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Digital Wireless Notice Board

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Abstract - ***Notice boards are commonly used in variety of institutions which we come across in a daily basis. In the present generation the advertisement notice boards are being managed manually. This process is difficult to involve in order to put a notices on the notice board. This waste a lot of things like paper printer ink, manpower and also brings the loss of time. In this paper we have proposed a system through wireless transmit notices on a notice board using Wi-Fi. Wi-Fi can pass information for about 100meter distance Wi-Fi data rate has 1 or 2 Mbps. It access numerous point and to support network interfaces. It also makes the system compatible with more than one wireless technology our project name is "Digital Wireless Notice Board". In this wireless technology is used to transmit the notice on to the digital display. In this an authorized user sends the image of notice via personal computer using a client based server over the Wi-Fi network towards the raspberry pi. Raspberry pi receives the notice and stores it in its memory and then display the images according to the program. The notice can be modified and altered according to client needs.***

Key Words: *Raspberry Pi, Wi-Fi Adapter, Key HDMI Interface.*

1. INTRODUCTION

In today's world of connectedness, people are becoming accustomed to easy access to information. Whether it's through the internet or television, people want to be informed and up-to-date with the latest events happening around the world (J. S. Lee 2007). Wired network connection such as Ethernet has many limitations depending on the need and type of connection. Now a day's people prefer wireless connection because they can interact with people easily and it require less time. The main objective of this project 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.

This Document gives basic introduction to Digital signage which can operate using Wi-Fi. Now a day we have very less option for advertising and it is very lengthy and boring process to advertise and also we have very less efficiency of that. So we have one good option to reach over a people is Digital signage system. Recently we have a digital signage but we have to change its content using USB drives or using internet when we are in the local or in wide area network. So this document gives us better idea how to change the contents of Digital display using Wi-Fi. So for that we use some Embedded as well as communication idea and using Raspberry pi board we try to implement our system.

In past years, the WI-FI transceiver system has used from a many areas in terms of mobile phones ,personal computers ,laptops are to be commonly used by the rich to something so it can be major used.it already owns by many area networks are available. This is amazing when we look at the fact that our country in a developing one with almost half our population living below the poverty line. This continuously growing popularity of the WI-FI Connection has been used to the growth of the country's area network infrastructure has developed much more. The LCD used as to 20*4 the information are to be displayed.it specifies the characters and to display it whenever type to show the text in to the user language. All major urban areas are currently covered by both WI-FI network providers, and soon every single corner of the peoples has used in mobiles in a very poor villages to call away. The method to need for constant communication with family and friends, coupled with the relatively cheap method of sending short text messages to them, has information a WI-FI revolution in the country. In fact, rarely will a used this method use his cell phone to make a phone call, Preferring to anything and everything. All mobile phones has available in WI-FI network. Then WI-FI network has been used to provide wide area network allows as to communicate with the information into text

message through LCD display to move the notice board. information can passing through for a specific service provide as chatting and to transmit and receive the information .News/traffic reports, and downloading of ring tones for their phones. These services all themselves with one or more network ranges providers will give them a special code number that can receive and monitor the information's that their notice board send to them. This many-to-one network of information transmission has become quite popular and many a business has entered into this model with mixed results. However, as of this writing, the vast majority of businesses that revolve around the WI-FI system have been targeted to consumers. This paper aims to propose industrial applications that will utilize the distinct advantages of the WI-FI.

1.1 Objective

The main objective is to design an automatic self-enabled highly reliable electronic notice board, a display connected to a server system should continuously listen for the incoming call from client or user process it and display it on the LCD/LED screen message displayed should be updated every time the user sends new data only authenticated people should be able to able to access the server.

2. LITERATURE SURVEY

Vinod B. Jadhav, Tejas S. Nagwanshi, Yogesh P. Patil, Deepak R. Patil at (2016) [1] had propose a remotely send notice to Digital Monitor from authorized PC on Raspberry pi card. A Wi-Fi is using for Data transmission. At any time we can add or remove or alter the text according to our requirement. A transmitter authorized PC is used for sending a notices. At receiving end Wi-Fi is connected to raspberry pi. When an authorized user sends a notice from his system, it is received by receiver. Wireless is a popular technology that allows an electronic device to exchange data wirelessly over a computer network, including high speed wireless connections. The data is received from authenticated user.

S. Arulmurugan, S. Anitha, A. Priyanga, S. Sangeethapriya at (2016) [2] Notice boards is commonly used in variety of institutions which we come across in a daily basis. In the present generation the advertisement notice boards are being managed manually. This process is difficult to involve in order putting a notices on the notice board. This waste a lot of things like paper printer ink, manpower and also brings the loss of time. In this paper we have proposed a system through wireless transmit notices on a notice board using Wi-Fi. Wi-Fi can pass information for about 100meter distance Wi-Fi data rate has 1 or 2 Mbps. It accesses numerous point and to support network interfaces. It also makes the system compatible with more than one wireless technology. This paper describes the Wi-Fi based LCD display.

