Smart Notice Board - A Technical Review

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Abstract: Notice board are playing very important role in our day to day life. By replacing convolution analog/digital type notice board with a IOT based smart notice board. We can make information dissemination much easier in paper community. Here admin can control notice board through web application. In this system any type of information in the form of text, image, pdf, video. Here PC/laptop/mobile are used to send information and for receiving information raspberry pi is used at receiver side. The received information is displayed through projection device. using present technological devices, hoe an efficient and smart notice board can have made is explained in this paper.

Index terms - Raspberry Pi CD 3, projection device, Android/PC.

I.INTRODUCTION

In 21th century, everyone needs a comfort living life. Man has researched different technology for his need. This world is full of connectedness; people are becoming habitual to easy access to information. Though the information is received through the internet or television, people want to be informed and up-to-date with the latest events happening around the world.

Wired network connection such as Ethernet has many drawback depending on the need and type of connection. now a day's people like &prefer wireless connection rather than wired connection because wireless connection can interact with people easily and it require less time. Notice boards are used in many different types of organisations for communication purposes. Using these types of boards is an effective way of displaying information and communicating with staff and visitors. placing notice boards at carefully-chosen strategic spots in the workplace can help gain workers' attention and thus can be used for displaying advertisements, announcements, schedules, etc.

The main objective of this project is to construct an **"IOT BASED SMART NOTICE BOARD"** system using raspberry pi that display notice sent from the user and to design a simple, easy to install, user friendly system, which can receive and display notice through projection device with respect to date and time so that the user can easily access or know the latest notices or messages.

II.SYSTEM LETRATURE SERVEY

1) WIRELESS NOTICE BOARD

Diba A shaikshubham u. darekarvishvajit V Gokhale, publish a paper on Wireless Digital Notice Board using cloud platform system.In this proposed system the user will enable to transmit notices wirelessly on a notice board using Controller having Wi-Fi Module with smart phone and users get auto notification using cloud. Its operation is based on microcontroller. When the user sends notice through smart phone simultaneously that message will get display on the LED display board and also through the cloud other users get auto notification on their smart phone.

Limitations:

- Uses LED Board.
- Unable to display Audio and Video.
- Limited number of Character.

2) DIGITAL NOTICE BOARD

Tejal P. Modi, Ayaz N. Kureshi, pratiksha S. Ostawal,publish a paper on "Digital Notice Board".This paper is mainly about digital notice board with raspberry pie in which there is an android application that is connected with LCD display via Raspberry pie using WIFI module in these systems the main feature is scheduling of notices on the basis of priority and also backup facility and notification facility for the user is also provided.

Limitations:

- User can access system only in limited range.

- LCD display which is costlier and chances of screen damage.
- Internet is mandatory.

3) REAL TIME DIGITAL NOTICE BOARD

Jyoti S. Avhad, Vedika S. Bhavsar, Prof.Jagdish Y. Kapdnes, publish a paper on "Real Time Digital Notice Board".This paper deals with advanced notice board. There proposed system will enable people to wireless transmit notices on a notice board using Blue tooth with smart phone and users get auto notification using parse cloud. Its operation is based on micro controller ATMEGA 328P Programmed in C language. When the user sends notice via registered smart phone simultaneously that message will get display on the notice board and also through the parse cloud other users get auto notification on their smart phone. They can also make the system compatible with more than one wireless technology.

Limitations:

- SMS Based system.
- Due to Bluetooth device system operate in limited range.
- SIM card is compulsory.

4) DIGITAL NOTICE BOARD USING RSPBERRY PI

Vinod B. Jadhav, Tejas S. Nagwanshi, Yogesh P. Patil , Deepak R. Patil , publish a paper on "digital notice board" This paper deals with remotely send notice to Digital Monitor from an Android application based on Raspberry pi card. A Wi-Fi is using for Data transmission. At any time, authorized person can add or remove or alter the text according to our requirement. At transmitter side authorized PC is used for sending a notices. At receiving side Wi-Fi is connected to raspbery pi. When an authorized user sends a notice from his account, it is received by receiver. Wireless communication system is a widely referring 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.

