

# PORTABLE WIRELESS NOTICE DISPLAY USING RASPBERRY-PI

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**Abstract:** Notice Board is commonly used in a variety of institutions which we come across on a daily basis. Also, it is the best place to put on any kinds of information, but sticking or pinning various notice day to day is a difficult process. A separate person is required to look after this notice-board. Due to this there is wastage of things like paper, printer-ink and loss of time. This project idea is about innovative wireless Noticeboard. The project is created with the help of ARM-controller raspberry-pi 3 model B, which is the heart of the system and it acts as a transmitter which send notices. It has inbuilt Wi-Fi, which provides Wi-Fi range up to 30-50 m. At a receiving end any smartphone can receive notices this whole process is done without the internet.

Key Words: System, Web Browser, Raspberry-Pi, SD-Card, Electronics Components.

## 1. INTRODUCTION

Notice Boards are an important medium for displaying information and keeping people aware. The traditional notice boards involve the pinning up of printed or handwritten information on a board. The digital electronics notice board is speedy alternative than the ordinary type of notice board [1]. This idea can display multiple notices at a time to the number of users. This idea with an aim to increase the usability of electronic notice boards, deals with wireless reception and display of notices using Raspberry-Pi.

Notice-board is a thing that can be used in multiple places like any institution or public utility places [4]. The way to digitize the notice board is necessary because traditional notice-board required, separate person for pinning or sticking notices on the board and wastage of paper printer-ink etc.

A WI Fi is used for data transmission that is sending notices we are using raspberry-Pi model B as transmitter by using raspberry-Pi we can make notices in any format and stored in appropriate folder as a database of server to the transmitter over Wi-Fi at receiving end after establishing connection between the transmitter (raspberry-pi) and receiver (smartphone) by providing local host address then we are able to access the notices which is stored in the database of their server [2]. And the overall process is off line.

## 2. LITERATURE SURVEY

**Paper 1:** Author- Yash Teckchandani, "Large Screen Wireless Notice Display System" 2015 IEEE International Conference.

**Description:** Digital electronics notice board is speedy alternative than the ordinary type of notice board. In this we used raspberry-pi module for transferring notice through WI-FI.

This paper, with an aim to increase the usability of electronic notice boards, deals with wireless reception and display of messages using Raspberry-Pi. Practically, all output resolutions are supported. The font size is customizable and it can display multiple notices at a time.

## Paper 2:

**Author-** Jadhav Vinod, "Digital Notice Board Using Raspberry Pi" IJCAT -International Journal of Computing and Technology, February 2016.

**Description:** Notice Board is the primary thing in any institution or public utility places like bus stations, railway stations, colleges, malls, etc. But sticking various notice day to day is a difficult process. A separate person is required to take care of this notices display. This project is about innovative wireless notice board. A Wi-Fi is used for sharing Data. At any time we can add or re- move or alter the information (notices) according to our requirement. Legal PC is used for sending notices at the side of the transmitter. And Wi-Fi is used for sharing data at the receiver side. When an authorized user sends a notice from his system, it is received by the receiver. Wireless is a well-known technology that allows an electronic device to share data wirelessly over a computer network, including high speed wireless connections.

## 3. SYSTEM BLOCK DIAGRAM

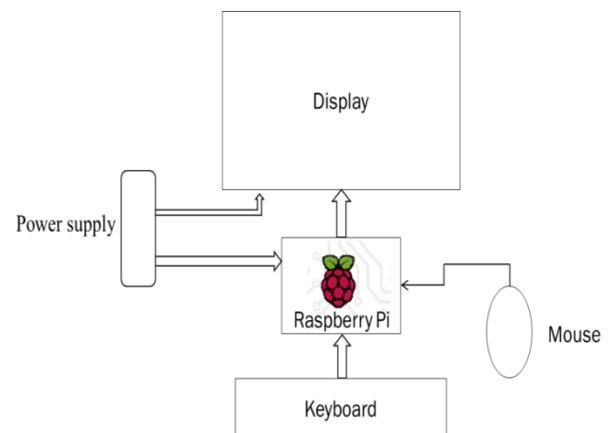


Fig.1. Raspberry-Pi System Unit

This section gives a basic overview of the system. Fig. 1 Show the block diagram of the system. The notice to be displayed is send as a file (PDF, DOC, etc.) the message transferred via WI-FI(offline) on any smart phone. Since WI-FI network is being used the notice can be send practically in Wi-Fi network .The notice is received by any smart phone and it is store in internal memory.

This is accomplished by the means of establishing FTP between Raspberry-pi and smart phone. By creating access point in raspberry pi it gives connectivity between server and client that is raspberry pi and smart phone respectively.

