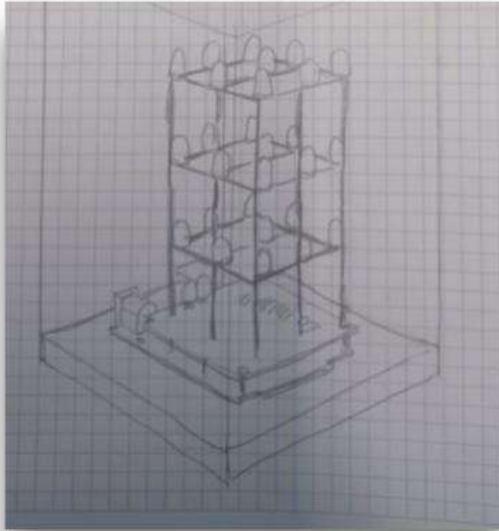
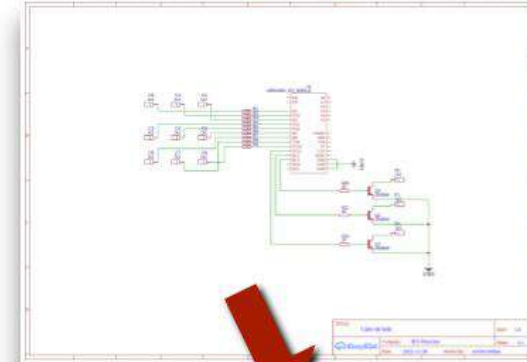


# FASES DEL PROYECTO

## Fase 1. Planteamiento

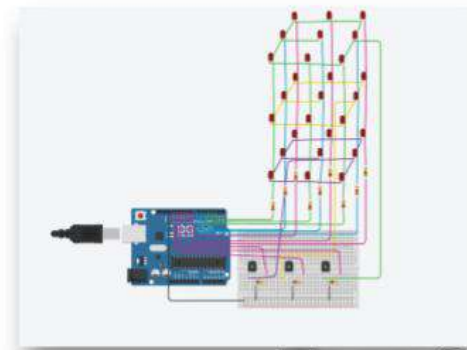


## Fase 4. Diseño electrónico



## Fase 5. Programación

```
void setup() {  
  // Inicializa pines  
  pinMode(13, OUTPUT);  
  pinMode(12, OUTPUT);  
  pinMode(11, OUTPUT);  
  pinMode(10, OUTPUT);  
  pinMode(9, OUTPUT);  
  pinMode(8, OUTPUT);  
  pinMode(7, OUTPUT);  
  pinMode(6, OUTPUT);  
  pinMode(5, OUTPUT);  
  pinMode(4, OUTPUT);  
  pinMode(3, OUTPUT);  
  pinMode(2, OUTPUT);  
  pinMode(1, OUTPUT);  
  pinMode(0, OUTPUT);  
}  
  
void loop() {  
  // Enciende los LEDs de la fila superior  
  digitalWrite(13, HIGH);  
  digitalWrite(12, HIGH);  
  digitalWrite(11, HIGH);  
  digitalWrite(10, HIGH);  
  digitalWrite(9, HIGH);  
  digitalWrite(8, HIGH);  
  digitalWrite(7, HIGH);  
  digitalWrite(6, HIGH);  
  digitalWrite(5, HIGH);  
  digitalWrite(4, HIGH);  
  digitalWrite(3, HIGH);  
  digitalWrite(2, HIGH);  
  digitalWrite(1, HIGH);  
  digitalWrite(0, HIGH);  
  delay(1000);  
  // Enciende los LEDs de la fila superior  
  digitalWrite(13, LOW);  
  digitalWrite(12, LOW);  
  digitalWrite(11, LOW);  
  digitalWrite(10, LOW);  
  digitalWrite(9, LOW);  
  digitalWrite(8, LOW);  
  digitalWrite(7, LOW);  
  digitalWrite(6, LOW);  
  digitalWrite(5, LOW);  
  digitalWrite(4, LOW);  
  digitalWrite(3, LOW);  
  digitalWrite(2, LOW);  
  digitalWrite(1, LOW);  
  digitalWrite(0, LOW);  
  delay(1000);  
}
```

