

Multipurpose Information Access System using Linux Based Webserver System

Ashwini Malunjkar, Manoj Kumar Singh

Abstract— multipurpose information access system is a recent concept used at various places like schools, railway stations, hospitals, industries. This system is integrated with webserver implemented on Linux platform using raspberry pi. The proposed system is implemented using python language and php language. Embedded webserver is proposed in this system for easy access, better control and independent system for effective performance of multipurpose information access system. In said system information to be accessed is in form of Audio, Pictures & Text. The proposed system can be utilized as noticeboard, Advertisement board or database system, the proposed system is flexible to fit in to variety of application according to its use. The said system will be effective in terms of performance and efficient in terms of Speed and Cost.

Index Terms—Embedded webserver, Internet of Things, Python, Php, Rpi-Raspberri Pi.

I. INTRODUCTION

In today's fast going world information transmission and reception is essential part of each and every individual. This information is transferred and received in terms of Internet data, Signals, Symbols according to respective application. Looking at importance of information usage the proposed system is supposed to work on Audio, Text and picture information access system. Implementation of proposed system is supposed to be developed over Linux platform using Php and Python language. For better performance, speed and effective cost the said system is designed over dedicated purpose or specific purpose system. Embedded webserver is introduced here to avoid bottle-neckness and better information transmission and reception system. To implement embedded web server Raspberri pi controller is used. Rpi is mini central processing type advanced controller. It has USB port, Ethernet Port, Camera port, Display Port. It works on operating system like windows and Linux System. Due to Nanosecond delay in operation it has tremendous Operating speed. Utilizing its technical facilities, it is well utilized as an embedded webserver system. [1] The said embedded web server system is implemented over Linux platform. At linux platform Jessie operating system is used for raspberry pi controller. The proposed multipurpose information access system is designed with two webpages. At first webpage it has Administrator web page. Administrator web page will be utilized to upload data form authorized persons; this webpage will be secured using username and password. Once data gets uploaded the concern individuals can see information at end user webpage, thus the second webpage is

for End users called as End-user webpage. [2] End user webpage does not have username and password. It is accessible to anyone. Because this page is Only a Read only page. Hence does not need any kind of security for it.

The administrator page is designed with three browsing options. These three browsing options are upload text information, upload picture information and upload audio information. Before data is uploaded administrator or authorized person needs to enter correct username and password. Then and then only he/ she can upload information. [4]

The End user webpage shows information on independent spaces for text information and picture information. While audio information is played at background of respective webpage. In order to access this system concern individual must have Wi-Fi or internet connection or authority to access the proposed system.

II. LITERATURE REVIEW

A. Raspberri Pi

Raspberri Pi is used as main control device in proposed system. It distinguishes from traditional micro controllers with respective to operating system, speed, power usage USB ports, Ethernet ports, Camera port. Audio port Display port. With enhanced and multiple technical facilities with respective to other controllers, Rpi is Hot topic for researchers. Raspberry pi comes in A, A+, B and 0 versions. In proposed system Raspberri Pi B version is used. It is 40 pin controllers. Having 5V, 3.3V, Ground power connections. In addition to power connections Rpi provides Serial peripheral connections, Clock connections and general purpose pin connections. All these connections are prescribed in Pin layout as shown in figure.1. [6] Required power for Raspberri pi is DC 5V and 2 Ampere current. With 1.2 GHz Clock speed it shows very less delay in operation. Raspberry pi provides 24 general purpose input output pins. These pins can be utilized for any multiple type of Analog or Digital applications. It provides dual 5V and 3.3V power supply each. Seven Ground connections are provided in raspberri Pi. One UART connection is provided with Receiver and transmitter each. Two reserved pins are also provided in it. [3] With multiple connections and wide range of technical facilities raspberri pi gets outstanding advantage over traditional controllers. It can be programmed with Embedded C or Python language. With SPI protocol it can be easily interfaced with other controllers like Arduino, And ARM controllers to provide strong application for End users. [5]

