IOT Based Automatic Time Table Using Raspberry Pi

Shaikh Hussain Layak[1], Nande Shubhangi Bhairvnath[2] , Chelkar Priti P[3], Prof. Tekale N. S[4]

B.E Student, Dept. of Electronics and Tele-Communication Engineering, S.T.C Kolpa, Latur, India[1]

B.E Student, Dept. of Electronics and Tele-Communication Engineering, S.T.C Kolpa, Latur, India[2]

B.E Student, Dept. of Electronics and Tele-Communication Engineering, S.T.C Kolpa, Latur, India[3]

Professor, Dept. of Electronics and Tele-Communication Engineering, S.T.C Kolpa, Latur, India[4]

ABSTRACT: The main aim of this project is to intimate staff or Students about their class. In this class technology, which shows the improvement in technology in a right way's . the total schedule of the college is considered here. This is an emerging technology which is regularly in use Here we design TIME TABLE MANAGEMENT SYSTEM by using Raspberry & IOT based technology for class room display and to inform faculty with time table. We are using the Mobile Wi-Fi 0r LAN for transmitting the information, the information received is send to the Raspberry to display the information on display board .

I.INTRODUCTION

Automatic Timetable Generator is a Java based software used to generate timetable automatically. Currently timetable is managed manually. It will help to manage all the periods automatically and also will be helpful for faculty to get timetable in their phone by using application. It will also manage timetable when any teacher is absent , late coming or early going. Maximum and minimum work load for a Faculty for a day, week and month will be specified for the efficient generation of timetable. By using this software users can apply for leave by providing leave required date, reason and also with substitute faculty. When selecting a faculty as substitute it allows to view timetable of that faculty for ensure that the faculty is free at that particular period. Substitute can approve or reject request. Principal can also view the request send by faculty and can also view substitute response. Principal can approve / reject request. It is a comprehensive timetable management solutions for Colleges which help to overcome the challenges in manually setting the timetable. By using this software it will be very easy for faculty to get timetable in their phones.

Normally timetable generation done manually. As we know all institutions/organizations have its own timetable, managing and maintaining these will not be difficult. Considering workload with this scheduling will make it more complex. As mentioned , when Timetable generation is being done, it should consider the maximum and minimum workload that is in a college. In those cases timetable generation will become more complex. Also , it is a time consuming process. Automatic Timetable manger is a Java based software used to generate timetable automatically. Will help you to manage all the periods automatically and also will be helpful for faculty who will get timetable in their phone as a notification. It will also manage timetable when any Teacher is absent late coming or early going. Proposed system will help to generate it automatically also helps to save time . There is no need for Faculty to worry about their period details and maximum workload. By using this software users can apply for leave by providing leave required date, reason and also with substitute faculty. When selecting a faculty as substitute it allows to view timetable of that faculty for ensure that the faculty is free at that particular period. Substitute can approve or reject request. Principal can also view the request send by faculty and can also view substitute response. Principal can approve / reject request. It is a comprehensive timetable management solutions for Colleges which helps to overcome the challenges in current system.

II.RASPBERRY PI B+ MODLE

The Raspberry Pi is a series of small single-board computers developed in the United Kingdom by the Raspberry Pi Foundation to promote teaching of basic computer science in schools and in developing countries. The original model became far more popular than anticipated, selling outside its target market for uses such as robotics. It does not include peripherals (such as keyboards and mice) and cases. However, some accessories have been included in several official and unofficial bundles.

The organisation behind the Raspberry Pi consists of two arms. The first two models were developed by the Raspberry Pi Foundation. After the Pi Model B was released, the Foundation set up Raspberry Pi Trading, with Eben Upton as CEO, to develop the third model, the B+. Raspberry Pi Trading is responsible for developing the technology while the Foundation is an educational charity to promote the teaching of basic computer science in schools and in developing countries.

According to the Raspberry Pi Foundation, more than 5 million Raspberry Pis were sold by February 2015, making it the best-selling British computer. By November 2016 they had sold 11 million units, and 12.5m by March 2017, making it the third best-selling "general purpose computer". In July 2017, sales reached nearly 15 million. In March 2018, sales reached 19 million.

Fig1. RASPBERRY PI B+ MODLE

III. HDMI (High-Definition Multimedia Interface)

HDMI Is a proprietary audio/video interface for transmitting uncompressed video data and compressed or uncompressed digital audio data from an HDMI-compliant source device, such as a display controller, to a compatible computer monitor, video projector, digital television, or digital audio device. HDMI is a digital replacement for analog video standards.

