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Automatic Notice Board

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Abstract: Notice board is a primary thing in any institution or public utility places like bus station, railway station, colleges, malls, etc. But displaying various notices day to day is difficult process. A separate person has to be employed to take care of this notices. This utilizes a lot of resources like paper, printer ink, man power and time.

This project is built around Raspberry-Pi which is the heart of the system. In this project we have proposed a system which enables people to transmit messages on notice board by using Raspberry-Pi. In this system, only authorized person can access the notice board to display messages and the notice board keep on displaying notices/messages unless it is stop by the same authorized person. As we are using LAN hence data transfer speed will be high which in turn reduce the time. This system is not only cheap but also save the resources like paper and man power. At any time we can add or remove or alter text according to our requirement remotely.

The expected result of this system is to give security to the data which are transmitted between transmitter and receiver and reduce the labor work.

Applications of our project are in Education Institute, In Crime Prevention, Advertisement and Railway Station, etc.

I. INTRODUCTION

People want to remain updated with the latest news and events around the world. Best way of doing this to put notices in public places and transportation systems. But for doing so lot of paper's and manpower is required. To overcome all these complications we have designed a remotely controlled notice board.

The main objective of our project is to design wired notice board that display messages sent by the user to remote places. Another objective is to design it simple as possible, easy to install & user friendly system so that any non-technical person can also operate it with ease. Our notice board will remotely display the information's sent by the user in remote places with the date and time.

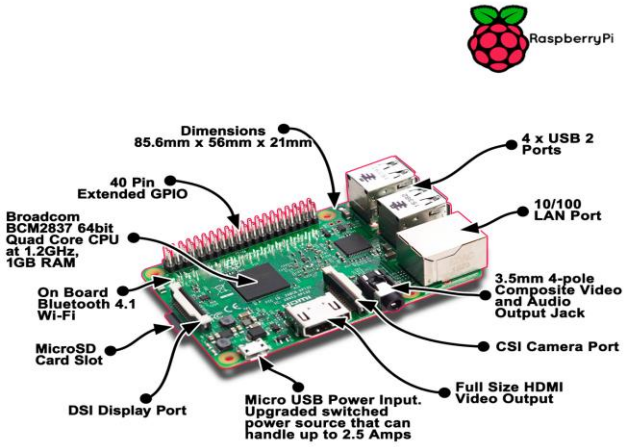
II. ELECTRONIC HARDWARE AND SOFTWARE

A. *HARDWARE*

- Raspberry Pi

Raspberry Pi is a credit card sized single board computerdeveloped in the United Kingdom by the Raspberry Pi Foundation to promote the teaching of basic computer science in schools and developing countries.

There are several generations of Raspberry Pi like A, A+, B, B+, etc. We use Raspberry Pi B+ model because it is more advance compare to its earlier version and it has following features.

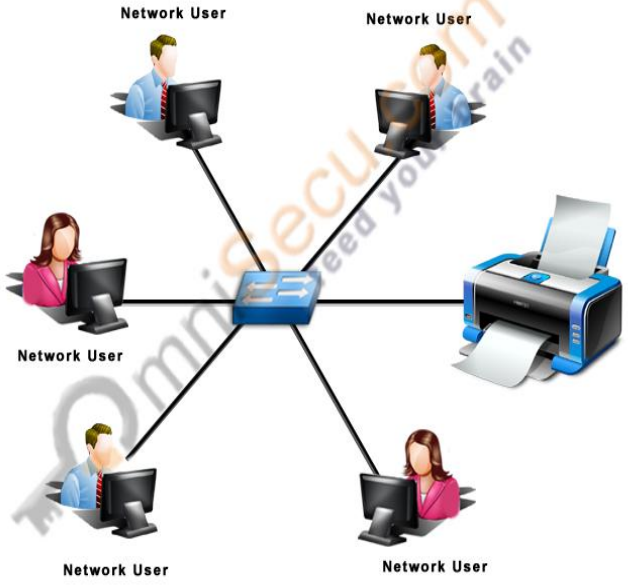


Features of B+ model:

i. CPU: 1.2 GHz 32 bit quad -core ARM cortex –A53
ii. Memory : 1GB RAM
iii. Power: 4W
iv. Storage : micro SDHC
v. Current : 800mA
vi. GPIO: 40 pins
vii. USB Port: 4 port

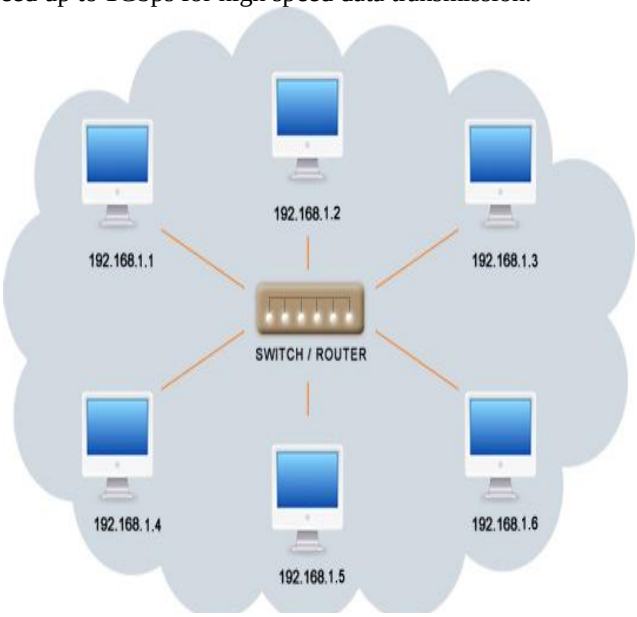
- LAN

Local Area Network is a computer network that interconnects computers within a limited area such as a school, university, office, etc. There are various types of topologies of LAN. Network topology describes the layout of interconnection between devices and network segments. At the data link layer and physical layer , a wide variety of LANtopologies have been used, including ring, bus, mesh and star.



