Smart Notice Board using NodeMCU ESP8266

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Abstract – *Notices are very important for any organization to sell their products. But we know that manual changing the notices day by day is also a difficult task. We have seen digital notice boards in the airport, buses, railway stations, etc. But with the Internet of things (IoT), we can revolutionize noticeboards by making them wireless G*

*Key Words***: ESP8266, NodeMCU, Internet of Things,LCDG**

1. INTRODUCTION

Notice boards can be used anywhere and are very useful in hotels, malls, colleges, offices to display messages, alerts, offers, etc. But it is a very tedious task to change the notice every day by using IoT based notice board using NodeMCU we can remotely change the notice using the web browser

1.1 INTERNET OF THINGS

The Internet of things is embedded with sensors and other technologies to connect and share data over the internet. IoT is one of the advancing technologies in the current world it is low cost and simple in design.G

2. NODEMCU

NodeMCU is an open-source firmware based on LUA which is developed for ESP8266 wifi chip. NodeMCU is used for prototyping board designs. The name NodeMCU has arrived from the node and MCU (micro-controller-unit). The system development environment is SOC (system on chip).The main reason for using NodeMCU other than Raspberry Pi and other devices that it has inbuilt wifi module and it is cheaperG

2.1 NodeMCU COMPATIBILITY WITH ARDUINO IDE

NodeMCU gives a variety of development environments, including compatibility with the Arduino IDE (*I*ntegrated *D*evelopment *E*nvironment).
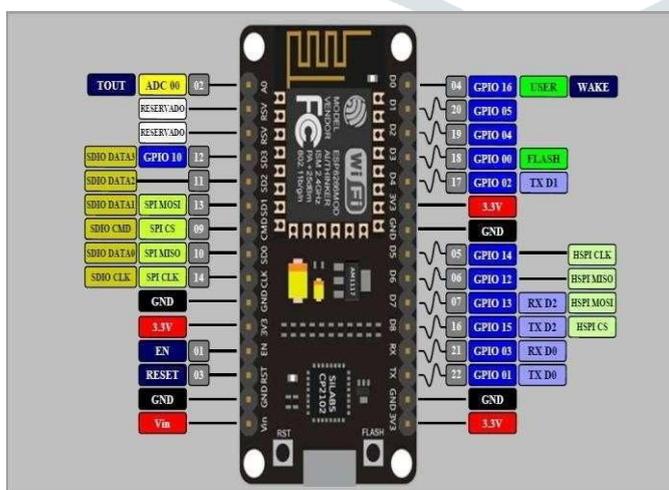
The NodeMCU/ESP8266 community took the IDE selection a step further by creating an Arduino add-on; this is the highly recommended environment.
Fig -1: NodeMCU

2.2 Technical specification of NodeMCU

Microcontroller	ESP-8266 32-bit
NodeMCU Model	**Amica**
NodeMCU Size	49mm x 26mm
Carrier Board Size	n/a
Pin Spacing	**0.9" (22.86mm)**
Clock Speed	80 MHz
USB to Serial	**CP2102**
USB Connector	Micro USB
Operating Voltage	3.3V
Input Voltage	4.5V-10V
Flash Memory/SRAM	4 MB / 64 KB
Digital I/O Pins	11
Analog In Pins	1
ADC Range	0-3.3V
UART/SPI/I2C	1 / 1 / 1
Wi-Fi Built-In	802.11 b/g/n
Temperature Range	-40C - 125C

2.3 NodeMCU FEATURES

- Open-source
- Arduino-like hardware
- Status LED
- MicroUSB port
- Reset/Flash buttons
- Interactive and Programmable
- Low cost

- ESP8266 with inbuilt wifi
- USB to UART converter
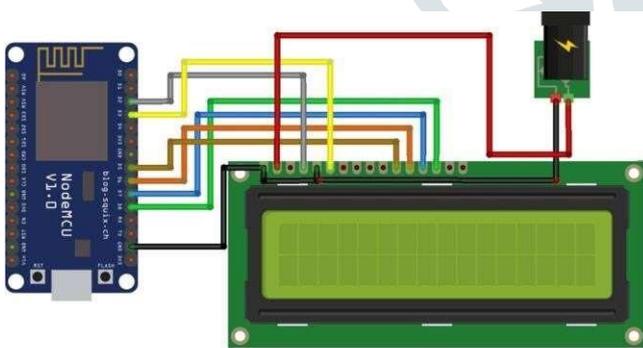- GPIO pins

3. CIRCUIT IMPLEMENTATION

Fig -2: Smart Notice Board circuit

3.1 COMPONENTS USED

1. NodeMCU 2.16*2 LCDG

3. Working Wi-Fi connection

3.2 IMPLEMENTATION PROCESS

Pin connections for LCD and NodeMCU are GRS pin of LCD- D2 pin of NodeMCU

R/W pin of LCD-GND pin of NodeMCUEN pin of LCD-D3 pin of NodeMCU

D4 pin of LCD-D5 pin of NodeMCU D5 pin of LCD-D6 pin of NodeMCU D6 pin of LCD-D7 pin of

NodeMCUD7 pin of LCD-D8 pin of NodeMCU

16*2 LCD works on 5V so we have to supply either 5vsupply or we can use Arduino UNO board.G

3.3 SOFTWARE IMPLEMENTATION

We have used Arduino IDE for writing the codes .since NodeMCU is not available we have to add a library file to it. Selecting the NodeMCU Board Driver from the Boards Manager window, enter esp8266 in the search bar.

This will display the new ESP8266 driver as supplied by the ESP8266 Community. At the bottom of the options box, select the version to be setup

Now select *Install* to complete the installation of the driver which will take a few seconds to download and install. Select *Close* to complete the installation.
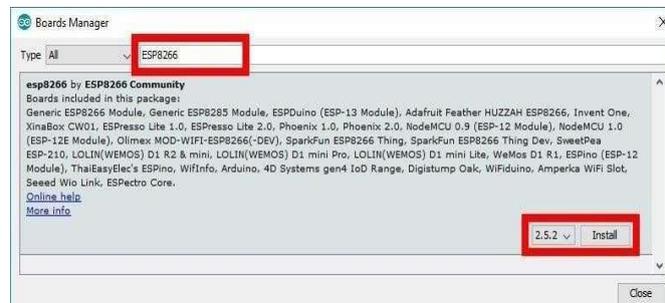

Fig -2: esp8266 driver installation

Fig -3: working project

4. APPLICATION AREAS

Smart notice boards can be used widely used in School colleges to display important notices without any delay and also in bus and railway station about the delay invehicles

It will reduce the pressure of on spot presence to give the immediate message by using wireless communication.

5. CONCLUSIONS

The main barrier to any project is the cost. This paper is studied and reviewed based on existing digital notice board systems based on IoT. To implement practically we may face problems like strong Wi-Fi connection requirement, large LCD module, and NodeMCU may not be suitable we need todesign a suitable cost efficient circuitry.G

By studying we can design a stable device which can give us the optimal results

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