SNS COLLEGE OF TECHNOLOGY

Coimbatore-35
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Chennai

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

19ECT213- IoT SYSTEM ARCHITECTURE
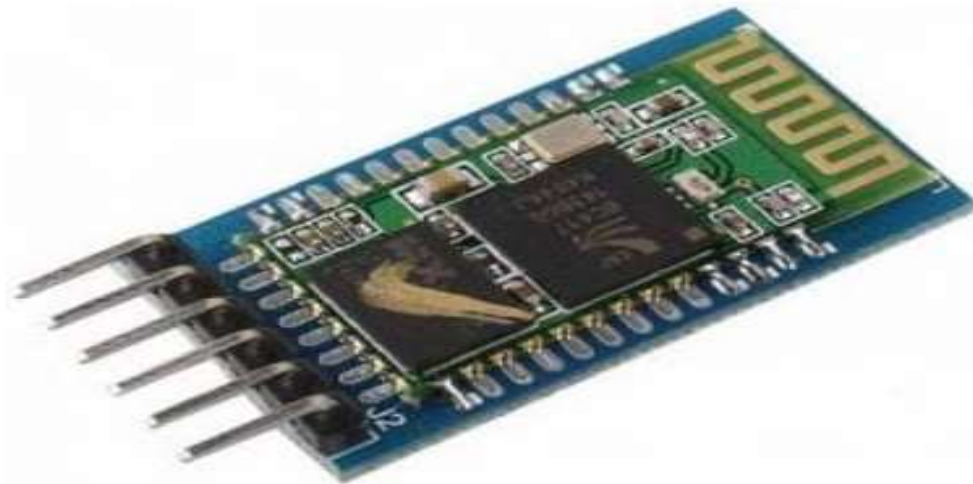
II ECE / IV SEMESTER

UNIT 2 – MICROCONTROLLER AND INTERFACING TECHNIQUES FOR IoT DEVICES

HC -05 Bluetooth Module

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HC-05 Bluetooth Module

HC-05 Bluetooth Module

- Operating Voltage : 4 V to 6V (have internal 3.3V regulator).
- Operating Current : 30mA
- Integrated antenna and an edge connector.
- Range about 10 meters.
- Configurable in both master and slave modes.
- Pins : STATE, RXD, TXD, GND, VCC, KEY/ENABLE

STATE : State pin indicates whether the module is connected or paired with a device. When the module is not connected, this pin will be in LOW state and the on-board LED will be flashing fast. But when the module is paired or connected to a device, the state pin will be in HIGH state and the on-board LED will be flashing with a delay.

RXD : This is UART RX pin. This pin is used to send AT command when the module is in command mode. And it is used to send data to the connected device when the module is in data mode.

TXD : This is UART TX pin. This pin is used push out responses to AT command when the module is in command mode. And it is used push out data send by the connected device when the module is in data mode.
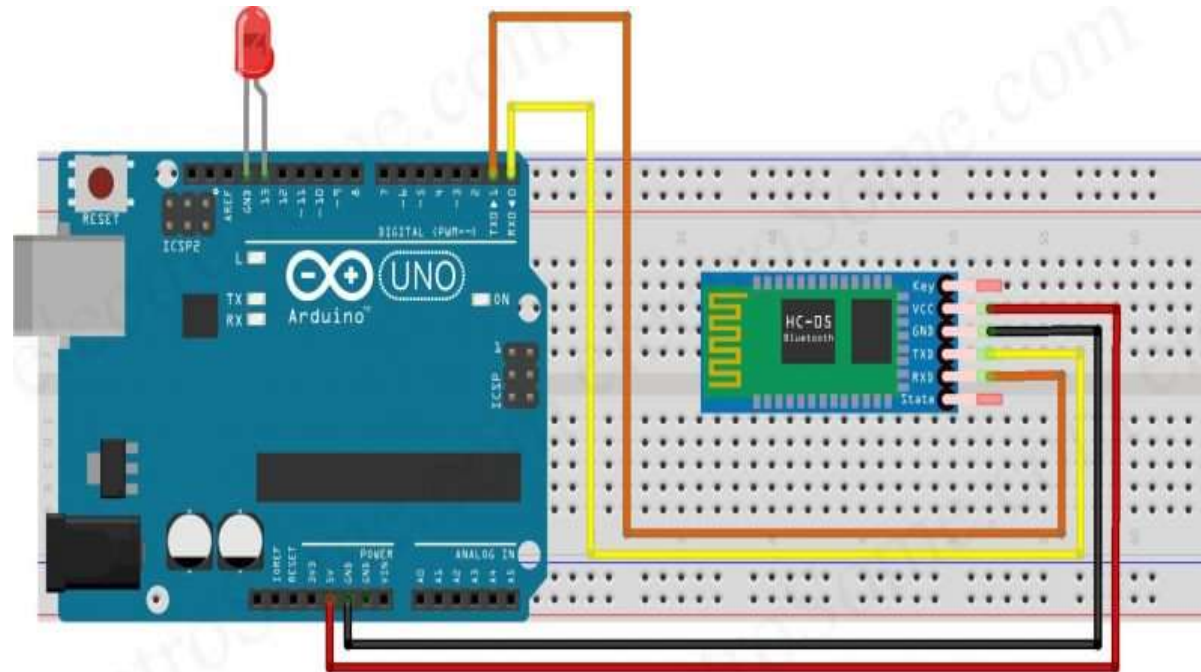
GND : Power supply -ive.

VCC : Power supply +ive.

EN/KEY : This input is used to switch between command and data mode. If this pin is set HIGH, the module will be in command mode. Similarly if this pin is set LOW, the module will be in data mode.

Circuit diagram for interfacing Bluetooth module

Description

- RXD pin of HC-05 Bluetooth – TXD pin of Arduino Uno
- TXD pin of HC-05 Bluetooth – RXD pin of Arduino Uno
- GND pin of HC-05 Bluetooth – GND pin of Arduino Uno
- VCC pin of HC-05 Bluetooth – 5V output pin of Arduino Uno
- Positive pin of LED – Pin 13 of Arduino Uno
- Negative pin of LED – GND pin of Arduino Uno

Install Bluetooth controller app from Google Play Store. This app will act as a Bluetooth remote controller for Arduino. It is very easy to use this app. Open the app and connect to the HC-05 device. Then select the option as switch mode. Now you can control the LED using the app.

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```
char data = 0;        //Variable for storing received data

void setup()
{
    Serial.begin(9600);  //Sets the data rate in bits per second (baud) for serial data transmission
    pinMode(13, OUTPUT); //Sets digital pin 13 as output pin
}

void loop()
{
    if(Serial.available() > 0)     // Send data only when you receive data:
    {
        data = Serial.read();       //Read the incoming data and store it into variable data
        Serial.print(data);         //Print Value inside data in Serial monitor
        Serial.print("\n");         //New line
        if(data == '1')            //Checks whether value of data is equal to 1
            digitalWrite(13, HIGH);  //If value is 1 then LED turns ON
        else if(data == '0')        //Checks whether value of data is equal to 0
            digitalWrite(13, LOW);   //If value is 0 then LED turns OFF
    }
}
```

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