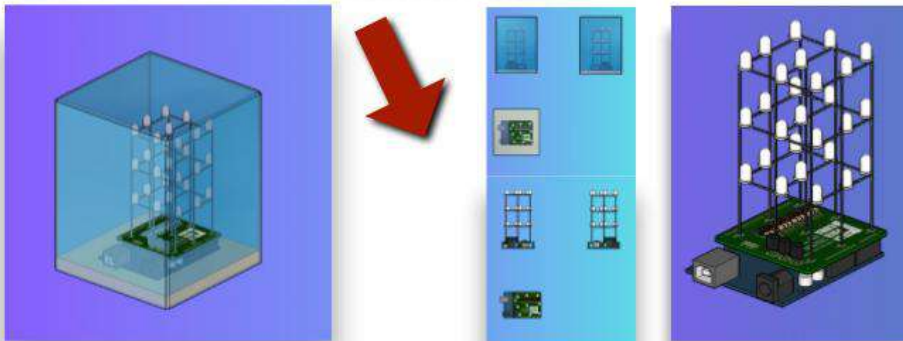


## Fase 6. Montaje



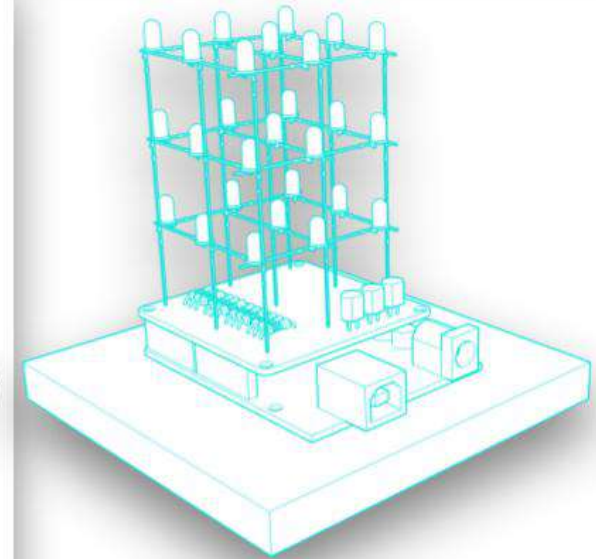
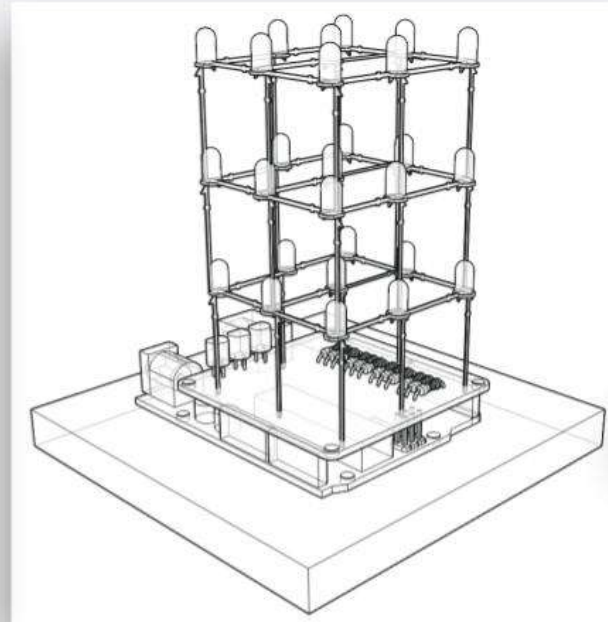
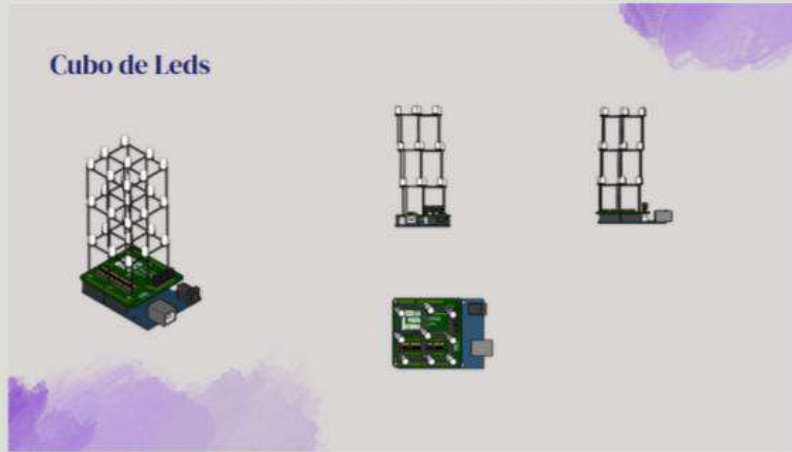
## Fase 3. Simulación

