

IoT Based Voice Control Notice Board

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Abstract- *The Voice Controlled Notice Board is a computer controlled machine. the manual work. The construction of a simple and low. This automated system can reduce cost Voice Controlled Notice Board is addressed in this framework. The aim of this device is to create an automatic display board that is controlled by the Internet. This electronic machine is made up of both software and hardware components. The key goal of this device is to provide a remote notice board that faculty can use to post the most recent notices and announcements. The other goal is to improve contact speed while still saving time and money. It may also be used to increase the lowering costs. WiFi-- usability of existing designs and reduce the amount of space available, based cellular serial data networking is used in the proposed system. For Wi connectivity between an Android Fi based personal digital assistant and a remote wireless display screen, Android based device applications are used. In this design, messages are sent through an Internet from an authorized transmitter and then message is transmitted t to digital display board. Keywords: Voice Controlled Notice Board, Low To the Node MCU and the message is read and sent.*

I. INTRODUCTION

We come across situations where we need to urgently need to display notices on a screen. For areas like railway stations and other such busy facilities the station master/announcer need not have to type in every announcement message manually on the screen. So here we propose an innovative IoT based voice controlled notice board system that allows the user to display notices without typing them in manually. Here the announcer/administrator may speak out the message through his/her android phone(GOOGLE ASSISTANT), the message is then transferred by using IoT concepts and displayed on the screen. To demonstrate this concept we here use an an LCD screen to display messages.

Embedded systems are designed to do some specific task, rather than be a general-purpose computer for multiple tasks. Some also have real-time performance constraints that must be met for reasons such as safety and usability. Others

may have low or no performance requirements, allowing the system hardware to be simplified to reduce cost.

In the work of a multiuser SMS Based Wireless Electronic Notice Board, the work is aimed at displaying notices in colleges on electronic notice board by sending messages in form of SMS through mobile phone. It is a wireless transmission system which has very fewer errors and maintenance. The hardware board contains microcontroller AT89C52 at the heart of the system. The microcontroller is interfaced with GSM Modem via MAX232 level converter. It is used to convert RS232 voltage levels

II. SYSTEM ANALYSIS

T.P. Lambrou, C.G. Panayiotou in oct 2012. In that paper, they presented an improved hardware platform and developed a new advanced The possibility of sending messages through GSM has tremendously changed the way we communicate. Short or long messages can now be sent wirelessly from one end to the other remotely.

Using GSM mobile for displaying SMS on LCD notice board through wireless communication have been used in many ways [1, 2, 7, 9, 10, 12, 13, 15, 16, 17]. By using GSM networks, it is possible to decode the received SMS on the mobile phone to function in a particular way as necessary. The adverts nowadays are going digital with the advent of LCD and LED display board.

The GSM modem is a class of wireless MODEM devices that are designed for communication between a computer and GSM network [4]. It requires a SIM (Subscriber Identity Module) card just like mobile phones to activate communication with the network. They need AT commands, for interacting with processor or controller, which are communicated through serial communication. These commands are sent by the controller/processor. The MODEM sends back a result after it receives a command. Different AT commands supported by the MODEM can be sent by the processor/controller/computer to interact with the GSM and GPRS cellular network

The board contains microcontroller AT89C52 at the heart of the system. The microcontroller is interfaced with GSM Modem via MAX232 level converter. It is used to convert RS232 voltage levels to TTL voltage levels and vice versa. The hardware also has a 64K EEPROM chip AT24C64. This is used to store the timings and messages to be displayed. The main problem that prompts us to undergo this research work was the inability of display boards in most places particularly tertiary institution to be easily updated. This work seeks to eliminate this challenge by allowing for easy update of notice board electronically via GSM Network. The message that is to be displayed is sent through an SMS from a mobile phone to the authorized SIM in the GSM module. The microcontroller receives the SMS from the authorized transmitter, validates the sending Mobile Identification Number (MIN) and displays the desired information on the Liquid Crystal display

