

Smart Wireless Notice Board using IoT

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Abstract-The notice boards are being handled manually in many applications. In order to put up notices on the notice board lot of resources such as paper, printer ink are wasted and addition it consumes a lot of time to make notification. In this project we have proposed a system to wirelessly transmit short notices using campus Wi-Fi to reach students quickly in the classrooms. The proposed system is low cost and energy efficient system as employs Raspberry pi controller to receive notices and display. Therefore, new technologies where interested based on automatic systems to reduce the efforts and make notice board. We implement automatic e-notice board on wireless standard technology. In our project, we design the system using Arduino. Our e-notice board is totally voice operated. Voice based notice board based on android system is most helpful in various organisation. Where emergency announcement can be displayed instantly just by speaking out the entire messages. Emergencies apart, this system has provided to be very user friendly. It also eliminates the option of printing out notice and saving tons of paper which initially used to display information. Another advantage is that messages are disclosed in a matter of seconds literature, once typed without any delay in their transmission. As long as an appropriate networks coverage is maintained. Message can be sent to any area in the world. Modern times brings with modern digital advertisement system too.

Keywords - Notice Board, Voice operated, Voice based notice board, Android system, Wi-Fi, Arduino

I. INTRODUCTION

These Notice Boards are a part of communication in any institutions or organizations which are used to display any notification that reach quickly to intended persons. In the current scenario the notice boards can be digitally managed due to advanced wireless technology and can be remotely controlled. User has to make voice announcements anywhere in the campus as required or sent messages which is displayed on electronic notice board placed at required location. It means user doesn't have to go near the electronic notice board to change the message. Wireless communication technique used in this project is Wi-Fi technology. Microcontroller receives these commands.

Bluetooth on short range or Wi-Fi with hotspot. Electronic notice boards using Bluetooth technology have also been implemented but it is compatible only for low bandwidth applications. Bluetooth bandwidth is around 800 Kbps. The average range is around 10-100 meters which is very less compared to the Wi-Fi technology. It operates at frequencies between 2400 and 2483.5 MHz. For message display using the GSM technology, the message received from mobile phone is displayed on LCD. Here the data can be lost in case of power failure. The range is around 880-915 MHz (uplink) and 925-960 MHz (downlink), whereas for wireless networks, it has a better average range of around 2.4 GHz. In GSM the data speed is comparatively lower and more expensive. Wi-Fi provides the widest channel bandwidth and allows large data transfer. The comparison of the above parameters leads us to select Wi-Fi technology for our proposed system. We use Raspberry Pi development board in our project that is easily programmable. The advantage of proposed notice board is that for announcement it employs Wi-Fi network within the campus and announcement can also be made from outside the campus using internet by using efficient protocols such as COAP, WebIOPi framework, packet forwarding mechanism.

II. EXISTING SYSTEM

Notice Board is primary thing in any institution / organization or public utility places like bus stations, railway stations and parks. But sticking various notices day-to-day is a difficult process. A separate person is required to take care of this notices display. This project deals about an advanced hi-tech wireless notice board. Zigbee is a PAN technology based on the IEEE 802.15.4 standard. Unlike Bluetooth or wireless USB devices, ZigBee devices have the ability to form a mesh network between nodes. Meshing is a type of daisy chaining from one device to another. This technique allows the short range of an individual node to be expanded and multiplied, covering a much larger area. The project is built around the AT89S52 micro controller from Atmel. This micro

controller provides all the functionality of the display and wireless control. It also takes care of creating different display effects for given text. Alphanumerical keypad is interfaced to the transmitter to type the data and transmit. The message can be transmitted to multi point receivers. After entering the text, the user can disconnect the keyboard. At any time the user can add or remove or alter the text according to his requirement.

