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Electret Condenser Mic

Introduction

Electret microphones are the most commonly used microphones today. Every cellphone and laptop has one embedded into it, and many studio microphones are also electrets. They can have an extremely wide frequency response (from 10Hz to 30kHz), and typically cost less than a dollar. They are also very small and quite sensitive. Despite these good characteristics, they can also have a few drawbacks, such as a high noise floor, high distortion, and uneven frequency response.

An electret is a permanently charged dielectric. It is made by heating a ceramic material, placing it in a magnetic field then allowing it to cool while still in the magnetic field. It is the electrostatic equivalent of a permanent magnet. In the electret microphone a slice of this material is used as a part of the dielectric of a capacitor in which the diaphram of a microphone forms one plate. Sound pressure moves one of its plates. The movement of the plate changes the capacitance. The electret capacitor is connected to an FET amplifier. These microphones are small, have excellent sensitivity, a wide frequency response and a very low cost.

Specification

- Diameter: 29mm
- Power: 0.25W
- Resistance: 8 ohm ± 15%
- Resonance frequency: 500 ± 20 Hz
- Rated power: 0.25W
- Maximum power: 0.5W
- Sensitivity: 92 ± 3dB

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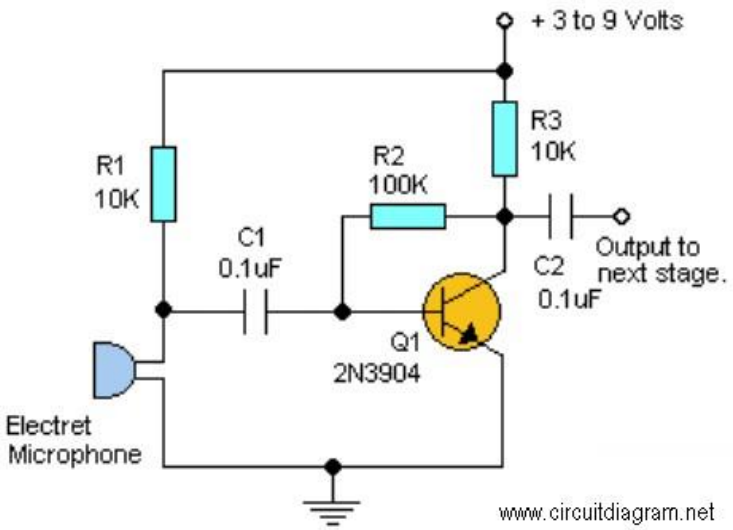
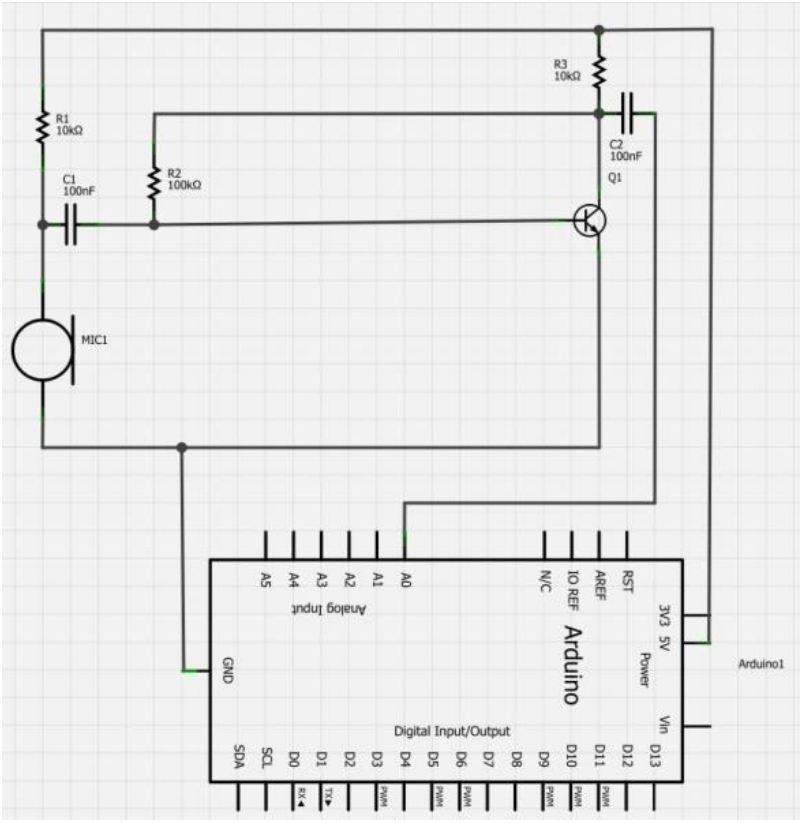
Image Set Up Diagram





