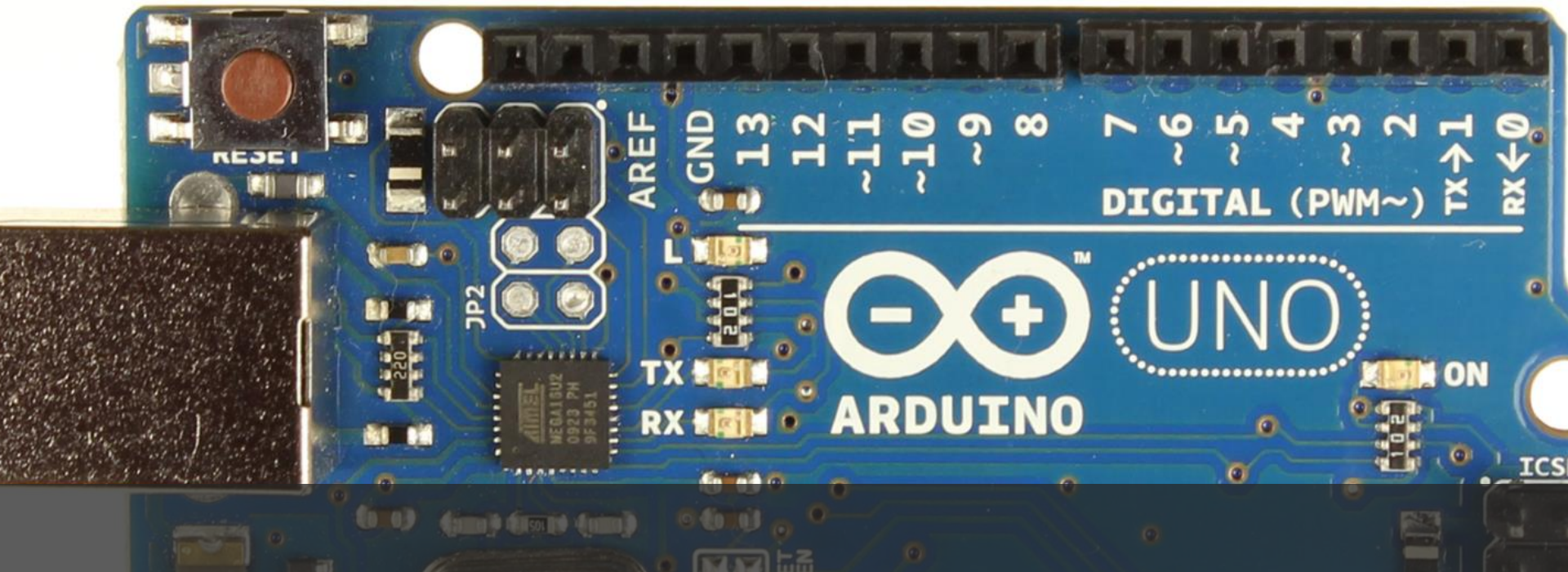




Mini curso Arduino Parte II

Prof. Rogério Neves



Conteúdo – Parte I

- O que é Arduino?
- Hardware e Software
- Dispositivos e conexões
- Interface e linguagem
- Entrada e saída de dados
- Prática de desenvolvimento 101

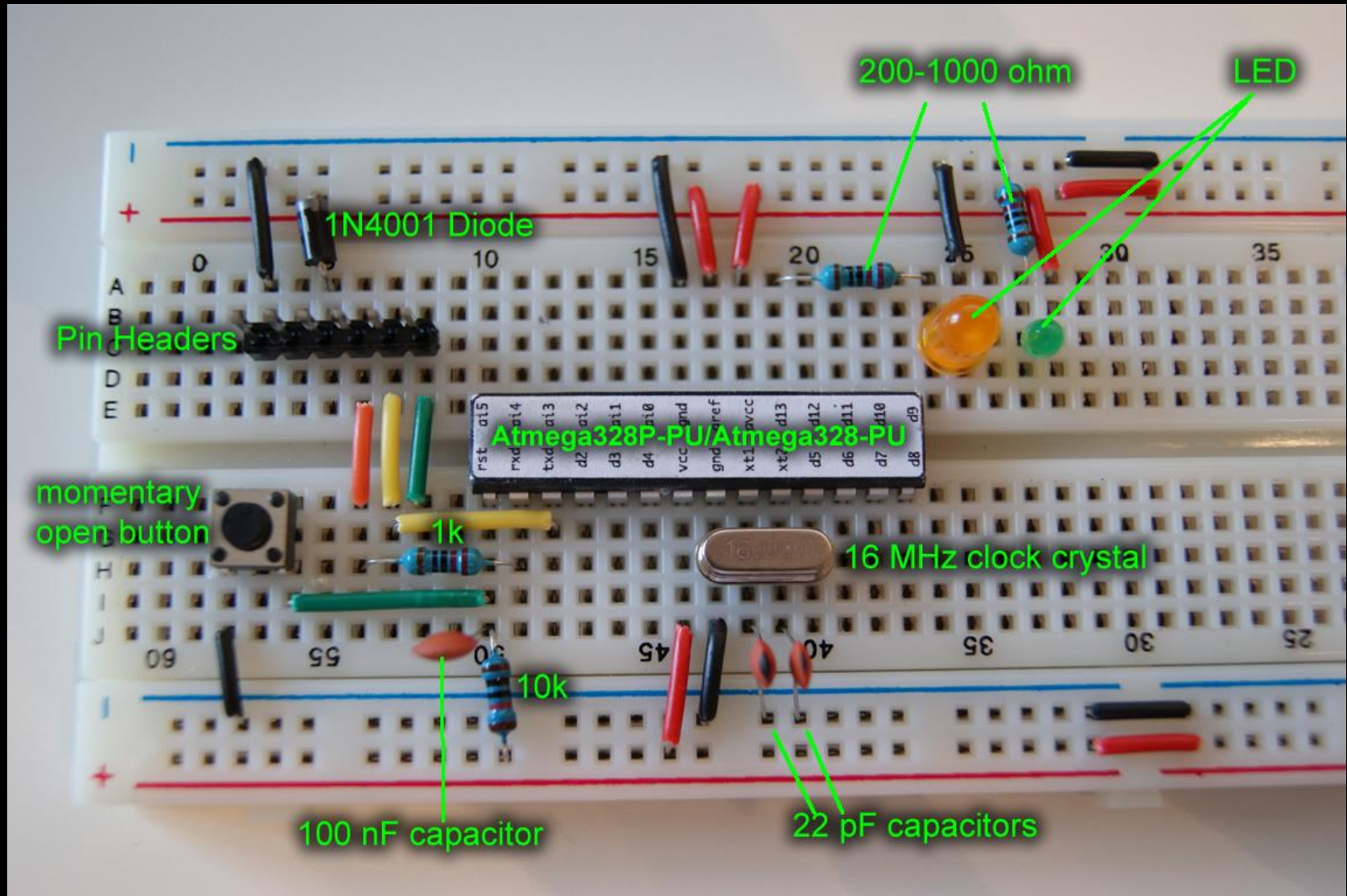
Parte II

- Projetos com Arduino

Recursos

- <http://arduino.cc/>
- Forums (em Inglês)
 - <http://forum.arduino.cc/>
 - <https://www.reddit.com/r/arduino/>
 - <https://forum.sparkfun.com/viewforum.php?f=32>
- Facebook Grups em Inglês
 - Arduino projects
- Em Português
 - Arduino BR
 - Arduino Brasil

