WIRELESS NOTICE BOARD

A Mini Project Report

BACHELOR OF TECHNOLOGY

in

Computer Science Engineering

by

21L31A0531

21L31A0532

21L31A0533

21L31A0534

21L31A0535

Under the Esteemed Guidance of

Dr. CH.V.V. Ramana

Associate Professor

Department of CEER

VIGNAN'S INSTITUTE OF INFORMATION TECHNOLOGY(A)

VISAKHAPATNAM

(Autonomous)

(Approved by AICTE, New Delhi, Accredited by NBA,
Affiliated to Jawaharlal Nehru Technological University, Kakinada)
Besides VSEZ, Duvvada, Vadlapudi Post, Gajuwaka
Visakhapatnam -530049, A.P., India

2021-2022

VIGNAN'S INSTITUTE OF INFORMATION TECHNOLOGY (A)

Department of CEER

CERTIFICATE

This is to certify that this project report entitled "wireless notice board" is a bonafide record of the work done by **21L31A0531,21L31A0532,21L31A0533,21L31A0534,21L31A0535**
in the Department of CEER**,** Vignan's Institute of Information Technology (A), Visakhapatnam

Project Guide	**Head of the Department**
Dr. CH.V.V.Ramana	**Dr. CH.V.V. Ramana**
Associate Professor	Head of Department
Department of CEER,	Department of CEER,
Vignan's Institute of Information Technology	Vignan's Institute of Information Technology

EXTERNAL EXAMINER

ACKNOWLEDGEMENT

Express your thankful to :

1) Main Guide

2) Any other faculty who helped in doing project

3) HOD

4) College for giving opportunity and facilities

5) Any other persons in or out of college who helped in doing the project

CH KARTHIK (21L31A0531)

CH VAISHNAVI (21L31A0532)

CH NAVYA(21L31A0533)

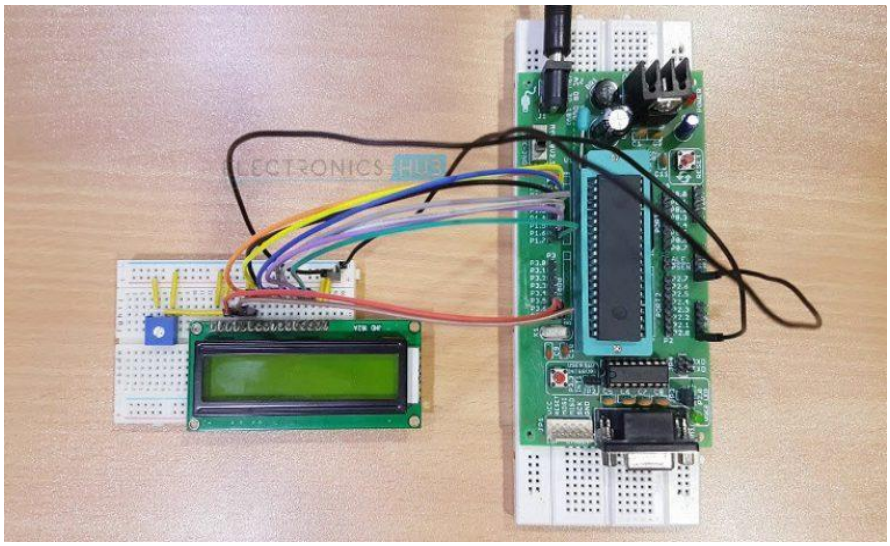
CH SAI(21L31A0534)

CH NAVEEN SAI(21L31A0535)