LOCAL AREA NETWORK (LAN)

Simple LANs generally consist of cabling and one or more switches. There are various types of LAN depend on types of cable and there speed. Here we use CAT6 cable which support speed up to 1Gbps for high speed data transmission.



B. *SOFTWARE*

- Python Software

Python Software is a widely used general purpose high level programming language. Python Software was created by Guido Van Rossum, a former resident of Netherland. It's design philosophy emphasizes code readability, and it's syntax allows programmers to implement logic in fewer lines of code compared to languages such as C++ or Java.

Python Software supports multi-paradigm programming language including object oriented programming and functional programming. It support features like easy to learn, portable, interpreted, object oriented, extensible, multi operating system, etc. An important feature of Python Software is dynamic name resolution, which binds method and variable names during program execution. Various versions of Python Software are available in market like Python 2.0, Python 3.0, etc. but we use Python 3.6.

III. WORKING

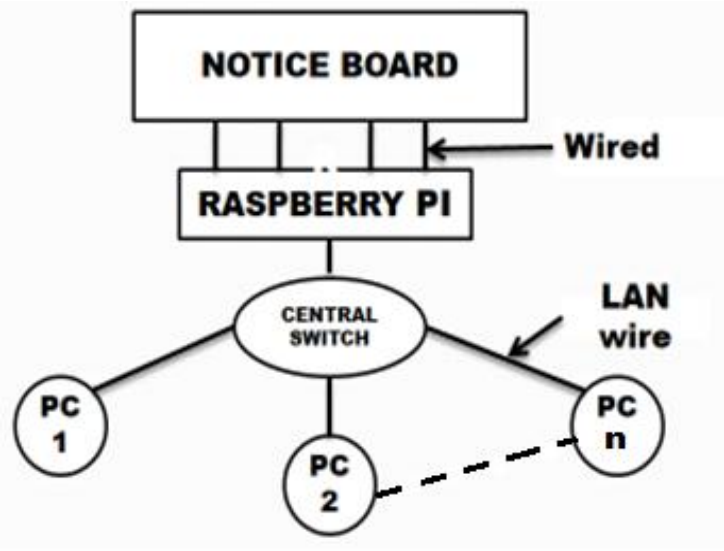


Fig. Block Diagram

The entire system is divided into two sections: transmitter and receiver. The transmitting section consists of personal computer with LAN connectivity and the receiving section consist of raspberry pi and notice board (LCD Monitor). The SD card connected to Raspberry pi consists the operating system and the software which we will write using Python. Appropriate power supply (5V 1A SMPS) is also required for the working of the whole system.

The LCD is connected to the raspberry pi by using the HDMI port. After turning on the power supply a "Welcome" message will be displayed on the screen by default, and later the default home screen of the operating system will be displayed.

A python application developed for full screen notification should be executed after the booting process is over.

Notice messages that needs to be displayed has to be stored in the memory. Messages stored will be read by an application developed by Python software and executed just after the start of operating system and keep on displaying notices unless stopped by authorized person or the system is shut down. To provide access to the authorized user we can provide the LAN (internet) connectivity. The network can be only accessed by authorized user through the IP address. Only authorized person can modify the notice board file and update the notice board display.

IV. APPLICATION

- In educational institutions an organizations for displaying notices.
- In crime prevention: display boards put up on the roads will display tips on public security, accident prevention.
- Information on criminals on the run.
- Advertisement: in shopping malls.
- Railway station: instead of only announcing the delay in arrival of trains we can display the information.

V. ADVANTAGES

- Reduce manpower.
- Text can be entered from remote place.
- Data can be stored in memory so it will not be lost in power failure condition.
- Printing and photocopying cost are not required.
- Save time, energy and resources.

VI. FUTURE SCOPE

A. *USE TOUCH PAD*

We can use touch screen on notice board so that instead of updating data from an authorized person's PC, we can update content directly.

B. *WIRELESS SYSTEM*

Instead of using a wired system we can use a wireless system using GSM module and Wi-Fi connectivity.

VII. CONCLUSIONS

Now the world is moving towards automation, so in this world if we want to do some changes in thepreviously used system we have to use the new techniques. It saves resources and time. Data can be sent from remote location. User authentication is provided. Previously the notice board using GSM was used in that there was the limit of messages but in our system Multimedia data can be stored on chip or on SD card. Text messages and multimedia data can be seen whenever we want to see.

VIII. ACKNOWLEDGEMENT

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