ENHANCING COMMUNICATION WITH AN IOT-DRIVEN WIRELESS DIGITAL NOTICE BOARD

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In present world notice board is required in many organizations. A notice board display is used to display the message/information sent by the high authorities of the organization. To display various notice a different user is appointed to do such work & it is also consider as a difficult task. Here this project is dealing with explaining wireless Electronic notice board. Whenever a notice is sent from the user through android device, the notice will be displayed on wireless electronic notice board. This message can be sent from any tablet/smart-phone etc. with Android OS upon a GUI based on smart screen operation. When the user is sending the SMS/messages from android application device this will be received by the Wi-Fi-modem. As the Wi-Fi modem has its own IP address and port number that will be known only to the users who is operating. Later it is sent to the Raspberry pi 3 model B that further helps in displaying the notice in wireless electronic notice board which is equipped with TFT.

KEYWORDS: Raspberry Pi 3 model B, Android App, Android Phone, Connection Terminal, TFT (Thin Film Transistor) Display.

1. INTRODUCTION

Today's peoples like wireless connection because they can interact with people easily and fastly with less time. The main aim of this project is to make a wireless notice board that display message sent from the user and to design a simple, easy to install, user friendly system, which may receive and display notice in a very specific manner with accurate date and time which will help the user to easly keep the track of notice board each day and every time he uses the system. A local web server is created; this can be a global server over internet. Display connected to Raspberry Pi is used to display message and flask for receiving the message over internet. When Raspberry Pi receives any wireless message from Browser it displays on the LCD.

Internet of Things

The Internet of Things (IoT) belief system can be looked as a exceptionally unique and radically distributed networked system composed of a very large number of identifiable smart objects. These objects can convey and to interface among themselves, with end- users or different elements in the system. Entering the era of Internet of Things, the use of small, shoddy and flexible computer hardware those allow end-user programming become present. One of the main component , considered in this paper, is the Raspberry Pi, fully customizable and programmable small computer board. Relative investigation of its key components and exhibitions with some of current existing IoT prototype platforms have shown that despite few disadvantages, the Raspberry Pi remains an modest PCwith its effectively utilization in diverse range of research applications in IoT vision.

Background overview

A. Existing System The following are the current technologies

- Manual
- RF based Noticeboard
- Bluetooth based Notice Board
- SMS (GSM) based Notice board
- GPRS based Notice board.

B. Drawbacks of Existing System Following are the drawbacks of existing systems

- Manual notice Required Human source to show notice on board
- . • Some of the notice boards have limited communication range, since RF module or Bluetooth is used.
- GPRS based notice board required network coverage for Internet connection.
- In case of SMS (GSM) based notice board Mobile message plan is required. And only 160 characters can be transmitting at a time.
- All the notice board discussed is Platform Dependent. That means dependent on a particular.

2. LITERATURE SURVEY

Dharmendra Kumar Sharma and Vineet Tiwari, IEEE 2015

[1] Presented a low cost, easily usable, wireless electronic digital notice board by using ATmega32 microcontroller and various wireless technologies such as Bluetooth and ZigBee and their performance based on the parameter such as , BER, RSSI, signal attenuation and power consumption. The board receives serial information from wireless module receiver and shows it on the graphical liquid display. We have realized common communication receiver hardware for notice board having comparability with both wireless modules

PROJECT NAME	YEAR	AUTHOR	ADVANTAGE	LIMITATION	APPLICATION

i.e. Bluetooth and ZigBee. Here we used KS0108 graphical LCD as display.

Aniket Pragmatic, Rishikesh and Vikash Nagar, IEEE 2016
[3] According to this project, a hardware helpful to controlling and displaying notices electronically using an android device has been developed. So, the hardware can perform broadly two functions. In order to display notices, user can type the required matter using the same application and send to it then displayed. Both the functionality can be used only if sufficient is left in the user's SIM card since each access transfixed amount for SMS. The hardware consists of an ARM based micro controller LPC2148 that communicates to the application through a GSM mobile communication network module uses a SIM card for this purpose. LPC2148 itself retrieves message and sends signal to switch on/off a device or show a notice

S. Rubin Bose and J. Jasper Pram IJRIER 2017
[5] In GSM based LED scrolling display board, GSM modem communicates with the micro controller through asynchronous serial communication. The micro controller transmits a set of AT commands to read the message sent by the user. The fast display of messages/SMS using wireless data transfer in smart notice board. The GSM based system deals flexibility to display faster than the other programmable system. This system is simple, robust, to use in normal life by anyone at anyplace with less errors and maintenance. The paper titled as design and implementation of multiple LED notice boards by using ZIGBEE Technology states that the required system is handled by various transmissions and Thessalonians on only one receiver. Micro controller controls multiple LED's to enhance the message pattern. Here the outdistances communication is limited and this method is not suitable for long distance communication

