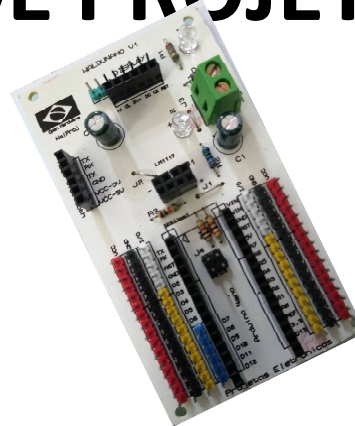


WALDUNANO

Projetos Eletrônicos **MAKER**

WALDYR REIS
#WalProj

EXEMPLOS DE PROJETOS SIMPLES

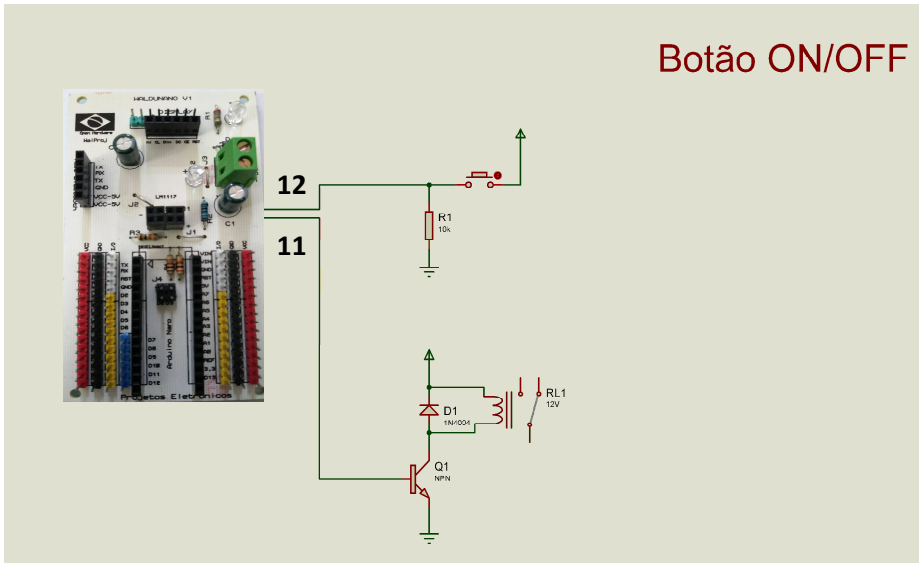


OFICINA - TREINAMENTO

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Botão ON/OFF



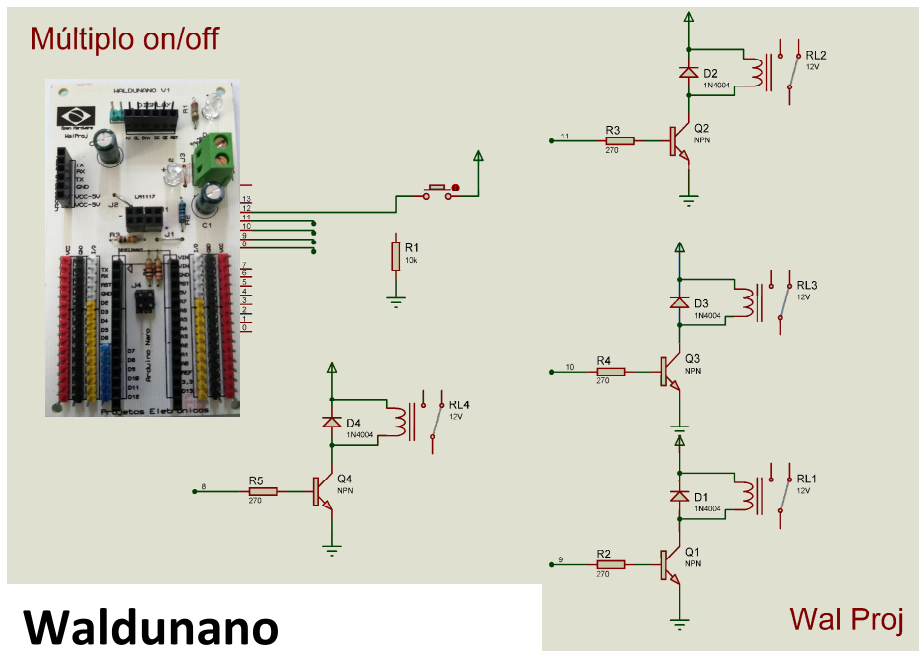
Waldunano

```
/* *****  
* ***   Botão Liga Desliga Rele   ***  
* ***   proj-eletronicos@hotmail.com   ***  
* ***   WalProj - Projetos Eletronicos   ***  
* ***           WALDUNANO           ***  
* ***   Open Hardware - Software   ***  
* ***           31/03/2018           ***  
* ***** */
```

```
#define botao 12  
#define rele 11  
  
int counter = 0;  
  
void setup() {  
  
  pinMode(botao,INPUT);  
  pinMode(rele,OUTPUT);  
  
}  
  
void loop() {  
  
  int leitura = digitalRead(botao);  
  
  if(leitura == HIGH) {  
    counter ++;  
    delay(1000);  
  }  
  
  if(counter >1) counter = 0;  
  if(counter == 0) digitalWrite(rele,LOW);  
  if(counter == 1) digitalWrite(rele,HIGH);  
  
}
```