III.METHODOLOGY

Usually, innovation has come as a key factor to help to make administrative work much easier; campus executives are using new and improved versions of existing technologies to get better control of administrative activities. The notice board display is a flat solid object placed at strategic positions making it an object on which notices and articles are being placed. As these notices are being displayed on the boards, some of the old notices are not removed and with time the notice boards get filled up with relevant and unwanted notice messages, as a result of this, a person might not take caution of any new notice being displayed. The main function of proposed system is to develop a simple user friendly system that display notice sent from the authorized person through intranet which may image/text/video.
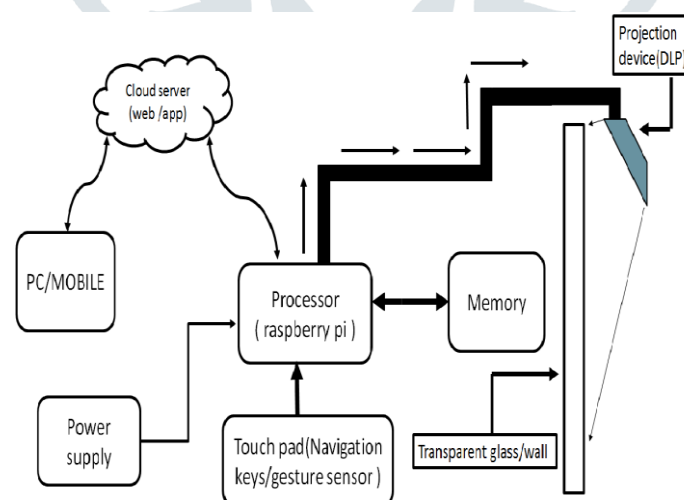

Fig.block diagram

It uses Raspberry pi as a processor. Raspberry pi is equipped with the portable projection device. The web application is developed were the only authorized person has login ID and password. The proposed system can easily access by student/user with respect to date and time and it also keep track of notice. In order to access this system, sender must have registered into the corresponding web application. Authorized person can access this web application either using personal computer or smart phone.

At receiver section, Raspberry pi connected on Wi-Fi for accessing intranet/internet. After switch on Raspberry pi it will collect data from cloud (web), The web address for collecting data from the cloud is already specified through program written in the processor. Also the URL provided for public/students to check previous day's/weeks' notice which is stored in internal memory of Raspberry pi.

The projection device i.e. Digital Light Processor (DLP) through which the notice/image/video/text can be displayed on any type of projection screen like wall, transparent glass or projection curtain. For public/student usage there is gesture sensor is provided to check the previous or current notice.

IV.HARDWARE & SOFTWARE DESCRIPTION

4.1 Software /programming language:

For designing Web application and running it on processor the following programming language are used:

- Python
- HTML
- JAVASCRIPT
- PHP.

4.2 Hardware Devices:

The main components or device use in this system is:

4.2.1 Raspberry pi CB++:

As Raspberry Pi is hardware which has evolved through several versions that feature variations in memory capacity and peripheral-device support. Raspberry pi is a low cost, credit-card sized computer that can easily be plug into a computer monitor or TV, and uses a standard keyboard and mouse. It is a small processing device that enables people of all ages to explore computing, and to learn how to program in languages like Scratch and Python.
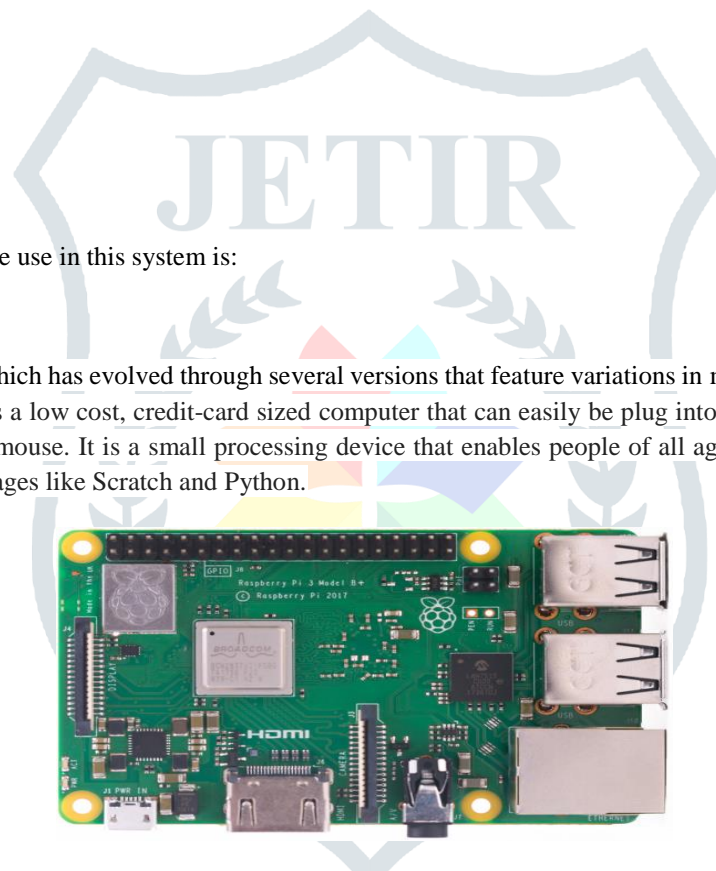

