

SPECIAL ASSIGNMENT

Voice Controlled LCD Display

2EC404 -
Microprocessors & Microcontrollers



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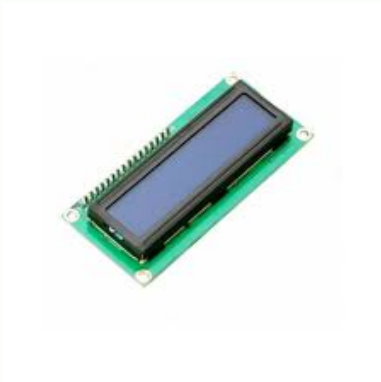
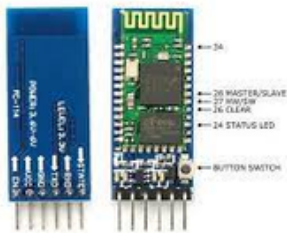
About Project:

- This project is all about displaying voice the data on the LCD display with arduino and bluetooth module.
- In this project we were using a bluetooth module which is connected to software & will transmit the data from the software to the LCD display using arduino Uno.
- The recieved data is transferred to the LCD via arduino using serial communication.

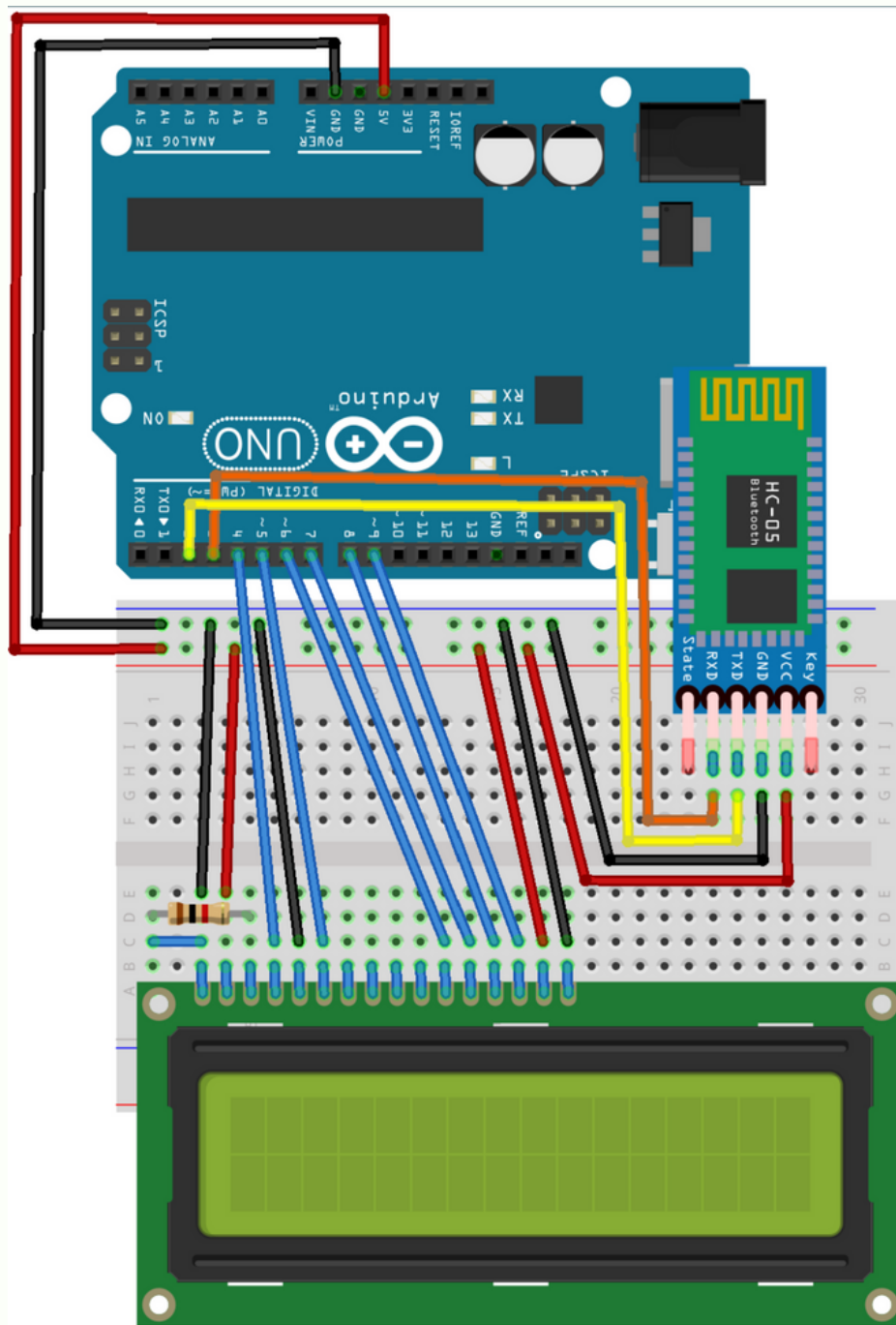
Components Required:

