

# PRACTICA 5: E/S con Arduino

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## Primer programa: zumbador pasivo

### - Código

```
#include "pitches.h"

// notes in the melody:
int melody[] = {
  NOTE_C5, NOTE_D5, NOTE_E5, NOTE_F5, NOTE_G5, NOTE_A5, NOTE_B5, NOTE_C6};
int duration = 500; // 500 milliseconds

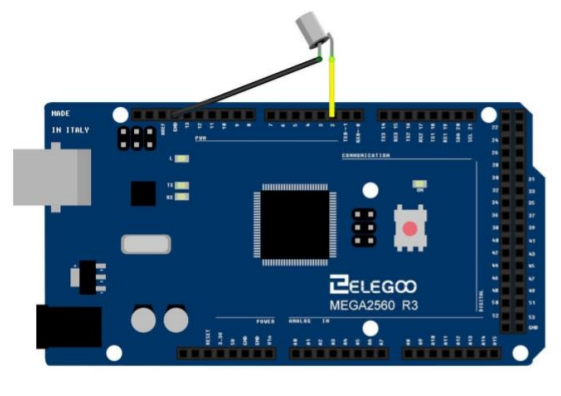
void setup() {
}

void loop() {
  for (int thisNote = 0; thisNote < 8; thisNote++) {
    // pin8 output the voice, every scale is 0.5 sencond
    tone(8, melody[thisNote], duration);

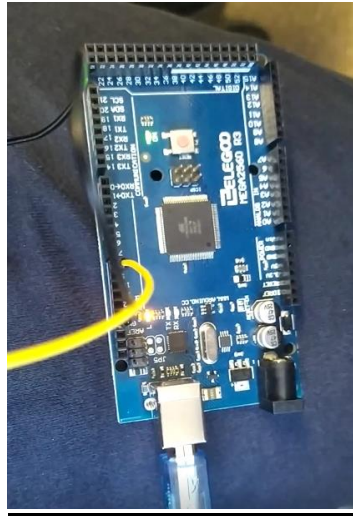
    // Output the voice after several minutes
    delay(1000);
  }

  // restart after two seconds
  delay(2000);
}
```