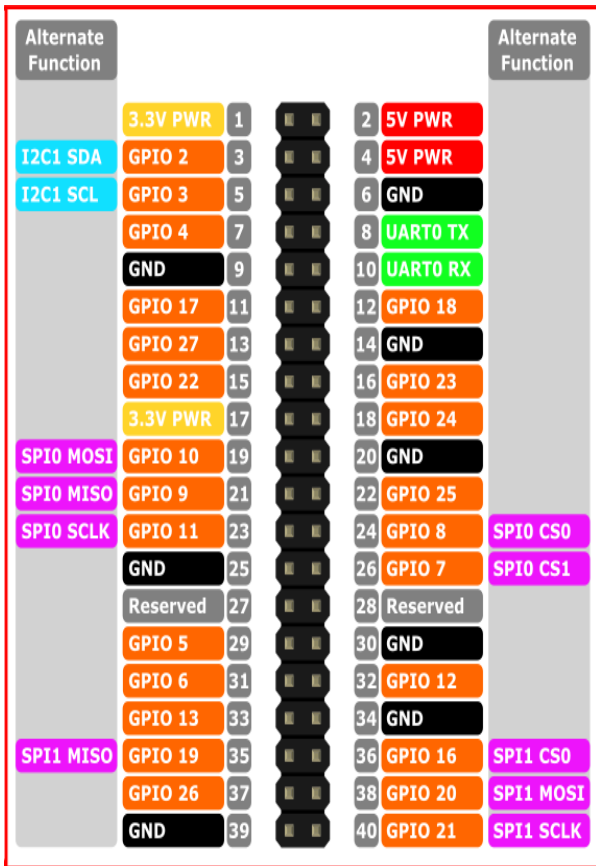


Figure. 1 Rpi Pin Layout

B. PhP Language

PhP provides strong library for multiple applications to create webpages. In proposed system PhP 7.1 lite is used in Rpi over Linux platform. With PhP two webpages are created in proposed system. Recent days it is used as alternate to JSP and ASP. It facilitates dynamic and responsive webpage creation facilities. It is basically server scripting language.

III. SYSTEM DEVELOPMENT

System development of proposed system is divided in to two parts that is webserver and Web application part used by End user and administrator. At webserver it has components like Raspberri Pi, Power supply required for Rpi, Display Unit and Keypad. Webserver is equipped with separate PhP webpages for administrator and End user developed in PhP 7.1 lite. While Web application part used by Administrator or End user includes any device accessing webserver for example Desktop, Tablet , Mobile, Laptop.

As shown in figure. 2 & 3 Wi Fi is used as a media for data or information transfer. Webpages are accessed through webserver using internet protocol providing IP addresses to its slaves. [7]

Here Dynamic host configuration protocol (DHCP) server is used to assign dynamic IP addresses to individuals connected to webserver. The capacity of number of Application user depends on capacity of DHCP server to provide number of IP addresses to Application users. The proposed system is very power efficient as with DC 5V and 2 A current it Consumes very less power as compared to existing systems. Due to 1.2 GHz operating frequency, the proposed system has very less delay. This is added advantage to respective system.

