

Wireless Digital Notice Board Using Cloud Platform

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Abstract-wireless digital display notice board is used in railway stations or various public utility places it can be also used in institutions or organization etc. but, sending notices day to day is a heavy process. This paper deals with advanced notice board. In Our proposed system the user will enable to transmit notices wirelessly on a notice board using Controller NodeMcu having Wi-Fi Module with smart phone and users get auto notification using cloud. Its operation is based on microcontroller NodeMcu .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.

Keywords: Wi-Fi, Authentication, NodeMcu, cloud, Android phone.

To realize the proposed digital notice board on cloud platform, we have developed following prototype model. It consists of NodeMcu which have in built Wi-Fi Module. Mobile phone and LED Matrix is used for testing the proposed model. NodeMCU is a firmware that allows you to program the ESP8266 modules with LUA script. It is very similar to the way you program Arduino. With just a few lines of code you can establish a Wi-Fi connection, control the ESP8266 GPIOs, turning your ESP8266 into a web server and a lot more .The Controller will be connected to the internet through Wi-Fi module. The user will send the notice through internet from the smart phone. The NodeMcu will read that notice from the internet and display it on the notice board. The data will also be uploaded on cloud and other user will also be connected to the cloud. This enables the multiple users to operate the digital notice board.

2. LITERATURE SURVEY

Existing System:

In the current scenario the notice/advertisement boards are being managed manually. This is a time consuming task to put up notices on the notice board. This wastes a lot of resources like paper, printer ink, man power and also brings about loss of 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 supports international roaming capability of GSM, so we can send message to receiver from any part of the world that's why extra charges are required.

1. INTRODUCTION

1. Neeraj Khera et.all in [1] proposed “**Development of Simple and Low Cost Android Based Wireless Notice Board**”. The proposed system uses either Bluetooth or Wi-Fi based wireless serial data communication in displaying messages on a remote digital notice board. In this 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. This system can be used in various applications like banking, schools, restaurants offices, hospitals, score boards for sports etc. The voice calling feature can be added with the proposed system as a further enhancement for using the system in railways, airport or bus stations.

2. Yash Teckchandani et.all [2] described “**Large Screen Wireless Notice Display System**” with an aim to increase the usability of electronic notice board, deals with wireless reception and display of message using Raspberry Pi. Practically, all output resolution are supported .This paper presents a way to incorporate messages in HTML script. It offers an edge over other notice boards because of features such as customizable font size, color and background color. The size of the screen, a major limitation of other methods, is overcome by this system.

3. Dharmendra Kumar Sharma et.all [3] suggested “**Small and Medium Range Wireless Electronic Notice Board using Bluetooth and Zig Bee**” 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. In this project a low cost, office/ industry usable, portable wireless notice board has been successfully developed. the graphical LCD displays transmitted character and its functionality satisfies all definitions of notice board.

4. Kruthika Simha et.all [4] proposed “**electronic notice board with multiple output display**” aims at iterating the results of a project focused on developing a wireless electronic notice board, which offers the flexibility to control information display within a given range on multiple displays. The notice board will display information being transmitted to it from a central controlling unit, using a serial communication protocol.

3. BLOCK DIAGRAM AND DESCRIPTION :

3.1. Block Diagram :

The block diagram of proposed system is as shown in fig 3.1. the system will be divided into three parts
 1.input section having user, input from android phone.
 2.Cloud :To store notices.. 3.output section having push notification to connected user, LED matrix, NodeMcu.

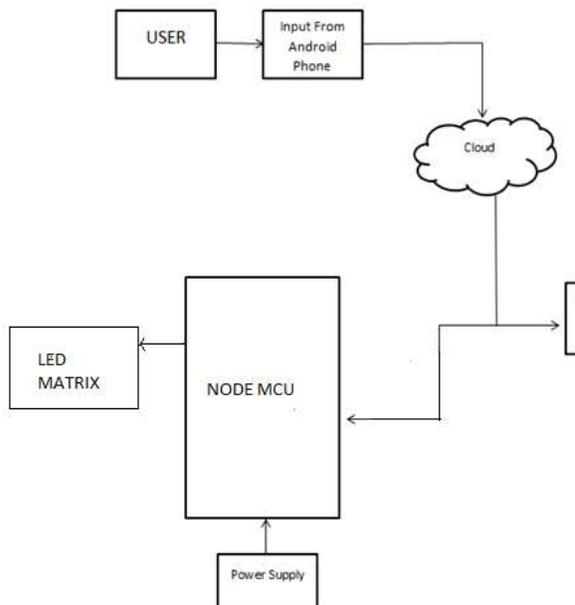


Fig 3.1: Block diagram of Wireless Digital Notice Board Using Cloud Platform.