Arduino com ATMEGA 328-P/-PU



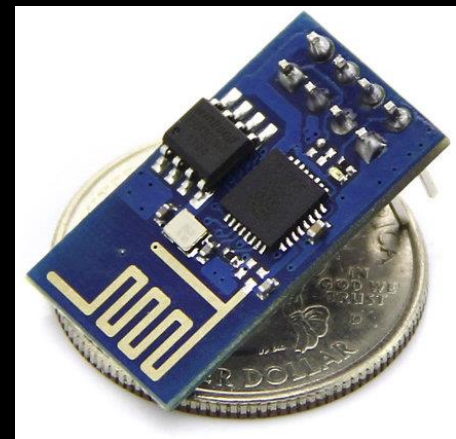
Módulos





ESP8266

Dedicado a IOT
Compatível com Arduino



Ferramentas

- Arduino IDE
- Fritzing
- <http://arduino.cc>
- <https://www.arduino.cc/en/Reference>



File Edit Sketch Tools Help



sketch_mar28b



```
void setup() {  
  // código de abertura, roda uma só vez:  
  
}  
  
void loop() {  
  // código de repetição, roda indefinidamente:  
  
}
```

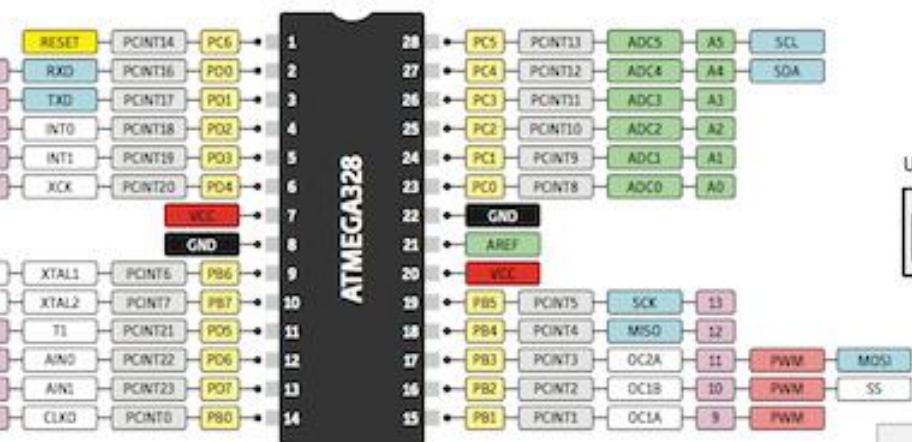
Uploading...



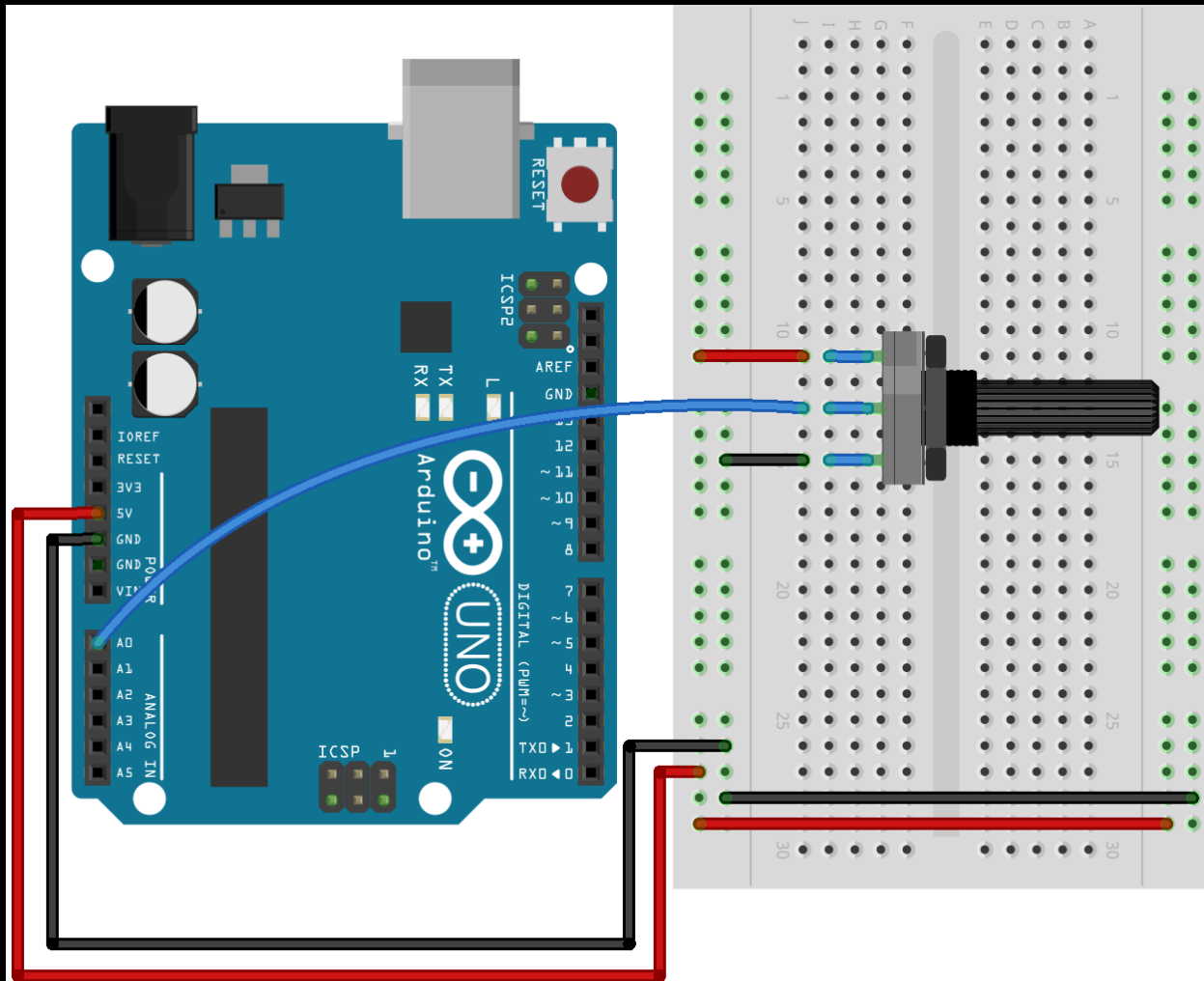
Sketch uses 450 bytes (1%) of program storage space. Maximum is 30,720 bytes.
Global variables use 9 bytes (0%) of dynamic memory, leaving 2,039 bytes for local



