Proceedings of Second Shri Chhatrapati Shivaji Maharaj QIP Conference on Engineering Innovations
Organized by Shri Chhatrapati Shivaji Maharaj College of Engineering, Ahmednagar
In Association with Novateur Publications JournalNX-ISSN No: 2581-4230
February, 22nd and 23rd, 2019

Smart Notice Board

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***Abstract*— A notice board is a surface intended for the posting of public messages, for example, to advertise items wanted or for sale, announce events, or provide information. Notice boards are mandatory asset used in institutes and organizations or public places. The process of notice board handling is a time consuming and hectic. To overcome this problem a new concept of digital notice board is introduced in this paper. This concept provides digital way of displaying notices using Android application and Wireless technology.**

Keywords*— Notice Board, Wireless Technology, Android application, Kiosk mode, PHP- Hypertext Preprocessor.

I. INTRODUCTION

The main concept is to use Liquid Crystal Displays (LCD) to display notices which are controlled using voice commands. We have already seen GSM based notice board, but voice controlled allows extra advantage. The user sends the message from the Android application device, it is received and retrieved by the Wireless Fidelity (Wi-Fi) device at the display unit. Android application allows user to take voice commands as input and send it to Raspberry Pi. This function is carried out using Wi-Fi. After receiving the sent text is processed and displayed on the LCD screen connected to Raspberry Pi. The font size is customizable and can display multiple notices at time. Raspberry Pi is used as it allows using PHP templates to display notices.

II. EXISTING SYSTEM

- One of the existing system is implemented using Global System for Mobile Communication (GSM) where Short Message Service (SMS) is used to send notices to the controller which limits the data size.
- Another existing system uses Bluetooth as mode of data transfer between microcontroller and the Android app, but this technique is time consuming.
- Updated system for the above technique includes Arduino board as a controller to make use of Wi-Fi Technology. As Arduino does not have inbuilt Wi-Fi support external hardware is used.
- No voice command facility was provided in any of the above system.

III. PROPOSED METHOD

This section gives a basic overview of the system. Fig. 1 shows the block diagram of the system.

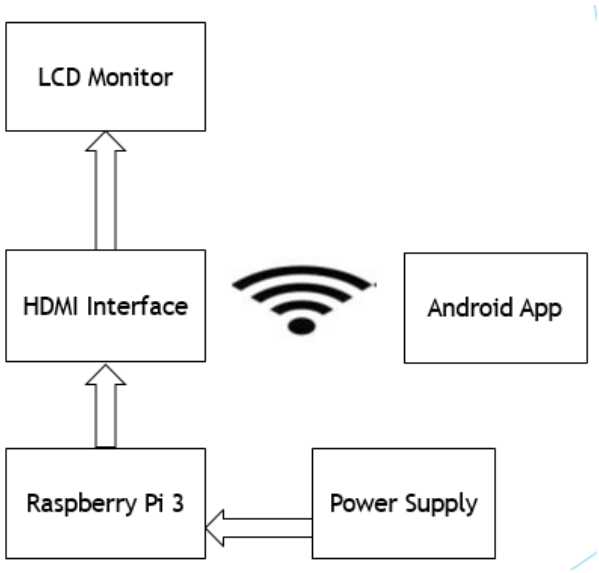

Fig. 1. Block diagram of the system

The notice to be displayed is sent from android application using Socket programming in java.

- As Wireless transmission is used, large amount of data can be transferred over the network.
- Client Server Model is used for communication purpose. Android application is the client who sends notices to server, which is Raspberry Pi.
- Server is implemented using Python. The server processes the data and displays it on the screen using PHP templates
- Raspberry Pi provides two video output facility. Which is composite Radio Corporation of America (RCA) and High-Definition Multimedia Interface (HDMI).
- Video Graphics Array (VGA) port of display screens can be used by using HDMI OUT port of the Raspberry Pi 3 model B with a HDMI to VGA convertor.
- Therefore, the proposed method is versatile with respect to display options.

IV. IMPLEMENTATION

This section explains the execution flow from establishing communication between the Android application and Raspberry pi to displaying the notices on the screen.

