

Smart Electronic Notice Board

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Abstract- Notice boards are playing a very important role in our day to day life. Normally, all the important notices are displayed on the notice board. Notice board has become an important thing in institutes/organization or public places like railway station, bus stands and hospitals. Universities in the country rely on wooden notice boards hanging on the wall to display notice. But to use the paper notices stacked on a notice board is a time taking and expensive process and there is wastage of lot of time, paper and labor. So, in this paper we have introduced a new technique called as Smart Electronics Notice Board. In this digital notice board, the admin can control notice board through the internet. Due to this information can be sent anywhere in the world and can be displayed within seconds. Information displayed will be in the form of text. This system uses Bluetooth based wireless serial data communication. PC is used for sending information and Raspberry Pi is connected to the internet at the receiving side. Notices will be displayed on the monitor.

Keywords- Digital Notice Board and Mobile Phone, Internet of things, Raspberry pi, Wi-Fi.

I. INTRODUCTION

A Notice Board is a place where people can leave public messages, for example, to advertise things to buy or sell, announce events, or provide information. To make a notice much easier in a paperless community as the world tends to graduate into that line of interaction. [1]. Notice boards are often made of a material such as cork to facilitate addition and removal of paper messages or it can be placed on digital devices such as computers, phones. The main aim of this paper is to make information much easier in a paperless community [2]. The inclination of making the manually controlled things automatic has become a common practice these days and make our life better. Making things automatic reduces burden on the humans. The time utilized and the effort used in manually controlled processes is much higher than the automated systems. In many institutes, we still use manual way of putting the important notices, class examination schedules, results, and any type of image, etc in the notice boards. This manual system needs more effort and time to get the written announcements from the faculty and then put it on the notice board. In this paper, we have developed a Smart Notice Board

System [3]. Smart phones are playing very important role in human life. They are easy to use, promising and durable devices that help in performing today tasks. The proposed system uses either Bluetooth or Wi-Fi based wireless serial data communication in displaying messages on a manually digital notice board. [4]. There are lots of possibilities for them to miss out messages. To overcome such problem we implement digital notice board using Raspberry Pi [5].

We can see notice boards in various places like educational institutions, railway stations, shopping malls, bus stations, offices etc. and these boards are managed manually. It is a long process to put up notices on the notice board. Nowadays a separate person is needed to stick that information on the notice board. It is a place where people can leave public messages, for example, to advertise things to buy or sell, announce events, or provide information. It will lead to loss of time as well as usage of manpower. We know that information counts are endless. So there is a usage of a huge amount of paper for displaying those endless counts of the information.

The problems faced by the wooden or conventional type notice boards are resolved by the implementation of our digital notice board. It will bring an advanced means of passing notices around in the world in a much easier and efficient way. Due to the popularity of the internet, we choose the internet as a medium for transferring information. Raspberry Pi is the Heart of our system. A monitor is interfaced with Raspberry Pi. So the information in the form of text will be displayed on the screens. Our primary aim is to get more people's attention on the display. By the usage of high definition display devices, people can get more attention on the notice board rather than conventional notice boards. The conventional wireless notice board can display only texted messages. Since in Educational institutions the majority of information given from the higher authorities is in the form of text format hence displaying these types of information makes our system more user-friendly. Due to the utilization of the internet, the sender can send a message anywhere in the world.

II. LITERATURE SURVEY

Anushree S P et al [1] proposed a system in which authorized user can upload or send the notices in different categories and departments which is recommended and approved by the higher authorities. On approval, notices can be published in the E-Notice Board. It is then intimated to the cell phones through a SMS. Respective viewer will make best use out of it. If the user wants to know more about the message received, they can open the link which is provided within the message. There is a limitation of number of words. NeerajKhera et al[2] developed a simple and low cost small in size Android based wireless notice board. This proposed system uses either Bluetooth or Wi-Fi based wireless serial data communication. For Android based application programs Bluetooth and Wi-Fi communication between Android based personal digital assistant devices and remote wireless display board are used. It is the wireless notice board but is operated in the limited range.

