Android Controlled Smart Notice Board with Virtual Assistant

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Abstract

Notice Boards are playing a vital role in the day to day life. By replacing conventional analogue type notice boards with android controlled digital notice boards, we can display text, videos, and notices easily and efficiently. Here the admin can manage the notice board through his android app. So information can be sent from any point in the world and can be displayed in seconds. Android is used to send information, and Raspberry Pi connected to the internet at the reviving side. Moreover, we have added a Virtual assistant, which can interact with the notice board. The virtual assistant will hear some common sentences and will display the output accordingly.

Keywords: - *Internet of Things (IoT), Virtual Assistant (V.A.), Raspberry PI (RPI)*

INTRODUCTION

Nowadays, people have become accustomed to getting easy access. Whether done online or on television, people want themselves to be updated with the latest events around the world.

The main motivation for this is the project to create a digital Smart notice board that displays same as posted by an authorised user with simple, easy-to-do design installation, an easy-to-use system, which can be accessed and displayed a notice in a particular way about the date and time will help the user to easily keep track of each bulletin board time using the system. Digital Design and Use notice board using a raspberry pi board. The main purpose of this program is to develop a digital wireless notice board that displays a message sent from the user with a simple, easy installation. Users design a social program, which can receive and display a notification in the file some order to the date and time that will help users easily keep track of daily bulletin board each time he uses the system.

The information board is an important system for displaying information in our lives. In our daily lives, we can see notice boards in various places such as educational institutions, train stations, shopping malls, bus stations, offices, etc. Therefore, we can say that notice boards are places to leave public information such as event advertising, event announcements or public care, etc. Nowadays, a divorcee is required to enter that information on the notice board. It will lead to the

loss of time and energy. On standard analogue bulletin boards, paper is a great way to exchange information. We know that data counting is endless. So there is the use of a large amount of paper to show those endless statistics of information.

Problems facing wooden or standard notice boards are solved with the installation of our digital notice board. It will provide the best way to convey notifications around the world simply and effectively. Due to the popularity of the internet, we prefer the internet as a way to use information. Internet of Things (IoT) is a network of mobile devices, cars, household items and other electronic devices. Software, which enables these objects to connect and exchange data. Each device is uniquely identifiable with its own embedded computer program but can interact within existing Internet infrastructure by providing security. We include the username and password of the authentication program. Therefore only relevant authorities can submit information. Raspberry Pi is the Heart of our program. Monitoring is interrupted by the Raspberry Pi. So the information in the form of text, image and pdf can display on the big screens. Our main goal is to get the attention of more people on the show. With the use of high-definition display devices, people can get more attention on the bulletin board than regular bulletin boards.

A standard notice board can only display text messages. But in our latest program, we will add virtual assistance.

So displaying these types of information makes our system easier to use. Due to internet usage, the sender can send a message anywhere on campus.

Therefore, the system's main objective is to develop a Smart notice board that displays notices also by virtual assistance. It uses a Raspberry Pi as a processor. Raspberry Pi is equipped with a Portable Projector/LCD display. We can display messages and can be easily set or changed from anywhere on the campus.

OBJECTIVES AND SCOPE OF THE STUDY

By replacing the standard Analog notice board with a digital notice board, we can make the distribution of information much easier in a paperless society. Here the administrator can control the notice board online. So the data can be sent anywhere in the world and can be displayed in seconds. Details may be in the form of text, image, pdf etc. The PC sends information, and the Raspberry Pi is connected to the internet on the receiving side. In addition to this, the application installed on the administrator's cell phone may serve the same purpose.

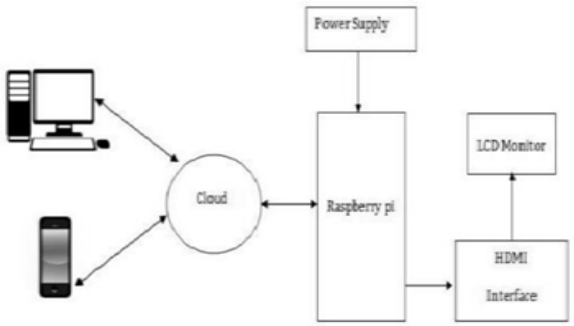
The project's objective is to display the message, videos, and notifications on the notice board from anywhere and anytime.

- To reduce the time & increase the efficiency.
- To move from analogue to digital technology.
- We can upload notices from anywhere through the Android application.
- Notice uploading and deleting is very user-friendly.
- Automatic deleting of notice by date.
- View previous important notices—Floating Notification Feature.