- 2 GPIO4
- 3 GPIO0
- 4 GPIO2
- 5 GPIO14
- 6 GPIO12
- 7 GPIO13
- 8 GPIO15
- 9 GPIO3
- 10 GPIO1
- 11 GPIO9
- 12 GPIO10

III. HARDWARE COMPONENTS

- NodeMCU ESP8266
- LCD Display
- Power Supply Unit

NodeMCU is an open source IoT platform. It includes firmware which runs on the ESP8266Wi-FiSoC from Espressif Systems, and hardware which is based on the ESP-12 module.



Fig3.1 NodeMcuESP8266

The term “NodeMCU” by default refers to the firmware rather than the development kits. The firmware uses the Lua scripting language.

NodeMCU provides access to the GPIO (General Purpose Input/Output) and a pin mapping table is part of the API documentation. Also, this node mcu consists of 3.3v and ground pin out for external power source.

I/O index ESP8266 pin

I/O index ESP8266 pin

0 [*] GPIO16

1 GPIO5

IV. PROPOSED SYSTEM

Unregulated 5VDC power supplies are basic power supplies with an AC input and an unregulated 5VDC output. The output voltage changes with the input voltage and load. These power supplies are inexpensive and extremely reliable.

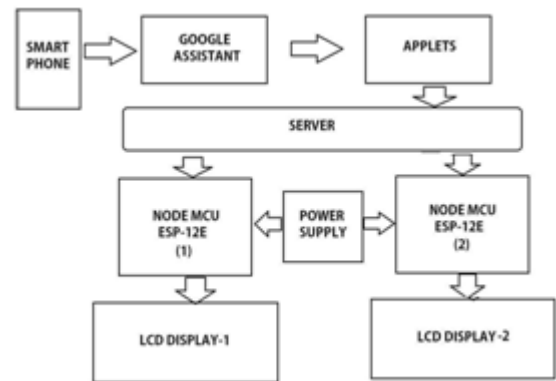


Fig 4.1 Main Block diagram

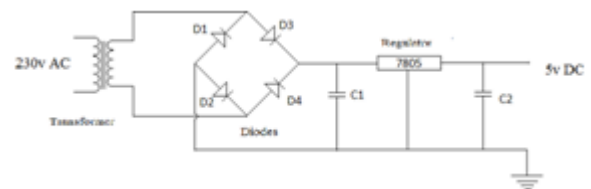


Fig 4.2 Circuit Diagram of Power Supply

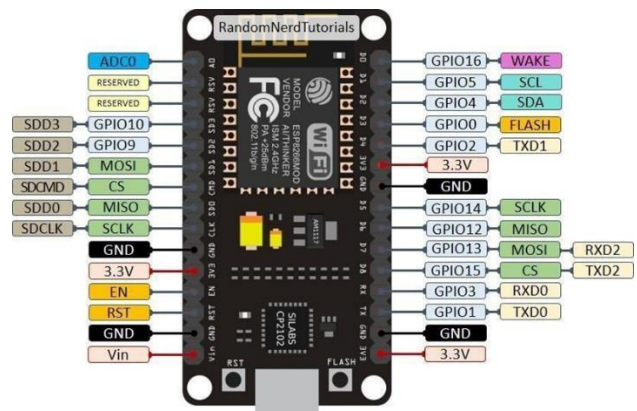


Fig 4.3 PIN DIAGRAM OF NODEMC

V. SOFTWARE COMPONENTS

Adafruit.io is a cloud service – that just means we run it for you and you don't have to manage it. You can connect to it over the Internet. It's meant primarily for storing and then retrieving data but it can do a lot more than just that!