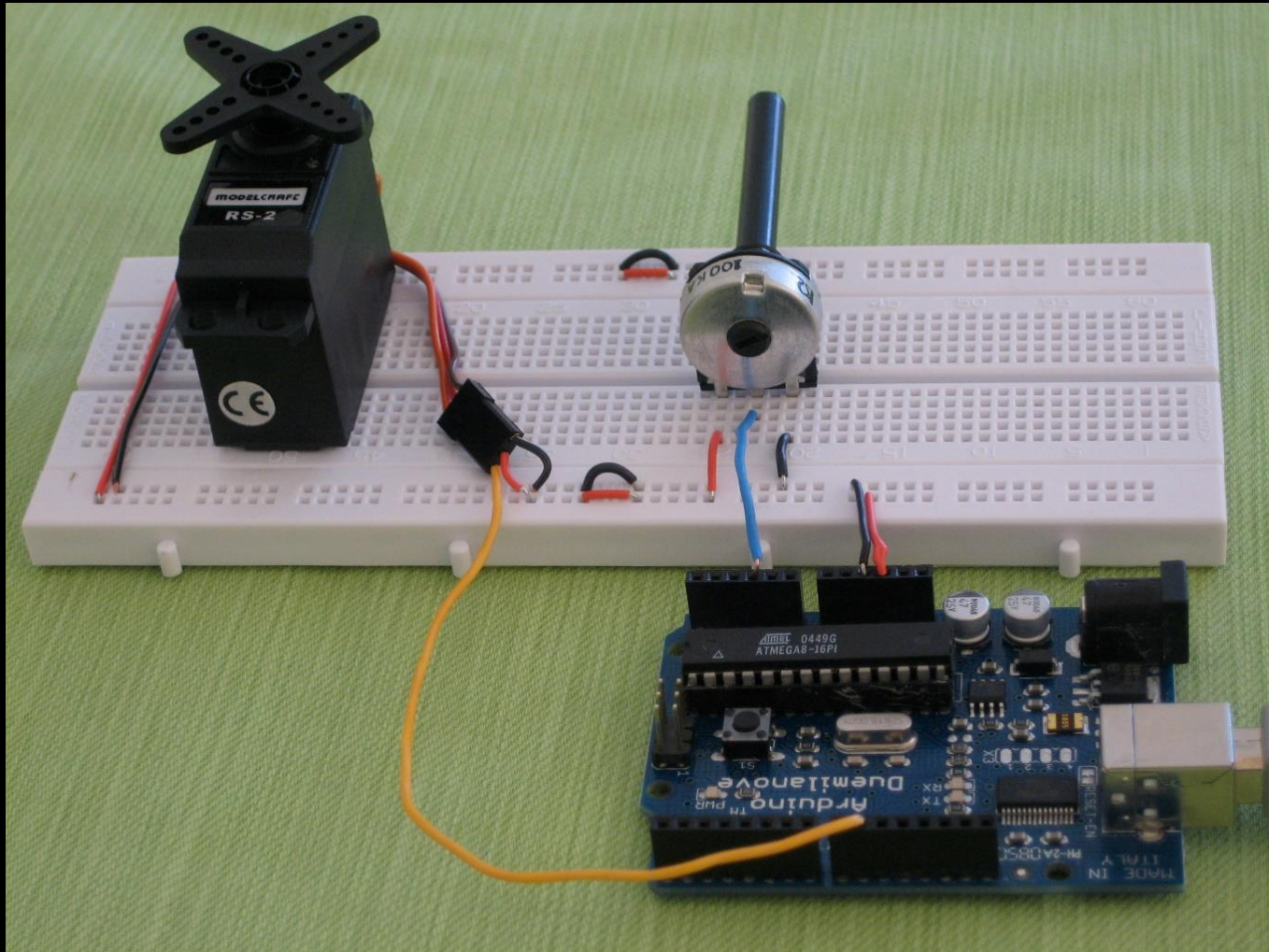
USB
computer



Exemplo de conexão: Potenciômetro



Exemplo: Servo



Código

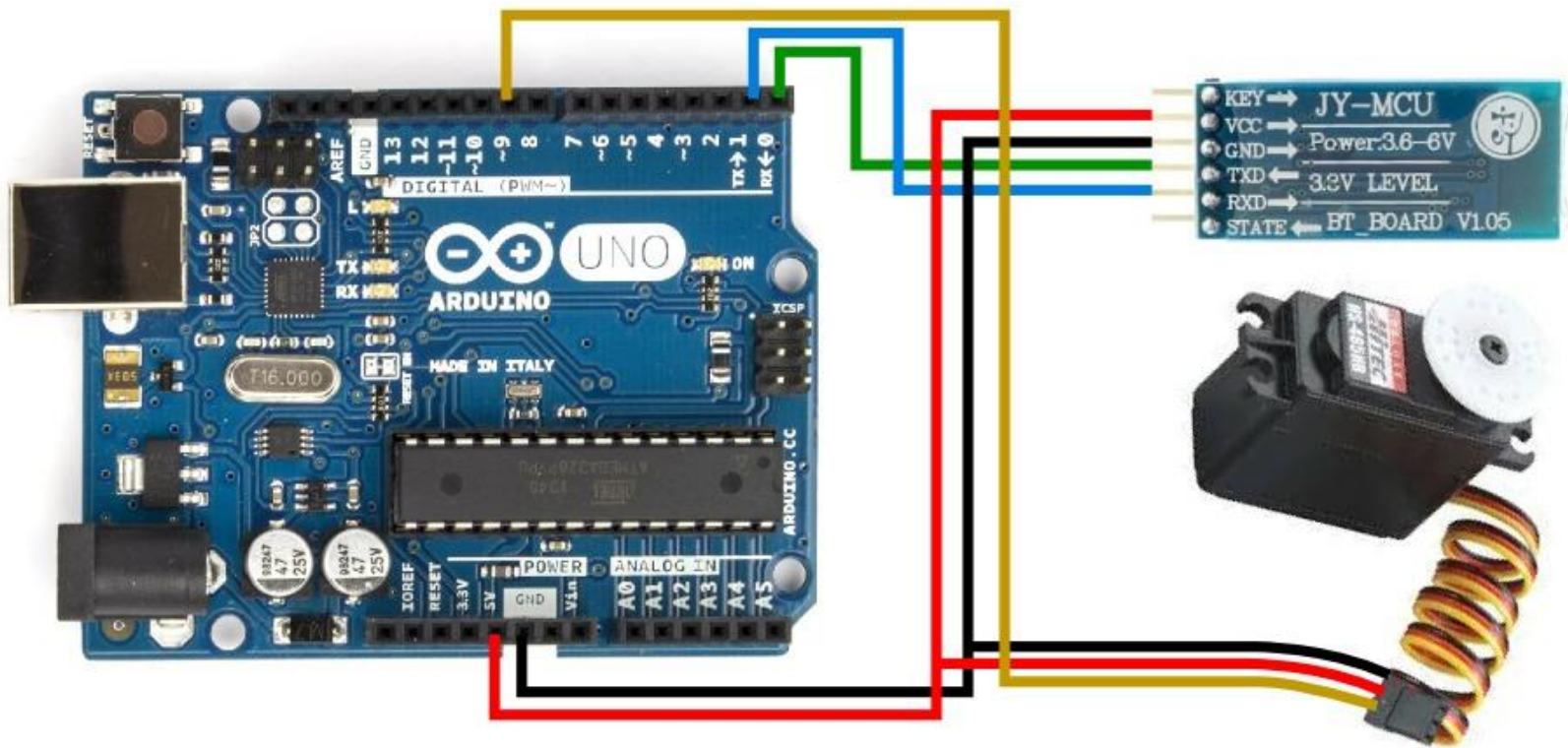


The screenshot shows the Arduino IDE interface. The title bar reads "Knob | Arduino 1.6.7". The menu bar includes "File", "Edit", "Sketch", "Tools", and "Help". The toolbar contains icons for checking, running, uploading, and downloading. The sketch name "Knob" is displayed in the top right. The code is as follows:

```
#include <Servo.h>
Servo myservo;
int potpin = 0;
int val;
void setup() {
  myservo.attach(9);
}
void loop() {
  val = analogRead(potpin);
  val = map(val, 0, 1023, 0, 180);
  myservo.write(val);
  delay(15);
}
```

A status message at the bottom of the code editor states: "Code formatted for HTML has been copied to the clipboard." The bottom status bar shows "2" on the left and "Arduino Nano, ATmega328 on COM1" on the right.

