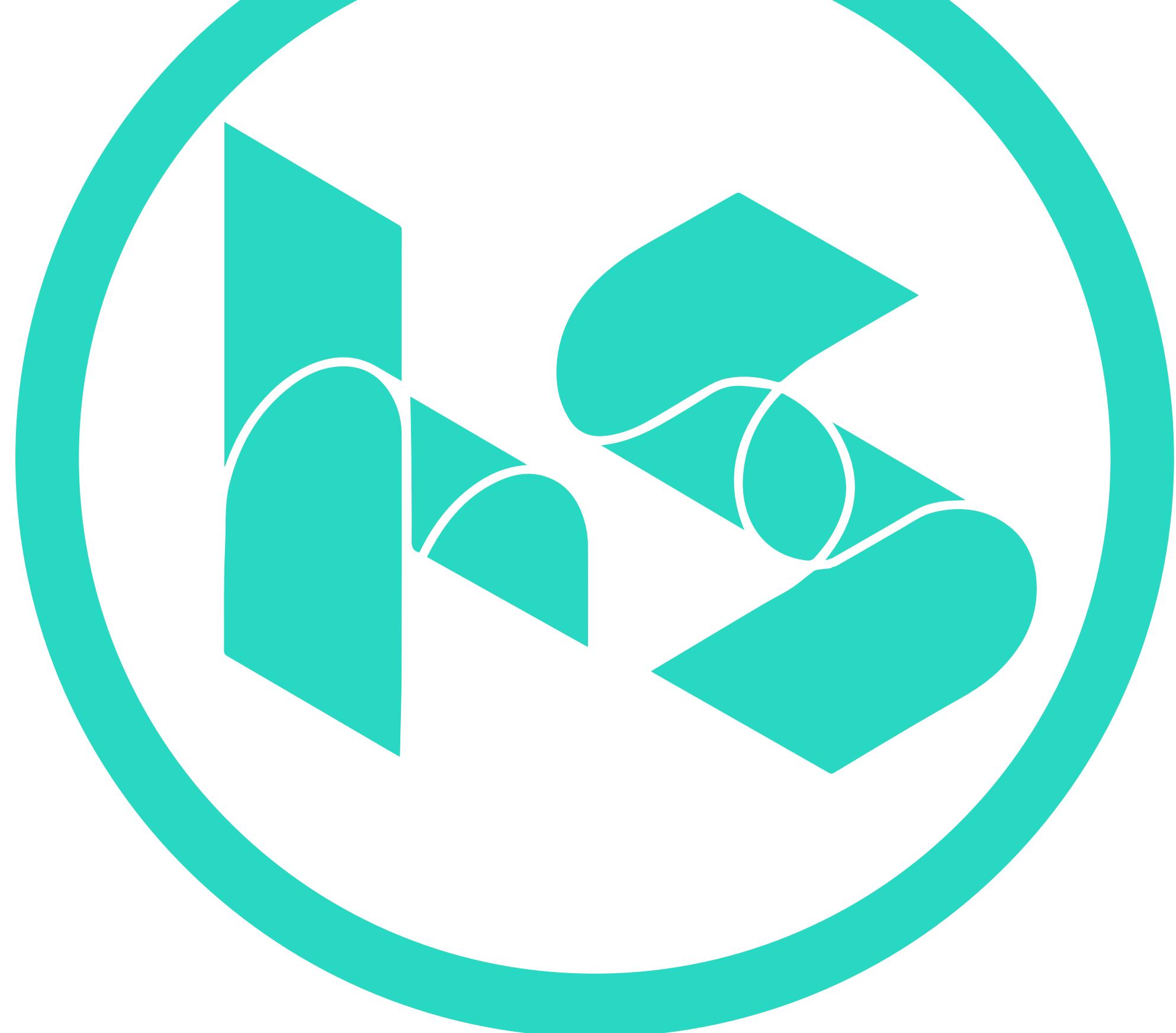