Aniket Pramanik et al[3] proposed a digital notice board and a home automation system using which he can provide a two in one application: either home automation or digital notice board using GSM SIM900 module. They purposed this concept with a simple, fast and reliable way that means this concept is very simple and anybody can handle to put up or to write the important notices in an LCD where the user can send a message to be displayed in the LCD. The message can be sent through an android application designed in this project, to the GSM SIM900 module which has a SIM card inside it. Similarly, a home automation system has been developed where home appliances like light, fan etc. can be switched on or switched off using the same android application designed in this project.

Kruthika Simha et al [4] in this system he proposed iterating the results of a system focused on developing a wireless electronic notice board, which offers the flexibility or reliability to control information display within a given range. Means this system does not work in the wide range. But this system can display the notice on multiple displays. The notice board will display information being transmitted to it from a central controlling unit, using a serial communication protocol.

D. Sunitha et al [5] have developed a voice control, means this proposed system not only operated writing form but also controlled by our voice. It is the Bluetooth wireless android application for a notice board that displays the error free messages in limited coverage area and with good maintenance. This system can be used in colleges, schools, offices, railway stations, bus stations, and commercial as well

as local areas. The use of resources like pen, paper or man power is reduced with the use of this notice board.

Yash Teckchandani et al [6] proposed the system in the form of large screens like computer monitors or televisions or LCD display can be used for displaying notices sent as text messages with the help of mobile phone. The proposed method uses the HyperText Markup Language (HTML). To present the output since it offers many customization options. For high resolution output, the credit-card sized computer Raspberry pi has been used. HTML output can be displayed by a web browser running on the Raspberry pi. The notice to be displayed is sent as a Short Message Service (SMS), which is received by a Global System for Mobile Communications (GSM) modem.

III. BLOCK DIAGRAM AND IMPLEMENTATION

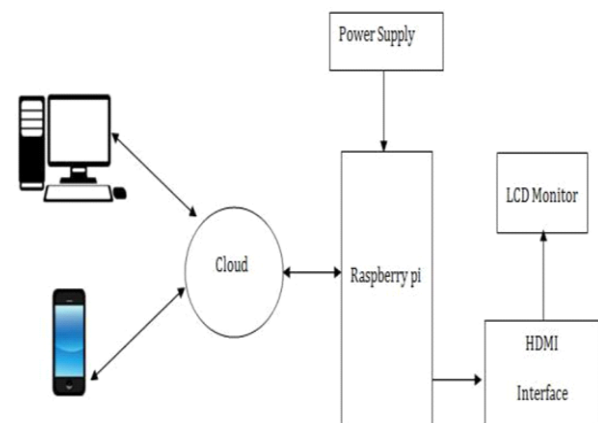


Figure: Block diagram of smart electronics notice board.

Components used in the smart electronics notice board are as follows

1. Desktop computer
2. Smart phone
3. Cloud
4. Raspberry pi
5. HDMI Interface
6. LCD monitor, etc.

Figure shows the block diagram of smart electronics notice board for the proposed system. The main aim of the system is to develop a wireless notice board that displays notices in the form of text, images, chart etc. There is no limitation of words in this system. The Raspberry Pi is used as a processor. Raspberry Pi is equipped or interfaced with a Portable Projector/LCD monitor or display. We can display messages and they can be easily set or changed from anywhere in the world. This is the main advantage of our

project. First of all we can write or type the notice with the help of monitor or smart phone. Then the system will send the message to the cloud. Then it passes to the notice board which is connected to the internet by Wi-Fi, internet, LAN, Bluetooth or any other internet connection. Then the signal is sent to the Raspberry- pi. Raspberry-pi is the low cost, credit-card sized computer that plugs into a computer monitor or TV, and uses a standard keyboard and mouse. The power supply is to give the supply or power to the raspberry-pi. The processor processes it and displays it on the screen. We can send the message to all the screens or the desired screen.

IV. HARDWARE DESCRIPTION

1. Raspberry Pi

The Raspberry Pi is the heart of the project. It is a small pocket size computer used to do small computing and networking operations. It is the main element in the field of internet of things. It provides access to the internet and hence the connection of automation system. Raspberry-pi is the low cost, credit-card sized computer that plugs into a computer monitor or TV, and uses a standard keyboard and mouse.

2. Power Supply

It gives supply to the raspberry-pi.