Rele 4 Canais

Um Rele por Vez

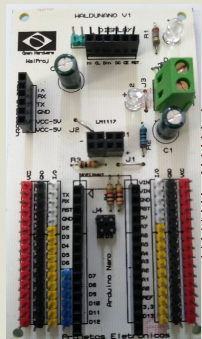


```
/* *****  
* ***   Rele 4 Canais - Um por Vez   ***  
* ***   proj-eletronicos@hotmail.com   ***  
* ***   WalProj - Projetos Eletronicos   ***  
* ***           WALDUNANO           ***  
* ***   Open Hardware - Software   ***  
* ***           31/03/2018           ***  
* ***** */  
  
#define botao 12  
#define rele1 11  
#define rele2 10  
#define rele3 9  
#define rele4 8  
int counter =0;  
  
void setup() {  
  pinMode(botao,INPUT);  
  pinMode(rele1,OUTPUT);  
  pinMode(rele2,OUTPUT);  
  pinMode(rele3,OUTPUT);  
  pinMode(rele4,OUTPUT);  
  
}  
  
void loop() {  
  int leitura = digitalRead(botao);  
  
  if(leitura == HIGH){  
    counter ++;  
    delay(500);  
    if(counter > 4) counter =0;  
  }  
  
  if(counter == 0) {  
    digitalWrite(rele1,LOW);  
    digitalWrite(rele2,LOW);  
    digitalWrite(rele3,LOW);  
    digitalWrite(rele4,LOW);  
  }  
  
  if(counter == 1){  
    digitalWrite(rele1,HIGH);  
    digitalWrite(rele4,LOW);  
  }  
  
  if(counter ==2){  
    digitalWrite(rele1,LOW);  
    digitalWrite(rele2,HIGH);  
  }  
  
  if(counter ==3) {  
    digitalWrite(rele2,LOW);  
    digitalWrite(rele3,HIGH);  
  }  
  
  if(counter == 4) {  
    digitalWrite(rele4,HIGH);  
    digitalWrite(rele3,LOW);  
  }  
}
```

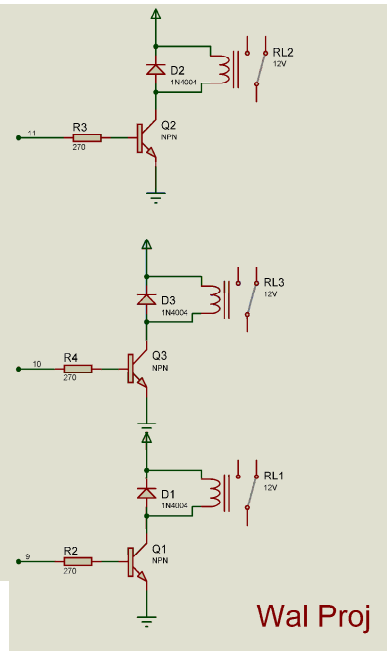
Rele 4 Canais

Liga tudo com Botão

Múltiplo on/off



Waldunano



Wal Proj

```
/* *****  
* *** RELE 4 CANAIS - LIGA TUDO COM BOTÃO ***  
* *** proj-eletronicos@hotmail.com ***  
* *** WalProj - Projetos Eletronicos ***  
* *** WALDUNANO ***  
* *** Open Hardware - Software ***  
* *** 31/03/2018 ***  
* ***** */
```

```
#define botao 12
```

```
#define rele1 11
```

```
#define rele2 10
```

```
#define rele3 9
```

```
#define rele4 8
```

```
int counter =0;
```

```
void setup() {
```

```
  pinMode(botao,INPUT);  
  pinMode(rele1,OUTPUT);  
  pinMode(rele2,OUTPUT);  
  pinMode(rele3,OUTPUT);  
  pinMode(rele4,OUTPUT);
```

```
}
```

```
void loop() {
```

```
  int leitura = digitalRead(botao);
```

```
  if(leitura == HIGH){
```

```
    counter ++;
```

```
    delay(500);
```

```
    if(counter > 4) counter =0;
```

```
  }
```

```
  if(counter == 0) {
```

```
    digitalWrite(rele1,LOW);
```

```
    digitalWrite(rele2,LOW);
```

```
    digitalWrite(rele3,LOW);
```

```
    digitalWrite(rele4,LOW);
```

```
  }
```

```
  if(counter == 1) digitalWrite(rele1,HIGH);
```

```
  if(counter == 2) digitalWrite(rele2,HIGH);
```