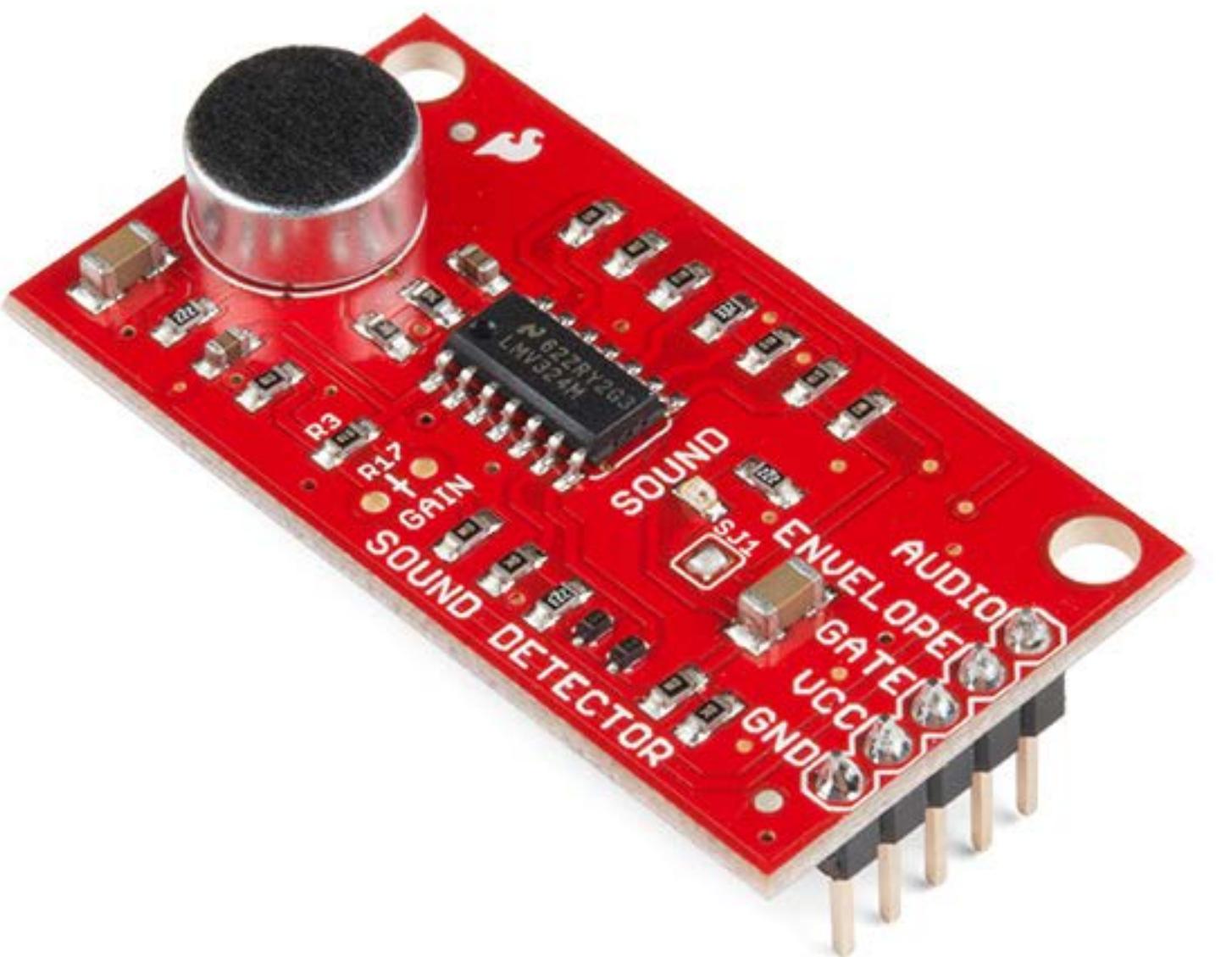