- As shown in Fig.2, first the message is sent from the application and stored at Raspberry Pi. The message is retrieved and the contents are updated and stored on SD card.
- Now the text message is read from the SD card. Fetched text is wrapped in a template and displayed on the screen using browser which is open in kiosk mode.
- For the communication to take place, both Raspberry Pi and android application must be connected to same Wi-Fi network. This can be achieved using server side coding in Python and making Raspberry Pi as an Access Point.
- In case of power failure, after boot up on resumption of power supply, the browser window should open automatically so that the display screen is ready to show the notice.
- For aesthetic reasons, the boot messages and the Raspberry pi logo which also appears in the top left corner of the screen can be hidden.

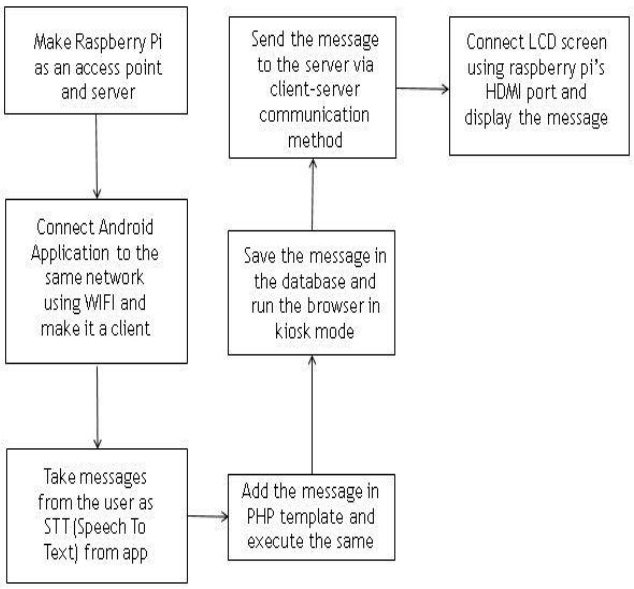

Fig. 2. Implementation flow chart

V. MATHEMATICAL MODEL

- M1 sends notice to m2.
- M2 is the access point which provides the network for m1 to connect.
- After receiving notice from m1, m3 processes it and includes it in m4, which is PHP template.
- This processed data is sent from m3 to m5.
- M5 displays the message on LCD screen

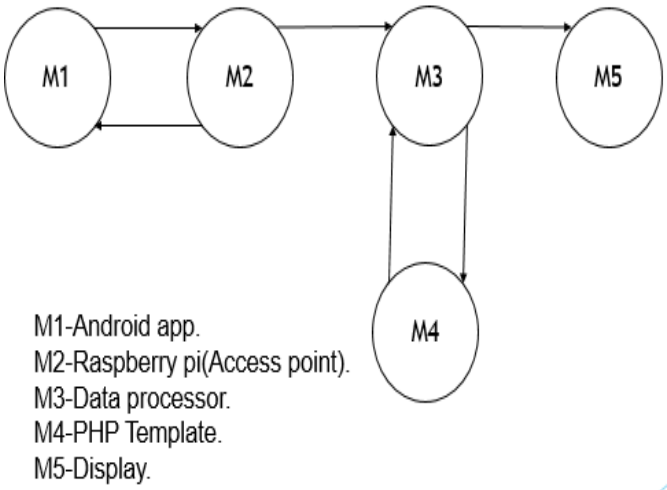

Fig. 3. Mathematical Model

VI. OUTPUT

Fig. 4. Output Result

Fig 4. Shows the final demo result on LCD screen using PHP template using Raspberry Pi.

VII. CONCLUSION

Current world prefers automation and digitalization in such a way this project will be more useful in displaying the messages, videos, pictures in Wireless E-notice board through android app development application by Raspberry Pi.

By which the message can be send by the users at anywhere from any location with high data speed. User will be able to provide notices using voice command which will be much easier. Only authorized user will have the access to the system which will provide security and integrity to organization using the system.

Thus the notice board will be more efficient in displaying the accurate messages at low cost.

VIII. FUTURE SCOPE

GLCD can be implemented for more advancement. Voice call can also be added for emergency purpose at public places.

Voice messages and buzzer can be included to indicate the arrival of new messages especially in educational institutions.

Acknowledgment

We take this opportunity to express my hearty thanks to all those who helped me in the completion of the Project on Smart Notice Board. We would especially like to express my sincere gratitude to our Guide Prof. Bangar P.H and HOD Prof. J.U. Lagad HOD Department of Computer Engineering who extended their moral support, inspiring guidance and encouraging independence throughout this task. We would also thank our Principal Sir, DR. R.S Deshpande for his great insight and motivation. Last but not least, we would like to thank my fellow colleagues for their valuable suggestions.

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