3. RELATED WORKS

GSM Wireless Communication System	2010	Guifen Gu and Guili Peng	1. Knowledge about GSM Sevices. 2. we can connect without internet	Communication consumes cost. Its not free service.	Cellular Communication System.
Display Message on Notice Board using GSM	2013	Foram Kamdar, Anubbhav Malhotra and Pritish Mahadik	1. we can use in advertisment world. 2. we can use in public ultility areas	There is limitation of number of cahraters used in SMS	LCD Display's used to Notify Notices.
Wireless Electronics Display Board Using GSM Technology	2013	N. Jagan Mohan Reddy and G.Venkeshwaral u	1. Effective use of LCD display. 2. Effective use of electronic boards.	Network problem could happens at some palces	Remote Notice Board by using GSM device.
SMART NOTICE BOARD	2013	Shruthi K., Harsha Chawla, Abhishek Bhaduri	1. Quick communication with digital system. 2. Effective use of LCD Notice board.	Only one notice shows at a time.	Notice board with many features.
A Protocol for End-to-End Secure Transmission of SMS	2014	Neetesh Saxena and Narendra S. Chaudhari	1. Define woking of Transmission Protocols.	Transmission Protocols. Speed of transmission of notices depends on network.	Transmission protocol for SMS service.
Transmission Policies for Multi-Segment Short Messages	2015	Yi-Bing Lin, Sok-Ian Sou	1. Define process of communication. 2. Shows working of SMS (Short message services).	Limited Characters should be accepted while Transmitting SMS.	Transmission policies for SMS service.