Jaydeep Raiyani1 Mr. Dharmisht Dalsaniya at (2014) [3] in his document gives Basic instructions for Digital signage system using Wi-Fi. This gives basic introduction how to operate with Digital Display wirelessly. In recent days we have digital signage system which basically needs to change their contents using pen drive or using internet but this gives introduction How to play with digital signage system wirelessly and enjoy good advertisement.

Ajinkya Gaikwad, Tej Kapadia, Manan Lakhani, Deepak Karia at (2013) [4] Notice Boards are a common occurrence in variety of institutions which we come across on a daily basis. In the current scenario the notice/ advertisement boards are being managed manually. There is a long process involved in order to put up notices on the notice board. This wastes a lot of resources like paper, printer ink, man power and also brings about loss of time. In this paper we have proposed a system which will enable people to wirelessly transmit notices on a notice board using Zigbee. In this paper we have proposed a system by which only authorized people can access the notice board using a graphical user interface. We can also make the system compatible with more than one wireless technology.

Bhumi Merai, Rohit jain, Ruby Mishra at (2015) [5] Notice board is primary thing in any institution or organization or public utility places like bus stops, railway stations or parks. But sending various notices day to day is a tedious process. This 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 user's mobile phone. Its operation is based on microcontroller AT89c52 programmed in assembly language. A SIM300 GSM modem with a SIM card is interfaced to the ports of the microcontroller with the help of AT commands. When the user sends a SMS via a registered number from his mobile phone, it is received by SIM300 GSM modem at the receivers end. SIM300 is duly interfaced to the microcontroller.

The messaged is thus fetched into the microcontroller. It is further displayed on an electronic notice board which equipped with LCD display interfaced to microprocessor powered by a regulated power supply from mains. This project is our experiment on real time noticing.

Anushree S P, Divyashree v Bhat, Moonish G A, Venkatesh U C (2014)[6] Many state-of-the-art and cutting-edge universities in the world rely on wooden notice board hanging on the wall to display announcements. The overreliance of this practice in a university is still not enough to pass relevant information around as many problems are encountered. We consider

the case study of professional Colleges, where information is a vital key for knowing the updates of the campus. The goal of this paper is to provide the access to notices and articles quickly not only within the college premises, also wherever and whenever they need to know. Also it looks at the development of the existing notice boards, making it run by the internet access or by local area network (LAN) so as to increase the rate at which relevant information is being disseminated to the public with no location restriction. 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, and keeping the users updated from time to time. The user is kept updated each time the E-Notice Board is uploaded based on their preferences with respect to the departments and categories through a SMS. Also the users can view the notices and articles anytime and from anywhere by opening the web application E-Notice Board which is available online and this makes our project highly efficient and effective.

3. IMPLEMENTATION

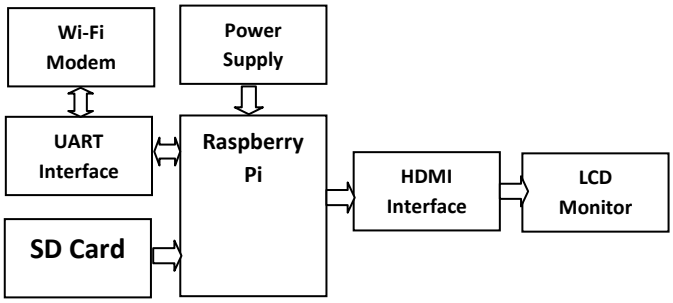

Fig -1: Block Diagram of Digital Wireless Notice Board

3.1 Methodology

- Client: Authorized user.
- Server: Raspberry pi.
- Raspberry pi connects to router using a Wi-Fi adapter.
- Users enters SSID (router name) a password of router.
- Routers assigns IP address to raspberry pi.
- TCP server is created on raspberry pi which listens for incoming calls.
- A TCP client is created on PC which connect to TCP server.
- When a connection is establish 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 ready by another program which displays the text on LCD monitor connected on HDMI interface.

3.2 Proposed Plan of work

This will be a moving message display, which can be used as the digital notice board, and also a Wi-Fi transceiver, which is the latest technology used for communication between the mobile and the embedded devices. System will work like when the user wants to display or update the notice board, which is very useful to display the circulars, daily events, schedules are to be displayed. Then the WI-FI connected ARM cortex to the Display system will receive the LCD 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 read the message form serial port Through WI-FI transceiver, if the message is typing in any personal computer then it will be start displaying the information in the display system. The messages are displayed on the LCD display. This system is to reduce the time wastage and update with any time is to very easily. The serial WI-FI has been used it can be transmit an information from serial port communication. It means to display the information from to bit by bit to receive the notice board then stores it, messages and then displays it in the LCD module. To use in ARM cortex it can be implement in RISC process. It can be implement to less instruction seta can be manipulate the data so this is a high level transmission of data.

