

Digital Notice Board Using Raspberry Pi

Dr. Narendra Bawne, Amruta Nimbalkar, Dipika Dubey, Rahil Khan
Department of Electronics and Communication Engineering
Jhulelal Institute of Technology, Nagpur

Abstract: Notice Board is primary thing in any institution or public utility places like bus stations, railway stations, colleges, malls, etc. 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 is about advanced wireless notice board. The project is built around raspberry-pi. Display is obtained on projector. A Wi-Fi is using for Data transmission. At any time we can add or re- move or alter the text according to our requirement. At transmitter authorized PC is used for sending notices. At receiving end Wi-Fi is connected to raspberry pi. When an authorized user sends a notice from his system, it is received by receiver. Wireless is a popular technology that allows an electronic device to exchange data wirelessly over a computer network, including high speed wireless connections. The data is received from authenticated user. Then it sends to raspberry pi.

Keywords: Android System, Web Server, Raspberry pi Card, Electronics Component.

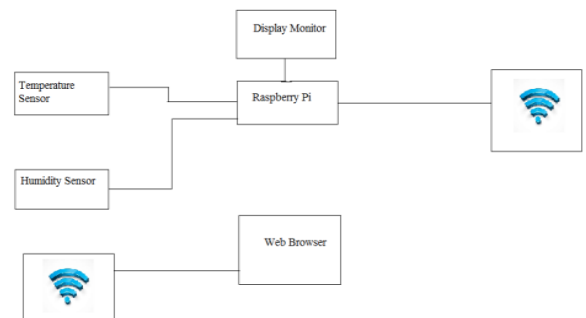
I. INTRODUCTION

Now a day, people are becoming accustomed to easy access to information. Whether it's through the internet or television, people want themselves to be updated with the latest events happening around the world. In today's world people prefer wireless connection because they can interact with people easily and it require less time. The main motive behind this project is to develop a wireless digital notice board that displays message sent from the authorized user and to design a simple, easy to install, user friendly system, which can receive and display notice in a particular order with respect to date and time which will help the user to easily keep the track of notice board each time he uses the system. Design and Implementation of Digital notice board by using raspberry pi board. The application which will be used by users has been installed on a Smartphone, a web server and a raspberry pi card to display text on display device. The main objective of this system is to develop a wireless digital 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 order with respect to date and time which will help the user to easily keep the track of notice board every day and each time he/she uses the system.

II. FUNCTIONAL BLOCK DIAGRAM AND DESCRIPTION

The Functional Block diagram of the entire system is as shown in the Figure .

Figure 1. Functional Block Diagram



All the major subsystem blocks are shown with their interconnections to each module The block diagram consists of Temperature Sensor ,Humidity Sensor, raspberry pi, web browser, Wifi module.

A. Wi-Fi Module

It's a wireless network which uses radio waves, just like cell phones, televisions and radios do. In fact, communication across a wireless network is a lot similar like two-way radio communication. The Working of the same is elaborated as mentioned: 1. Computer's wireless adapter translates data into a radio signal and then transmits it using an antenna. 2. A wireless router receives the signal and decodes it, the router then sends the information to the Public Network i.e. Internet using a physical, wired Ethernet connection. The process is also able to work in reverse manner meaning that the router receiving information from the Internet then translating it into a radio signal and sending it to the computer's wireless adapter.

B. Temperature and humidity module



DHT11 digital temperature and humidity sensor is a composite Sensor contains a calibrated digital signal output of the temperature and humidity. Application of a dedicated digital module collection technology and the temperature and humidity sensing technology, to ensure that the product has high reliability and excellent long-term stability. The sensor includes a resistive sense of wet components and an NTC temperature measurement devices, and connected with a high-performance 8-bit microcontroller.

c. LCD Monitor

An electronic device used for displaying notices on it. It varies in size depending on the place or area where it is installed, after the approval of notice it's the LCD which shows the intended notice to its recipient through the help of raspberry pi.

D. Raspberry Pi

The solution that we have come across consists of the exploitation of the Raspberry pi card. It is a single nano computer card or we can say series of single board computers which looks very similar to credit card when compared on the basis of size. ARM based is designed by designer David Braben, as part of its foundation "Raspberry pi".

III. LITERATURE SURVEY

Vinod B. Jadhav, Tejas S. Nagwanshi, Yogesh P. Patil, Deepak R. Patil at (2016) [1]

had propose a remotely send notice to Digital Monitor from authorized PC on Raspberry pi card. A Wi-Fi is using for Data transmission. At any time we can add or remove or alter the text according to our requirement. A transmitter authorized PC is used for sending a notices. At receiving end Wi-Fi is connected to raspberry pi. When an authorized user sends a notice from his system, it is received by receiver. Wireless is a popular technology that allows an electronic device to exchange data wirelessly over a computer network, including high speed wireless connections. The data is received from authenticated user.

S. Arulmurugan, S. Anitha, A. Priyanga, S. Sangeethapriya at (2016) [2]

Notice boards is commonly used in variety of institutions which we come across in a daily basis. In the present generation the advertisement notice boards are being managed manually. This process is difficult to involve in order putting a notices on the notice board. This waste a lot of things like paper printer ink, manpower and also brings the loss of time. In this paper we have proposed a system through wireless transmit notices on a notice board using Wi-Fi. Wi-Fi can pass information for about 100 meter distance Wi-Fi data rate has 1 or 2 Mbps. It accesses numerous point and to support network interfaces. It also makes the system compatible with more than one wireless technology. This paper describes the Wi-Fi based LCD display.

