

## Project 19 - Light Theremin Code

Copy and Paste the code below into the Arduino sketch window. Verify and upload the code to the board.

```
/*
  Arduino Starter Kit
  Project 19 - Light Theremin

  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, 20);

// wait for a moment
delay(10);
}
```