Servo + Bluetooth



Prática 101

Basic Examples

Arduino IDE → Arquivos → Exemplos

- Basics/Blink

Libraries

Arduino IDE → Arquivos → Exemplos

- Servo/Knob

Prática 102

Libraries

- Serial

Basic Examples

- Botões
- Audio
- Analog
 - [analogReference\(\)](#)
 - [analogRead\(\)](#)
 - [analogWrite\(\)](#) - PWM

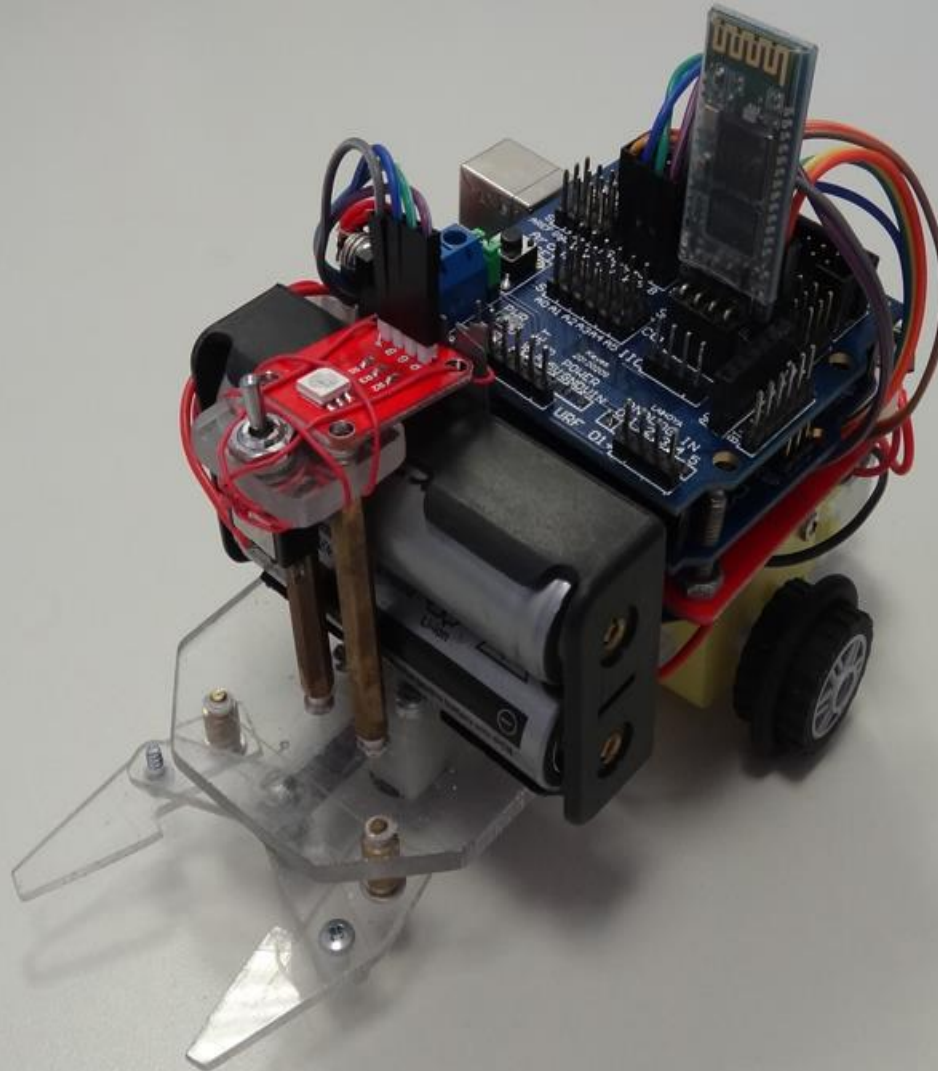
GPIO

- General Purpose Input Output
 - Configuráveis como entrada ou saída
- Funções Digital I/O
 - [`pinMode\(\)`](#)
 - [`digitalWrite\(\)`](#)
 - [`digitalRead\(\)`](#)
- Constantes
 - [`HIGH`](#) | [`LOW`](#)
 - [`INPUT`](#) | [`OUTPUT`](#) | [`INPUT\_PULLUP`](#)
 - [`LED\_BUILTIN`](#) = 13
 - [`true`](#) | [`false`](#)
 - [`integer constants`](#)
 - [`floating point constants`](#)