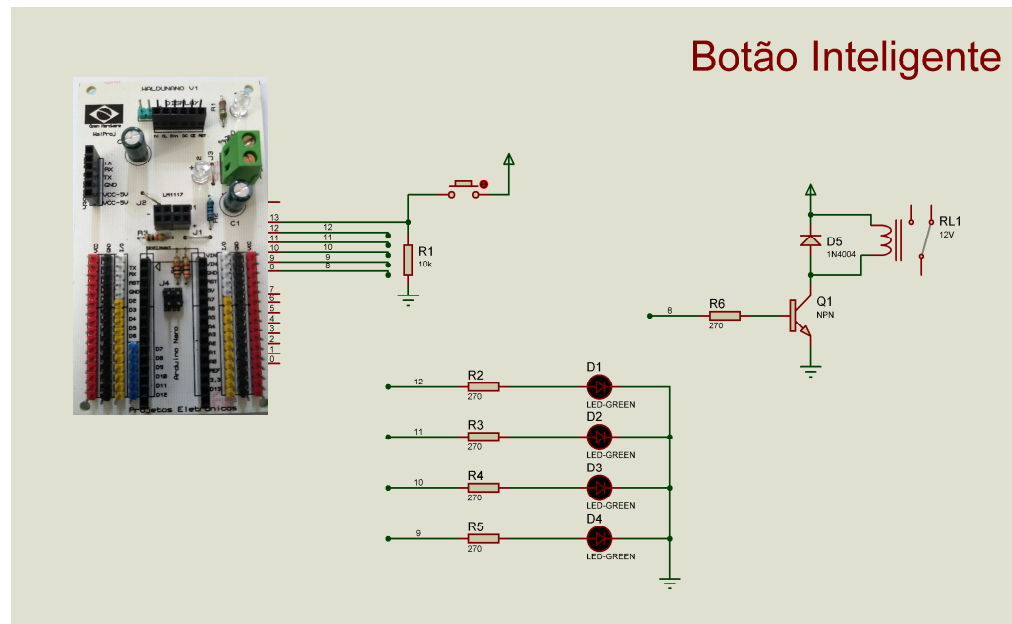
```
  if(counter == 3) digitalWrite(rele3,HIGH);
```

```
  if(counter == 4) digitalWrite(rele4,HIGH);
```

```
}
```

Botão Inteligente

On/Off Inteligente



Waldunano

```
// *****
// *                      *
// *   Botão inteligente V1   *
// *   Botão temporizado para desligar   *
// *   Projetos Eletronicos   *
// *   Wal Proj - Guilherme Reis   *
// *   (05/04/2017)   *
// * Placa MBZ Pro WiFi(Arduino Uno StandAlone) *
// *                      *
// *****

#define buttonPin 13 // Pino do botão
#define rele 8 // Pino rele
#define ledPin1 11 // LED 1 - 1,5 segundos
#define ledPin2 10 // LED 2 - 2,5 segundos
#define ledPin3 9 // LED 3 - 4,5 segundos
#define ledPin4 7 // Led 4 - watchdog

#define debounce 20 // Tempo de debounce em milisegundos
#define holdTime 5000 // Tempo em que o botão deverá ficar pressionado.

//Variáveis de botão

int buttonVal = 0; // Nível lógico atual do botão
int buttonLast = 0; // Nível lógico anterior do botão
long btnDnTime; // Tempo em que o botão foi pressionado
long btnUpTime; // Tempo em que o botão foi solto.
boolean ignoreUp = false; // ignorar o soltar do botão em caso de "click + Hold"
const int tempoled1 = 1000; // tempo nessesário para acender o led 1
const int tempoled2 = 2500; // tempo nessesário para acender o led 2
const int tempoled3 = 4500; // tempo nessesário para acender o led 3

void setup()
{

// Definições I/O

pinMode(buttonPin, INPUT);
digitalWrite(buttonPin, LOW );
pinMode(rele, OUTPUT);
digitalWrite(rele, LOW);
pinMode(ledPin1, OUTPUT);
digitalWrite(ledPin1,LOW);
pinMode(ledPin2, OUTPUT);
digitalWrite(ledPin2,LOW);
pinMode(ledPin3, OUTPUT);
digitalWrite(ledPin3,LOW);
pinMode(ledPin4, OUTPUT);
digitalWrite(ledPin4,LOW);

}