MAY,2022

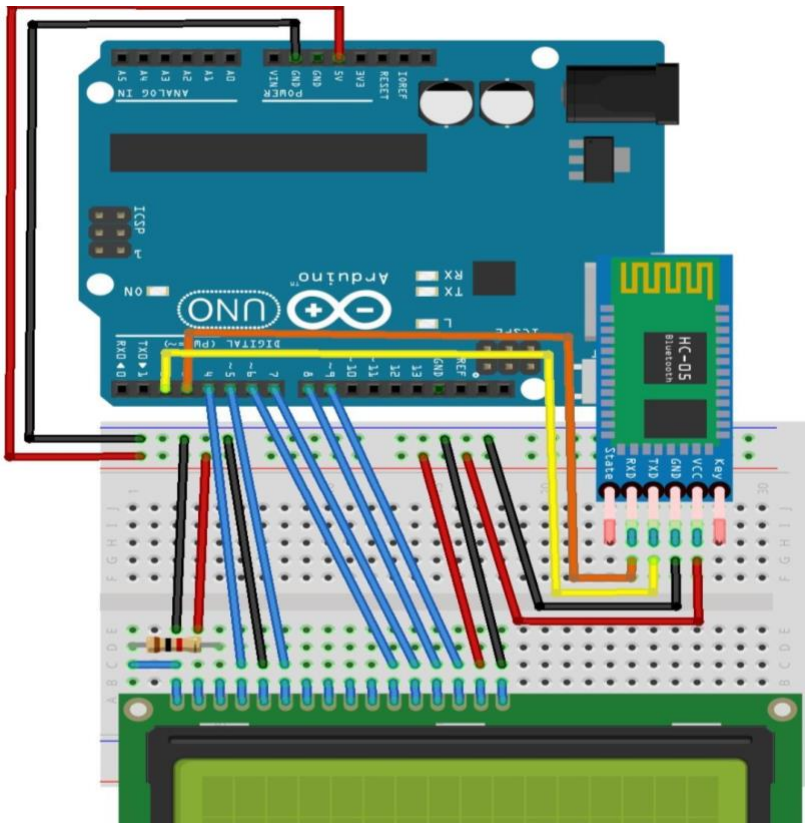
ABSTRACT

This is a project based on Bluetooth and Arduino. The title of the project is the wireless notice board.

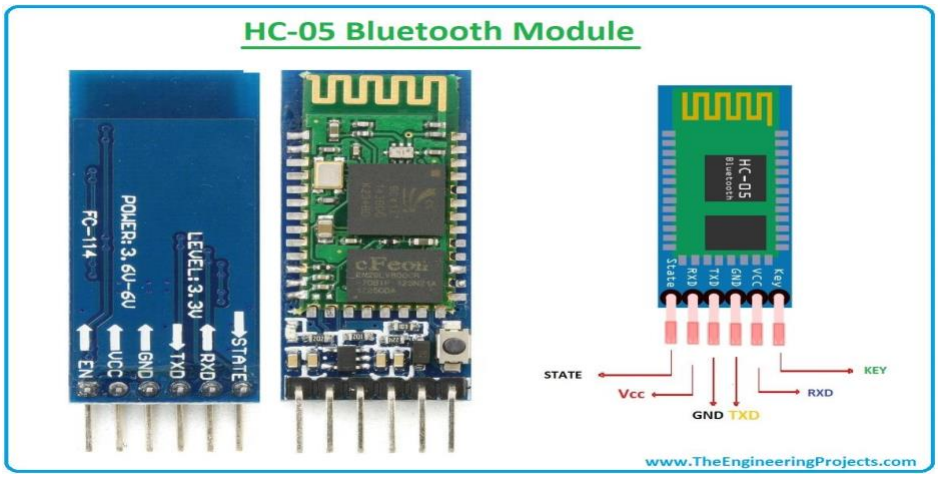


Nowadays conveying messages at large using notice boards are widely used ones ranging from schools to organizations. We know the significance of notice boards in public areas like bus stands, railway stations, airports, and banks, etc. But day to day changing these boards is a very difficult task and a waste of time.This notice board displays the information on LCD display whatever you send from the mobile.

- **It is very easy to operate and consumes less power.**
- **The circuit of the wireless notice board is portable**


UNO
Arduino
HC-05
Bluetooth
State
RXD
TXD
GND
VCC
Key

CONTENTS


HC-05 Bluetooth Module
FC-114
POWER:3.6V-6V
LEVEL:3.3V
EN
VCC
GND
TXD
RXD
STATE
HC-05
Bluetooth
State
RXD
TXD
GND
VCC
Key
STATE
Vcc
GND
TXD
KEY
RXD
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ARDUINO

JUMPER WIRES

ARDUINO CABLE

CONTENTS

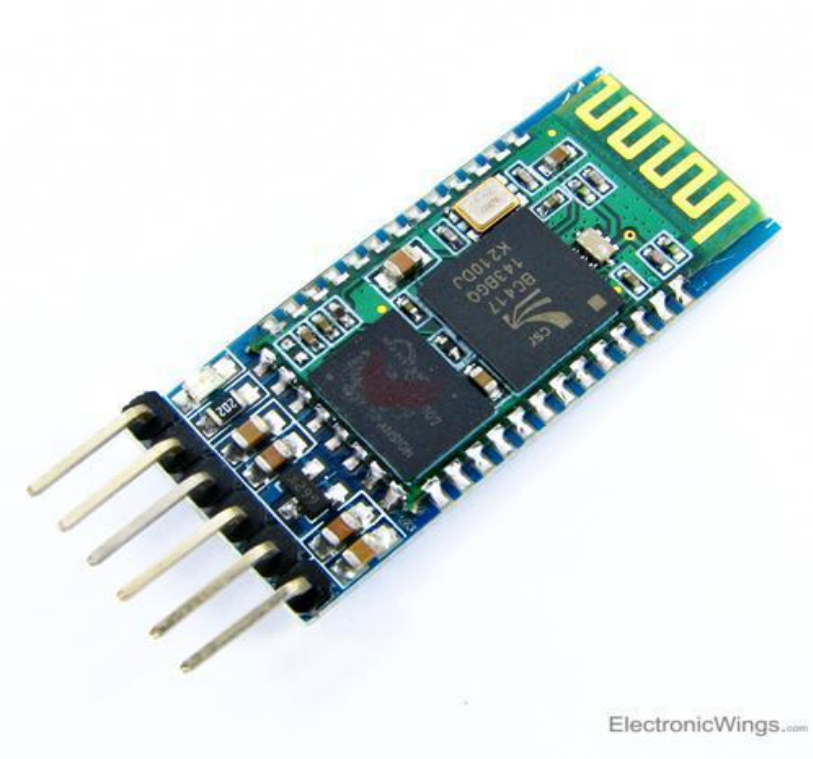
ARDUINO:

Arduino is a prototype platform (open-source) based on easy-to-use hardware and software. It consists of a circuit board, which can be programmed (referred to as a microcontroller) and a ready-made software called Arduino IDE (Integrated Development Environment), which is used to write and upload the computer code to the physical board.