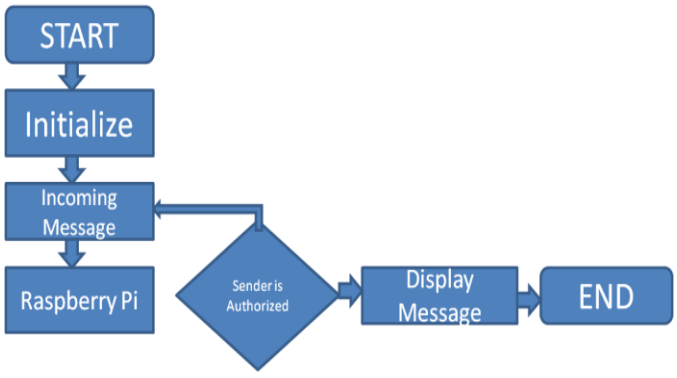

Fig -2: Flow Chart

3.3 Raspberry Pi 3 Model B

The Raspberry Pi 3 Model B is out now. This latest model includes 802.11n Wi-Fi, Bluetooth 4.0, and a quad-core 64-bit ARM Cortex A53 running at 1.2 GHz. It's a usable desktop computer. News of the latest Raspberry Pi swept around the Internet like wildfire this last weekend, thanks to published FCC docs showing a Pi with on-board Wi-Fi and Bluetooth. While we thank the dozens of Hack day readers that wrote in to tell us about the leaked FCC documents, our lips have been sealed until now. We've been doing a few hands-on tests with the Pi 3 for about two weeks now, and the reality of the Pi 3 is much cooler than a few leaked FCC docs will tell you. This is a very special year for the Raspberry Pi foundation. Because the foundation was founded on February 29th 2012, today is technically their first birthday, or at least that's the cheeky line they're telling everyone. With this anniversary, celebrations are in order and a new model of the Raspberry Pi has been announced.

Fig -3: Raspberry Pi-3 Model B

3.3.1 Specification of Raspberry-Pi 3 Model B

- SoC – Broadcom BCM2837 64bit ARMv8 quad core Cortex A53 processor @ 1.2GHz with dual core VideoCore IV GPU @ 400 MHz supporting OpenGL ES 2.0, hardware-accelerated Open VG, and 1080p30 H.264 high-profile decode. Capable of 1Gpixel/s, 1.5Gtexel/s or 24GFLOPs with texture filtering and DMA infrastructure.
- System Memory – 1GB LPDDR2.
- Storage – micro SD slot.
- Video & Audio Output – HDMI 1.4 and 4-pole stereo audio and composite video port.
- Connectivity – 10/100M Ethernet, Wi-Fi 802.11 b/g/n up to 150Mbps and Bluetooth 4.1 LE (BCM43438 module).
- USB – 4x USB 2.0 host ports (with better power management, allowing higher power peripherals), 1x micro USB port for power expansion.
- 40-pin GPIO header.
- MIPI DSI for Raspberry Pi touch screen display.
- MIPI CSI for Raspberry Pi camera.
- Power Supply – 5V up to 2.4A via micro USB port.
- Dimensions – 85 x 56 x 17 mm.

3.3.2 Technical Specification

- 40pin extended GPIO.
- 4 x USB 2 ports.
- 4 pole Stereo output and Composite video port.
- Full size HDMI output.
- CSI camera port for connecting 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.

3.4 Broadcom BCM 2837 Processor

Fig -4: Broadcom BCM-2837 processor chip.

This is the Broadcom chip used in the Raspberry Pi 3, and in later models of the Raspberry Pi 2. The underlying architecture of the BCM2837 is identical to the BCM2836. The only significant difference is the replacement of the ARMv7 quad core cluster with a quad-core ARM Cortex A53 (ARMv8) cluster.

The ARM cores run at 1.2GHz, making the device about 50% faster than the Raspberry Pi 2. The VideoCore IV runs at 400MHz also see the Raspberry Pi 2's chip BCM2836 and the Raspberry Pi 1's chip BCM2835. In this instruct able, I'll be presenting to you, a short, statistical, yet interesting analysis of the CPU temperatures of the Raspberry Pi 3 i.e. the Broadcom BCM 2837 that is built specifically for the new Pi 3, the Broadcom BCM2837 system-on-chip (SoC) includes four high-performance ARM Cortex-A53 processing cores running at 1.2GHz

implementing the ARMv8-A 64 bit instruction set, with 32kB Level 1 and 512kB Level 2 cache memory, a VideoCore IV graphics processor, and is linked to a 1GB LPDDR2 memory module on the rear of the board.