REFERENCE TEST SPECIMENS

Raspberry pi, which acts as a receiver, will be connected with Wi-Fi networks. When a person wants to send the file to raspberry pi, the person

first needs to connect to the corresponding valid Wi-Fi network. So sender and receiver must be within the Wi-Fi range. The data will be stored in the cloud, so it will be feasible to access it from anywhere and anytime.



The figure above shows the Block diagram for the proposed system. The system's main objective is to develop a wireless notice board that displays notices in the form of image, text, pdf. It uses a Raspberry pi as a processor. Raspberry pi is equipped with a LED/LCD display. We can display notice and can be easily set or changed from anywhere in the network. In addition, the microphone is used to convert voice into text. Here the voice is passed through the voice recognition system and converted into text. The system will detect this text via raspberry pi. The processor gives it and displays it on the screen. We can send the message to all the screens or a specific screen. With a virtual assistant, students/users can ask a question and answer by the voice recognition system. The question is predefined in the system for smooth functioning.

The function of the proposed system is to develop a Digital notice board that displays messages sent from the user through the internet and to design a simple, user-friendly system, which can receive and display a notice in a particular manner with respect to date and time which will help the user to easily keep track of notice board every day and each time he uses the system. The system consists of two sections called sender and receiver. The sender is responsible for sending valuable information through the wireless network. To access the Digital notice board, the sender must enter into the corresponding web address. For preventing unauthorised access to a web address, we provide security authentications like username and password. If the username and password entered are invalid, the user can't access the digital notice board. When the user enters the correct password and user name, the web address will be opened and space for the information transmission. Users can access this web address either using a personal computer or mobile phone.

To make the proposed system more user-friendly, we make an android application. By using this application, the sender can directly enter the web address. There will be a mic attached with a raspberry pi to ask questions to the system. The messages can be text, image, and pdf files sent to the cloud. In the simplest terms, cloud means storing and accessing data and programs over the internet instead of our computer's hard drive. The

cloud is just a metaphor for the internet. In the receiver section, Raspberry pi

It is connected to Wi-Fi for accessing the internet. The Raspberry Pi is a low cost, compact-sized computer that plugs into a computer monitor or TV and uses a standard keyboard and mouse. It is a capable device that enables people of all ages to explore computing. It's capable of doing everything you'd expect a desktop computer to do, from browsing the internet and playing high-definition video to making spreadsheets, word processing. Raspberry pi is activated by supply power around 5V to save energy. After switching on the Raspberry pi, it will collect data from the cloud. The web address for collecting data from the cloud is already specified through a program written in the processor. Upon receiving the file, it will be displayed on the monitor. Raspberry pi has only an HDMI port.

The received file is displayed on the screen in a scrolling manner that is received images will display on the screen. For displaying Pdf files, first, it is converted into an image file by the program written in the Raspberry pi. After converting all the pdf pages into images then it will display. Every two pages in the received pdf file will be displayed at a time. To achieve this monitor screen is spitted into two sections. Each section displays each page. After an unavoidable delay, the next pages will be displayed. All these messages are displayed sequentially after a short delay. In addition to this, we provide Deleting and modification options at the web link. If the sender wants to delete some image or pdf file, he can delete it by clicking the corresponding link on the web page. We have a queue so that files can be uploaded and deleted automatically. Also, we delete or modify text messages whenever we want in the scrolling bar. After deleting the file from the cloud, it will automatically be deleted on display after a short delay.

Advantages

An authenticated user can send the message/notice from anywhere. This system will reduce the workforce requirement. It also saves resources like time, printer, printing ink and paper. It is the most secure, reliable and confidential as the administrator has a username and password. Now the interface is interactive with a virtual assistant. This system can pass information's on more people than conventional wooden type notice boards. Due to the inbuilt memory in Raspberry pi, data from the cloud is stored. This will make the system non-volatile. Any failure in the power supply does not affect the stored data.

Disadvantages

A power supply for raspberry pi and LCD display panel is required. We need a continuous internet connection to update the notice board and view older notices.

CONCLUSIONS

Now our world is moving towards digitalisation, so if we want to change the previously used system, we have to use the new techniques. Wireless technology provides fast transmission over long-range data transmission. It saves time, cost of cables, and size of the system. Data can be sent from anywhere in the world. Username and password type authentication system is provided for adding securities. Previously the notice board using Wi-Fi was used. There was a limit of coverage area in that, but the internet is used as a communication medium in our system. So there is no problem with the coverage area. Multimedia

data can be stored on-chip or cloud. People can interact with the notice board using a virtual assistant.

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