```

```
void loop()
{
//Ler o estado do botão
buttonVal = digitalRead(buttonPin);
digitalWrite(ledPin4,LOW);

//Teste do pressionar do botão e armazenamento do "tempo de descida"
if (buttonVal == HIGH && buttonLast == LOW && (millis() - btnUpTime) > long(debounce))
{
btnDnTime = millis();
}

if (buttonVal == LOW && buttonLast == HIGH && (millis() - btnDnTime)< long(holdTime))
{
digitalWrite(ledPin1,LOW);
digitalWrite(ledPin2,LOW);
digitalWrite(ledPin3,LOW);

}

// Teste do soltar do botão e armazenamento do "tempo de subida"
if (buttonVal == LOW && buttonLast == HIGH && (millis() - btnDnTime) > long(debounce))
{
if (ignoreUp == false) event1();
else ignoreUp = false;
btnUpTime = millis();
}

if (buttonVal == HIGH && (millis() - btnDnTime) > long(tempoled1))
{
digitalWrite(ledPin1,HIGH);
}

if (buttonVal == HIGH && (millis() - btnDnTime) > long(tempoled2))
{
digitalWrite(ledPin2,HIGH);
}

if (buttonVal == HIGH && (millis() - btnDnTime) > long(tempoled3))
{
digitalWrite(ledPin3,HIGH);
}

}


```

```
//Testa se o botão foi segurado por um tempo maior que o tempo arbitrado
if (buttonVal == HIGH && (millis() - btnDnTime) > long(holdTime))
{
event2();
ignoreUp = true;
btnDnTime = millis();
}

buttonLast = buttonVal;
delay(50);
digitalWrite(ledPin4,HIGH);
delay(50);
}
// Eventos

void event1()
{
digitalWrite(rele,HIGH);

}

void event2()
{
digitalWrite(rele, LOW);
digitalWrite(ledPin1, LOW);
digitalWrite(ledPin2, LOW);
digitalWrite(ledPin3, LOW);

}

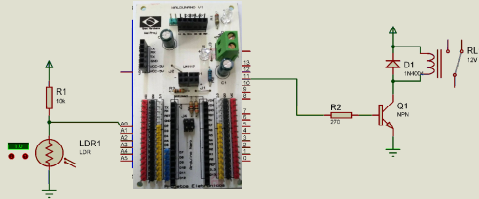

```

Sensor Luminosidade

Liga no Escuro

Desliga no Escuro

Sensor de luminosidade



Waldunano

```
/* *****  
* ***      LDR - Liga no Escuro      ***  
* ***      proj-eletronicos@hotmail.com      ***  
* ***      WalProj - Projetos Eletronicos      ***  
* ***      WALDUNANO      ***  
* ***      Open Hardware - Software      ***  
* ***      31/03/2018      ***  
* ***** */
```

```
#define sensor A0
```

```
#define rele 11
```

```
void setup() {
```

```
  pinMode(sensor,INPUT);  
  pinMode(rele,OUTPUT);
```

```
}
```

```
void loop() {
```

```
  int leitura = analogRead(sensor);  
  if(leitura > 100) digitalWrite(rele,HIGH);  
  else digitalWrite(rele,LOW);  
}
```

```
/* *****  
* ***      LDR - Desliga no Escuro      ***  
* ***      proj-eletronicos@hotmail.com      ***  
* ***      WalProj - Projetos Eletronicos      ***  
* ***      Oficina Arduino Day 2018      ***  
* ***      Open Hardware - Software      ***  
* ***      31/03/2018      ***  
* ***** */
```

```
#define sensor A0
```

```
#define rele 11
```

```
void setup() {
```

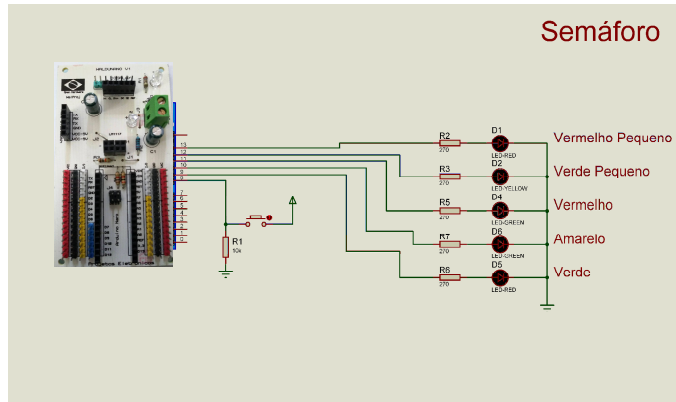
```
  pinMode(sensor,INPUT);  
  pinMode(rele,OUTPUT);
```

```
}
```

```
void loop() {
```

```
  int leitura = analogRead(sensor);  
  if(leitura < 100) digitalWrite(rele,HIGH);  
  else digitalWrite(rele,LOW);  
}
```

