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Practica 16 – Bluetooth

Objetivo:
Conocer y aplicar los conocimientos de comunicaciones con conectado el dispositivo de bluetooth a la computadora utilizando Arduino.

Competencias:

Identifica las características eléctricas de un microcontrolador.
Conoce la arquitectura interna del microcontrolador.
Comprende la estructura de registros del microcontrolador.
Analiza dispositivos de entrada/salida y puertos del microcontrolador.
Organiza y clasifica información proveniente de fuentes diversas.

Material necesario:
1 Tarjeta ARDUINO UNO
1 Cable USB para Arduino
1 Tarjeta Protoboard
1 Software IDE de Arduino
1 Dispositivo bluetooth HC-06
1 Software TeraTerm
1 LED
Cables

Descripción:

Setting up the HC-06 is as easy as ABC. All you need to know is the pin configuration. The HC-06 has 6 pins: wakeup, VCC, GND, TXD, RXD and State. Right now I will only deal with 4 pins, which are VCC, GND, TXD and RXD.

Here is how you should connect the Bluetooth module to your Arduino. HC-06>>>Arduino

VCC>>>>3.3v
GND>>>>GND
TXD>>>>RXD
RXD>>>>TXD

The HC-06 acts as a serial port through which you can send and receive data.

So using a serial terminal or a Bluetooth customized application on your computer or phone, you can control and monitor your project. I used Teraterm as the serial terminal.

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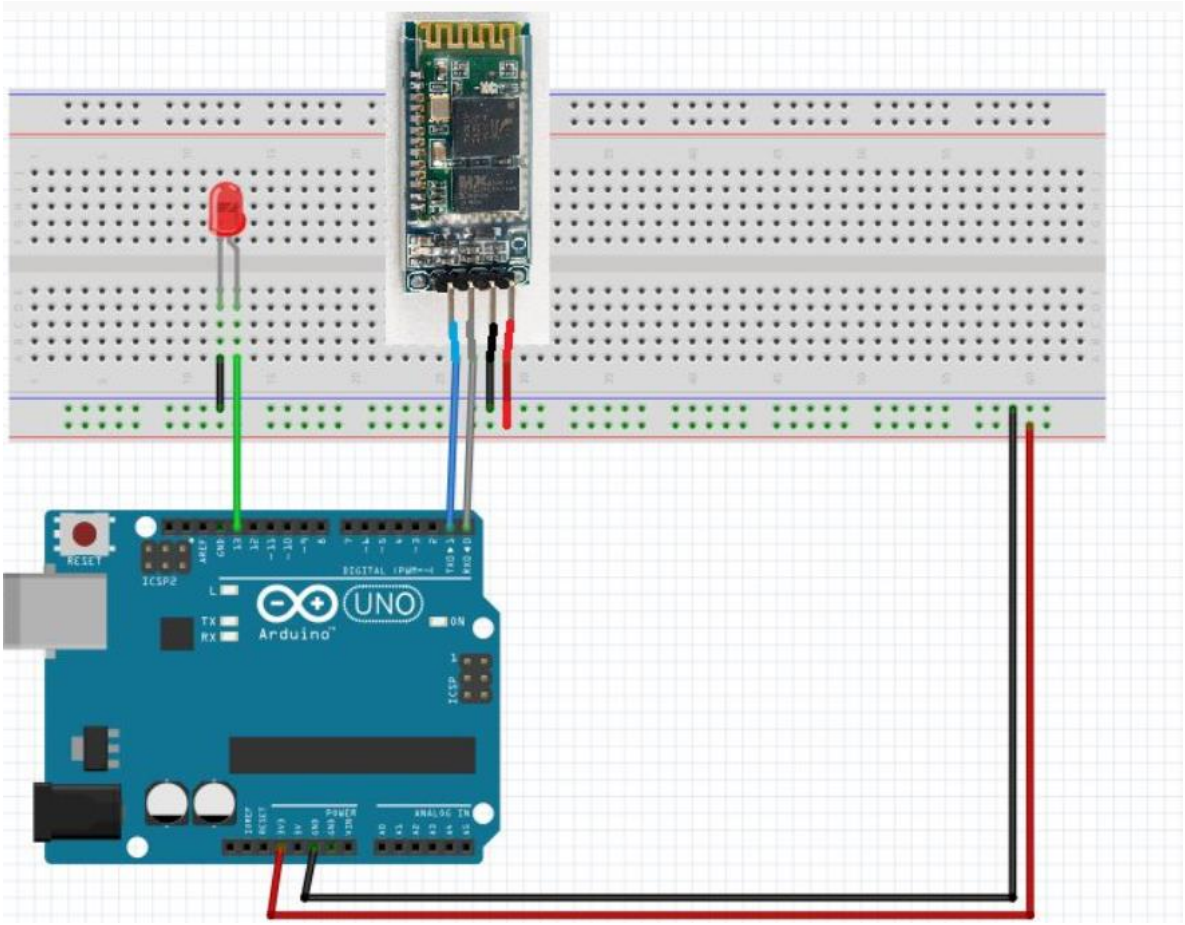
Before, uploading the code to the Arduino, disconnect the HC-06 module, since it shares the tx/rx pins and will interfere with the upload. Connect it back once the code has been uploaded successfully.



Instalar el TeraTerm.

Configurar el Bluetooth de la computadora con el dispositivo HC-06

Once you successfully connect to the HC-06 serial port you will be able to send strings to your Arduino and get an echo back. You will be able to switch on and off and LED by sending “n” and “f” respectively.

Código:

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This code allows you to switch on and off an LED using by sending a command to the Arduino via Bluetooth.

```
/*
 * Practica 16. control de led por medio de bluetooth
 */
char blueToothVal;           //value sent over via bluetooth
char lastValue;              //stores last state of device (on/off)

void setup()
{
 Serial.begin(9600);
 pinMode(13,OUTPUT);
}
void loop()
{
  if(Serial.available())
  {//if there is data being recieved
    blueToothVal=Serial.read(); //read it
  }
  if (blueToothVal=='n')
  {//if value from bluetooth serial is n
    digitalWrite(13,HIGH);           //switch on LED
    if (lastValue!='n')
      Serial.println(F("LED is on")); //print LED is on
    lastValue=blueToothVal;
  }
  else if (blueToothVal=='f')
  {//if value from bluetooth serial is n
    digitalWrite(13,LOW);            //turn off LED
    if (lastValue!='f')
      Serial.println(F("LED is off")); //print LED is on
    lastValue=blueToothVal;
  }
  delay(1000);
}
```