Before we begin note that I have monitored only the CPU+GPU package and the thermal output of your Raspberry Pi may vary according to the model (I have covered only the Pi 3) and the utilization of the CPU by the programs. Note that this is passive type of cooling as only a heat sink is used(no fans) and your temperatures might vary according to the type and/or size of the heat sink. I had created a temperature monitor with SD card data logging on the Intel Edison recently, so instead of using the Raspberry Pi as a monitor, I used the Intel Edison with an LM35 Transistor as a temperature sensor while using the Raspberry Pi independently. I had to keep it as simple as possible, so for testing, I booted up into Raspbian and played Minecraft until the CPU temperatures settled at a maximum which, in my case, was about 20 minutes. Note that the "ambient temperature" in which i was working was about 32 degrees Celsius. I have attached a heat sink to the SoC and an appropriate amount of thermal paste to it. In this test, I'm not pushing the Pi to its limits, as i had to do a real-world testing and so for your information I'm telling that I have noted the CPU temperatures going as high as 65-70 degrees Celsius when installing Raspbian and certain high performance applications wireless LAN.

3.4.1 Wi-Fi module

Wi-Fi is high performance cost effective WLAN USB module which connect the raspberry-pi low cost computer to Wi-Fi local area network. Wi-Fi uses the latest 802.11n wireless technology and can support data rates up to 150Mb/s, Compared with the older 54Mb/s 11g products. It also benefits from a .higher wireless LAN bandwidth, making data transmission more efficient.

3.4.2 LCD Display

We use monitor as display .LCD is used in a project to visualize the output of application. LCD can also be used in a project to check the output of different modules interfaced with the raspberry pi module. LAN plays a vital role in a project to see an output.

3.4.3 Monitor connection

For regular use, you'll want to plug the Raspberry Pi in to a visual display: a monitor or a TV.

3.4.4 HDMI Port

The Raspberry Pi has a HDMI port which you can plug directly into a monitor or TV with an HDMI cable. This is the easiest solution; some modern monitors and TVs have HDMI ports, and some do not, but there are other options.

3.4.5 Digital Visual Interface (DVI)

For monitors with a DVI port, you can use an HDMI-to-DVI cable.

3.4.6 Digital Visual Interface (VGA)

For monitors with VGA only, you can use an HDMI-to-VGA adapter. We suggest using only powered HDMI-to-VGA adapters (with an external power source). Using an unpowered adapter may damage your Pi and therefore is not advised.

3.4.7 Composite Port

For analogue TVs you can use a standard RCA composite video lead. The B+ and Pi 2 Model B do not have the large composite port, but can still be used with an analogue TV by plugging in to the 3.5mm socket that is also used for audio: you'll need a 3.5mm composite video/audio lead.

3.4.8 Power Supply

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

4. FUTURE SCOPE

Electronic Notice Board is one of the application where WIFI and Raspberry pi can be used effectively. It can also be used in Malls and Highways for Advertisement purpose. A moving display with variable speed can also be used in place of static display.

5. CONCLUSION

Wireless operations permit 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 are cheaper to install and maintain. This paper provides an efficient way of displaying messages on Notice Board using Wireless Technology. It also provides user authentication in order to avoid any misuse of proposed system

REFERENCES

[1] Vinod B. Jadhav, Tejas S. Nagwanshi, Yogesh P. Patil, Deepak R. Patil. "Digital Notice Board Using Raspberry Pi" IJRET, Volume: 03, Issue: 05 | May-2016.

[2] S. Arulmurugan, S. Anitha A. Priyanga, S. Sangeethapriya. "Smart Electronics Notice Board

Using Wi-Fi" IJISET, Volume: 03, Issue: 03 | March-2016.

[3] Jaydeep Raiyani1 Mr. Dharmisht Dalsaniya. "Digital Signage Using Wireless Network" IJSRD, Volume: 03, Issue: 04 | 2014.

[4] Ajinkya Gaikwad, Tej Kapadia, Manan Lakhani, Deepak Karia. "Wireless Electronic Notice Board". ISSN, Volume: 02, Issue: 03|2013.

[5] Bhumi Merai, Rohit Jain, Ruby Mishra. "Smart Notice Board". IJARCCE, Issue: 05|April-2015.

[6] Anushree S P, Divyashree V Bhat, Moonish G A, Venkatesh V S. "Electronic Notice Board for Professional Collage". IJSETR, Volume: 03, Issue: 06|June- 2014.