Fig 5.1 ADAFRUIT IO

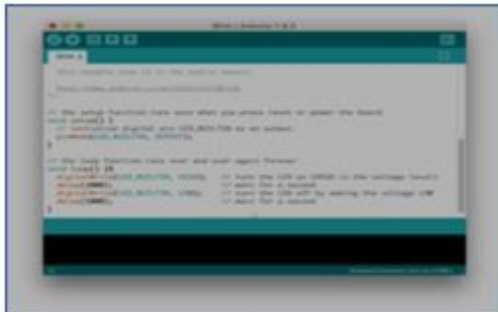


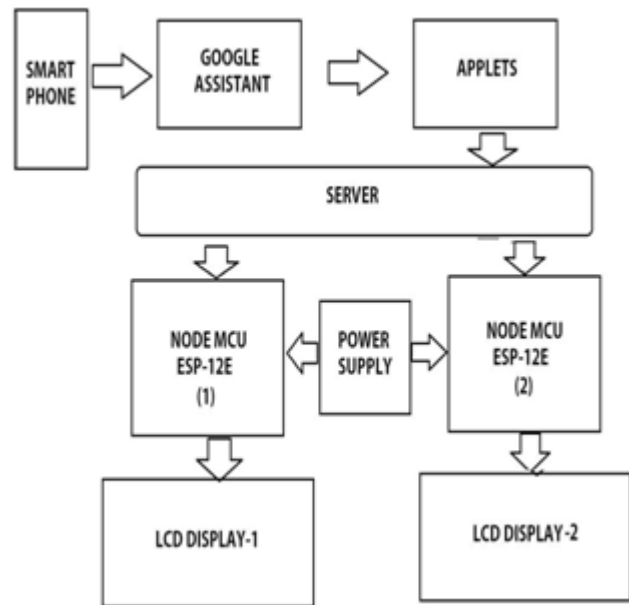
Fig 5.2 ARDUINO IDE

The Arduino integrated development environment (IDE) is a cross- platform application (for Windows, macOS, Linux) that is written in the programming language Java. It is used to write and upload programs to Arduino board.

The Arduino IDE employs the program argued to convert the executable code into a text file in hexadecimal encoding that is loaded into the Arduino board by a loader program in the board's firmware.

User-written code only requires two basic functions, for starting the sketch and the main program loop, that are compiled and linked with a program stub main() into an executable cyclic executive program with the GNU tool chain, also included with the IDE distribution.

VI. SYSTEM BLOCK DIAGRAM AND IMPLEMENTATION



The instructions or other information, announcement are passed to our mobile through Google assistant(voice recognition process).

This Google assistant analysis the input voice and generate the output as per the input and it send the input data's to the server.

Adafruit io was used as server side of this project. adafruit store the data's provided by google assistant .

Node Mcu connected with the server and retrieve the data's stored in the server. That retrieved data's are displayed using LCD Display.

VII. CONCLUSION AND FUTURE WORKS

In conclusion, to solve daily problems in any institute that requires simplification of visual aided presentation in efficient and effective way. Daily activities such as presentation of studies, schedule of classes can be simplified with application of this system concept in daily life. The main focus of the system is to reduce the wastage of time and resources and provide proper guidance to the students in efficient way as seeing how things actually work teaches better than just writing in the board. This will help to remove the conventional method of teaching and learning. Last but not the least this technology will bring new revolution in learning process.

The main idea of the proposed system is to provide better and efficient health services to the patients by implementing a networked information cloud so that the experts and doctors could make use of this data and provide a fast and an efficient solution.

- An advanced wireless notice board can be used in public transportation areas like Bus stations, Railway stations and even at Airports.
- Voice operated electronic notice board finds its main application in educational premises like schools, colleges, university campuses. It can be used to display information like exam schedule, notice, event notification, and exam result announcement.
- The main Advantage of Speech controlled electronic notice board is that the Wireless Notice board is easy to install and easy to use.
- Speech controlled rolling display is really helpful for disabled people or handicapped people
- We can add a feedback system in the Android app. So that user can get feedback of the action
- We can implement a password so that any other person can not control the system.

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