Jaydeep Raiyani, Mr. Dharmish Dalsaniya at (2014) [3]

in his document gives Basic instructions for Digital signage system using Wi-Fi. This gives basic introduction how to operate with Digital Display wirelessly. In recent days we have digital signage system which basically need to change their contents using pen drive or using internet but this gives introduction How to play with digital signage system wirelessly and enjoy good advertisement.

Ajinkya Gaikwad, Tej Kapadia,

Manan Lakhani, Deepak Karia at (2013) [4]

Notice Boards are a common occurrence in variety of institutions which we come across on a daily basis. In the current scenario the notice/advertisement boards are being managed manually. There is a long process involved in order 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. In this paper we have proposed a system which will enable people to wirelessly transmit notices on a notice board using Zigbee. In this paper we have proposed a system by which only authorized people can access the notice board using a graphical user interface. We can also make the system compatible with more than one wireless technology.

Bhumi Merai, Rohit Jain, Ruby Mishra at (2015) [5]

Notice board is primary thing in any institution or organization or public utility places like bus stops, railway stations or parks. But sending various notices day to day is a tedious process. This project deals with advanced notice board. It presents an SMS based notice board incorporating the widely used GSM to facilitate the communication of displaying message on notice board via user's mobile phone. Its operation is based on microcontroller AT89c52 programmed in assembly language. A SIM300 GSM modem with a SIM card is interfaced to the ports of the microcontroller with the help of AT commands. When the user sends a SMS via a registered number from his mobile phone, it is received by SIM300 GSM modem at

the receivers end. SIM300 is duly interfaced to the microcontroller.

The message is thus fetched into the microcontroller. It is further displayed on an electronic notice board which is equipped with LCD display interfaced to microprocessor powered by a regulated power supply from mains. This project is our experiment on real time noticing.

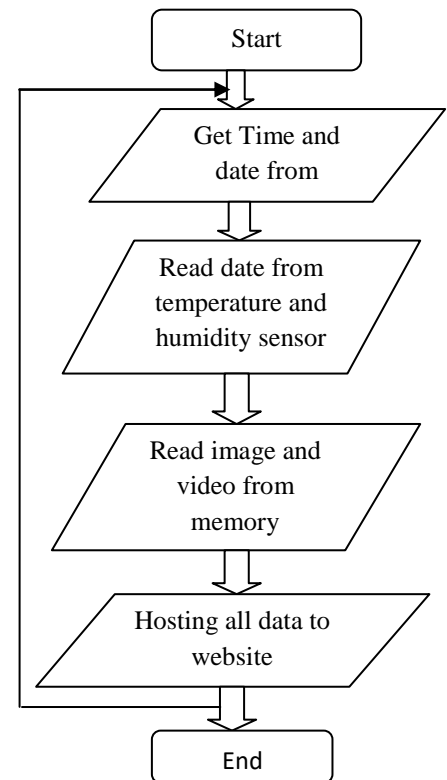
Anushree S P, Divyashree v Bhat, Moonish G A, Venkatesh U C (2014)[6]

Many state-of-the-art and cutting-edge universities in the world rely on wooden notice board hanging on the wall to display announcements. The overreliance of this practice in a university is still not enough to pass relevant information around as many problems are encountered. We consider the case study of professional collages.

where information is a vital key for knowing the updates of the campus. The goal of this paper is to provide the access to notices and articles quickly not only within the college premises, also wherever and whenever they need to know. Also it looks at the development of the existing notice boards, making it run by the internet access or by local area network (LAN) so as to increase the rate at which relevant information is being disseminated to the public with no location restriction. The major strength of the Electronic Notice Board developed, which is an online web application is that, its usability is fully capable of passing relevant notices and announcements, and keeping the users updated from time to time. The user is kept updated each time the E-Notice Board is uploaded based on their preferences with respect to the departments and categories through a SMS. Also the users can view the notices and articles anytime and from anywhere by opening the web application E-Notice Board which is available online and this makes our project highly efficient and effective.

IV. PROPOSED SYSTEM

The proposed system includes how our project is built around ARM controller raspberry-pi which is heart of the system. Display is obtained on monitor. A Wi-Fi is used for data transmission. At any time being anywhere we can add or remove or alter the text according to our requirements. The document to be displayed on notice board can be of any format like .docx or .pdf file. The interesting part of our project is we can even display images and clips/videos on the screen as well as we can set timer for individual notice.



V. CONCLUSION

A. Now the world is moving towards automation, so in this world, if we want to do some changes in the previously used system, we have to use the new techniques.

B. Wireless operation provides fast transmission over long range communication.

C. It saves resources and time. Data can be sent from remote location. User authentication is provided. Previously the notice board using GSM was used in that there was the limit of messages but in our system Multimedia data can be stored on chip or on SD card. Text messages and multimedia data can be seen whenever we want to see.

D. The proposed system can further be extended to provide the notices from longer distances by providing the internet connectivity which will allow the system to update notices anywhere in the world.

E. 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 are cheaper to install and maintain. This paper provides an efficient way of displaying messages on Notice Board using Wireless Technology. It also provides user authentication in order to avoid any misuse of proposed system.

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