3.2. Block Diagram Description :

The user enters the message in the phone as the phone is connected to the internet the message is uploaded on the cloud. At the notice board side the controller is also connected to the Cloud. There will be password protection at the user side which will only allow the authorized users to send message to the notice board and the message or notice that are send by the user it will display on the LED matrix display board.

3.2.1. User Login:

This login module is similar to whats app login screen. So the unique identifier for each user and password for log in.



Fig 3.2. User login module

3.2.2. Notice Post:

Here the administrator types the notice which is to be displayed on Notice Board. He then posts the notice. This message is typed through his/her android phone, the message is then transferred wirelessly and displayed on the screen. We also use a Wi-Fi receiver to get the android transmitted messages, decode them and send them to the controller for further processing. The microcontroller then displays the message on the LED matrix screen.

3.2.3. Cloud:

The data needs to be uploaded to a network of connected servers which run applications Such a network is commonly referred to as the ‘cloud’.An object will connect to the cloud through a Internet connection to upload or receive data.The cloud that can be used stored web-contained data.

3.2.4 NodeMcu:

NodeMCU is a firmware that allows you to program the ESP8266 modules with LUA script. And you’ll find it very similar to the way you program your Arduino. With just a few lines of code you can establish a WiFi connection, control the ESP8266 GPIOs, turning your ESP8266 into a web server and a lot more.

3.2.5 Wi-Fi Module (ESP8266EX):

Wi-Fi is a technology for wireless local area networking with devices based on the IEEE 802.11 standards. The ESP8266 is the name of a micro controller designed by Espressif Systems. The ESP8266 itself is a self-contained WiFi networking solution offering as a bridge from existing micro controller to WiFi and is also capable of running self-contained applications. This module comes with a built in USB connector and a rich assortment of pin-outs. With a micro USB cable, you can connect NodeMCU devkit to your laptop and flash it without any trouble, just like Arduino. It is also immediately breadboard friendly.

3.2.6. LED matrix(8*8):

LED matrix's are used for display messages, you can create funky patterns, scroll messages, or something entirely bizarre. Each matrix has 128 LEDs (64 Red & 64 Green) however there is noticeably not 256 leads.

3.2.7. Auto Notification:

once the user enters the desired notice on LED matrix at that time The auto notification will be updated on android phone of connected user to cloud.

4. WORKING FLOWCHART:

1. Initialize the system.
2. Enter the IP address.
3. Enter the log in ID and Password.
4. Type the desired notice and press submit button.
5. The notice will be displayed on rolling notice board.
6. The backup data will be stored in cloud.
7. Logout from the system.

5. PROPOSED THEROTICAL RESULTS

5.1 user log in module



Fig 5.1 Input window

The input window in which system will ask authenticated user to enter login ID and password to send text on notice board.

5.2 Text window



Fig. 5.2. Enter the text window.

The next window will open for user to enter desired text.

5.3 .Rolling Display:



Fig 5.3: Rolling Display

now there will be four 8*8 LED display which will display notices continuously.

5.2 Advantages

1. For transmitting wireless message system use Wi-Fi module.
2. System uses mobile technology and wireless communication so cost of system is less.
3. Use of system is easy, for delivering message or information mobile module is used and display it on LED matrix.
4. Backup data can be stored in cloud.
5. Real time communication is possible.

5.3. Applications

1. Display Boards on Public Places.
2. Smart Cities.
3. Smart Colleges
4. Railway Station

6. CONCLUSION

The proposed system accepts the message, stores it, validates and displays it on the LED board. LED boards are used to display messages in Railway stations, shopping malls for displaying advertisement, Educational institution and organizations, managing traffic in smart cities and other public utility places. Cost of printing and photocopying is also reduced because the information can be delivered to a large number of people in a very short time. It provides faster transfer of information and are easy to install and maintain. It provides an efficient way of displaying messages on Notice Board and also get auto notifications using Wireless Technology. It also provides user to easily receive the important information or message.

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