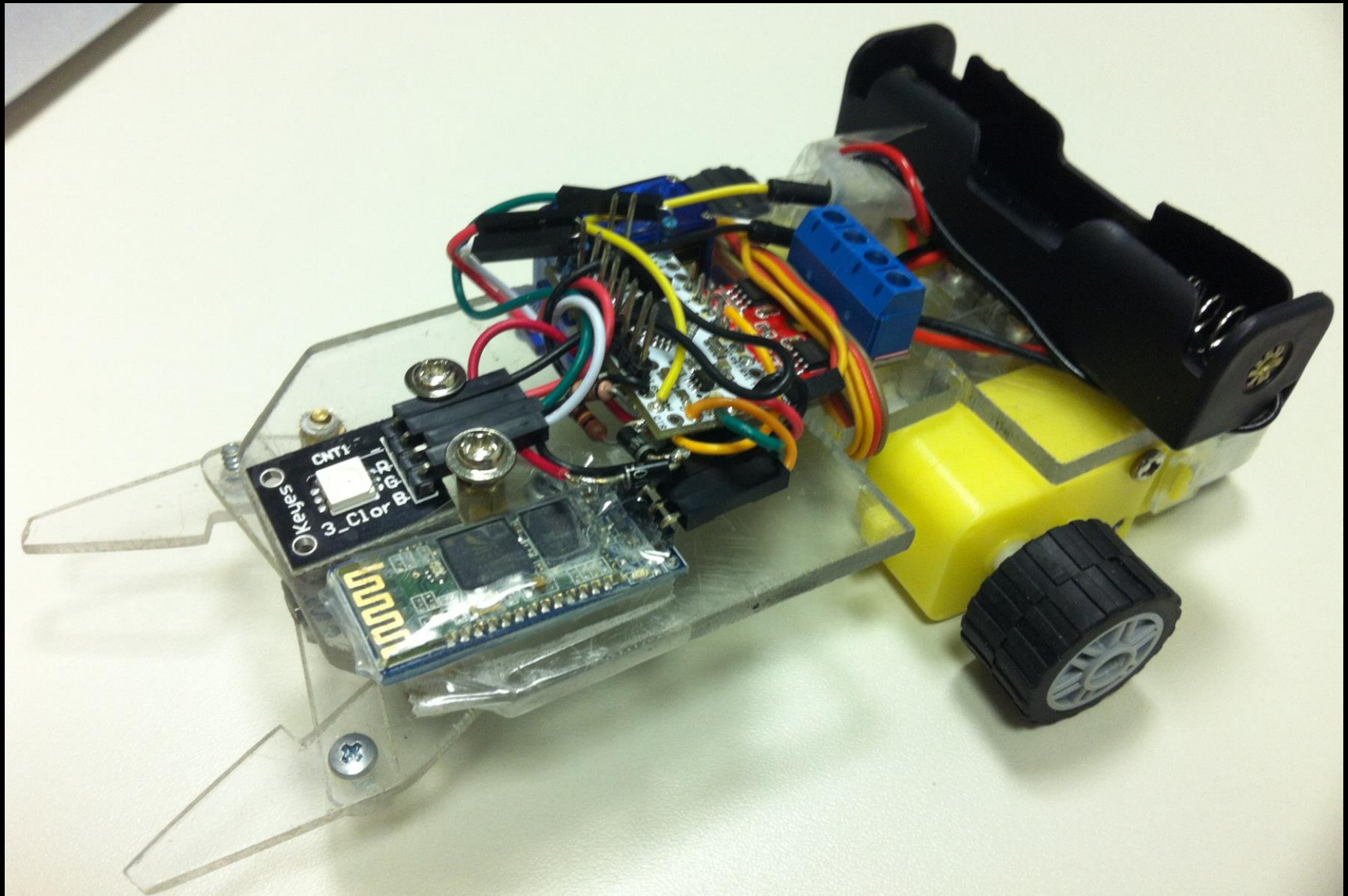
Projetos

<http://cmcc.ufabc.edu.br/~Rogerio.neves>

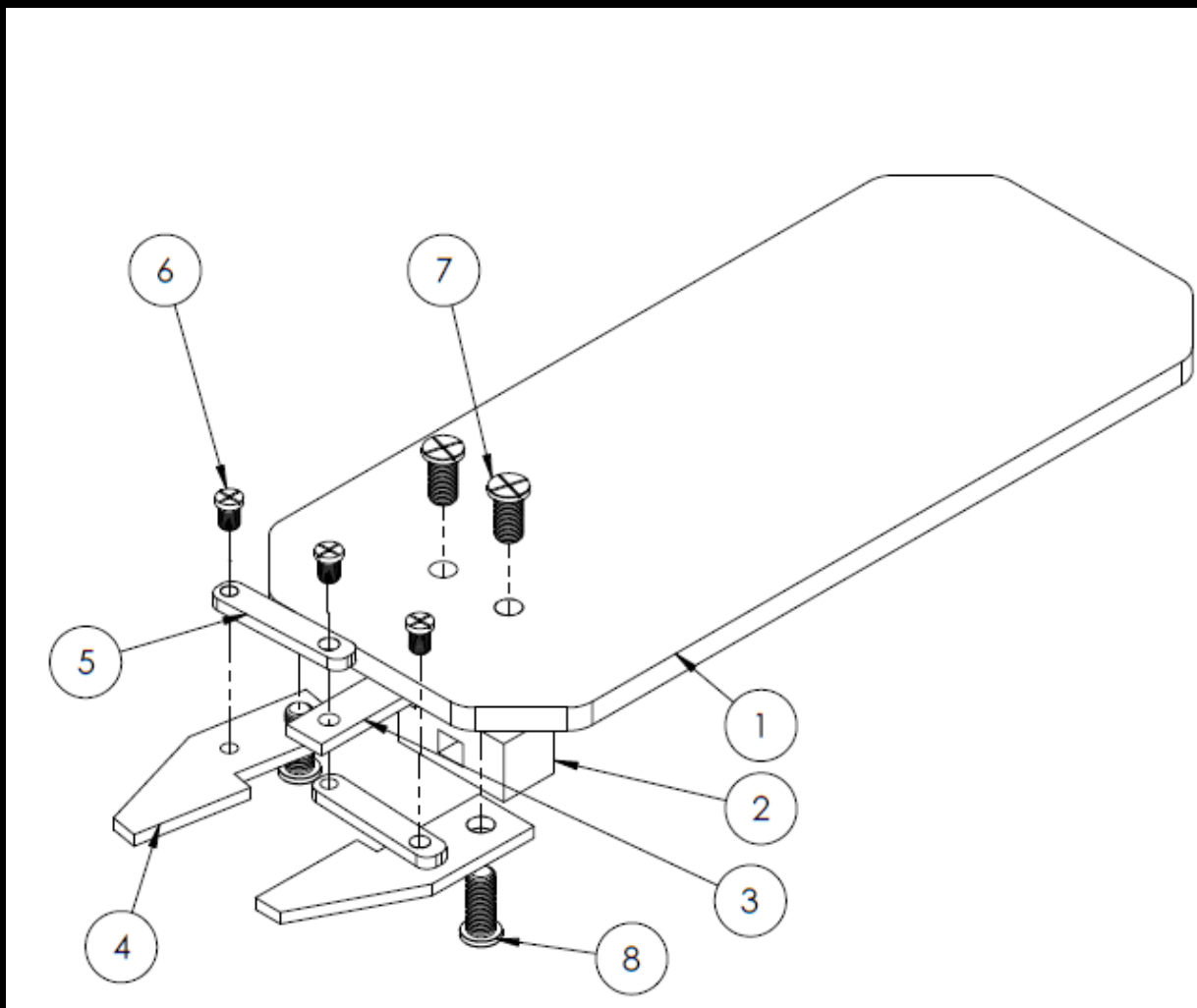
Beetle 1ª versão