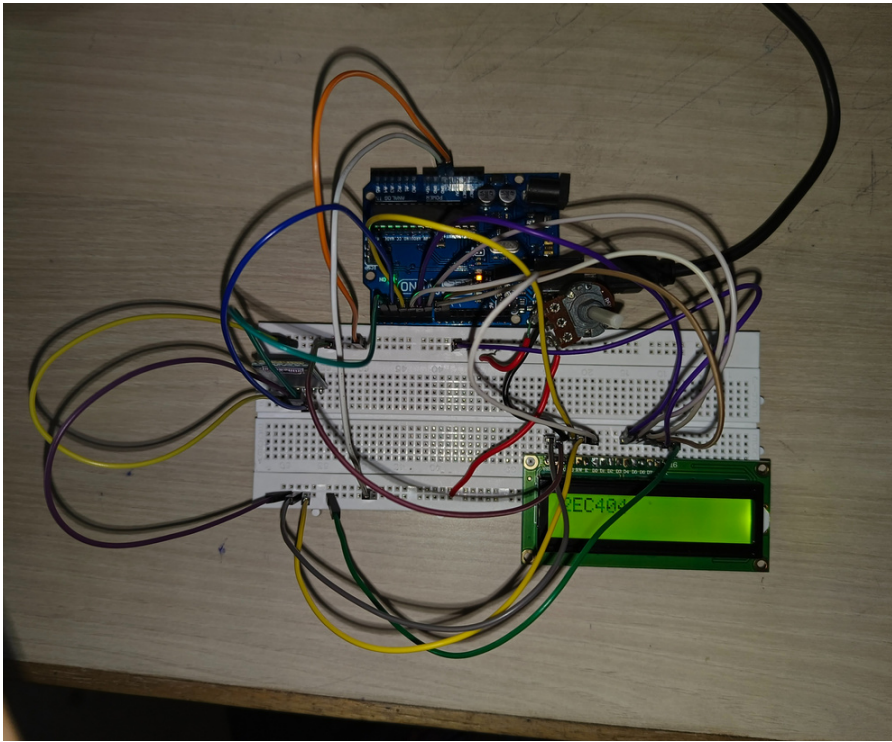
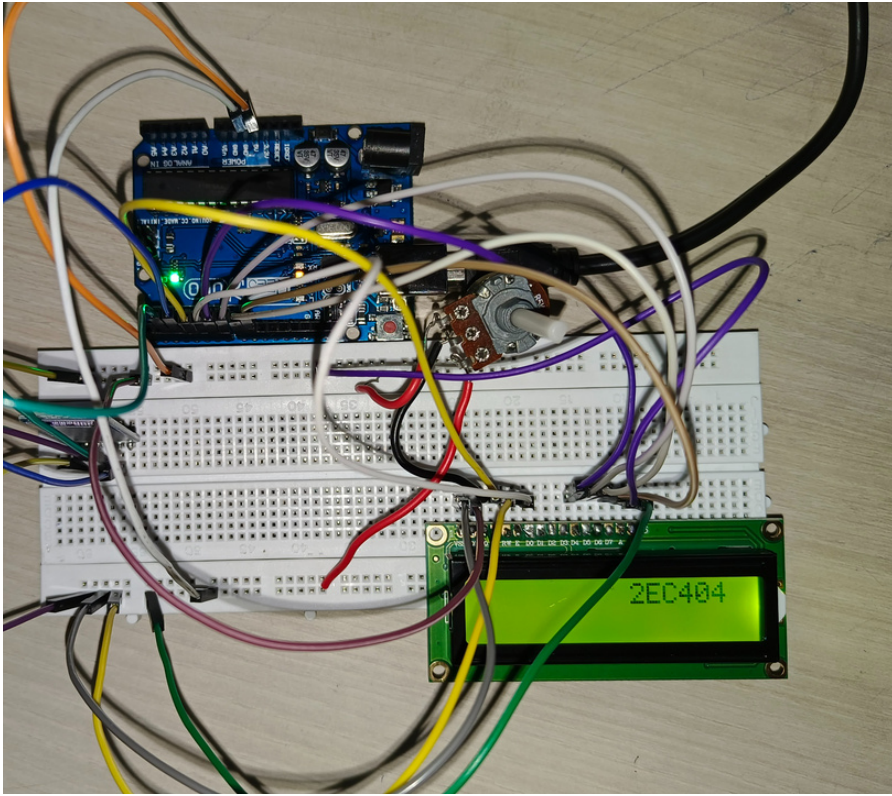
- Arduino UNO
- Bluetooth Module (HC-05)
- 16x2 LCD Display
- Potentiometer or Resistor
- Jumper Wires
- Breadboard