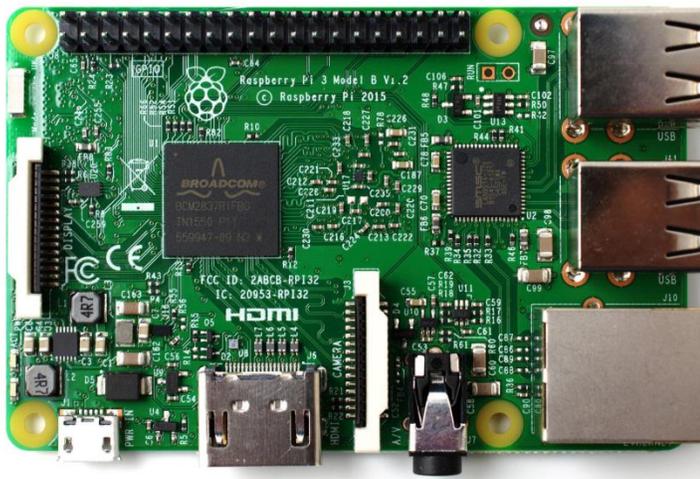


Fig.2. Top View of Raspberry-Pi

**Raspberry Pi 3 - Model B Technical Specification**

- Broadcom BCM2387 chipset
- 1.2GHz Quad-Core ARM Cortex-A53
- 802.11 bgn Wireless LAN and Bluetooth 4.1 (Bluetooth Classic and LE)
- 1GB RAM
- 64 Bit CPU
- 4 x USB ports
- 4 pole Stereo output and Composite video port
- Full size HDMI
- 10/100 BaseT Ethernet socketbr
- 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
- Micro USB power source

The Raspberry-Pi has two video output options composite (Radio Corporation of America - RCA) and High-Definition Multimedia Interface (HDMI). Display screens with VGA port can also be used by using HDMI OUT of the Raspberry pi with an HDMI to Video Graphics Array (VGA) convertor.

Therefore, the proposed method is versatile with respect to display options. The operating system used in Raspberry-Pi is Raspbian.

The most popular programming language for Raspberry Pi is Python. It is a high-level language and thus lesser coding effort is needed as compared to using assembly language for other microcontroller boards.

Thus, the method proposed in this paper has several advantages over the prevalent methods used to offer the same functionality.

**4. IMPLEMENTATION**

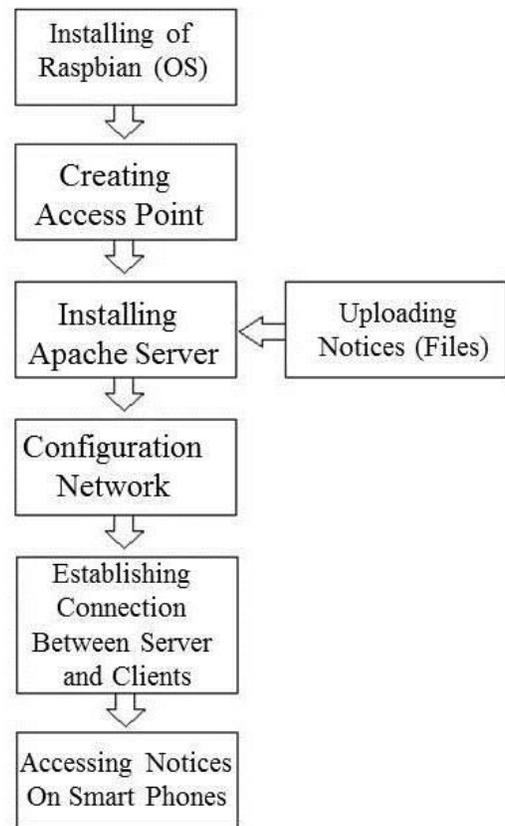


Fig.3. Implementation flow chart

This section explains the execution flow from establishing an Access Point and installing Apache server to communicate between the Server and Clients i.e. Raspberry pi to displaying the notices on the screen of Smart Phones. After successfully installing Apache HTTP server then a folder will automatically generate named as 'www', in that folder a HTML page is present. But as we need any type of file format to display, by command-line-terminal, remove HTML page and by passing PHP script it will allow adding and removing folders and notices at server site. Notices in any type of format such as doc, pdf, excel, JPG, etc. is stored in a folder named 'www' and is ready to access for clients within wifi range.