Semáforo



Semáforo

Waldunano

```
/* *****  
* ***      Semaforo      ***  
* ***      proj-eletronicos@hotmail.com      ***  
* ***      WalProj - Projetos Eletronicos      ***  
* ***      WALDUNANO      ***  
* ***      Open Hardware - Software      ***  
* ***      31/03/2018      ***  
* ***** */
```

```
#define vermelhop 13 // vermelhop  
#define verdep 12 //verdep  
#define vermelho 11 // vermelho  
#define amarelo 10 //amarelo  
#define verde 9 //verde  
#define botao 8
```

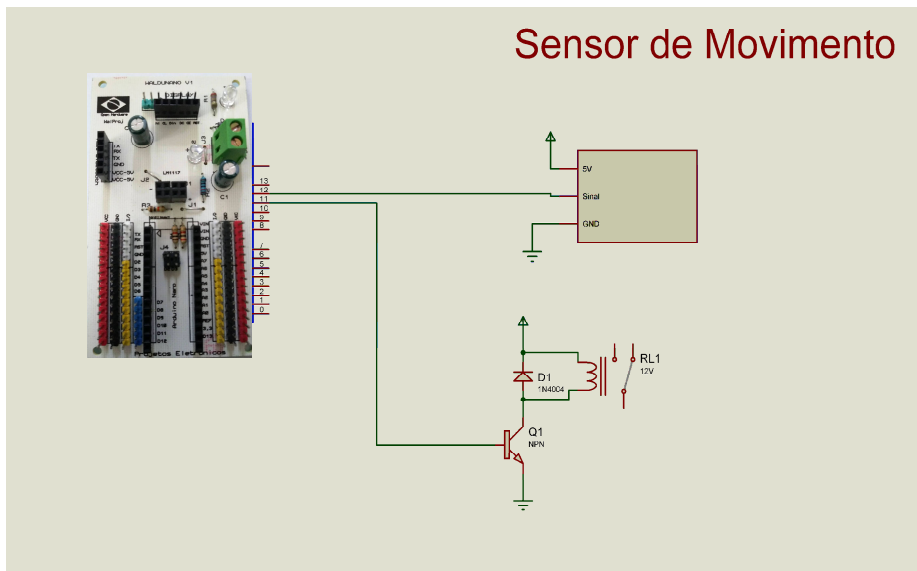
```
int counter = 1;  
long tempoantes = 0;  
long tempo = 0;  
long intervalo = 10000;  
int leitura = 0;
```

```
void setup() {  
  
  pinMode(verde,OUTPUT);  
  pinMode(vermelho,OUTPUT);  
  pinMode(amarelo,OUTPUT);  
  pinMode(vermelhop,OUTPUT);  
  pinMode(verdep,OUTPUT);  
  pinMode(botao,INPUT);  
  //Serial.begin(9600);  
  
}
```

```
void loop() {  
  
  leitura = digitalRead(botao);  
  
  tempo = millis();  
  
  if((tempo - tempoantes) < intervalo){  
    digitalWrite(verde,HIGH);  
    digitalWrite(verdep,LOW);  
    digitalWrite(vermelhop,HIGH);
```

```
    if((tempo - tempoantes) >= intervalo &&(tempo - tempoantes)<(2 *  
    intervalo)){  
      digitalWrite(verde,LOW);  
      digitalWrite(amarelo,HIGH);  
  
    }  
  
    if((tempo - tempoantes) >= (2 * intervalo) && (tempo - tempoantes)<  
    (2*intervalo + 300)){  
      digitalWrite(amarelo,LOW);  
      digitalWrite(vermelho,HIGH);  
  
    }  
  
    if((tempo - tempoantes) >= (2 * intervalo + 300)){  
  
      digitalWrite(vermelhop,LOW);  
      digitalWrite(verdep,HIGH);  
      delay(2000);  
  
      for(char i =0;i<6;i++){  
        digitalWrite(verdep,HIGH);  
        delay(500);  
        digitalWrite(verdep,LOW);  
        delay(500);  
  
      }  
  
      digitalWrite(vermelho,LOW);  
      intervalo = 10000;  
  
      tempoantes = millis();  
  
    }  
  
    if(leitura == HIGH) {  
      intervalo = 5000;  
      delay(50);  
    }  
    //Serial.println(intervalo);  
  }
```

Sensor de Movimento



Waldunano

```
/* *****  
* ***      Sensor de Movimento      ***  
* ***      proj-eletronicos@hotmail.com      ***  
* ***      WalProj - Projetos Eletronicos      ***  
* ***      WALDUNANO      ***  
* ***      Open Hardware - Software      ***  
* ***      31/03/2018      ***  
* ***** */
```

```
#define sensor 12  
#define rele 11
```

```
void setup() {
```

```
    pinMode(sensor,INPUT);  
    pinMode(rele,OUTPUT);
```

```
}
```