## Fase 2. Modelado 3D

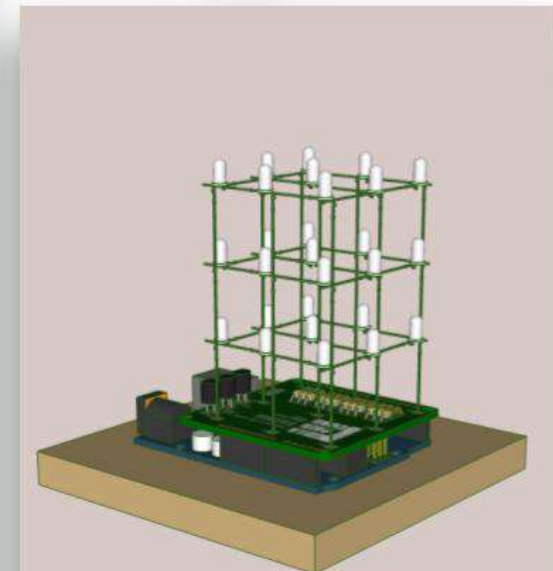
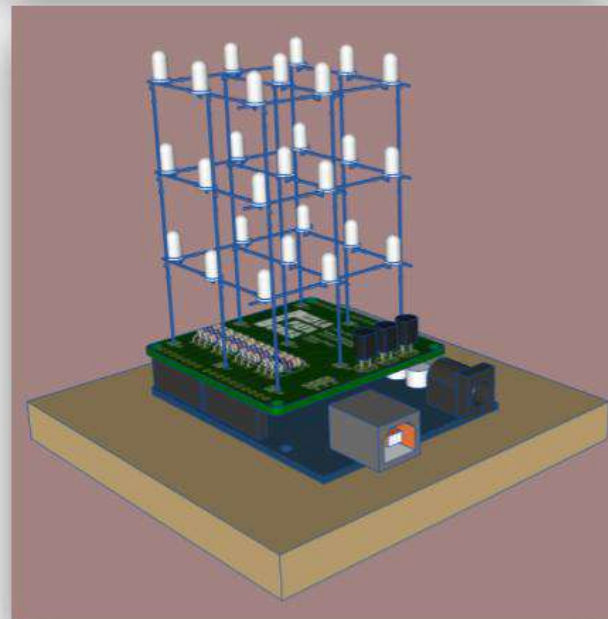
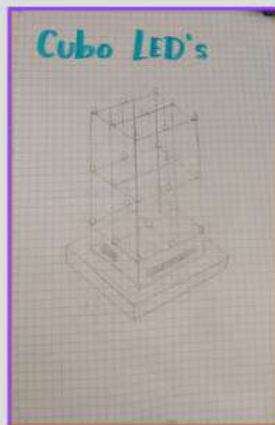