HC-05 FC-114



Circuit Diagram:





Arduino Code:

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

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

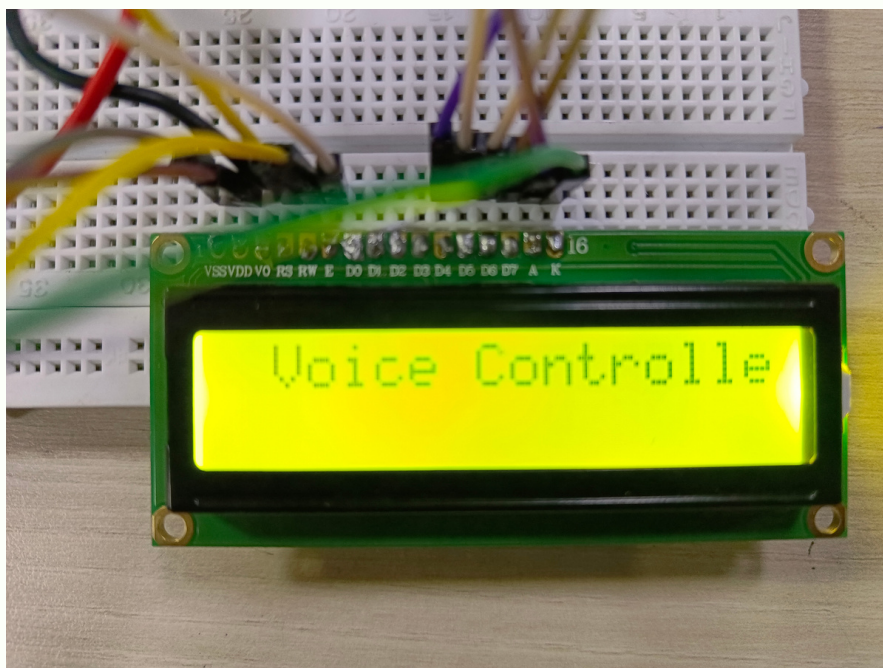
```
String val = "No Data";
String oldval;
String newval = "No Data";
int i = 0;
```

```
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;
}
```


- `LiquidCrystal lcd (4, 5, 6, 7, 8, 9);` -- INITIALISING THE PIN OF LCD
- `SoftwareSerial mySerial (2, 3);` -- INITIALISING THE HC05 FOR TX AND RX
- `lcd.begin(16,2);` -- INITIALISING THE LCD FOR COMM.
- `lcd.setCursor(0, 0);` -- SETING THR INTIAL POSTITION OF CURSOR
- `val = mySerial.readString();` -- READING THE VALUE OF STRING AND LOADING IT INTO `val`
- `val.trim();` -- WILL REMOVE THE GARBAGE VALUE FROM `val`
- `Serial.println(val);` -- PRINT THE VALUE of `val`
- | | |
|--|---------------------------|
| <pre> if(val != oldval) { newval = val; } </pre> | CHECK THE VAL AND OLD VAL |
|--|---------------------------|
- | | |
|---|--|
| <pre> lcd.clear(); lcd.setCursor(i, 0); lcd.print(newval); </pre> | CLEAR THE LCD AND SET THE CURSOR AND PRINT NEW VALUE |
|---|--|
- | | |
|---|--|
| <pre> i++; if(i >= 15) { i = 0; } val = oldval; </pre> | INCREAMENT THE CURSOR POSTITION AND GIVES SCROLLING EFFECT |
|---|--|

OUTPUT:



Bill of Materials:

- Arduino Uno - 600/-
- Bluetooth Module - 299/-
- LCD Display - 110/-
- Potentiometer - 14/-
- Jumper Wires - 40/-
- Breadboard - 60/-

NOTE: Items like Arduino Uno, LCD, Potentiometer, Jumper, Breadboard were been taken from our own pre-purchased Arduino Kit.

Conclusion:

By this project we learnt about the transmitting and receiving the data from the software using a Bluetooth module. By this we are also able to deal with the Arduino programming & programming of module used and how to control a LCD display and to print the data received from the software on the LCD display.