1. As the board can be easily connected to the other computer system via USB port. The USB port fixed in the board serves two purposes. It can be used to supply the power supply to the board and can act as a serial device to connect the board to a computer system.
2. The board is capable of getting the power supply from a DC adaptor having a voltage of 12 V. The board can be charged from this external power supply.
3. The microcontroller used in the board I.e., ATmega328 has the flexibility provided to the board. It means the controller chip can be replaced, removed from the board in case of damage or improper functioning of the chip. This flexibility functionality is not provided in other Arduino boards.
4. The board pins are capable of functioning for constant power supply of 5 v. The digital and analogue pins are used to adjust the voltage supply in the board.
5. As the board design is simple it can be used by multiple users and the community support for the Arduino UNO board.
6. The Arduino UNO board has a list of several hardware components and has the capability to interact with those devices. The device includes Bluetooth, internet, motor control, and many more.

BLUETOOTH MODULE(HC-05):

- It is used for many applications like wireless headset, game controllers, wireless mouse, wireless keyboard and many more consumer applications.
- It has range up to <100m which depends upon transmitter and receiver, atmosphere, geographic & urban conditions.
- It is IEEE 802.15.1 standardized protocol, through which one can build wireless Personal Area Network (PAN). It uses frequency-hopping spread spectrum (FHSS) radio technology to send data over air.
- It uses serial communication to communicate with devices. It communicates with microcontroller using serial port (USART).



1. **Key/EN:** It is used to bring Bluetooth module in AT commands mode. If Key/EN pin is set to high, then this module will work in command mode. Otherwise by default it is in data mode. The default baud rate of HC-05 in command mode is 38400bps and 9600 in data mode.

HC-05 module has two modes,

1. **Data mode:** Exchange of data between devices.
2. **Command mode:** It uses AT commands which are used to change setting of HC-05. To send these commands to module serial (USART) port is used.

2. **VCC:** Connect 5 V or 3.3 V to this Pin.

3. **GND:** Ground Pin of module.

4. **TXD:** Transmit Serial data (wirelessly received data by Bluetooth module transmitted out serially on TXD pin)

5. **RXD:** Receive data serially (received data will be transmitted wirelessly by Bluetooth module).

6.HC-05 has red LED which indicates connection status, whether the Bluetooth is connected or not. Before connecting to HC-05 module this red LED blinks continuously in a periodic manner. When it gets connected to any other Bluetooth device, its blinking slows down to two seconds.

- This module works on 3.3 V. We can connect 5V supply voltage as well since the module has on board 5 to 3.3 V regulator.
- As HC-05 Bluetooth module has 3.3 V level for RX/TX and microcontroller can detect 3.3 V level, so, no need to shift transmit level of HC-05 module. But we need to shift the transmit voltage level from microcontroller to RX of HC-05 module.

State: It tells whether module is connected or not.

CODE:

```
#include <LiquidCrystal.h>
#include <SoftwareSerial.h>

LiquidCrystal lcd (4, 5, 6, 7, 8, 9);
SoftwareSerial mySerial (2, 3);   //(RX, TX);

String val = "No Data";
String oldval;
String newval = "No Data";
int i = 0;

void setup()
{
  // put your setup code here, to run once:
  lcd.begin(16,2);
  mySerial.begin(9600);
  Serial.begin(9600);
  lcd.setCursor(0, 0);
  lcd.print("Wireless Notice");
  lcd.setCursor(0, 1);
  lcd.print("     Board     ");
  delay(3000);
  lcd.clear();
  lcd.print("Welcome!");
}

void loop()
{
  val = mySerial.readString();
  val.trim();
  Serial.println(val);
  if(val != oldval)
  {
    newval = val;
  }
  lcd.clear();
  lcd.setCursor(i, 0);
  lcd.print(newval);
  i++;
  if(i >= 15)
  {
    i = 0;
  }
  val = oldval;
}
```

CONCLUSION

- The electronic notice board is wireless and no need for wires for displaying the information on the LCD display.
- It is very easy to operate and consumes less power
- The circuit of the wireless notice board is portable.

The applications of wireless notice board mainly include public places like bus stands, railway stations, airports, shopping malls, and parks to display the information wirelessly.

This project is also used in organizations, schools, and colleges.

LIST OF FIGURES

REFERENCES

From a YouTube video Wireless Notice Board using Bluetooth | Arduino Project [in Hindi]