Escola Secundária S. João do Estoril

Turma 1º P – 3º Período – 2020/2021

Oficina de Robótica

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**Exercício**

**(Testar LDR com Led, Potenciômetro, e mostrar valores no LCD)**

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| Pretende-se que se implemente um projecto, que teste o uso do sensor **LDR que atua sobre o Led, o Potenciómetro que atua sobre o brilho do LCD, e o LCD mostra-se o seu uso e mostra os valores do LDR** | **Componentes a usar:**   * LDR (sensor foto-resistência) * resistência variável * Led * 3 resistências (1) * cabos de várias cores * Protoboard ou breadboard * Arduino Uno R3  1. para evitar curto-circuitos ou excessos de corrente no circuito onde se coloca a resistência |

**=== Esquema a montar ============================================================**

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| D:\_ aulas 2020-2021\1ºP - Rob\projetos basicos\testa LDR+Led (OK)+ LCD (OK).png | **Ver correção**  <https://www.tinkercad.com/things/1BjeXKGI4WU-testa-ldrled-ok-lcd-ok/editel?sharecode=kwq_Vc7R27q53_pxKOE1HX9Af6e4cKm9Yq5mBfpzY30> |

**=== Code =======================================================================**

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**\* Dev by Gabriel**

**\* 26/02/2021**

**\*/**

**#include <LiquidCrystal.h>**

**#define pinoLed 9**

**int pinoSensorLuz = A0;**

**int media, soma, output;**

**int array[4];**

**LiquidCrystal lcd(12, 11, 5, 4, 3, 2);**

**void setup(){**

**pinMode(pinoLed,OUTPUT);**

**lcd.begin(16, 2);**

**Serial.begin(9600);**

**}**

**void loop(){**

**// Call functions**

**luz();**

**// What to Display**

**if(media <= 400){**

**Serial.println("Less 400");**

**output = map(media, 0, 1023, 0, 10);**

**analogWrite(pinoLed, output);**

**}**

**else if(media > 400 && media <= 450){**

**output = map(media, 0, 1023, 0, 25);**

**analogWrite(pinoLed, output);**

**}**

**else if(media > 450 && media <= 500){**

**output = map(media, 0, 1023, 0, 50);**

**analogWrite(pinoLed, output);**

**}**

**else if(media > 500 && media <= 550){**

**output = map(media, 0, 1023, 0, 80);**

**analogWrite(pinoLed, output);**

**}**

**else if(media > 550 && media <= 600){**

**output = map(media, 0, 1023, 0, 100);**

**analogWrite(pinoLed, output);**

**}**

**else if(media > 600 && media <= 650){**

**output = map(media, 0, 1023, 0, 150);**

**analogWrite(pinoLed, output);**

**}**

**else if(media > 650 && media <= 700){**

**output = map(media, 0, 1023, 0, 200);**

**analogWrite(pinoLed, output);**

**}**

**else if(media > 700){**

**Serial.println("Up 700");**

**output = map(media, 0, 1023, 0, 255);**

**analogWrite(pinoLed, output);**

**}**

**delay(500);**

**}**

**void luz(){**

**Serial.println("Reading data...");**

**array[0] = analogRead(pinoSensorLuz);**

**delay(100);**

**array[1] = analogRead(pinoSensorLuz);**

**delay(100);**

**array[2] = analogRead(pinoSensorLuz);**

**delay(100);**

**array[3] = analogRead(pinoSensorLuz);**

**soma = (array[0] + array[1] + array[2] + array[3]);**

**media = soma /4;**

**lcd.setCursor(0,1);**

**lcd.print(media);**

**}**

**void ecra(){**

**lcd.setCursor(0, 1);**

**lcd.print(millis() / 1000);**

**}**

**=== Tinkercad Link ================================================================**

[**https://www.tinkercad.com/things/2uxeHbxxXts-copy-of-desafiogabriel/editel?sharecode=clf\_Cg-kDedExdu4IW4yCn2h9YcFgliGbkBMDN-\_d5Y&sharecode=clf\_Cg-kDedExdu4IW4yCn2h9YcFgliGbkBMDN-\_d5Y**](https://www.tinkercad.com/things/2uxeHbxxXts-copy-of-desafiogabriel/editel?sharecode=clf_Cg-kDedExdu4IW4yCn2h9YcFgliGbkBMDN-_d5Y&sharecode=clf_Cg-kDedExdu4IW4yCn2h9YcFgliGbkBMDN-_d5Y)

**=== Código a escrever =============================================================**

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