HDMI implements the EIA/CEA-861 standards, which define video formats and waveforms, transport of compressed and uncompressed LPCM audio, auxiliary data, and implementations of the VESA EDID.CEA-861 signals carried by HDMI are electrically compatible with the CEA-861 signals used by the Digital Visual Interface (DVI). No signal conversion is necessary, nor is there a loss of video quality when a DVI-to-HDMI adapter is used. The CEC (Consumer Electronics Control) capability allows HDMI devices to control each other when necessary and allows the user to operate multiple devices with one handheld remote control device.

Several versions of HDMI have been developed and deployed since the initial release of the technology, but all use the same cable and connector. Other than improved audio and video capacity, performance, resolution and color spaces,

newer versions have optional advanced features such as 3D, Ethernet data connection, and CEC (Consumer Electronics Control) extensions.

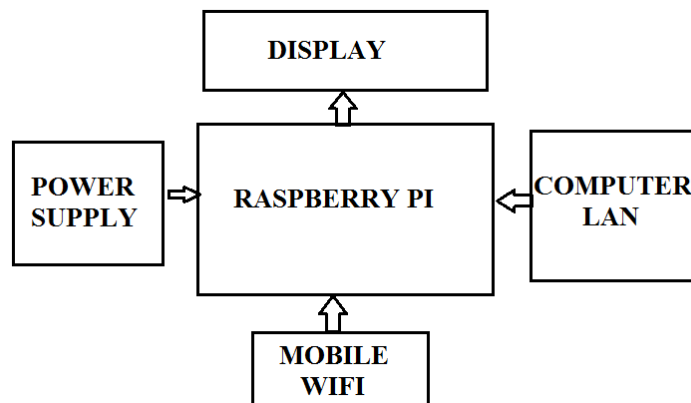Fig2. HDMI

IV.WORKING

Fig3. BLOCK DIAGRAM OF Automatic Time Table IOT Based

Above Fig3 Shows block diagram of Automatic Time Table IOT Based which consist of following blocks
- Raspberry pi
- Mobile Wi-Fi
- Computer LAN
- Power Supply
- Display

Raspberry pi controls whole process of project , which receives the information from Mobile Wi-Fi or through Computer LAN .These information interprets by the raspberry pi and send to the display using HDMI cable .

Through mobile Wi-Fi the user can receive as well send the information to raspberry pi , using Mobile Apps user also can be edit the all information which shown on the Display.

The Same process can be done from computer because of the computer connected to raspberry pi through the Ethernet cable .

The 5volt power supply is given to raspberry pi using min USB port of raspberry pi and the different power supply required for display according to its requirements.

V. RESULT AND DISCUSSION

In the fig 4, it shows the Time Table Of Sandipani Technical Campus , it contains all the periods according to Time and this can be edit through mobile app or Computer browser. The Time table can be easily modified according to the user requirements , all the information of can be editable .

Fig4. BLOCK DIAGRAM OF Automatic Time Table IOT Based

Advantages

- Reduce Paper Work.
- Reduced errors.
- Create a paperless environment
- Customizable & Flexible
- Real-time updates

VI.CONCLUSION

Automatic Timetable management is a web based application for generating timetable automatically. It is a great difficult task that to manage many Faculty's and allocating subjects for them at a time manually. So proposed system will help to overcome this disadvantage. Thus we can generate timetable for any number of courses and multiple semesters. This system will help to create dynamic pages so that for implementing such an system we can make use of the different tools are widely applicable and free to use also.

If you are an educator, you probably know the struggle of manually preparing everything. But it doesn't have to be that way as now we've shown you the solution to take your Timetable Management to the next level. The benefits that the right timetable management system can bring to your institute are numerous. From streamlining your timetable planning process, reducing errors to updating everyone on relevant update and more the system can help you cut down time and reduce stress.

REFERENCES

[1]   www.techopedia.com
[2]   www.raspberrypi.org
[3]   www.digikey.in
[4]   www.Tutorialpoints
[5]   http://en.wikipedia.org/wiki/MySQL http://www.wpi.edu/Serlvets & JSP - Falkner Jones.pdf
[6]   http://edutechwiki.unige.ch/en/Educational_technology
[7]   http://www.wpi.edu/Images/Tutorial_JSP
[8]   ww.alldatasheet.com   (For Component Data sheet)
[9]   https://www.pibox.in/product/pibox-raspberry-pi-3b-basic-combo-red-3205rw/
[10] https://www.youtube.com/watch?v=OtCcaQOaNY0&t=36s
[11] https://www.raspberrypi.org/products/raspberry-pi-3-model-b-plus/