

IoT based Digital Notice Board

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Abstract— In Any institution\college or public places like bus stations, railway stations, parks & theatres. Notice board is a mandatory to all for displaying information. But display various notices using papers in day to day life is unnecessary wastage of papers and human time & separate person cannot take care of this notices. So, this project deals with notice board which we can be remotely controlled by an android application using raspberry pi. The main goal of this project is to develop an android application through which one will be able to display the notices on the display unit along with the text and images and parallel the devices on the client mode will also be able to get those notices on their devices such as mobile phones or tablets with the help of the same android application without any effort.

Key words: Power Supply, Raspberry PI, Processor, LCD Display

I. INTRODUCTION

Mobile Phones and the related technologies are becoming more ubiquitous. Various technological areas in the field of Tele-communication as well as Embedded Systems have come very near to the common people. The people having cell phones are on the rise. A day will come, somewhere in the future, when the mobiles are referred to in the same class of Food, clothing and shelter. Improvements in the Networking technologies have fostered growth of very dense networks. Land line telephones have been becoming outdated and people now prefer communicating while on the move. Remote control is the most popular gadget nowadays. Right from the intense creativity of remotely controlling laser chip makers to the highly destructive remotely ignitable bombs, from the pins to the planes, remote control is occupying an omnipresence state and it is also enhancing its scope and domains. This Project purpose an idea which satisfies the wireless communication between a mobiles and a Raspberry pi module with the help of which we are going to display the notice on the notice board. We use a Wi-Fi module to send the notice to display on display. Range of communication is large. Wireless technology has been making massive progress across few years. The ever increasing use of wireless networks acts as an indicator of the progress in the area of wireless networks. The demand for wireless technology is growing not only in industrial applications but also for domestic applications. Automation is the most frequently spelled term in the field of electronics. The hunger for automation brought many revolutions in the existing technologies. This project makes use of an on board computer, which is commonly termed as Raspberry pi processor. It plays most important role in the project. This on board computer can efficiently communicate with the input and output modules which are being used. The Raspberry Pi is a credit-card-sized single-board computer invented by the Raspberry Pi Foundation in the UK. It does not include a built-in hard disk or solid-state drive, but uses an SD card for long-term storage and booting purpose. Android is a software stack for mobile devices that includes an operating system,

middleware and key applications. Android boasts a healthy array of connectivity options, including Wi-Fi, Bluetooth, and wireless data over a cellular connection Android provides access to a wide range of useful libraries and tools that can be used to build rich applications. In addition, Android contains a full set of tools that have been built from the ground up alongside the platform providing developers with high productivity and deep insight into their applications. The main controlling device of the whole system is a Raspberry pi processor. Wi-Fi modem and buzzer are interfaced to Raspberry pi processor. The message sent through predefined application from user Android mobile phone is received by the Wi-Fi modem. Wi-Fi modem feeds this information to Raspberry Pi processor which process it and displays it on the LCD display. Also, the Raspberry pi processor horns a buzzer for every new message. To perform this intelligent task, Raspberry pi processor is loaded with an intelligent program written using Linux.

A. Goals & Objectives

The main goal is to provide Exciting new innovative way to send information to your Staff visitors and Students.

The main objective of this system is to develop a wireless 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 manner 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 uses the system. Wi-Fi is the wireless technology used.

II. LITERATURE REVIEW

It is a long process to put up notices on the notice board. This wastes a lot of resources like paper, printer ink, man power and also loss of time. In this seminar we have propose a system which will enable people to wirelessly transmit notices on notice board using raspberry pi. Here we have proposed a system by which only authenticated person can for displaying notices on a digital notice board which helps to save time and energy. The notice board is eco-friendly and reduces the use of papers. Information can handle the notice board. It require less time due to fast data transmission through internet. Less cost and save the resources like paper. In previous technology the Display Message on Notice Board using GSM is the most famous system for the Second Generation mobile telephony worldwide and the use of GSM technology be given to a large mob in a very effective manner. The GSM based Digital Notice Board was very difficult to design. It was costly as compare to WIFI based notice board. In GSM digital notice board a SIM card was recommended to transmit the data (Notice), hence that each notice was chargeable to send. Then Wireless Electronics Display Board Using GSM Technology the smart notice board become efficient for users. The analysis shows the focus on security and methods to prevent various attacks.

III. PROPOSED SYSTEM

Here we have proposed a system by which only authenticated person can handle the notice board. It require less time due to fast data transmission through internet. Less cost and save the resources like paper. The seminar aims at designing a LCD Monitor based message display controlled from an Android mobile phone. The proposed system makes use of wireless technology to communicate from Android phone to Raspberry Pi display board.

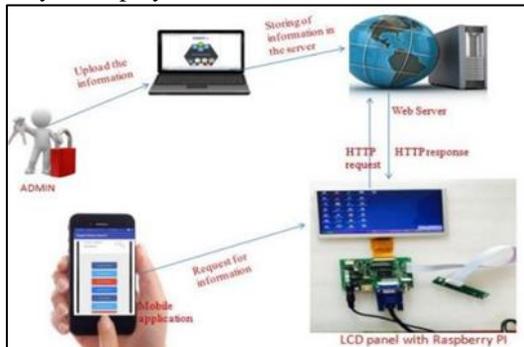


Fig. 2: Proposed System

IV. SYSTEM DESIGN

A. Architecture Followed

The architecture we adopted for our application (side: Android application, web service and database) is the three-tier architecture, which is a stack of three level. After admin or staff uploads a update into the Web server, the student can view the Uploaded updates from their device. And Here the student device will act as a “Slave” or “Client” and the admin or staff inserted database will act as a “Master” or “Server”.