## MODELADO 3D

SketchUp PANEL DE FOTOS

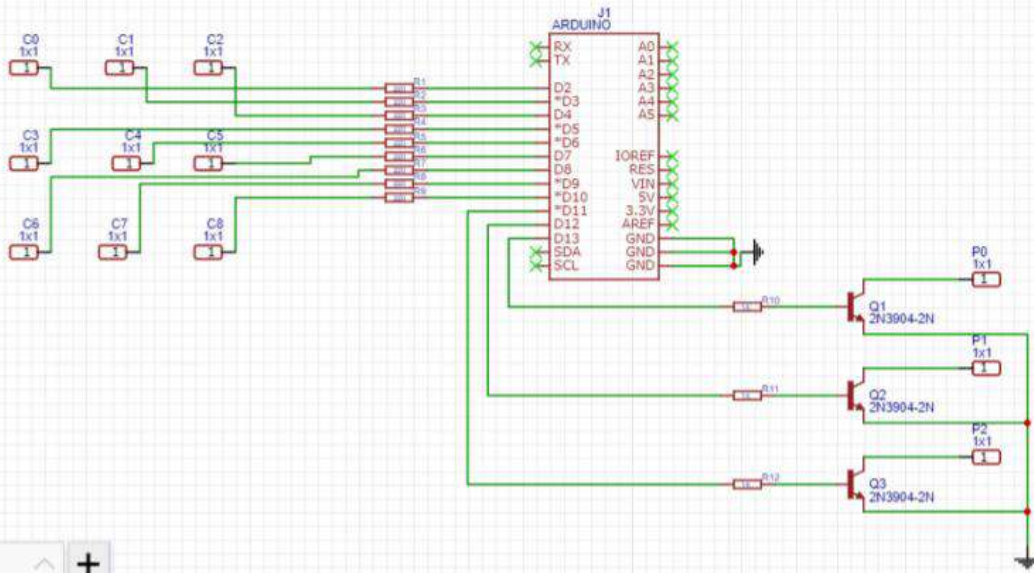
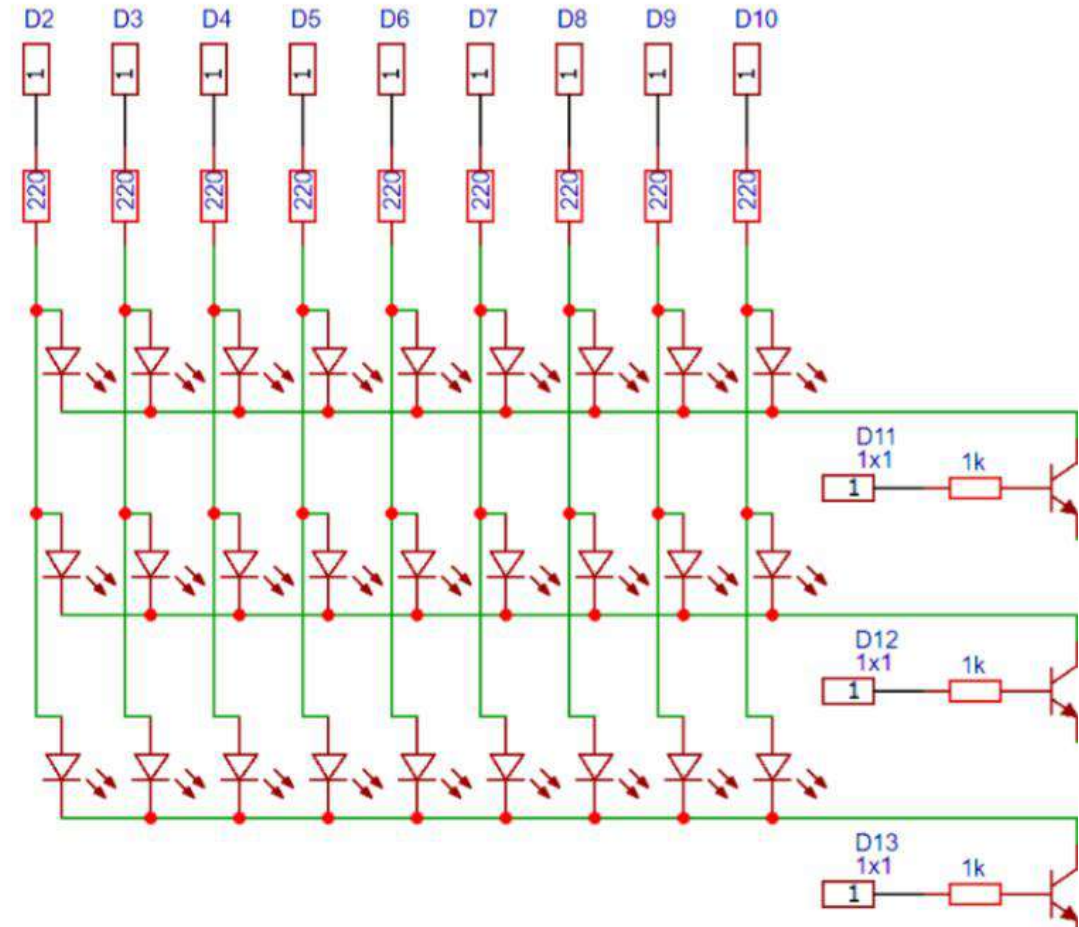
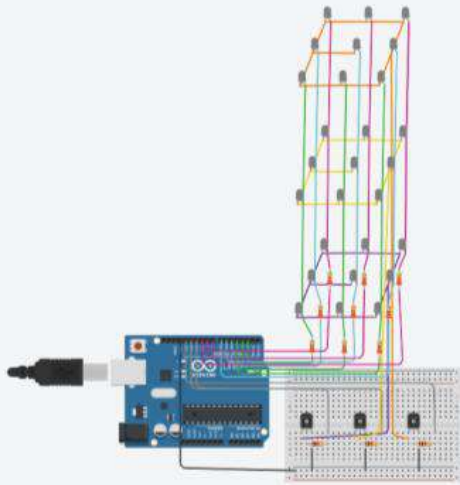


