

Etapas e dificuldades

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12 de agosto de 2017

1 Módulo do Ônibus

1.1 Hardware

HM-10 - Bluetooth 4.0 BLE module

1.2 Configuração

Comandos AT.

Descrever aqui as etapas.

Código para configurar um arduino

```
#include <SoftwareSerial.h>

// SoftwareSerial (TX / RX)
SoftwareSerial mySerial(7, 8);

// Serial value
String val;

// Receive info
boolean receiveInfo = false;

// Bauds for detectBleBaudRate function
long bauds[] = {
    // major
    9600, 57600, 115200,

    // others
    19200, 38400, 4800, 2400, 1200, 230400
};

// Detect BLE Baud Rate
bool detectBleBaudRate() {
```

```

Serial.println("-----");
Serial.println("Detecting BLE baud rate:");

for (int i=0; i < (sizeof(bauds) / sizeof(long)); i++) {
    Serial.write("Checking baud rate: ");
    // Checking baud rate
    long cur_baud = bauds[i];
    Serial.println(cur_baud, DEC);

    mySerial.begin(cur_baud);
    mySerial.write("AT");
    mySerial.flush();

    delay(50);

    String response = mySerial.readString();

    if (response == "OK") {
        Serial.println("-----");
        Serial.print("BLE Baud Detected: ");
        Serial.println(cur_baud);
        Serial.println("-----");

        return true;
    } else {
        mySerial.end();
    }
}

detectBleBaudRate();
}

// Uncomment function to wake up bluetooth or discover BLE
// Baud Rate
void setup() {
    mySerial.begin(9600);
    Serial.begin(9600);
}

void wakeUp() {
    Serial.println("-----");
    for (int i = 0; i < 30; i++) {
        mySerial.write("
12345678901234567890123456789012345678901234567890123456789012345678
");
    }

    Serial.println("Wake up command has been sent to HM-10");
    Serial.println("-----");

```

```

}

// Reads strings that are sent to mySerial
void loop() {
  while (Serial.available() > 0) {
    delay(10); // Delay needed to recognize key and value
               properly

    String val = Serial.readString();
    Serial.print("Serial sent: ");
    Serial.println(val);

    // Receive info from HM-10
    receiveInfo = true;

    // If you need to wake up the HM-10 sensor, send wake
      command
    if (val == "wake") {
      wakeUp();
      receiveInfo = false;
    }

    // If you want to detect BLE Baud Rate, send detect
      command
    if (val == "detect") {
      detectBleBaudRate();
      receiveInfo = false;
    }

    mySerial.print(val);
    mySerial.flush();

    delay(50);

    if (receiveInfo) {
      // Read string from HM-10 (Software Serial)
      String response = mySerial.readString();

      Serial.print("mySerial received: ");
      Serial.println(response);

      Serial.println("-----");
    }
  }
}

```

1.3 Referências

Datasheet

2 Módulo do ponto de ônibus

teste

3 Aplicativo

teste

4 Web service

Falar sobre o MEAN stack e sobre as dificuldades que estou encontrando sobre como trabalhar com cada tecnologia da pilha.