Fig.raspberry pi CB++

➢ Specification

- It is 3 Model B+ is the latest product in the Raspberry Pi 3 range.
- Boasting a 64-bit quad core processor operate at 1.4 GHz.
- It has Dual-band 2.4 GHz and 5 GHz wireless LAN, Bluetooth 4.2/BLE, faster Ethernet, and Poe capability via a separate Poe HAT.
- The Raspberry Pi 3 Model B+ mechanical footprint is same as both the Raspberry Pi 2 Model B and the Raspberry Pi 3 Model B.

4.2.2 Projection device (DLP):

Digital Light Processor is an optical image display technology with a rapid growth and maturation, is a revolutionary way to project and display information. This technology is based on the Digital Micro Mirror Device (DMD). Digital Light processing was invented in 1987 by Texas Instruments which creates the final link to display digital visual information.

Digital Light Processing creates deeper blacks. It carries fast moving images very well and uses a single, replaceable, white -light bulb. It is available in both front-and rear-projection models. Digital Light Processing is an outstanding choice for people who watch a lot of sports or fast-action movies because of the speed at which it creates an image.
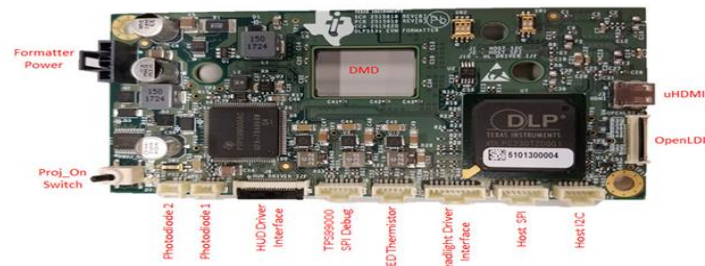

Fig.dlp board

A Digital Micro Mirror Device chip is the heart of Digital Light Processing projector, DMD can be described simply as a semiconductor light switch. The micro mirrors are mounted on the DMD chip and it tilts in response to an electrical signal. The tilt guides light toward the screen, or into a "light trap" that removes unwanted light when reproducing blacks and shadows. Other elements of a Digital Light Processing projector consist of a light source, a cooling system, a color filter system and illumination and projection optics.

4.2.3 Navigation Button /Gesture Sensor:

Gestures can be obtained from any bodily motion or state but commonly originate from the face or hand. Recent focuses in the field includes emotion recognition from face and hand gesture recognition. Users can utilize simple gestures to control or collaborate with devices without physically contacting them.
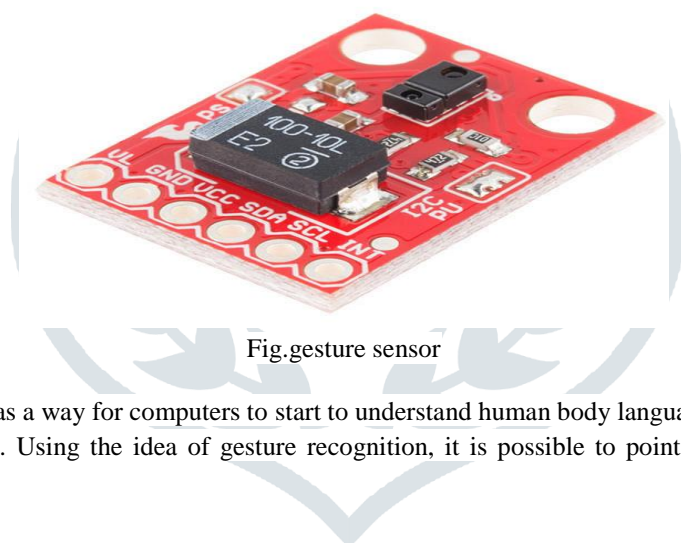

Fig.gesture sensor

Gesture recognition can be seen as a way for computers to start to understand human body language, which builds a richer channel between computers and humans. Using the idea of gesture recognition, it is possible to point a finger at this point will move consequently.

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