

SMART NOTICE BOARD

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Abstract - The notice board is now commonly used in an excessive manner. These notice boards can be used in a variety of settings, such as educational institutions, stations, and so on, to display notices or information to those who require it. As technology progressed, so did the amount of time people spent using it. As a result, a standard notice board can be replaced with a digital notice board, which entails the conversion of analogue to digital systems, such as Wi-Fi systems. Because the internet connects the entire world, we primarily built on the Wi-Fi module. We can send a message to a digital notice board in a wireless communication by using a website. We are aiming to digitalize the information in order to avoid the need of manual work performed by a separate individual. The major goal is to be able to change the message displayed on the LED screen by sitting anywhere.

Key Words: Arduino board, Wi-Fi module, LED matrix, Interface.

1.INTRODUCTION

The main purpose of this paper is to develop a wireless notice board that display message or the information sent from the user through a simple interface and which displays it on LED screen[1]. To originate a Wi-Fi driven automatic display Board which can replace the presently used paper based notice board and conventional notice boards. So this document gives us clear idea of how to change the contents of Digital display using Wi-Fi. So for that we use some Embedded as well as communication idea and using Arduino board we try to implement our system. In earlier days people used the paper as the medium to convey any message and printed paper is used to display on a notice board. These conventional notice boards are not so connected for the changes in the message which is to be displayed. Also needs huge amount of time, resources and manpower. Notice boards are one amongst the mainly used ones, which are ranging from primary schools to major organizations to convey information. Individuals using these notice boards through wireless communication can interconnect with people easily and it requires less amount of time. Wi-Fi network has been used to give a wide area network that permits to transfer the information into text message through LED display that acts as a notice board[2].

2. 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[3]. 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.

3. 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[4]. 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.

3.1 IMPLEMENTATION

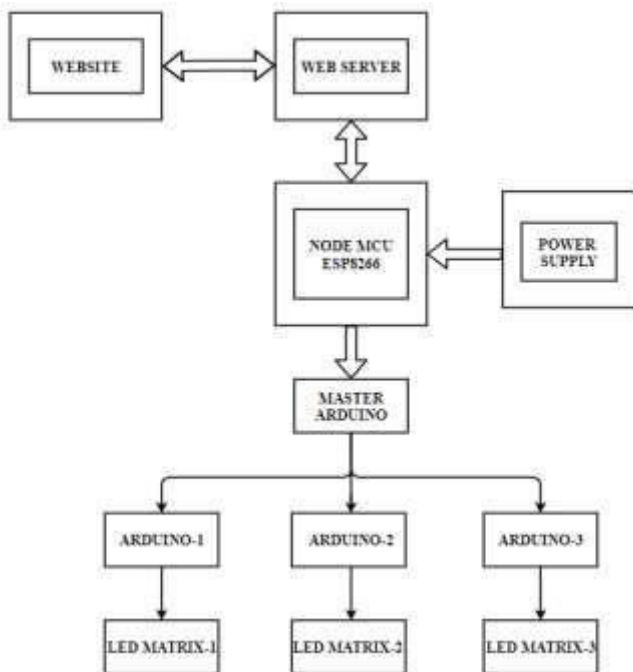


Fig-1: Block Diagram of Wireless Digital Notice Board

3.2 NODE MCU

NodeMCU is an IoT Module based on ESP8266 Wi-Fi Module. It uses Lua Scripting language and is an open source Internet of Things (IoT) platform. This module has CH340g USB to TTL IC. **Features:-** Open source IoT Platform, Easily Programmable, Low cost & Easy to Implement, WI-FI enabled.



Fig -2:ESP8266 Wi-Fi Module

3.3 LED DOT MATRIX DISPLAY MODULE

The MAX7219 is combined with a series of input and output common cathode display driver, it is connected to a microprocessor. LED matrix can also be linked to the bar graph display. MAX7219 also permits the user to select on each data coding or non-coding. Simply an LED Matrix is connected to multiplexer. **Features:-** A single module can operate an 8X8 common cathode lattice, Module voltage: 5V, Module size: 5 cm in length x 3.2 cm in width x 1.5 cm.

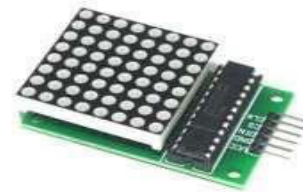


Fig-3: 8 x 8 LED Dot Matrix

3.4 JUMPER WIRES

A jumper is an electrical wire, or group of them in a cable, which have a connector or pin at each end and it is normally used for making connections between items on your breadboard and your Arduino's header pins. In our paper we used to connect LED matrix and Wi-Fi module for this purpose.



Fig-5: Jumper Wires

3.5 POWER SUPPLY

In this we use a synchronized 5V, 500 Ma power supply. It requires a 2.5A power supply to run the Arduino. Mainly power supply is given to the pin at Wi-Fi module.

4. APPLICATIONS

- This can be used in school, colleges and universities to display student's results, events and important notices.
- Also used in hotels to display welcome message and costs of all items etc.
- In Banks these are used to display special offers, new plans and various services of them.
- In Airports these are used to display the arrival and departure timings of planes and special messages.

5. RESULTS AND DISCUSSION

The proposed system was successfully tested to denote its effectiveness and achievability. It basically reduces the paperwork, manpower and time for any individual. In this paper personal computer and android application are used as a transmitter and Wi-Fi module is used as a receiver. The sender and the receiver are interfaced through a wireless Network Display that is connected at the receiver end. After establishing the connection the data can be displayed on the LED screen. The result will be displayed as follows:



Fig-6: webpage with text Hii to be displayed on Board



Fig -7: Output on Smart Notice Board as Hii

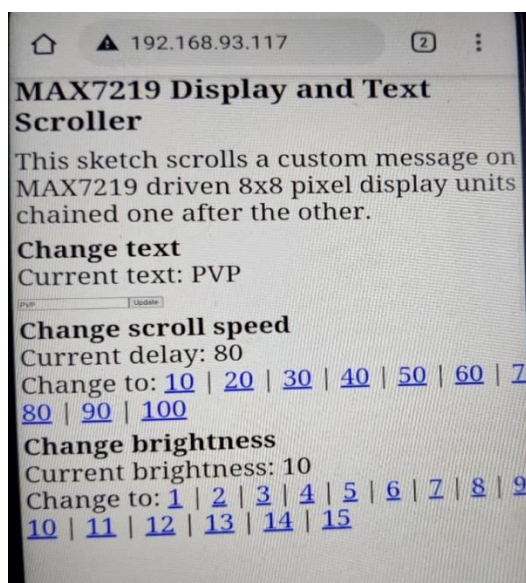


Fig-8: Webpage with changing the text on Board from Hii to PVP.

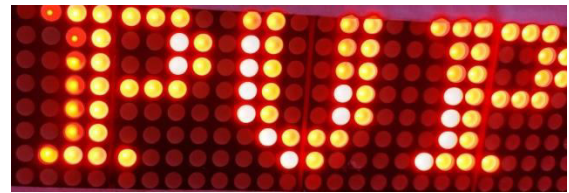


Fig-9: The Output displayed on Smart Notice Board as PVP.

6. CONCLUSION

Wireless operations enable numerous services that would be impossible to perform with cables, such as long-term communications. It allows for rapid message transmission and is very inexpensive to install and operate. This paper demonstrates how to use wireless technology to show information or a message on a notice board in an efficient manner. It also has user authentication to prevent the system from being abused. It completely eliminates the usage of paper in the display of alerts, and the information can be updated in real time.

7. REFERENCES

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