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Voice Automated Smart Notice Board

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ABSTRACT: Automation plays a vital role in the present as well as in the future generation for effective development. SMART NOTICE BOARD is an electronic based project. This voice automated smart notice board system can reduce the manual work needed. In this project, the development of simple and low cost SMART NOTICE BOARD is presented. The main concept of this proposed system is to develop an Internet driven smart notice board. Smart notice board system is a combination of both software and hardware. The main objective of this system is to develop a Notice Board that will be used by the faculty to display latest news or Announcements using the application through voice note. The other objective is to increase the speed of communication and to save time & resources. It can also be used to re-use the existing systems and add the additional features to added benefits. The Proposed system can accept both the voice data and as well as the text data entered. The voice data is implemented using the google voice assistant. It uses a Wi-Fi based serial communication system. For this purpose, Android based application is veloped and also google voice assistant is added to send the data through the means of internet. In this design messages are sent through an Internet to the cloud environment and then message is transmitted to the Node-MCU where the message is read and sent to digital display board.

I. INTRODUCTION

In this proposed system, the development of simple and low cost voice automated Smart Notice Board is presented. It uses a Wi-Fi based serial communication system. For this purpose, Android based application is developed for sending data between Android application cloud and the smart notice board. The proposed system has two modules, one functionality with the google voice assistant and the other is using the mobile application. The proposed system will aim in sharing the information wirelessly with authorized users and also helps in saving the time and cost for paper and printing devices. The messages or the data is received from the google voice assistant or the from the android application and the data's are stored in the cloud databases and from there they are passed to the led display monitors in the smart notice board. The data given can be both of text and voice commands, both are acceptable by the device. For performing the voice command we need to first say the command board and then we can go up with the information to be passed. The information passed will be scrolling on the LCD display.

II. EXISTING SYSTEM

In existing systems, there were notice boards where all the information will be fixed to a notice board and has to be changed daily for next updates and news. This becomes very difficult and requires daily change and maintenance. There are also certain notice boards which are programed to display a particular message and each and every time if we need to change the information, we need to code it again and run the program to change the message. This makes it more complex to perform in a daily manner.

III. PROPOSED SYSTEM

The proposed system is to provide with a low cost and a very easy use application which provides the user's to give message through voice and make it display in the notice board instantly. The data which is given are stored in the database and then from there it is fetched to the notice board. The data which is given can be both of voice (Google assistant) or even text, The text field box is also provided. This eliminates the time limit taken for the change of the information. Any information can be passed instantly through this system. All the information that are passed is done through the means of internet. The google voice assistant connected with the notice board starts to get information only if the command board is said at the beginning of the information.

III. METHODOLOGY

The world is growing at a very faster rate and so all the technologies must get updated on time to time basis. Automation is something which has to be focused and implemented. Our system, Voice automated smart notice board will be benefitted to an individual or group of people who are using it. The authorized users can give in their information to be displayed and just they need to do it is by either using the Google assistant or the mobile application. In this project, we have used Arduino IDE for the code implementation. We have also implemented an ESP8266 Node MCU Wi-Fi module for the connectivity. The proposed system consists of two concepts or functionalities, one is using Google assistant method and the other one is using the Android application.

1. IOT Notice Board through Google Assistant method : This concept sends the data or the information which the user gives from Google Assistant as voice to Adafruit IO Cloud Database. The Adafruit IO Cloud Database is a Cloud Storage system which stores the data and also the token key for the database identification. The data's that are stored in the Adafruit IO cloud database are triggered and then
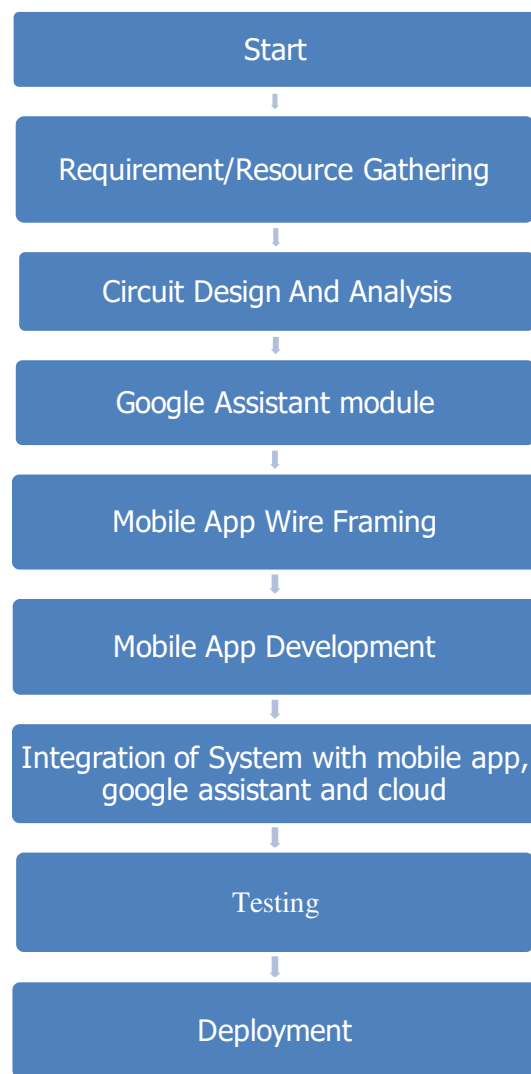

the Node MCU module which is the Wi-Fi enabled controller receives the information from the database and it sends it for the reference feed. MQTT Protocol is used for processing the data from the database and then to the controller and finally it will process the data for the display unit with an I2C communication protocol. This module can be accessed globally and only the internet is necessary for the access.

