sahu, Rajan Kumar Mishra “IOT based smart notice board”, IJERT 2020.

[7] M. Arun, P. Monika, G. Lavanya 2016 “Raspberry Pi Controlled Smart e-Notice board using Arduino”, IJCAT 2016.

[8] Aliya Farooquie, Aishwarya sakhre, Balaji Bomade, Madhavi badole, Ashwini Ughade “Design and Implementation of Wireless Notice Board Display based on Arduino and Bluetooth Technology”, IOSRJEN 2019.