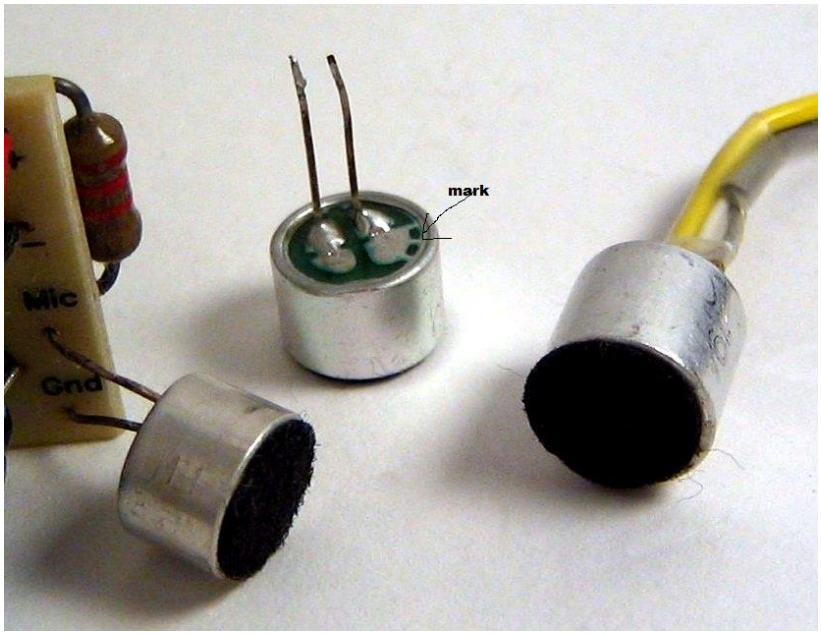
Packing List

- ARDUINO UNO
- A condenser mic ,
- 2N3904 NPN transistor
- 0.1uF Ceramic Capacitor (2 pieces)
- 100KΩ (1 pieces), 10KΩ Resistor (2 pieces)
- Breadboard

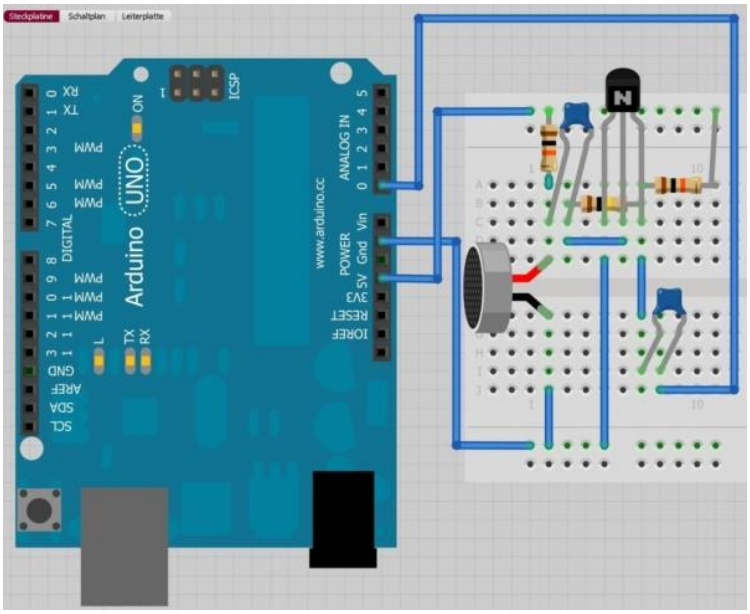
Pin Assignment

The terminals:

The terminal with a solder mark(connecting to the case) is negative and the terminal without a mark is positive.



Hardware Interface/Setup



The values on the serial monitor don't change depending on the music volume.

Example Code

This is example code for electret condenser mic.

```
void setup() {
  Serial.begin(9600);
}

void loop() {
  Serial.println(analogRead(0));
  delay(300);
}
```

Applications

1. Sound alarm circuit
2. Flashing sirens
3. Turning a buzzer
4. Clap-on-off circuit