4. IMPLEMENTATION

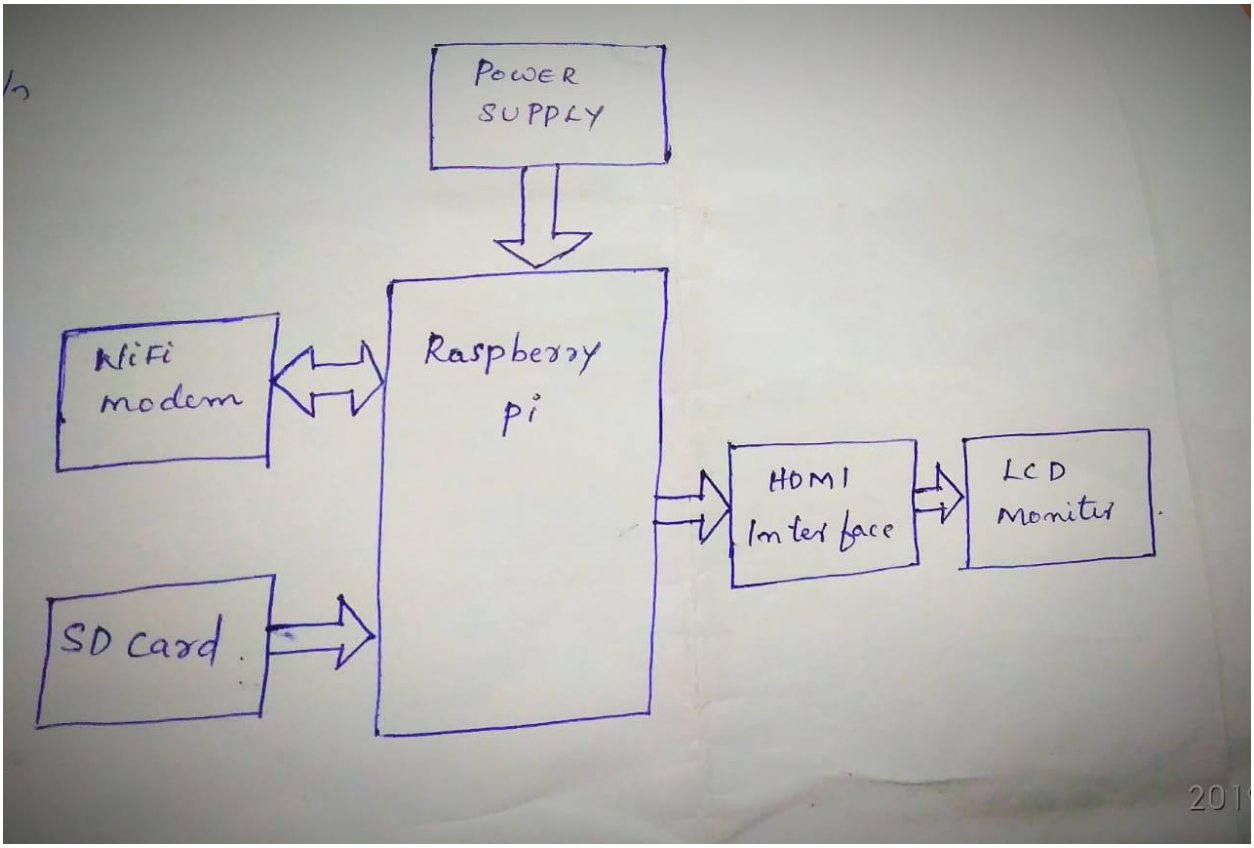

Fig-1 Block Diagram of IoT based Web Controlled Notice Board

3.1 Methodology

- Client: Authorized user
- Server: Raspberry.
- Raspberry pi interfaces with router using a Wi-Fi adapter.
- Users enters SSID (router name) a password of router.
- Routers allot IP address to raspberry pi
- TCP server is made on raspberry pi which listens for incoming calls.
- A TCP client is made on PC which interfaces with TCP server.
- When a connection is established the client sends• message to server the message sent to by the client is stored in a text file on raspberry pi and hard disk (SD card).
- The text file is prepared by another program which• displays the text on LCD screen connected on HDMI interface.

3.2 Proposed Plan of work

This will be a moving message display, which mightbeutilized as the digital notice board, and moreover a Wi-Fi transceiver, that will be that the most recent innovation utilized for communication between the mobile and also the embedded devices. System can work like once the user desires to display or update the notice board, that isunimaginablyuseful to show the circulars, day by day occasions, plans are to be shown. At that point the WI-FI will receive the message in notice board system, the Raspberry Pi chip has been inside the system is programmed in such a way that when the coding is written in embedded system Language receives any message it will browse the message form serial port through WI-FI transceiver, if the message is writing in any PC then it will begin displaying the information within the display system. The messages are displayed on the liquid crystal display. This system is to cut back the time wastage and update with any time is to terribly simply. The serial WI-FI has been utilized it can be used to transmit an information from serial port communication. It implies that to display the information from to a tiny bit at a time to get the notice board up then stores it, messages are then shows it in the LCD module.

3.3 Raspberry Pi 3 Model B

3.3.1 Technical Specification

- 40pin extended GPIO.
- 4 x USB 2 ports
- .4 pole Stereo yield and Composite video port.
- Full size HDMI output.
- CSI camera port for associating the Raspberry Pi camera.
- DSI display port for connecting the Raspberry Pi touch screen display.
- Micro SD port for loading your operating system and storing data.
- Upgraded switched Micro USB power source (now supports up to 2.5 Amps).
- The same form factor as the Pi 2 Model B, -the only difference is the location of the onboard LEDs.

3.3.2 Wi-Fi module

Wi-Fi is superior financially savvy WLAN USB module which interface the raspberry-pi minimal effort PC to Wi-Fi neighborhood. Wi-Fi utilizes the most recent 802.11n remote innovation and can bolster information rates up to 150Mb/s, Compared with the more seasoned 54Mb/s 11g items. It additionally profits by a higher remote LAN transfer speed, making information transmission moreproductive.

3.3.3 HDMI Port

The Raspberry Pi has a HDMI port which you can connect straightforwardly to a screen or TV with a HDMI link. This is the most effortless arrangement; some modern monitors and TVs have HDMI ports, and some don't, yet there are different choices.

3.3.4 Power Supply

This project utilizes a controlled 5V, 500Ma power supply,7805 three terminal voltage controllers is utilized for voltage regulation. Bridge type full wave rectifier is utilized to rectify the ac output of secondary of 230/12V step down transformer.

3.4 LCD Display

We utilize screen as display. LCD is utilized in a project to visualize the output of application. LCDcanlikewisebeutilized as a part of a task to check the yield of various modules interfaced with the raspberry pi module. LAN assumes an indispensable part in a task to see a yield. For normal utilize, you'll need to connect the Raspberry Pi to a visual display a screen or a TV.

5. APPLICATIONS AND FEATURES

Applications

The electronic notice board can effectively be used in:

1. Hospitals: Display patient monitoring system, or for other purposes such as meeting /operation notices etc.
2. Airports: Display flight information at arrival terminals to display flight information at the baggage claim area.
3. Courier Service Offices To display transport facilities
4. Corporate Offices: Display Daily schedule Information.
5. Schools and Colleges: Display academic Notifications etc.

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Features

1. Send a text message containing information to be displayed on the Digital notice board, from a cell phone to the control unit.
2. Access each LCD independently or collectively.
3. Drive multiple users using one control centre.

6. FUTURE SCOPE

Digital electronic Notice Board is one of the applications where WIFI and Raspberry can be utilized success fully. it can likewise able utilized as a part of malls and highways for advertisement reason. A moving showcase with variable speed can likewise be utilized as a part of place of static display.

7. CONCLUSION

Remote activities allow administrations, for example, long-go interchanges, that are inconceivable or illogical to execute with the utilization of wires. It gives quick exchange of data and are less expensive to introduce and keep up. This paper gives an effective method for showing messages on Notice Board utilizing Wireless Technology. It likewise gives client validation to maintain a strategic distance from any abuse of proposed framework.

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[3] S. Rubin Bose and J. Jasper Prem “Design and Implementation of Digital Notice BoardUsing IoT” IJRIER 2017