// Include Libraries

#include "Arduino.h"

#include "Buzzer.h"

#include "FSR.h"

#include "NewPing.h"

#include "LED.h"

// Pin Definitions

#define BUZZER\_PIN\_SIG 2

#define FSR\_PIN\_1 A1

#define HCSR04\_PIN\_TRIG 5

#define HCSR04\_PIN\_ECHO 4

#define LEDG\_PIN\_VIN 3

// Global variables and defines

// object initialization

Buzzer buzzer(BUZZER\_PIN\_SIG);

FSR fsr(FSR\_PIN\_1);

NewPing hcsr04(HCSR04\_PIN\_TRIG,HCSR04\_PIN\_ECHO);

LED ledG(LEDG\_PIN\_VIN);

// define vars for testing menu

const int timeout = 10000; //define timeout of 10 sec

char menuOption = 0;

long time0;

// Setup the essentials for your circuit to work. It runs first every time your circuit is powered with electricity.

void setup()

{

// Setup Serial which is useful for debugging

// Use the Serial Monitor to view printed messages

Serial.begin(9600);

while (!Serial) ; // wait for serial port to connect. Needed for native USB

Serial.println("start");

menuOption = menu();

}

// Main logic of your circuit. It defines the interaction between the components you selected. After setup, it runs over and over again, in an eternal loop.

void loop()

{

if(menuOption == '1') {

// Buzzer - Test Code

// The buzzer will turn on and off for 500ms (0.5 sec)

buzzer.on(); // 1. turns on

delay(500); // 2. waits 500 milliseconds (0.5 sec). Change the value in the brackets (500) for a longer or shorter delay in milliseconds.

buzzer.off(); // 3. turns off.

delay(500); // 4. waits 500 milliseconds (0.5 sec). Change the value in the brackets (500) for a longer or shorter delay in milliseconds.

}

else if(menuOption == '2') {

// Force Sensitive Resistor 0.5'' - Test Code

// Read FSR resistance value. try also fsr.getResistance()

// For more information see Sparkfun website - www.sparkfun.com/products/9375

// Note, the default Vcc and external resistor values for FSR calculations are 5V ang 3300Okm, if you are not

// using these default valuse in your circuit go to FSR.cpp and change default values in FSR constructor

float fsrForce = fsr.getForce();

Serial.print(F("Force: ")); Serial.print(fsrForce); Serial.println(F(" [g]"));

}

else if(menuOption == '3') {

// Ultrasonic Sensor - HC-SR04 - Test Code

// Read distance measurment from UltraSonic sensor

int hcsr04Dist = hcsr04.ping\_cm();

delay(10);

Serial.print(F("Distance: ")); Serial.print(hcsr04Dist); Serial.println(F("[cm]"));

}

else if(menuOption == '4') {

// LED - Basic Green 5mm - Test Code

// The LED will turn on and fade till it is off

for(int i=255 ; i> 0 ; i -= 5)

{

ledG.dim(i); // 1. Dim Led

delay(15); // 2. waits 5 milliseconds (0.5 sec). Change the value in the brackets (500) for a longer or shorter delay in milliseconds.

}

ledG.off(); // 3. turns off

}

if (millis() - time0 > timeout)

{

menuOption = menu();

}

}

// Menu function for selecting the components to be tested

// Follow serial monitor for instrcutions

char menu()

{

Serial.println(F("\nWhich component would you like to test?"));

Serial.println(F("(1) Buzzer"));

Serial.println(F("(2) Force Sensitive Resistor 0.5''"));

Serial.println(F("(3) Ultrasonic Sensor - HC-SR04"));

Serial.println(F("(4) LED - Basic Green 5mm"));

Serial.println(F("(menu) send anything else or press on board reset button\n"));

while (!Serial.available());

// Read data from serial monitor if received

while (Serial.available())

{

char c = Serial.read();

if (isAlphaNumeric(c))

{

if(c == '1')

Serial.println(F("Now Testing Buzzer"));

else if(c == '2')

Serial.println(F("Now Testing Force Sensitive Resistor 0.5''"));

else if(c == '3')

Serial.println(F("Now Testing Ultrasonic Sensor - HC-SR04"));

else if(c == '4')

Serial.println(F("Now Testing LED - Basic Green 5mm"));

else

{

Serial.println(F("illegal input!"));

return 0;

}

time0 = millis();

return c;

}

}

}

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