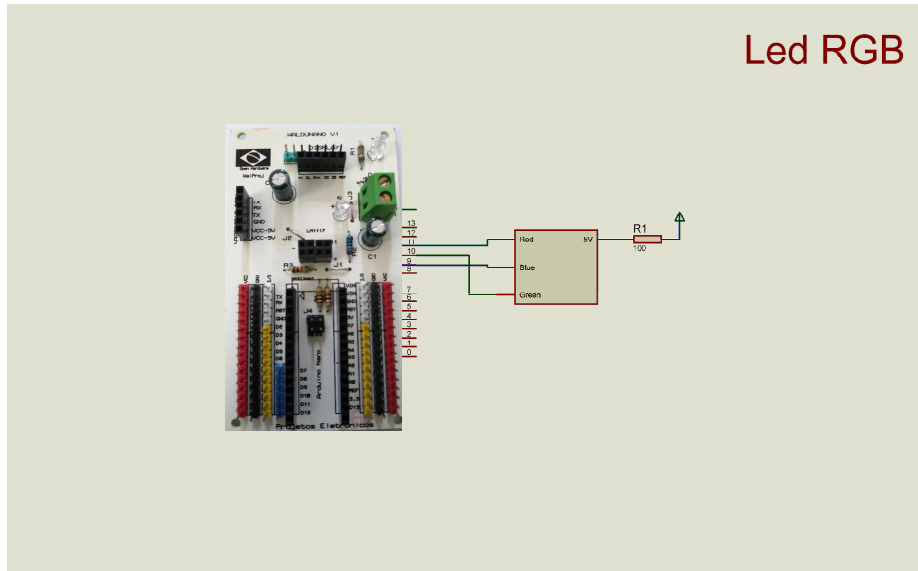
```
void loop() {
```

```
    int leitura = digitalRead(sensor);
```

```
    if(leitura == HIGH) {  
        digitalWrite(rele,HIGH);  
        delay(1000);  
        digitalWrite(rele,LOW);  
    }
```

```
}
```

LED RGB



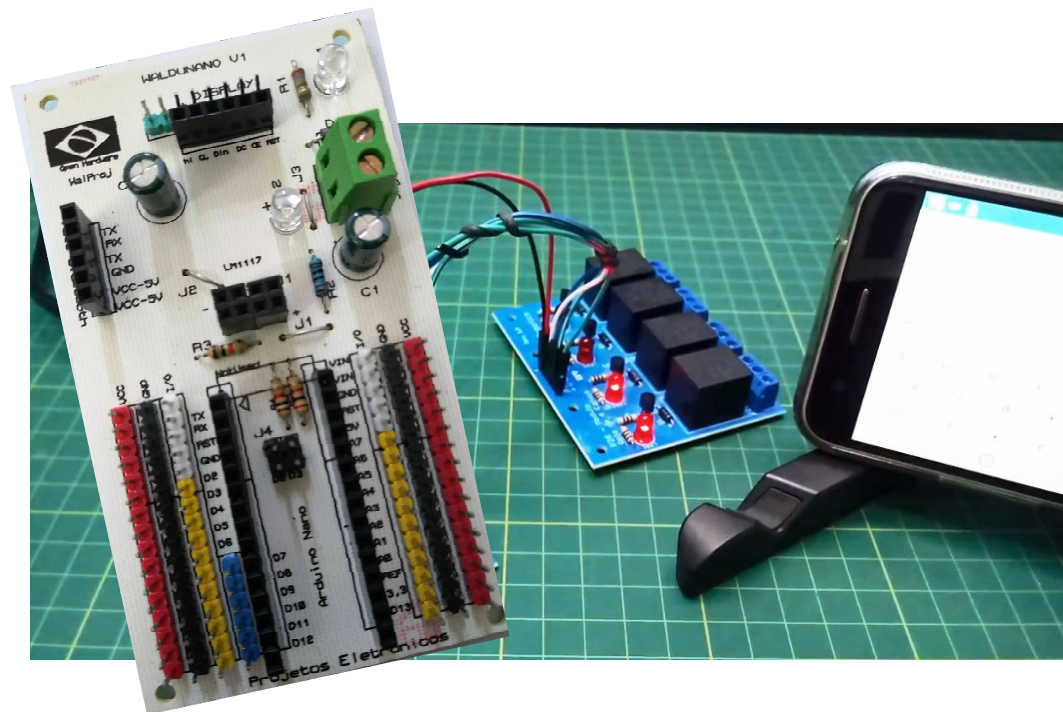
Waldunano

```
/* *****  
* ***      LED RGB      ***  
* ***      proj-eletronicos@hotmail.com      ***  
* ***      WalProj - Projetos Eletronicos      ***  
* ***      WALDUNANO      ***  
* ***      Open Hardware - Software      ***  
* ***      31/03/2018      ***  
* ***** */  
  
#define red 11  
#define green 10  
#define blue 9  
  
void setup() {  
  
    pinMode(red,OUTPUT);  
    pinMode(green,OUTPUT);  
    pinMode(blue,OUTPUT);  
}  
  
void loop() {  
  
    digitalWrite(red,LOW);  
    digitalWrite(green,HIGH);  
    digitalWrite(blue,HIGH);  
    delay(50);  
    digitalWrite(red,HIGH);  
    digitalWrite(green,LOW);  
    digitalWrite(blue,HIGH);  
    delay(50);  
    digitalWrite(red,HIGH);  
    digitalWrite(green,HIGH);  
    digitalWrite(blue,LOW);  
    delay(50);  
    digitalWrite(red,LOW);  
    digitalWrite(green,LOW);  
    digitalWrite(blue,LOW);  
    delay(50);  
    digitalWrite(red,HIGH);  
    digitalWrite(green,LOW);  
    digitalWrite(blue,LOW);  
    delay(50);  
    digitalWrite(red,LOW);  
    digitalWrite(green,HIGH);  
    digitalWrite(blue,LOW);  
    delay(50);  
}  
}
```