BOCETO

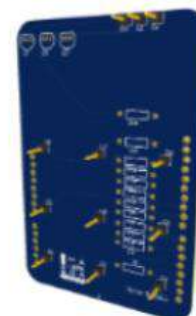
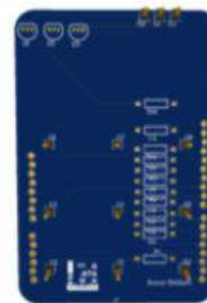
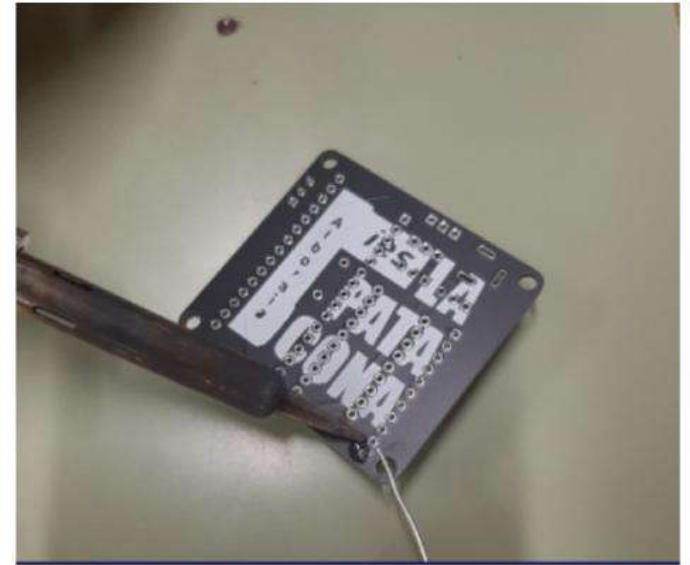
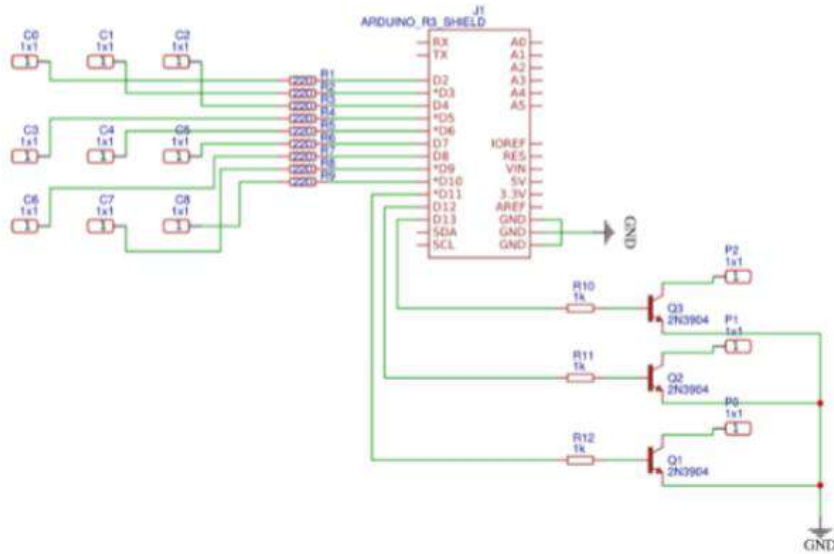