2. Android Application:

An Android application is also developed for the easy use of the proposed system. This application can send both the data in the form of text as well as in voice. The android application is connected with a Firebase cloud database. The data's from the android application is sent to the Firebase cloud database. The data's are sent in the form of a string and a combined data format to the Firebase cloud database. Once the data received by the Node MCU module controller it starts it process to sending the data to the notice board. The data's are received from the cloud database through an HTTP + MQTT Protocol. The data's received are processed and sent to the display unit using I2C communication.

CIRCUIT DIAGRAM
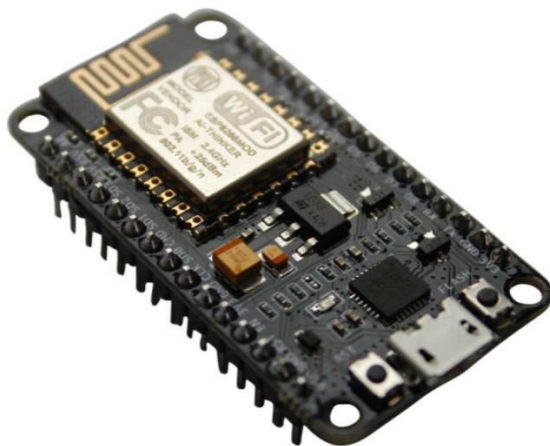
Node MCU

Node MCU is an open source IOT platform which is also available at low cost. The hardware used is a circuit board functioning as a dual in-line package (DIP) that connects a USB controller with a surface-mounted board containing the MCU.

Transformer

We use a step down transformer because 230 V DC voltage should be converted to 12 V AC voltage. Winding joule losses and leakage are represented by winding. We also implemented the concepts of primary winding and secondary winding.

Bridge Wave Rectifier

The rectifier is used for converting AC voltage to DC voltage. The diode used is a high speed switching diode.
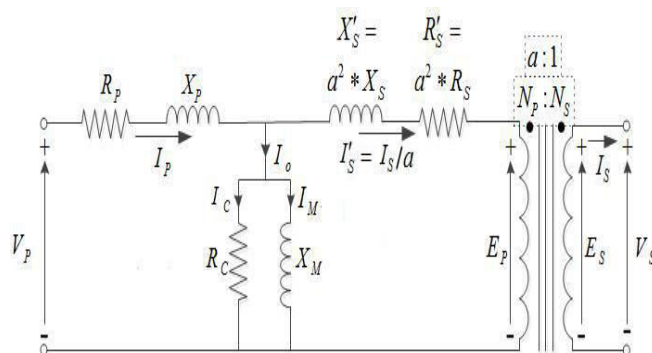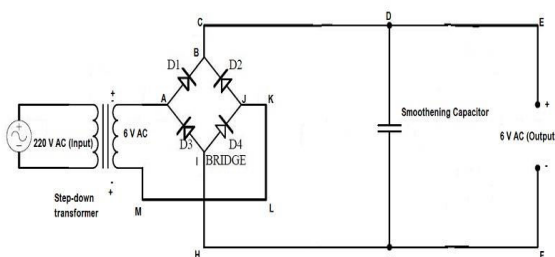
Voltage Regulator

A voltage regulator is an electronic device that maintains the voltage power source for a certain limit. The voltage regulator will keep voltages within the prescribed range that can be handled by the electrical equipment using that particular voltage.
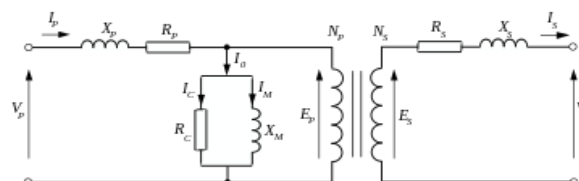
IV. LIMITATIONS AND FUTURE WORK

The wireless noticeboard can be used in public transportation areas like bus stations, railway stations and even at airports.Voice operated electronic device is mainly used in educational premises like schools, colleges and university campuses to display exam schedule, notice, event notification and exam result announcement.The main advantage of

voice automated smart notice board is that the wireless notice board is easy to install and easy to use.Voice controlled scrolling display is helpful for disabled people and handicapped people.We can implement the system with password or connect to a particular SID so that any other person cannot control the system.Android application is used to detect voice and also read input as text.Android app on smartphone or tablet will used for speech and text recognition. Maintenance and part repair issues.Stable internet connection is needed.The main disadvantage to a voice automated smart notice board is that a stable power and internet connectivity is necessary.The database connectivity is also necessary. If any problem with the database, the whole system may malfunction.

V. CONCLUSION

In this research paper, the complete design scheme and working methodology of a voice automated smart notice board is explained. This paper has all the information of the model which has advanced updates and working methodologies. This proposed system consists of two models one with the Google voice assistant and the other with the Android application as an UI. The proposed system identifies the voice exactly and sends the results back to the notice board. The model can be used and accessed from any location. The only module needed is an internet connection for both the smart notice board and the Android application. It provides simplicity, flexibility, reliability.

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