HOW TO USE A
Sound Detector

Sparkfun



DOCUMENTATION

WHAT IT IS?

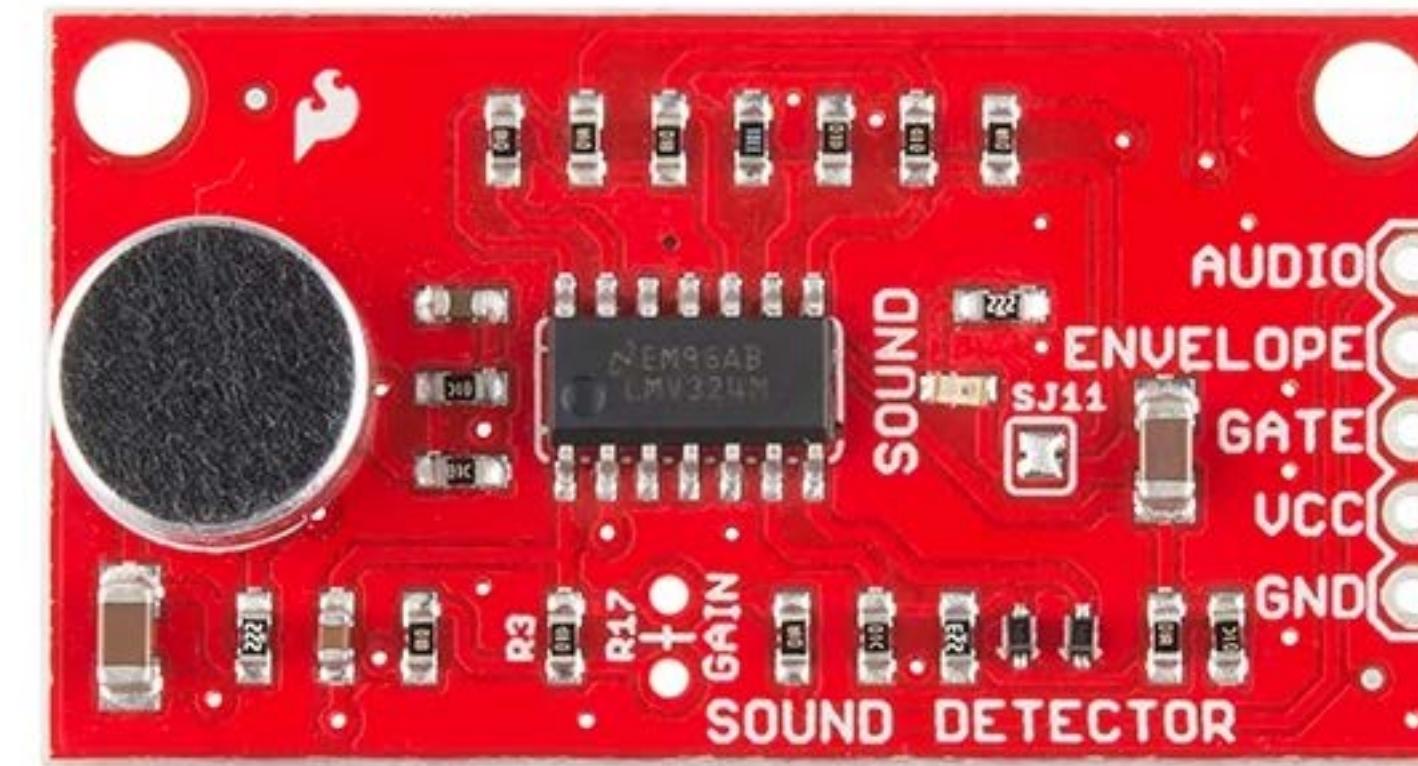
The SparkFun Sound Detector is a microphone-based sensor that detects the presence and level of sound in the environment.

It's **NOT** a sound recorder—it only measures sound intensity (volume) and provides a corresponding signal.

Commonly used in noise-activated projects, audio-triggered events, and sound-reactive lights.

MORE INFO:

<https://learn.sparkfun.com/tutorials/sound-detector-hookup-guide#reso>



FRONT



BACK

DOCUMENTATION

HOW IT WORKS?

There are three connections on the board:

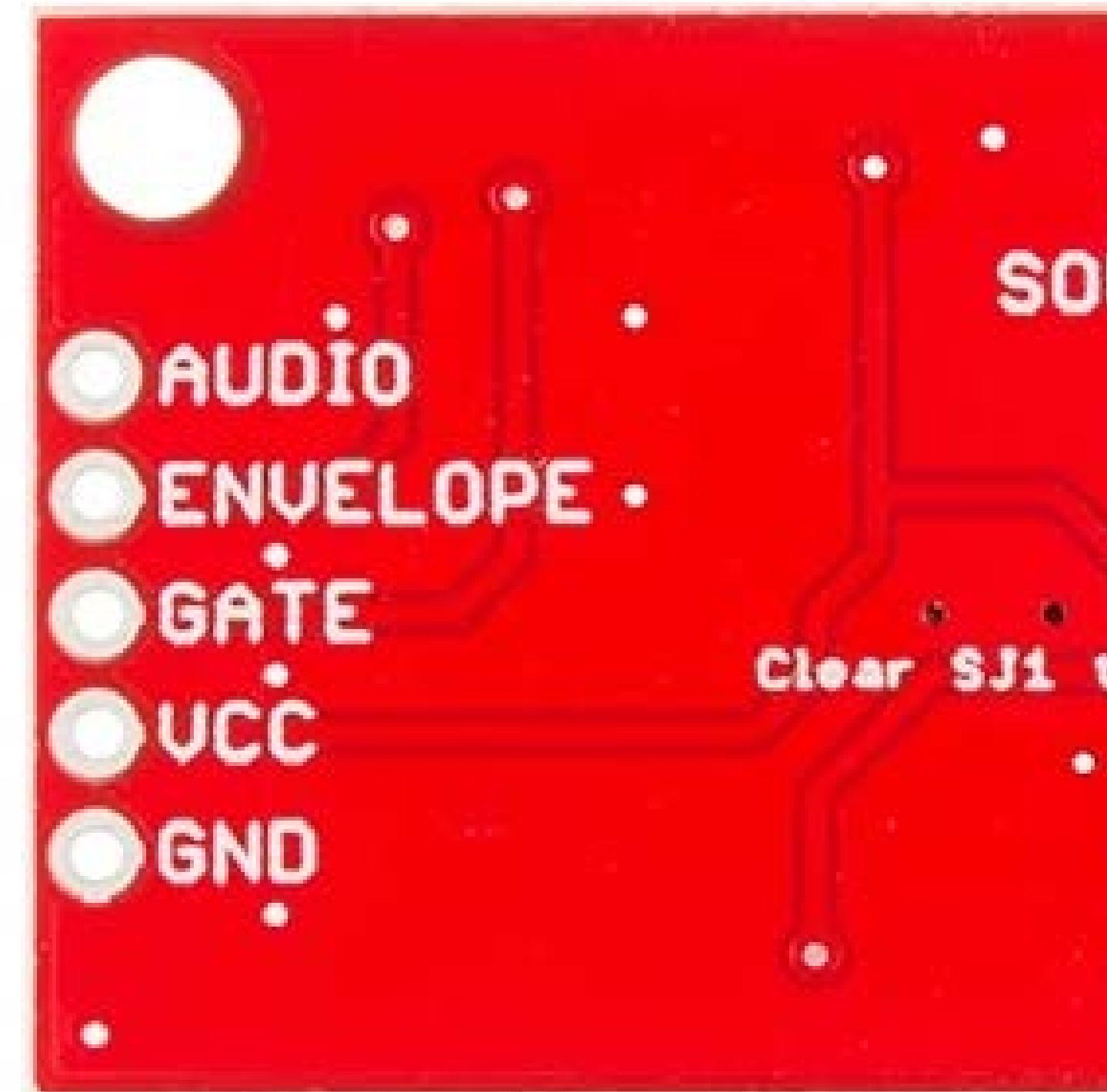
Audio - This is the raw audio from the microphone.

Envelope - This is a ANALOG value representing the volume of the ambient sound.