III. PROPOSED SYSTEM

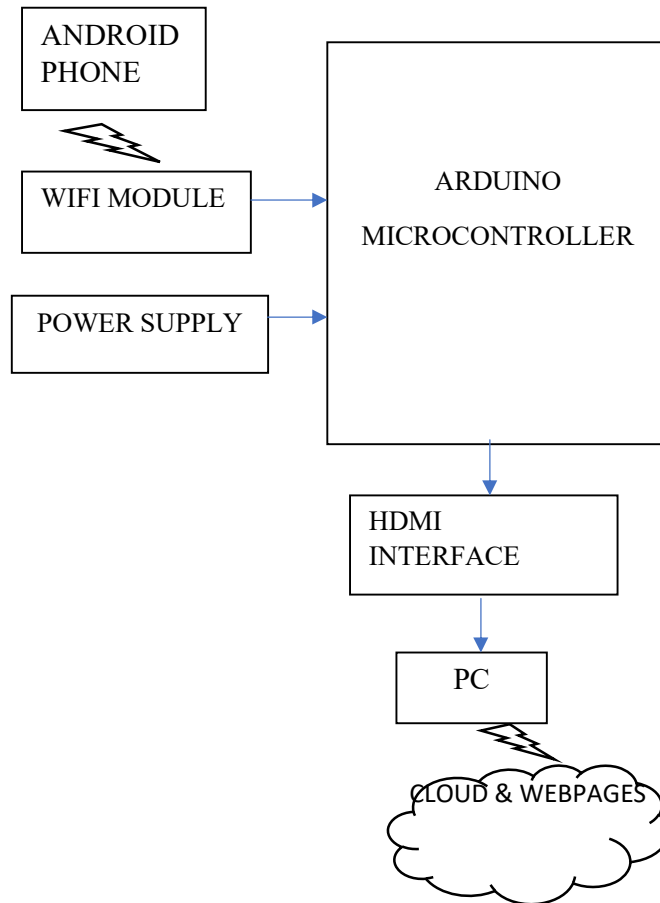


Fig 1: Block diagram of Proposed System

Our proposed model consists of two modules i.e. Transmitters and Receivers module. The transmitter module consists of interfacing computer or smart phone and connected with Wi-Fi connectivity. The receiver module placed at the remote end also has Wi-Fi connectivity to micro-controller with display device. Here Arduino is connected to the Internet with the help of a wireless adapter. Raspbian Jessie is installed and SSH client is used to securely connect to Arduino through the available IP address. The converted text message sent from smart phone has to be displayed on display connected to controller terminal.

Arduino with display will be installed in the class rooms of college campus. A separate navigation website is to be developed for accessing the other webservers present in the Local Area Network (LAN). This enables the user who has logged in to select a particular region in which the notice has to be displayed. Any authenticated user can log in and make an announcement and select the destination. The notice will be displayed on the terminal. access control to only authorized users. A log-in page is created using HTML and used to provide access to the Notification system if authorized. A user log-in database is created using MySQL. Consequently, when a user enters username and password, the data entered is verified with the data stored in the database. When the information entered in the log-in page matches with the data stored in the database, the user is redirected to another webpage where the user can click on the required class room block button which redirects to record a notice to be sent. The server encrypts output and python code is used to parse the notification from the received output.

IV. SIMULATION

SIMULATION DIAGRAM :

MODE 1: Simulation diagram of proposed system

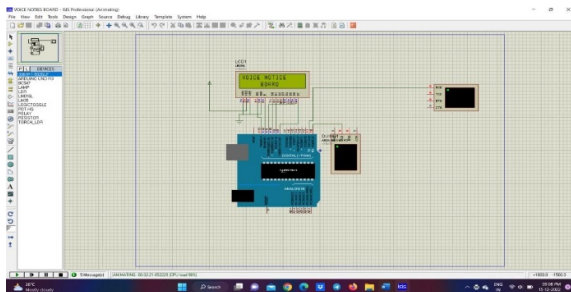


Fig 2: Simulation diagram of proposed system.

MODE 2: Virtual Terminal of Transmitter.

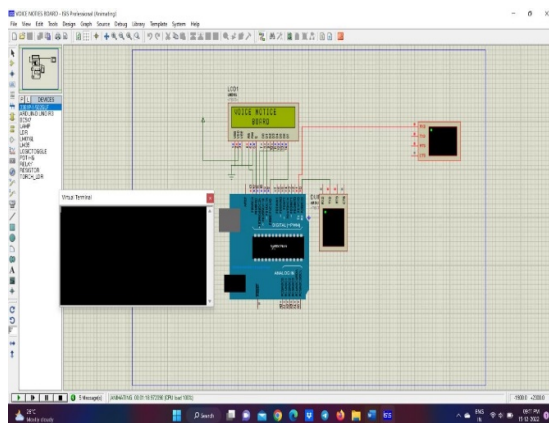


Fig 3: Virtual Terminal of Transmitter

V. HARDWARE IMPLEMENTATION

NodeMCU is an open-source Lua based firmware and improvement board uniquely focused on for IoT based applications. It remembers firmware that runs for the ESP8266 and equipment which depends on the ESP-12 module. The LCD display is used here. It uses the light modulating properties of liquid crystals. Liquid crystals do not emit light directly. Atmega328P is one of the most advanced microcontroller from microchip. It is used as an comparator to compare the input reference voltage and output voltage to provide linear output.



The input is given in the transmitter side (in Android) by using app and the output is displayed in the receiver side(in LCD monitor).

VI.CONCLUSION

Thus, in this paper the advancement of the notice board is proposed. It helps to save the time and resources. It helps us to make the information available instantly to the intended person. This system can be used in various applications like banking, schools, restaurants offices, hospitals, score boards for sports etc. This technical paper, we discuss about the enormous possibilities of the digitalised advertisement system in this modern times. The prototype is very efficient as the components used are very simple and easily available in the market. This can be deployed commercially at places such as colleges, banks, railway station and in industry for flashing notifications. It would be a cost effective solution because in most of the places WiFi and internet is available now. Along with the message notification, date and time of ongoing events can be flashed timely.

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