Ciclop 4

Acionando rele via USB

Acionando rele via Bluetooth



```

/* *****
* *** Sistema Ciclop - XBee/Bluetooth/ESP ***
* *** proj-eletronicos@hotmail.com ***
* *** WalProj - Projetos Eletronicos ***
* *** WALDUNANO ***
* *** Oficina Arduino Day 2018 ***
* *** Open Hardware - Software ***
* *** 31/03/2018 ***
* ***** */

```

```

#include <Adafruit_GFX.h>
#include <Adafruit_PCD8544.h>
Adafruit_PCD8544 display = Adafruit_PCD8544(2, 3, 4, 5, 6);

```

```

#include <SoftwareSerial.h>
SoftwareSerial proj(0, 1);

```

```

int ch1 = 8;
int ch2 = 9;
int ch3 = 10;
int ch4 = 11;
int ch5 = 6;
int ch6 = 13;

```

```

void setup() {

proj.begin(38400);

```

```

display.begin();
display.setContrast(50);
display.clearDisplay();
display.setTextSize(1);
display.setTextColor(BLACK);
display.setCursor(0,0);

```

```

// Pagina Serial

```

```

proj.println("");
proj.println("");
proj.println("    CICLOP PROJ Arduino Day 2018 ");
proj.println("(1) ON Canal 1    (5) OFF Canal 1    (9) - Emerg.");
proj.println("(2) ON Canal 2    (6) OFF Canal 2    (0) - Panico");
proj.println("(3) ON Canal 3    (7) OFF Canal 3    ( ) - ??");
proj.println("(4) ON Canal 4    (8) OFF Canal 4    ( ) - ??");
proj.println("");

```

```

pinMode(ch1, OUTPUT);
digitalWrite(ch1, LOW);
pinMode(ch2, OUTPUT);
digitalWrite(ch2, LOW);
pinMode(ch3, OUTPUT);
digitalWrite(ch3, LOW);
pinMode(ch4, OUTPUT);
digitalWrite(ch4, LOW);
pinMode(ch5, OUTPUT);
digitalWrite(ch5, LOW);
pinMode(ch6, OUTPUT);
digitalWrite(ch6, LOW);
delay(3000);
}

```

```

void loop() {

display.setCursor(0,0);
display.println(" CICLOP PROJ ");
display.println(" ----- ");
display.display();

```

```

int sensorValue = analogRead(A0);
char character = proj.read();

```

```

;

```

```

if (caracter == '1')

```

```

{

display.print("Nivel -> ");
display.println(sensorValue);

```

```

digitalWrite(ch1, HIGH);
delay(1000);
proj.print("Confirmado Saida 1 Ligada ");
proj.println(sensorValue);
digitalWrite(ch6, HIGH); delay(300);digitalWrite(ch6, LOW);
display.setCursor(0,30);
display.println("Saida 1 - ON");
display.display();
delay(2000);
display.clearDisplay();
}

```

```

if (caracter == '5')
{

```

```

display.print("Nivel -> ");
display.println(sensorValue);

```

```

digitalWrite(ch1, LOW);
delay(1000);
proj.print("Confirmado Saida 1 desligada ");
proj.println(sensorValue);
digitalWrite(ch6, HIGH); delay(300);digitalWrite(ch6,
LOW);delay(300);digitalWrite(ch6, HIGH); delay(300);digitalWrite(ch6,
LOW);
display.setCursor(0,30);
display.println("Saida 1 - OFF");
display.display();
delay(2000);
display.clearDisplay();

```

```

}

```

```

if (caracter == '2')
{

```

```

display.print("Nivel -> ");
display.println(sensorValue);