# SIMULACIÓN

## Cubo de LEDS



# DISEÑO ELECTRÓNICO



EasyEDA



# PROGRAMACIÓN

```
vumetro_MB

/* Vumetro
 * IES La Patacona
 */

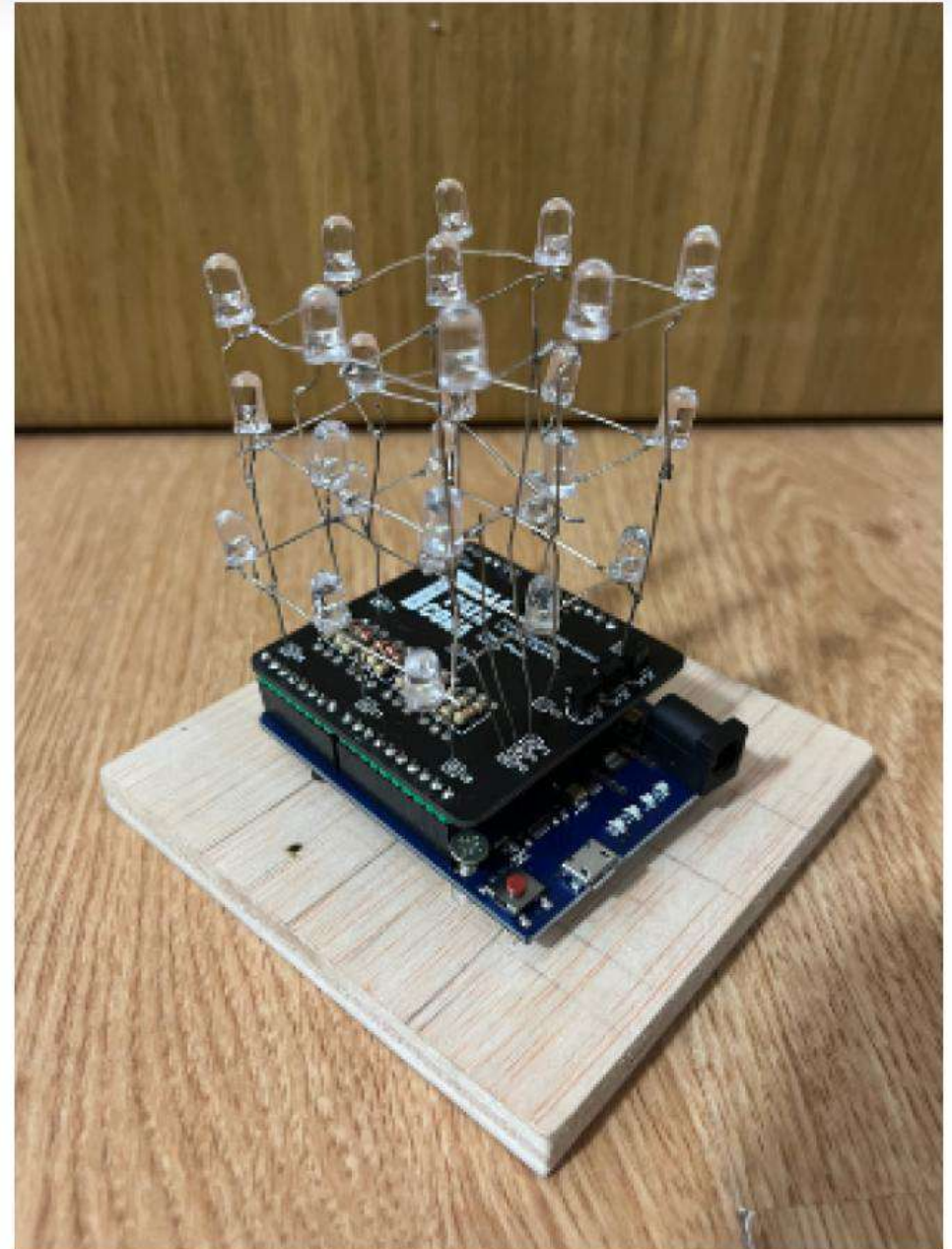
const int sensorPIN = A0;
const int modoPIN = 2; // HIGH es modo alumno, LOW es modo vumetro
const int PINbajo = 4;
const int sampleWindow = 100; // Ancho ventana en ms (100 ms = 10Hz)
const int cuenta = 3; // Media temporal (3*100ms = 0,3 segundos)
const int minimo = 250;
const int maximo = 740;
const int niveles = 10;

int valores[cuenta];
int i = 0;
long int nivelSonido = 0;

void setup() {
  for (int j=0 ;j<niveles; j++) { pinMode(j+PINbajo, OUTPUT); }
  for (int j=0 ;j<cuenta; j++) { valores[j] = 0; }
  pinMode(modoPIN, INPUT);
}

void loop() {
  if (digitalRead(modoPIN)) {
    programaAlumno();
  } else {
    programaVumetro();
  }
}

void programaAlumno() {
  // Insertar aqui el programa del alumno
  digitalWrite(4, HIGH);
  delay(100); // Wait for 100 millisecond(s)
  digitalWrite(4, LOW);
  digitalWrite(5, HIGH);
  delay(100); // Wait for 100 millisecond(s)
  digitalWrite(5, LOW);
  digitalWrite(6, HIGH);
  delay(100); // Wait for 100 millisecond(s)
  digitalWrite(6, LOW);
  digitalWrite(7, HIGH);
  delay(100); // Wait for 100 millisecond(s)
```



# MONTAJE Y PRUEBAS FINALES