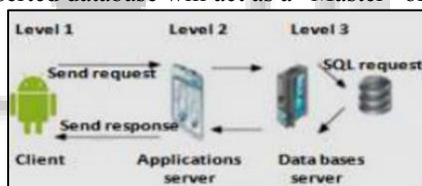


Fig. 3: Three Tier Architecture

A client is a piece of computer hardware or software that accesses a service made available by a server. The server is often (but not always) on another computer system, in which case the client accesses the service by way of a network. The term applies to the role that programs or devices play in the client–server model. The client can access the board and get the information immediately using the display page. The client server communication is carried out through the medium. A client is part of a client–server model, which is still used today.

Clients and servers may be computer programs run on the same machine and connect via inter-process communication techniques. Combined with Internet sockets, programs may connect to a service operating on possibly remote system through the Internet protocol suite Servers wait for potential clients to initiate connection that they may accept.

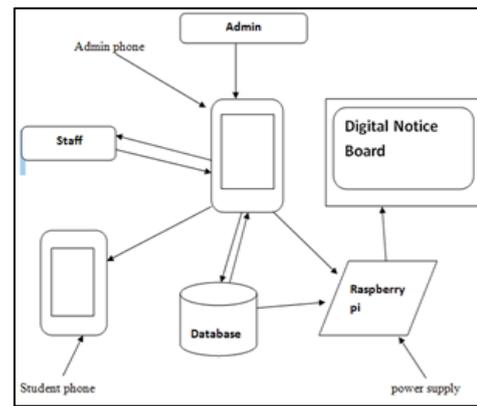


Fig. 4: Architecture of Notice Board

V. SYSTEM FLOW DIAGRAM

In this project if user is authorized then he can send notice otherwise unauthorized user will not send the text/notice. Only authorized user send the text. The system for remotely send a notice, to the student android application and also the "Raspberry pi" card. The same notice/text is also saved in the database. And after that notice display on Android application on mobile phone. Our electronic system is composed of a "Raspberry pi" card for receipt of commands sent by the user, the card will send notice on Digital Notice Board.

It follows:

Admin device -> staff device -> stored in database and send to raspberry pi & student phone -> display on notice board

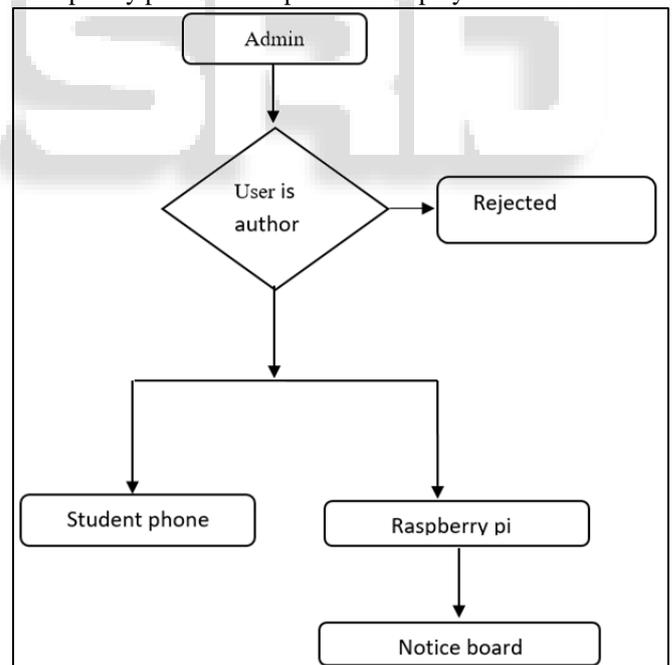


Fig. 5: Data flow Diagram of Notice Board

VI. SYSTEM WORK

As people mostly use the manual process to update the notices, they need to update every time manually which is a tedious process. Following are the modules associated with our android application which helps an individual to easily update notice.

A. Login

User needs to get logged in for uploading the notice. By using this module the user can be able to update the notice directly from android phone that will be automatically updated on the digital notice board.

B. Authentication

The purpose of authentication is to see whether the user who logged in is the one who has been given the user oard.id and password by admin. Authentication is used so that only the faculties of the college or an individual who is responsible for updating the notice is able to update the notice on digital notice board.

C. Displaying Notice on Notice Board

To display a notice, first user will have to enter it in an android application which will be displayed directly on a digital notice board. This happens with the combination of software and hardware. The notice is entered in a software device and displayed on a hardware device. The interface between software and hardware will be raspberry-pi. The message to be displayed is sent through a remote place from an authorized transmitter. The microcontroller receives the notice and displays the desired information.

D. Clearing Notice Board

There's an another module called clearing notice board where notice board is being cleared so that another notice can be updated.

E. Logout

When the notice updating work has been completed, users can logout.

VII. FUTURE SCOPE

The broadcasting information such as road highways, toll plaza, subways, airports, buses and bus station, train and train station, shopping malls, city squares, hospital, conference hall, colleges and schools for displaying day-to-day notices for student information and displaying all institutional information for visitors and this same application in industry for displaying notices or useful information which has want to giving employees. Scope of this project by using multiple screens for displaying the big size advertising purpose and the contents on the display device is made up of several images and broadcasting display information and also remotely control it. The purposes of this system are corporate communications, corporate announcements, advertising and promoting products, corporate messaging, and entertainment, public information systems such as news, headlines, weather, and menu information such as digital menu boards with information on pricing.

VIII. CONCLUSION

The proposed system is supposed to remove all the drawbacks of existing system and enhanced with the Wireless operations allows 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 It is cheaper to install and maintain. This seminar provides an efficient way

of displaying messages on Notice Board using IoT. It also provides user authentication in order to avoid any misuse of the system.

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