```

```

digitalWrite(ch2, HIGH);
delay(1000);
proj.print("Confirmado Saida 2 Ligada ");
proj.println(sensorValue);
digitalWrite(ch6, HIGH); delay(300);digitalWrite(ch6, LOW);
display.setCursor(0,30);
display.println("Saida 2 - ON");
display.display();
delay(2000);
display.clearDisplay();

```

```

}

```

```

if (caracter == '6')
{

```

```

display.print("Nivel -> ");
display.println(sensorValue);

```

```

digitalWrite(ch2, LOW);
delay(1000);
proj.print("Confirmado Saida 2 Desligada ");
proj.println(sensorValue);
digitalWrite(ch6, HIGH); delay(300);digitalWrite(ch6,
LOW);delay(300);digitalWrite(ch6, HIGH); delay(300);digitalWrite(ch6,
LOW);
display.setCursor(0,30);
display.println("Saida 2 - OFF");
display.display();
delay(2000);
display.clearDisplay();

```

```

}

```

```

if (caracter == '3')
{

    display.print("Nivel -> ");
    display.println(sensorValue);

    digitalWrite(ch3, HIGH);
    delay(1000);
    proj.print("Confirmado Saida 3 Ligada ");
    proj.println(sensorValue);
    digitalWrite(ch6, HIGH); delay(300);digitalWrite(ch6, LOW);
    display.setCursor(0,30);
    display.println("Saida 3 - ON");
    display.display();
    delay(2000);
    display.clearDisplay();

}

if (caracter == '7')
{

    display.print("Nivel -> ");
    display.println(sensorValue);

    digitalWrite(ch3, LOW);
    delay(1000);
    proj.print("Confirmado Saida 3 Desligada ");
    proj.println(sensorValue);
    digitalWrite(ch6, HIGH); delay(300);digitalWrite(ch6,
LOW);delay(300);digitalWrite(ch6, HIGH); delay(300);digitalWrite(ch6,
LOW);
    display.setCursor(0,30);
    display.println("Saida 3 - OFF");
    display.display();
    delay(2000);
    display.clearDisplay();

}

if (caracter == '4')
{

    display.print("Nivel -> ");
    display.println(sensorValue);

    digitalWrite(ch4, HIGH);
    delay(1000);
    proj.print("Confirmado Saida 4 Ligada ");
    proj.println(sensorValue);
    digitalWrite(ch6, HIGH); delay(300);digitalWrite(ch6, LOW);
    display.setCursor(0,30);
    display.println("Saida 4 - ON");
    display.display();

```

```

delay(2000);
    display.clearDisplay();

}

if (caracter == '8')
{

    display.print("Nivel -> ");
    display.println(sensorValue);

    digitalWrite(ch4, LOW);
    delay(1000);
    proj.print("Confirmado Saida 4 Desligada ");
    proj.println(sensorValue);
    digitalWrite(ch6, HIGH); delay(300);digitalWrite(ch6,
LOW);delay(300);digitalWrite(ch6, HIGH); delay(300);digitalWrite(ch6,
LOW);
    display.setCursor(0,30);
    display.println("Saida 4 - OFF");
    display.display();
    delay(2000);
    display.clearDisplay();

}

if (caracter == '9')
{
    digitalWrite(ch6, HIGH);
    digitalWrite(ch1, HIGH);delay(1000);digitalWrite(ch2, HIGH);delay(1000);
digitalWrite(ch3, HIGH);delay(1000); digitalWrite(ch4, HIGH);
    delay(1000);
    proj.println("Confirmado...!! Emergencia - Todas as Sidas Liberada");
    display.setCursor(7,30);
    display.setTextColor(WHITE, BLACK);
    display.println("***EMERGENCIA*");
    display.display();
    delay(5000);
    digitalWrite(ch6, LOW);
    digitalWrite(ch4, LOW);delay(1000);digitalWrite(ch3, LOW);delay(1000);
digitalWrite(ch2,LOW);delay(1000); digitalWrite(ch1, LOW);
    proj.println("Confirmado...!! Fim da Emerfencia");
    display.clearDisplay();
    display.setTextColor(BLACK);
}

if (caracter == '0')
{
    digitalWrite(ch6, HIGH);
    digitalWrite(ch5, HIGH);
    delay(1000);
    proj.println("Confirmado...!! *** PANICO ***");
    proj.println(" ** Portas Travadas ***");

```

```

display.setCursor(7,30);
    display.setTextColor(WHITE, BLACK);
    display.println("** PANICO *");
    display.display();
    delay(9000);
    digitalWrite(ch6, LOW);
    digitalWrite(ch5, LOW);
    proj.println("Confirmado..!! Fim do Panico");
    display.clearDisplay();
    display.setTextColor(BLACK);

}

delay(100);

}

```