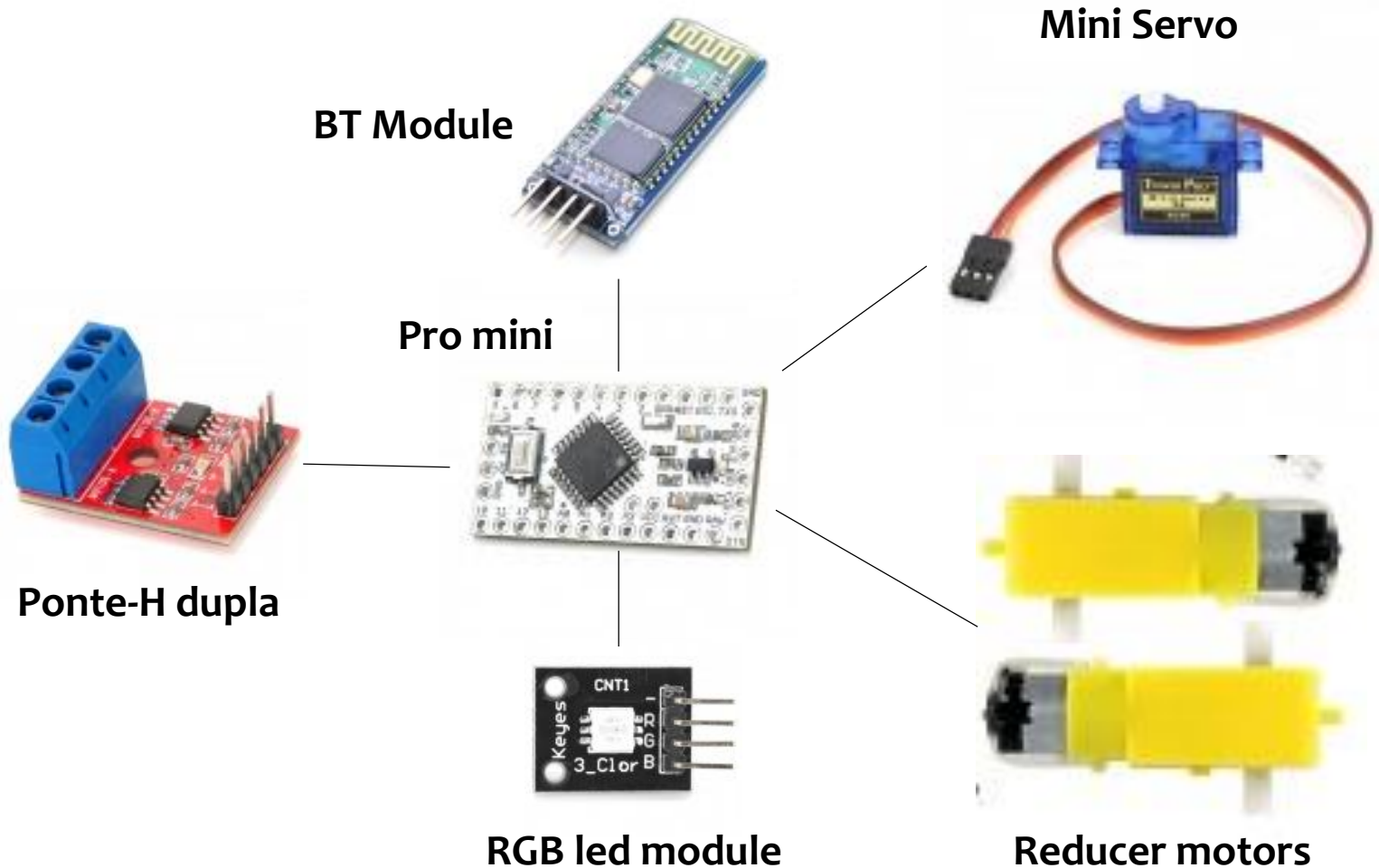
2ª versão



Modelo da garra e chassi

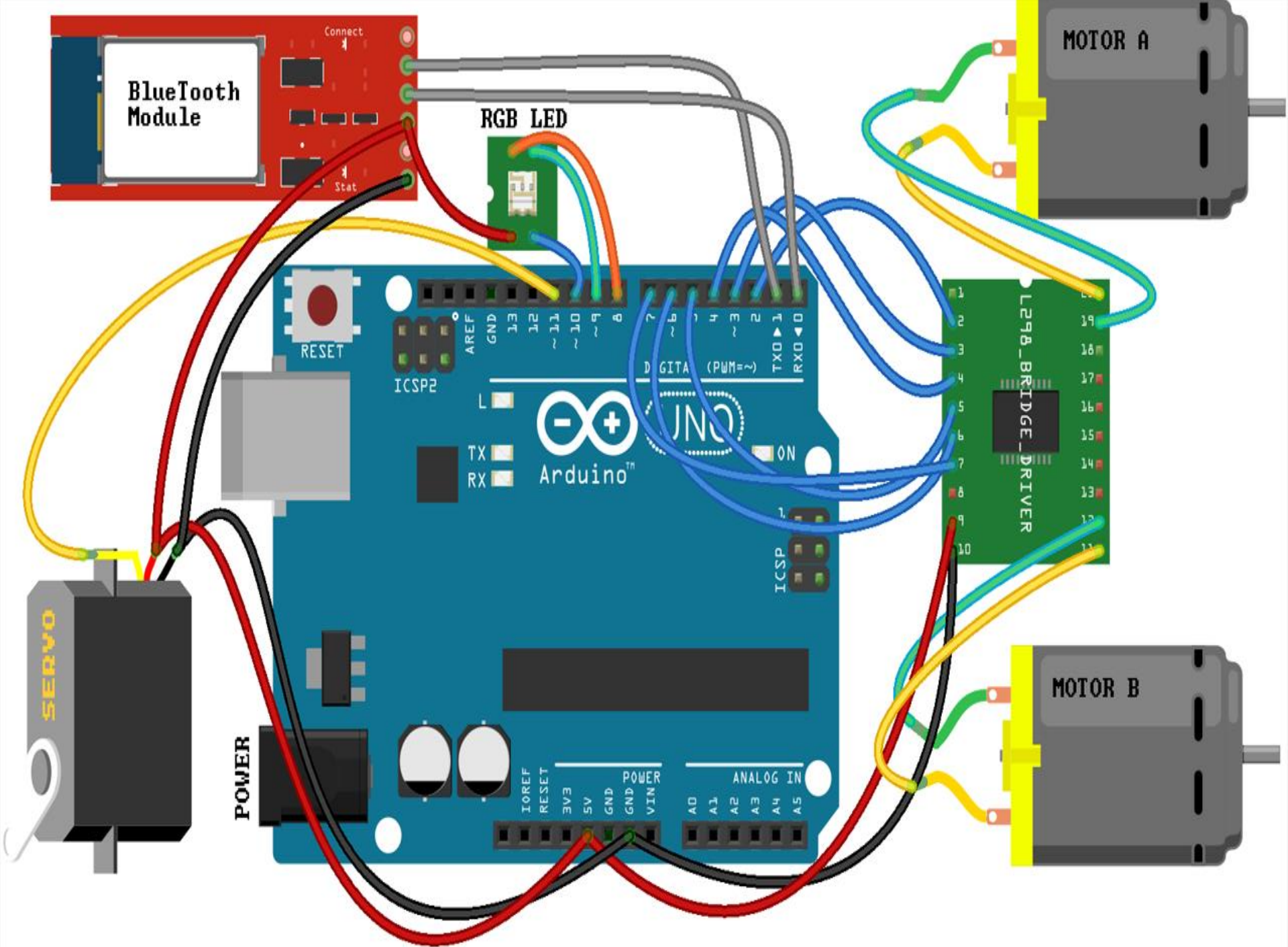


Módulos

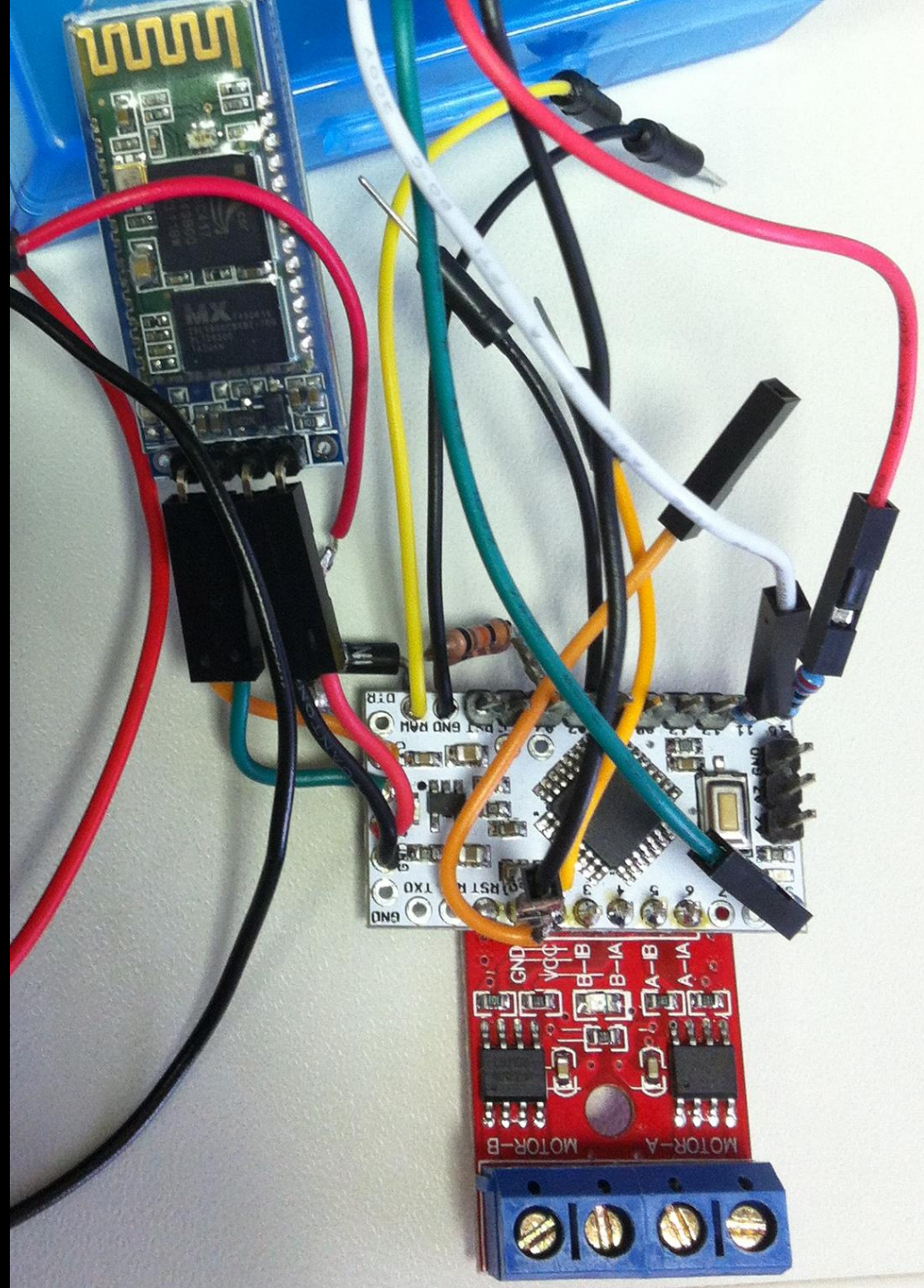




Store No



