IOT BASED WIRELESS ELECTRONIC NOTICE BOARD

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Abstract: An idea behind that notice board is widely used for displaying notices, at public places for people awareness and various advertises; now we are using same technology for displaying message as notice using GSM and Raspberry Pi. This project is a remote device with GSM modules connected to Raspberry Pi controller, so when the user wants to display a notice, user will send the notice as message on mobile and send it as notice. That message will update the display on the monitor as it is. 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 Raspberry Pi controller written in Python Language. A SIM800c GSM modem with a SIM card is interfaced to the ports of the Raspberry Pi controller with the help of AT commands. At transmitter authorized PC or any smart devices are used for sending notices. At receiving end Wi-Fi is connected to raspberry pi. The receiver receives a notice from authorized user.

Index Terms- GSM Modem, Raspberry Pi, Python Language, At Commands.

1. 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. In this project, a Raspberry Pi is used as controller which controls LCD display using GSM. It is a remote device project with GSM modules, so if the user wants to display some notice, user will send the notice as messages just by typing through mobile and send it. That message will update notice the on display monitor as it is. This project uses a compact circuitry build around Raspberry Pi controller. Program are developed using Python GUI programming. Raspberry Pi 3 module use GSM technology of mobile communication network module which uses SIM card to communicates digital notice board through message. The think behind such project is now-a-days advertisements goes digital. Big shops and in shopping malls they are using digital moving displays. In Airports, Railway station, Bus stands, everything like tickets, platform numbers..., etc. is displayed on digital/electronic moving display. But in these displays if they want to show another message the message or to change style of display format they have to go there and connect the display to PC or laptop. If they want to display new message about something 5 minutes requires. Here were designing a new technique to display notice which can access remotely. We are using Raspberry Pi controller with GSM technology to access the display through by communication between controller and mobile. It also reduce usage of paper as notices are displayed everywhere by electronically and make communication easier and faster. It can be operated by direct messages form SIM or by using particular website created by us for sending messages.

People are now adapted to the idea of the world at its finger-tips. The use mobile phones have increased drastically over years. Control and communication has become important in all the parts of the world. This gave us the idea to use mobile phones to receive message and then display it on an electronic board. The GSM technology is used. GSM stands for Global System for Mobile Communication. Due to this international roaming capability of GSM, we can send message to receiver from any part of the world. It is has the system for SMS (Short Message Service). This project is a remote notice board with a GSM modem at the receivers end. So if the user wants to display any message, he can send the information by SMS and thus update the PC's monitor display accordingly. As engineer's main aim is to make life simple with help of technology, this is one step to simplify real time noticing.

2.LITERATURE SURVEY

A literature survey is the section which shows various analysis and research made in the field of interest and the results already published, taking into account the various parameters of the project and extends of the project.

[1] This project deals about an advanced Hi-Tech wireless Notice Board. This system is enhanced to display the latest information through an Android application of smart phones or tablet. While user sends the message from the Android application device, it is received and retrieved by the Bluetooth device at the display unit. The Bluetooth access password will only be known to the user, it is then sent to the microcontroller that further displays the notice sent from the user on the electronic notice board which is equipped with a LCD Monitor display.

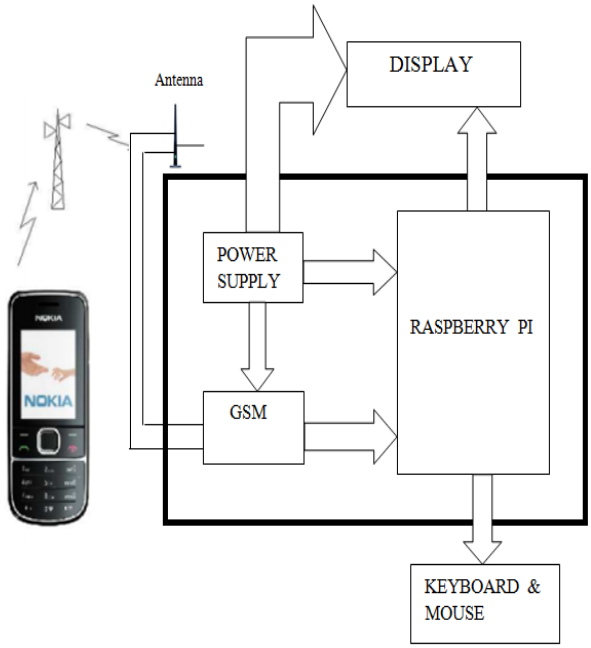
[2] In this paper he had proposed a system which will enable people to wirelessly transmit information on notice board using Zigbee.
[3] His project deals with advanced notice board, it presents an SMS based notice board incorporating the widely used GSM to facilitate the communication of displaying message on notice board via mobile phone based on microcontroller.
[4] The operation is based on microcontroller AT89c52 programmed in assembly language.
[5] 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.
[6] The board is connected with a GSM modem which enables the user to display the notice in public places using SMS.
[7] This paper provide access to notices and articles not only within the college premises, but also wherever and whenever they need to know by internet access or by local area network.
[8] Mentioned in their paper on android controlled digital notice board that notice board is a necessary thing in any institutions o public utility places like bus, railway stations, school, shopping centers etc.
[9] The main aim of the project is to have an electronic notice board where the least information can be shorted by the faculty to the students using Wi-Fi through connection terminal app.

[10] In this paper he proposed the use of GSM technology for displaying notices on a digital notice board. The system is based on real time process and saves lot of resources i.e human effort.

3. METHODOLOGY

The operation of wireless e-notice board is that when a user sends a message through the android app that data is received through Raspberry Pi which is with Wi-Fi connection. The Raspberrian OS is installed in the SD card. The message can be send from any location.

3.1BLOCK DIAGRAM



- ***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.

- ***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 compare d on the basis of size. ARM processor is designed by designer David Braben, as part of its foundation "Raspberry pi".

Figure3.1: Raspberry Pi Model

- ***HDMI to VGA:*** A prime quality, convenient and compact device that converts digital HDMI signals from Raspberry Pi into the analog signals needed by the wide used VGA laptop displays still normally in use. It is an easy to use device that is style within the style of a tiny low adoptive parent and short cable complete with HDMI plug for association to HDMI socket on Raspberry Pi. It does not need any external power provide for plug and play. Input to the device is via the integrated Type- A HDMI plug, and outputs to a typical VGA female port.

- ***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.

- ***GSM:*** Global System for Mobile communications (GSM: originally from Groupe Special Mobile) is the most popular standard for mobile phones in the world. Its ubiquity makes international roaming very common between mobile phone operators, enabling subscribers to use their phones in many parts of the world.

4.CONCLUSION

As 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. Wireless operation provides fast transmission over long range communication and due to fast transmission resources and time is saved. Data can be sent from remote location. User authentication is provided. Current world prefers automation and digitalization in such a way this project will be more useful in displaying the messages, videos, pictures in Wireless E-Notice board through android app development application by Raspberry Pi. By which the message can be send by the users at anywhere from any location with high data speed. Thus the notice board will be more efficient in displaying the accurate messages at low cost.

Multimedia data can be seen whenever we want to see. Thus raspberry-pi being a small yet powerful device can work efficiently in digital notice board connected with software's.

- Voice call can also be added for emergency purpose at public places.
- Voice messages and buzzer can be included to indicate the arrival of new messages especially in educational institutions.

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