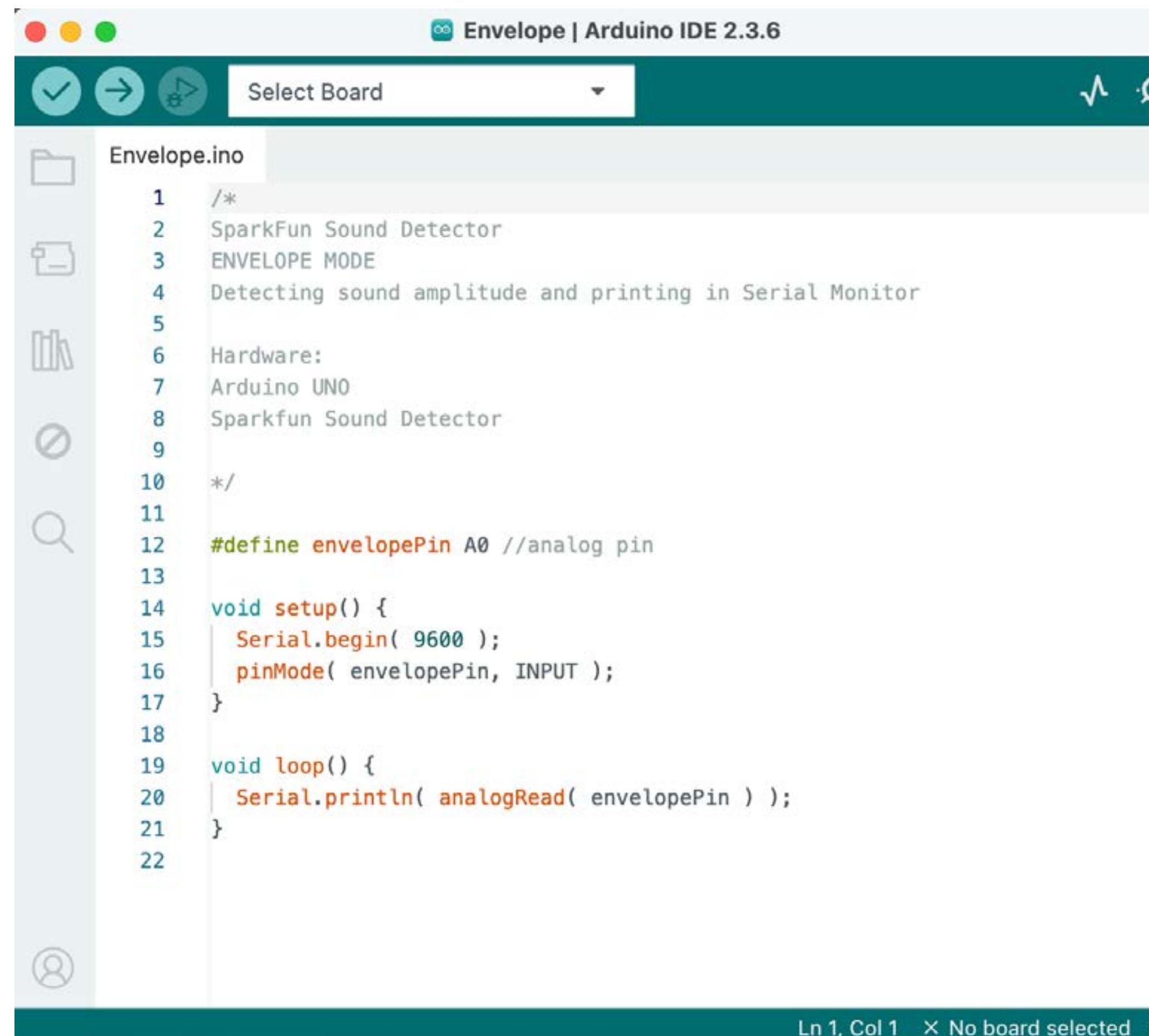
This analog signal allow us to monitor sound amplitude.

Gate - This is a DIGITAL value that indicates whether the sound level is above or below a certain threshold.

In other words, it works like an on/off switch to detect sound vs. no sound.