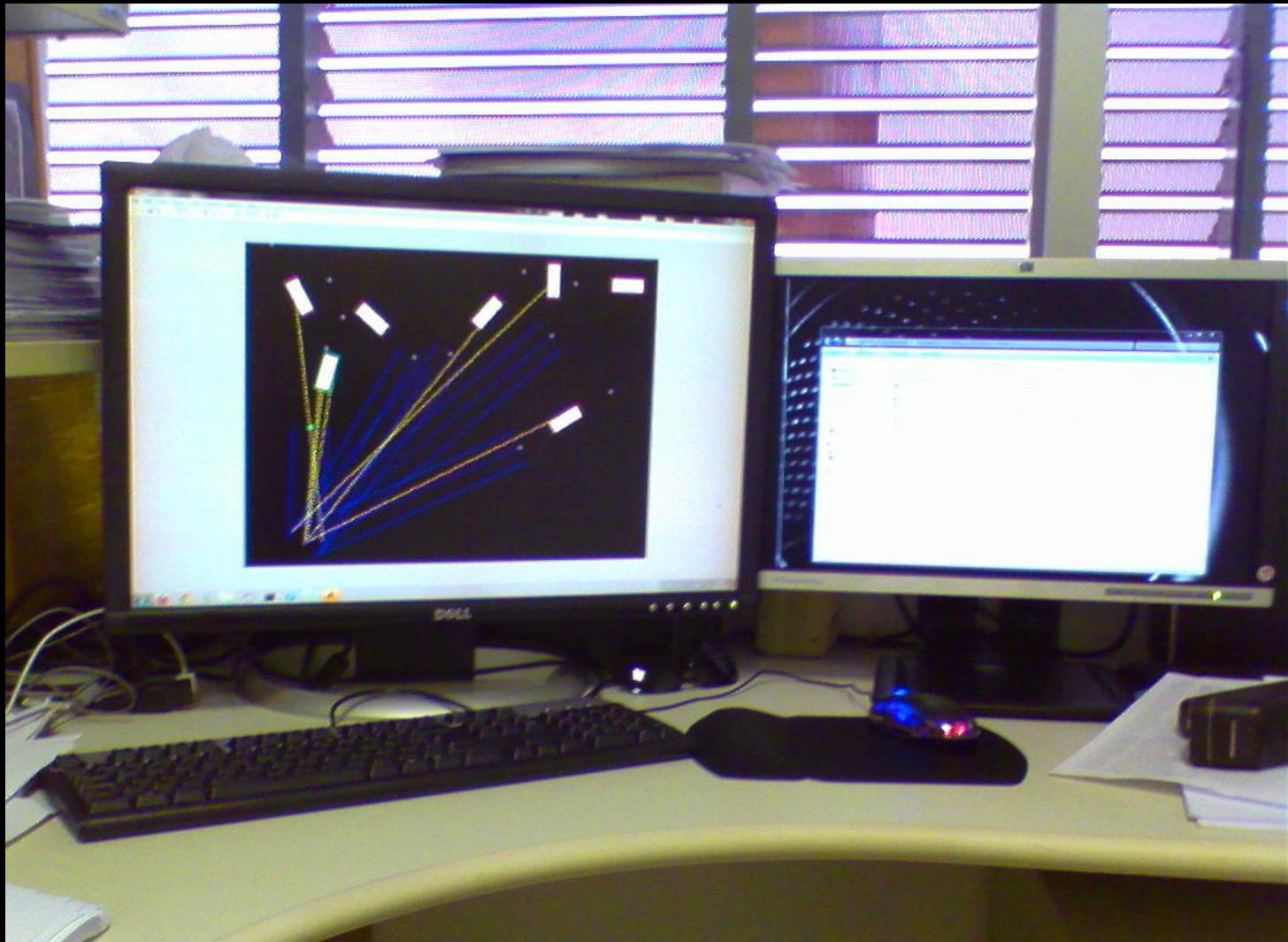
Beetle



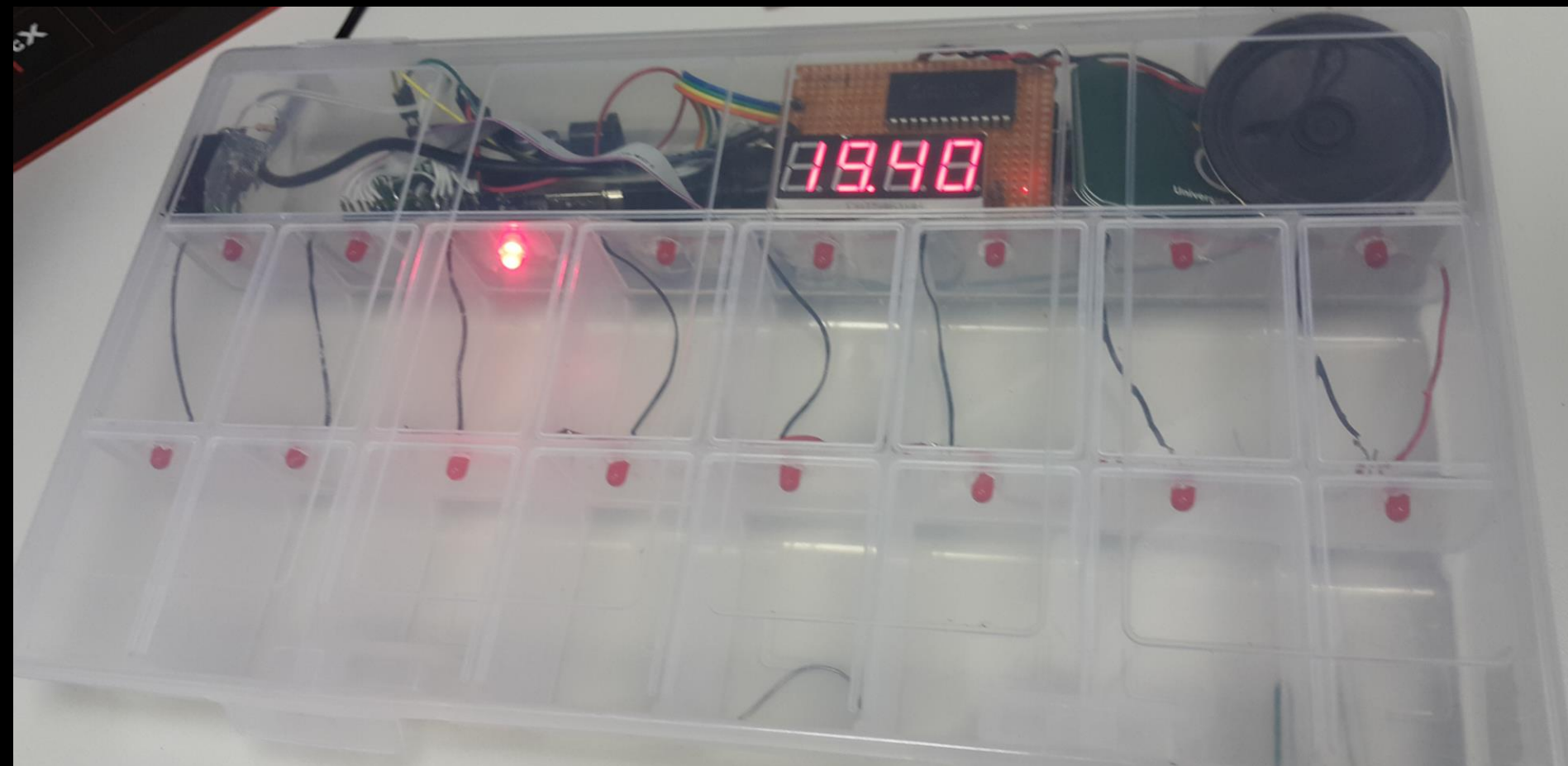
Processamento de Imagem



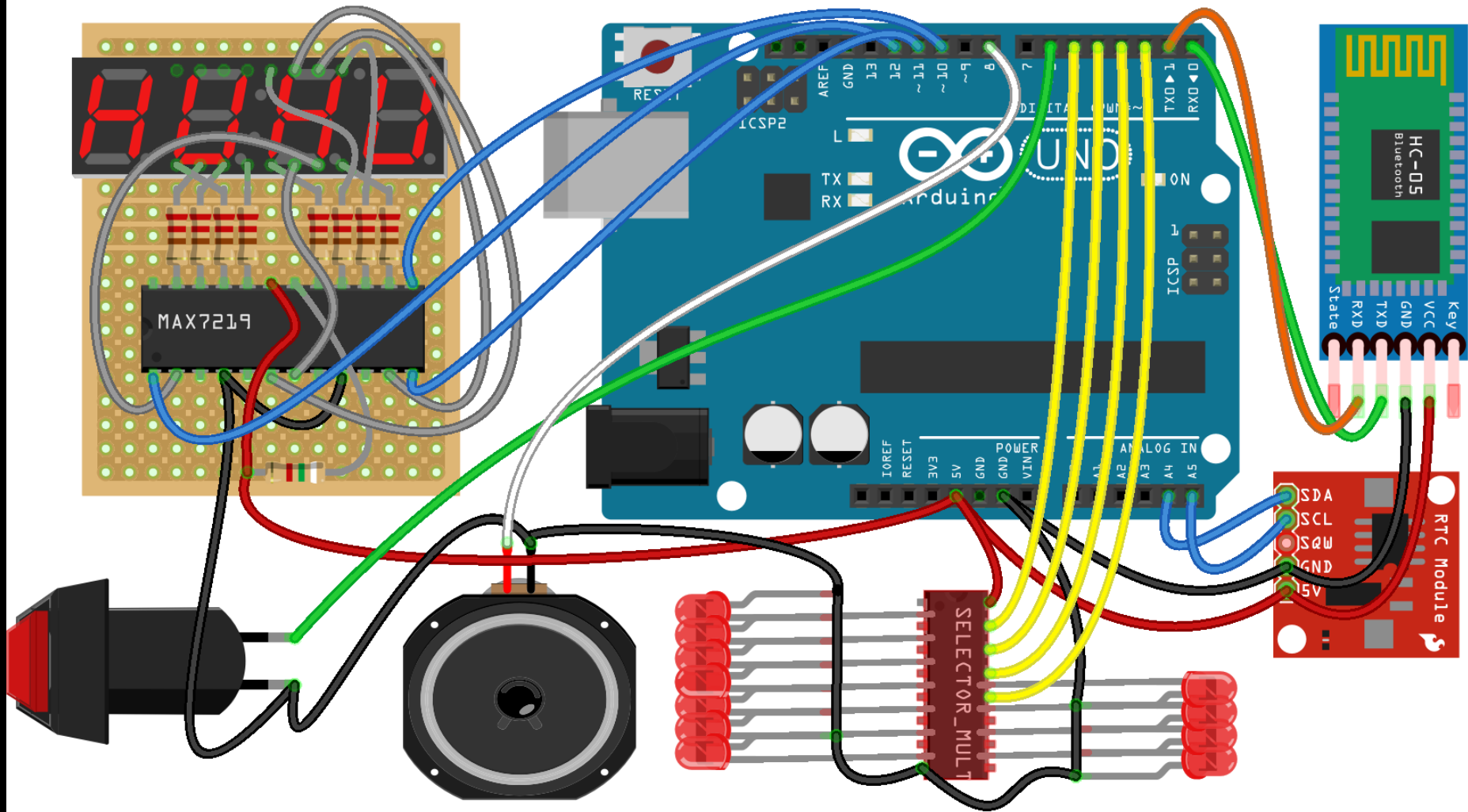