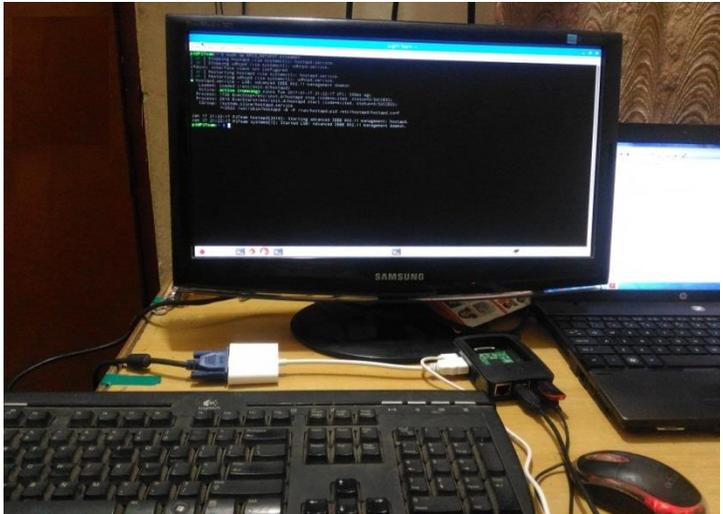


Fig.4. Establishing of Access Point

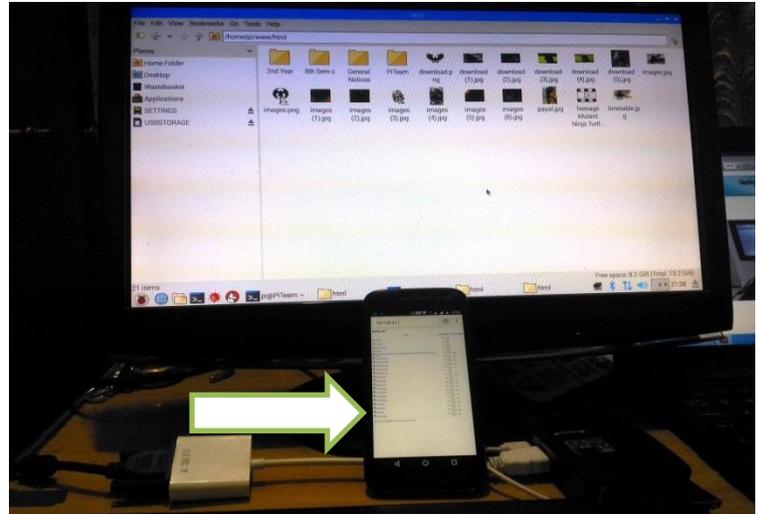


Fig.6. Display Notices on Smart Phones

In the above figure, Raspberry Pi 3 Model -B has inbuilt Wi-Fi i.e. 802.11n as 'n' indicates then n-input and n-output because of this feature it can convert Wi-Fi to Access Point for sharing notices as server to the clients.

Now open any browser in smart phone and then put the URL as whatever the IP address (Wlan) generated by the connection established with the server. As the arrow indicated in fig.5 shows notices received by the clients.

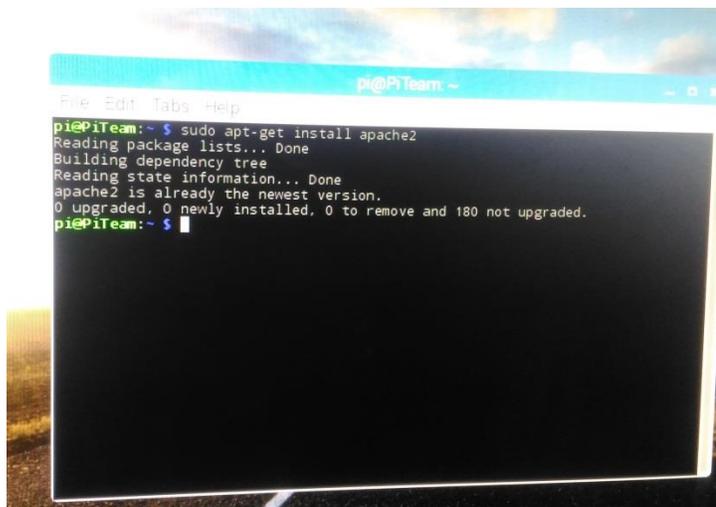


Fig.5. Installing Apache Server

For sharing notices we require the Data Base to store the files and File Transfer Protocol to share files over Local Area Network (Wired or Wireless). So, for this purpose, we have Apache Server as File Transfer Protocol. Installation of Apache Server is shown in the above figure-4. After successfully installing Apache Server then, obtaining the IP address by passing command "ifconfig" in command-line-terminal window. After that establishing connection between server as Raspberry Pi and clients as Smart Phones.

### 5. CONCLUSION

In designing of this project we came to know that there is a digitized way to use of notice board by using Raspberry Pi without internet. Thus raspberry-pi being a small yet powerful device can work efficiently on a digital notice board connected with Wi-Fi and software. Hence Apache Web server can provide users with data which can be shared over browser application within Wi-Fi range.

### REFERENCES

- [1] Yash Teckchandani, G. Siva Perumal, Radhika Mujumdar, Sridhar Lokanathan "Large Screen Wireless Notice Display System" 2015 IEEE International Conference on Computational Intelligence and Computing Research (ICCI), ISBN(print): 978-1-4799-7849-6, Date:10-12 Dec. 2015 IEEE.
- [2] Jadhav Vinod, Nagwanshi Tejas, Patil Yogesh, Patil Deepak "Digital Notice Board Using Raspberry Pi" IJCAT - International Journal of Computing and Technology, Volume 3, Issue 2, ISSN : 2348 - 6090, February 2016.
- [3] Fikran Faris Utomo, Yoanes Bandung "SNMPTN Exam Exercise Application Development for Android as Means to Reduce" 2012 International Conference on Green and Ubiquitous Technology. ISBN (print):978-1-4577-2171-7/12/ ©2011 IEEE
- [4] N. Villar, K. Van Laerhoven, H.-W. Gellersen."A Physical Notice Board with Digital Logic and Display", (Demo). In Adjunct Proceedings of the European Symposium on Ambient,2007.