3. HDMI Interface

HDMI(High Definition Multimedia Interface) is a proprietary audio/video interface for transmitting uncompressed video data and compressed or uncompressed digital audio data from an HDMI-compliant source device, such as a display controller, to a compatible computer monitor, video projector, digital television, or digital audio device. HDMI is a digital replacement for analog video standards.



Figure: - HDMI interface

4. LCD Monitor

A liquid-crystal display (LCD) is a flat-panel display or other electronically modulated optical device that uses the light-modulating properties of liquid crystals. Liquid crystals do not emit light directly, instead using a backlight or reflector to produce images in color or monochrome. LCDs are used in a wide range of applications, including LCD televisions, computer monitors, instrument panels, aircraft cockpit displays, and indoor and outdoor signage.



Figure: - LCD monitor.

V. HARDWARE IMAGE

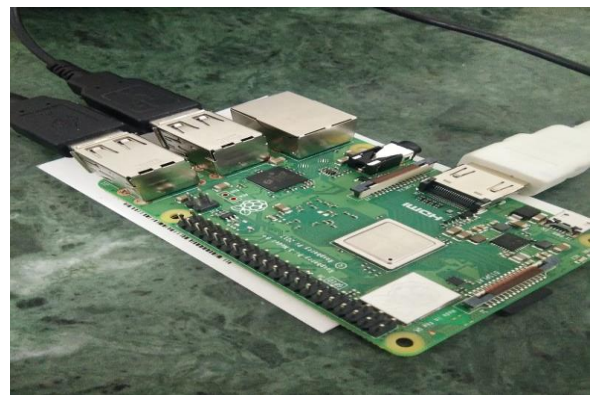


Figure: Hardware image.

VI. OUTPUT OF THE PROJECT

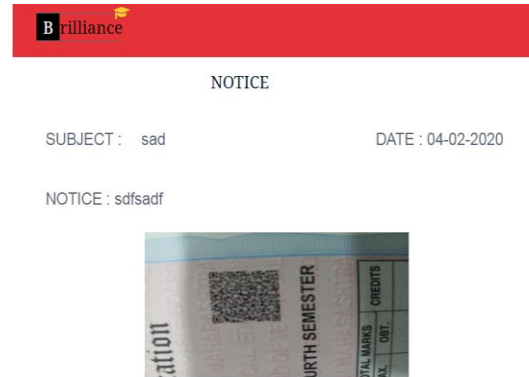
a) Login page



b) Welcome Page



f) History



c) Notice entering



ADVANTAGES:-

1. It reduces the complexity.
2. User friendly device.
3. Instant information updates - no need to walk round pinning up lots of notices or posters.
4. Environmentally friendly - reduce paper and printer toner usage and costs.
5. Simple mechanism is used.
6. More visual messages - visual messages stand out more and attract attention.
7. Live information - can link to other computer systems for live information.
8. Relevant notices - set an expiry date to ensure notices are only shown when relevant.

d) All notice displayed



DISADVANTAGES:-

1. Display Unit must have the network to receive the message wirelessly.
2. As there is no password any one can send the message to display.

e) Gallery



APPLICATIONS:-

1. The applications of wireless notice board mainly include public places like bus stands, railway stations, airports, shopping malls and parks to display the information wirelessly.
2. This project can be also used in organizations, schools and colleges.

VII. CONCLUSION

The Digital Notice Board System is a step forward to make the manual process of displaying the important notices, class time tables, results, any type of notice etc. automated in nature. As the world is moving towards digitalization, we need

to do some changes in the previously used system as we have to use the new techniques. Previously all the techniques for displaying notice board were manual where handwritten or paper printed notices would be displayed. Due to which it became a tedious task for user as well as notice giver to work on it. Wireless technology provides fast transmission over long-range data transmission. It saves time, cost of cables, and size of the system.

VIII. FUTURE SCOPE

The proposed system can be further extended to provide the notices from longer distances by providing internet connectivity which will allow the system to update notices anywhere in the world. Voice call can also be added for the emergency purposes at public places. Voice messages and buzzer can be included to indicate the arrival of new messages especially in educational institutions. It can also be utilized as a part of Malls and Highways for Advertisement reason.

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