Image processing



MedBox

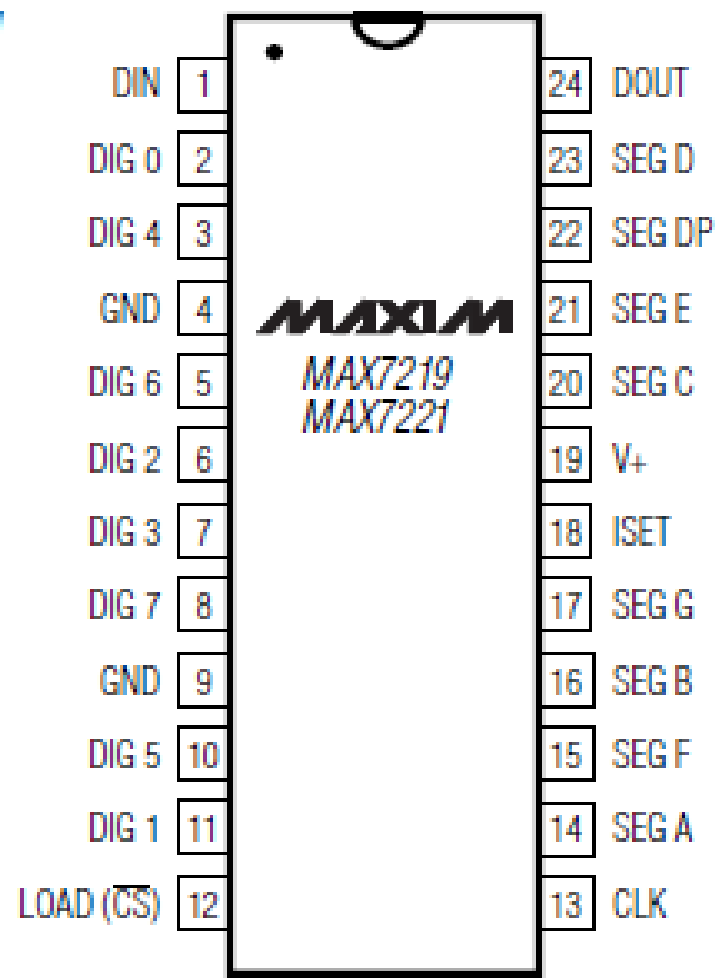


Esquema



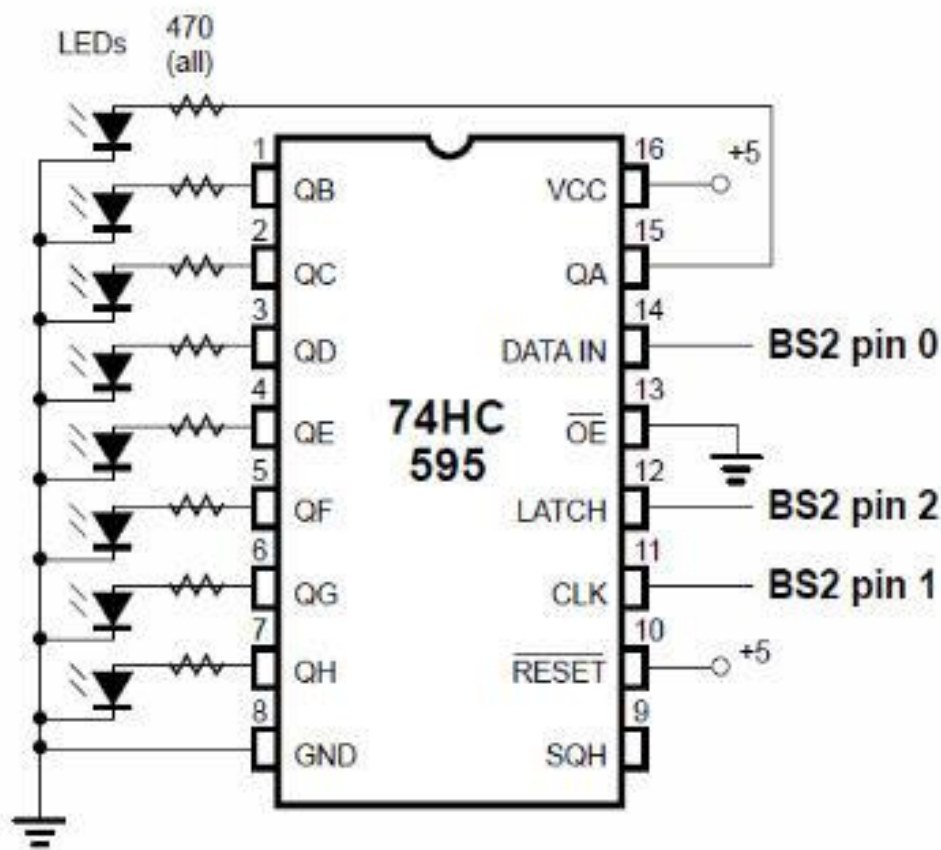
CI's

TOP VIEW



() MAX7221 ONLY

DIP/SO



Projeto