### - Dibujo Esquemático



- **Foto**



## Segundo programa: theremín de luz

- **Código**

```
/*
  Arduino Starter Kit example
  Project 6 - Light Theremin

  This sketch is written to accompany Project 6 in the Arduino Starter Kit

  Parts required:
  - photoresistor
  - 10 kilohm resistor
  - piezo

  created 13 Sep 2012
  by Scott Fitzgerald

  http://www.arduino.cc/starterKit

  This example code is part of the public domain.
  */

// variable to hold sensor value
int sensorValue;
// variable to calibrate low value
int sensorLow = 1023;
// variable to calibrate high value
int sensorHigh = 0;
// LED pin
const int ledPin = 13;

void setup() {
  // Make the LED pin an output and turn it on
```

```

pinMode(ledPin, OUTPUT);
digitalWrite(ledPin, HIGH);

// calibrate for the first five seconds after program runs
while (millis() < 5000) {
  // record the maximum sensor value
  sensorValue = analogRead(A0);
  if (sensorValue > sensorHigh) {
    sensorHigh = sensorValue;
  }
  // record the minimum sensor value
  if (sensorValue < sensorLow) {
    sensorLow = sensorValue;
  }
}
// turn the LED off, signaling the end of the calibration period
digitalWrite(ledPin, LOW);
}

void loop() {
  //read the input from A0 and store it in a variable
  sensorValue = analogRead(A0);

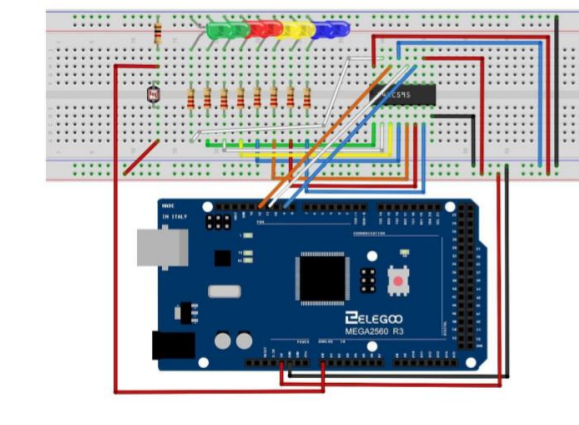
  // map the sensor values to a wide range of pitches
  int pitch = map(sensorValue, sensorLow, sensorHigh, 50, 4000);

  // play the tone for 20 ms on pin 8
  tone(8, pitch, 50);

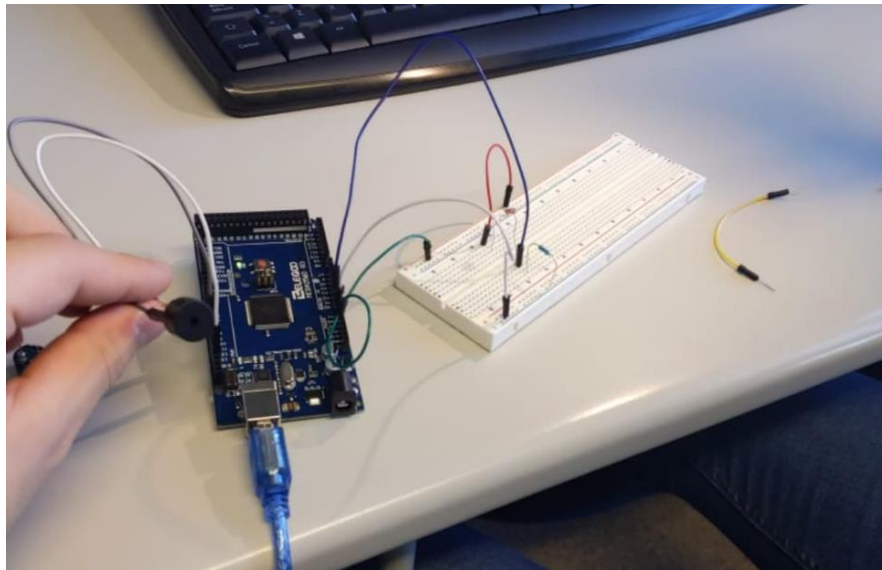
  // wait for a moment
  delay(100);
}

```

## - Dibujo Esquemático



- **Foto**



## Tercer programa: Joystick

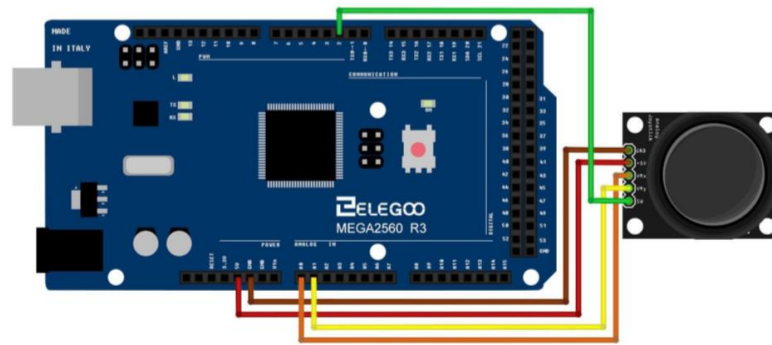
- **Código**

```
// Arduino pin numbers
const int SW_pin = 2; // digital pin connected to switch output
const int X_pin = 0; // analog pin connected to X output
const int Y_pin = 1; // analog pin connected to Y output

void setup() {
  pinMode(SW_pin, INPUT);
  digitalWrite(SW_pin, HIGH);
  Serial.begin(9600);
}

void loop() {
  Serial.print("Switch: ");
  Serial.print(digitalRead(SW_pin));
  Serial.print("\n");
  Serial.print("X-axis: ");
  Serial.print(analogRead(X_pin));
  Serial.print("\n");
  Serial.print("Y-axis: ");
  Serial.println(analogRead(Y_pin));
  Serial.print("\n\n");
  delay(500);
}
```

- Dibujo Esquemático



- Foto