A. Webserver

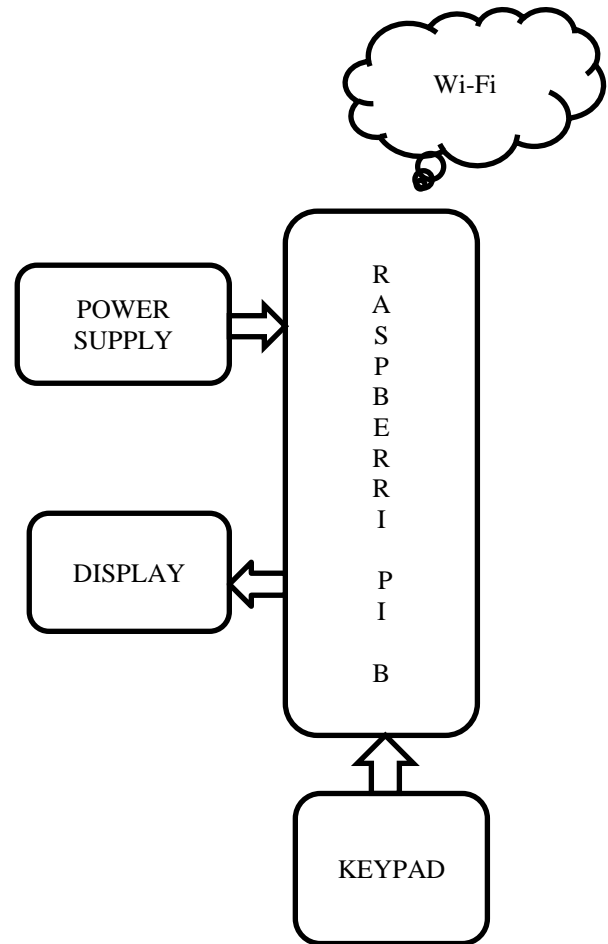


Figure.2 Webserver

B. Web application

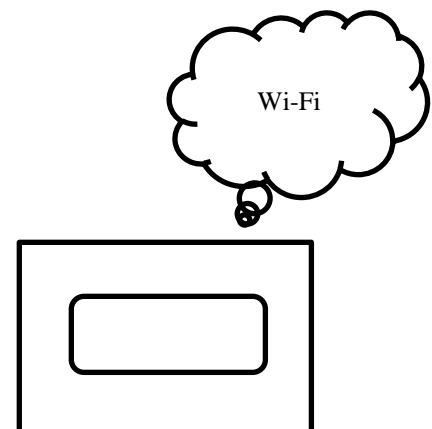


Figure.3 Web Application with Tablet/Laptop or Mobiles

IV. CONCLUSION

Proposed system will be effective in terms of cost, quality and speed. In proposed system login page designed with .php language is shown in figure.4. while Information uploader webpage shown in figure.5.It is providing alternate option for many applications like noticeboard at school, digital time table at railway stations, white boards notices at industrial work shop. Due to easy to use design and advanced technology and very less amount of power consumption the

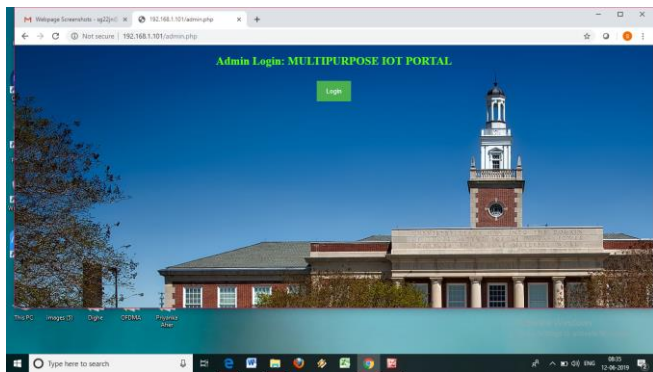


Figure .4

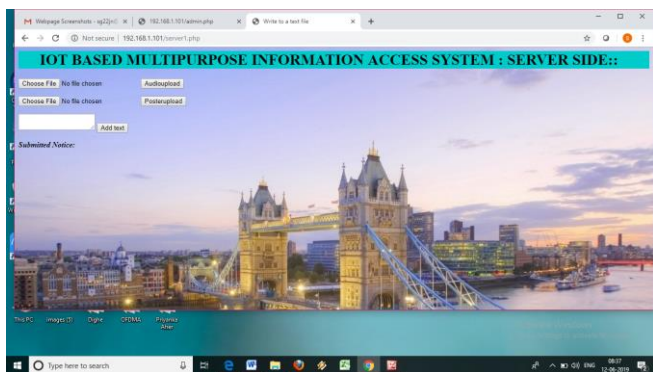


Figure. 5

proposed system will show a new way of communication in terms of audio, picture and text information.

REFERENCES

- [1] Forum Kamdar, Anubhav Malhotra, "Display message on notice board using GSM", Advance in Electronic and Electric Engineering. ISSN 2231-1297, Volume 3, Number 7 (2013), pp. 827-832, July 2013.
- [2] Masood Khan, Pratik Bhosale, Sandesh Dalavi "Wireless electronic notice board using GSM technology", IJRASET , Volume 3 Issue V, pp.288-292, May 2015.
- [3] Jaiswal Rohit, Kalawade Sanket, Kore Amol, "Digital notice board" ,International Journal of Advanced Research in Computer Engineering & Technology (IJARCET) ,Volume 4 Issue 11, pp 4113-4115, November 2015.
- [4] Sayidul Morsalin, Abdur Rahman, "Password protected multiuser wireless electronic noticing system by robust algorithm", IEEE, International conference on Electrical Information and Communication Technology, December 2015.
- [5] V. C. Osamor, O. S. Aloba, I. P. Osamor, "From wooden to digital notice board (dnb): design and implementation for university administration", International Journal of Electrical & Computer Sciences, vol. 10, no. 2, pp. 79-83, 2010.
- [6] K. Shruthi, Harsha Chawla, Abhishek Bhaduri, "Smart notice board", Research & Technology in the Coming Decades (CRT 2013) National Conference on Challenges in. IET, 2013.
- [7] N. Villar, K. Van Laerhoven, H. Gellersen, "A physical notice board with digital logic and display", Proceedings of the 2nd European Union symposium on Ambient intelligence. ACM, 2004.

Miss. Ashwini Malunjkar has completed her BE E&TC and now pursuing ME in VLSI and Embedded from Sahyadri Valley College of Engineering and Technology, Rajuri, Dist. Pune, Maharashtra, India.

Email Id. ashwinimalunjkar@gmail.com

Mr. Manoj Kumar Singh Completed ME In Digital Electronics, Working As an Assistant Professor at SVCET, Rajuri, Maharashtra, India.

Email Id. manojkumar1985.111@rediffmail.com