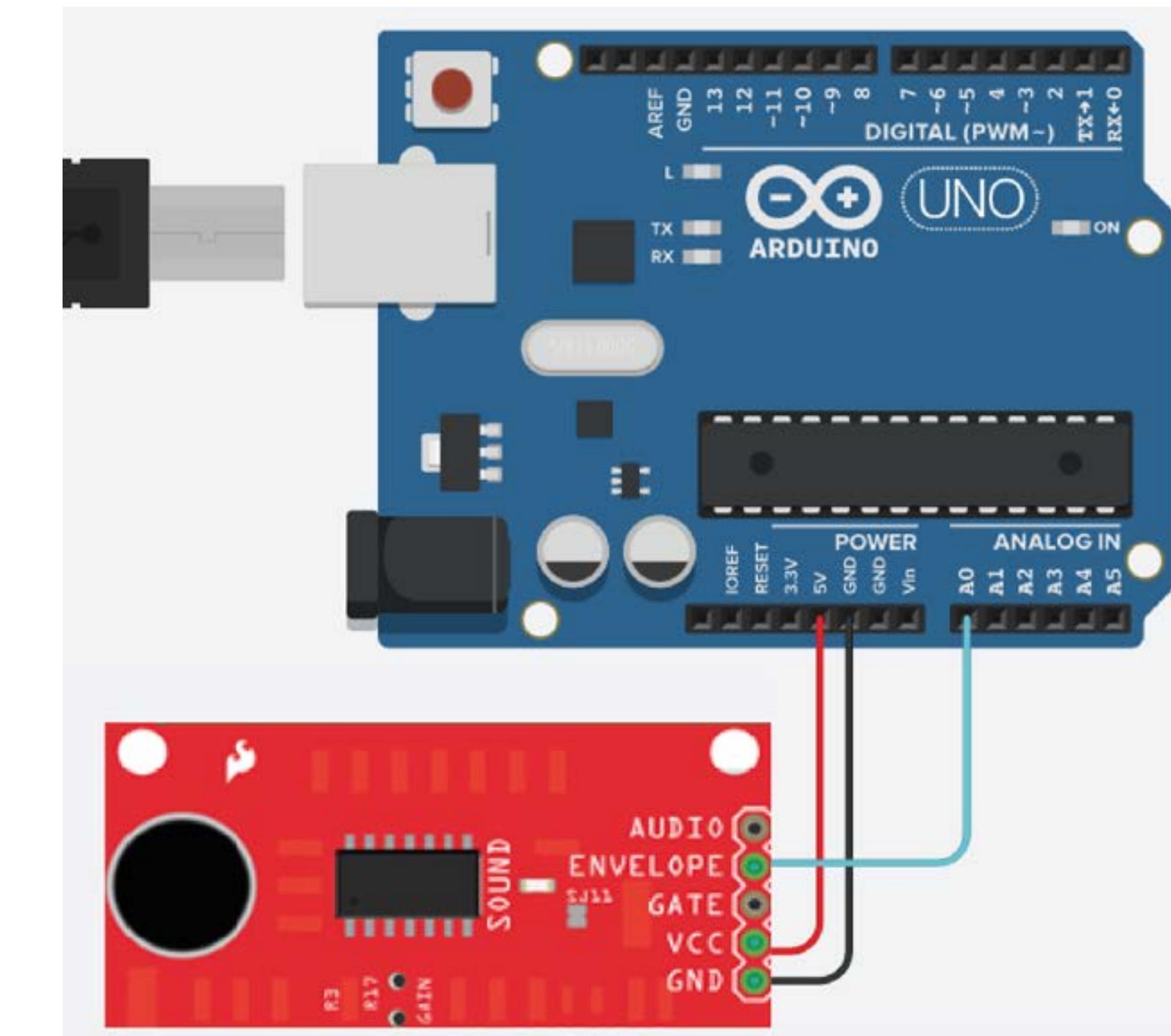
ENVELOPE



The screenshot shows the Arduino IDE interface with the following details:

- Title Bar:** Envelope | Arduino IDE 2.3.6
- Toolbar:** Includes icons for file operations (New, Open, Save, Print, Find, Delete, Help), a sketch selector, and a serial monitor icon.
- Sketch List:** Shows "Envelope.ino" selected.
- Code Editor:** Displays the following C++ code:

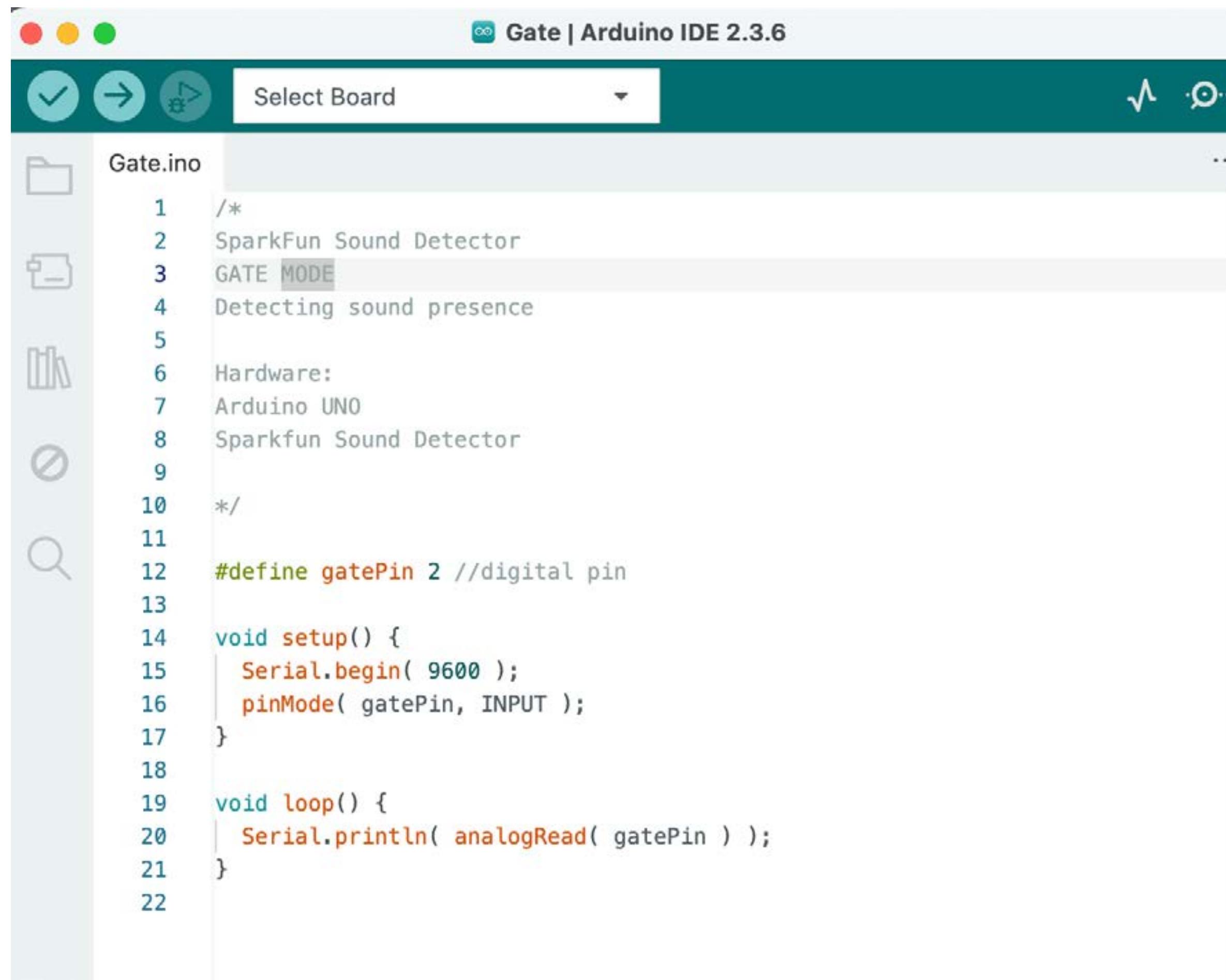
```
1  /*
2  SparkFun Sound Detector
3  ENVELOPE MODE
4  Detecting sound amplitude and printing in Serial Monitor
5
6  Hardware:
7  Arduino UNO
8  Sparkfun Sound Detector
9
10 */
11 #define envelopePin A0 //analog pin
12
13 void setup() {
14   Serial.begin( 9600 );
15   pinMode( envelopePin, INPUT );
16 }
17
18 void loop() {
19   Serial.println( analogRead( envelopePin ) );
20 }
21
22
```
- Status Bar:** Ln 1, Col 1 X No board selected



INSTRUCTIONS:

Build this code, upload it to your Arduino Board, and open the Serial Monitor. What data do you see printed?

GATE



The image shows the Arduino IDE interface with the title bar "Gate | Arduino IDE 2.3.6". The left sidebar contains icons for file operations like Open, Save, and Find. The main area displays the code for "Gate.ino". The code is as follows:

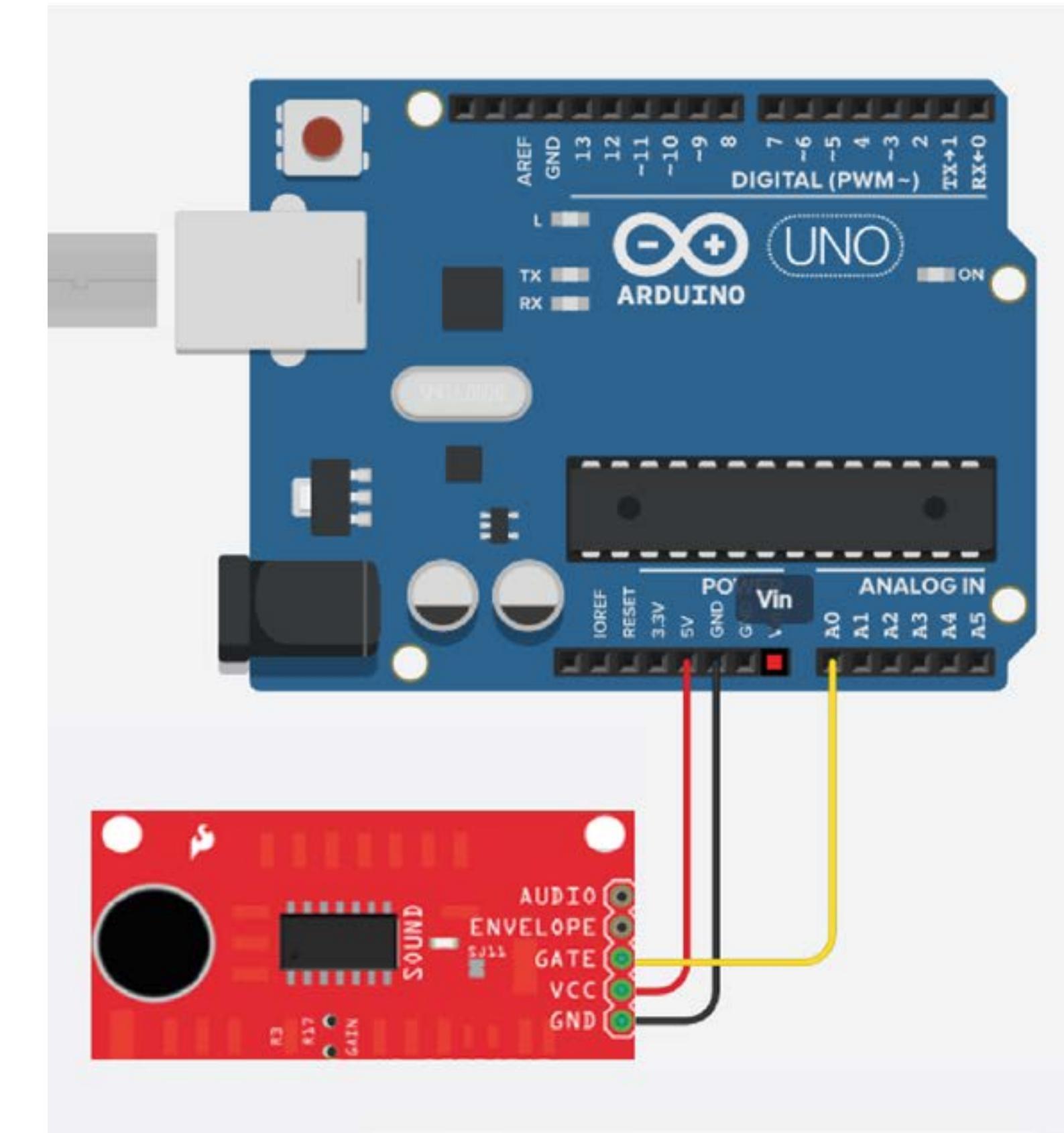
```
/*
  SparkFun Sound Detector
  GATE MODE
  Detecting sound presence

Hardware:
Arduino UNO
Sparkfun Sound Detector

*/
#define gatePin 2 //digital pin

void setup() {
  Serial.begin( 9600 );
  pinMode( gatePin, INPUT );
}

void loop() {
  Serial.println( analogRead( gatePin ) );
}
```



INSTRUCTIONS:

- Look carefully at this new code. It is very similar to the previous one, but key elements have changed.
- Re-wire your Sound Detector – this time, connect the Gate pin instead of the Envelope pin.
- What do you observe now in the Serial Monitor?

OTHER TUTORIALS

<https://learn.sparkfun.com/tutorials/sound-detector-hookup-guide#reso>

<https://learn.sparkfun.com/tutorials/sik-experiment-guide-for-the-arduino-101genuino-101-board/experiment-15-using-the-sound-detector-board>

<https://maker.pro/arduino/projects/sound-detector>

<https://wiki.cci.arts.ac.uk/books/how-to-guides/page/using-a-sparkfun-sound-detector>