SYNACORP TRADING & SERVICES
No.9, 1st Floor, Lorong 1/SS2, Bandar Tasek Mutiara, 14120 Simpang Ampat, S.Prai (S), Penang
Tel : +604.502.1726 Hunting Line : 012.403.3474 Fax : +604.502.1726
(Website) http://www.synacorp.my (Email) sales@synacorp.com.my

# Speaker 0.25W / 8Ohm

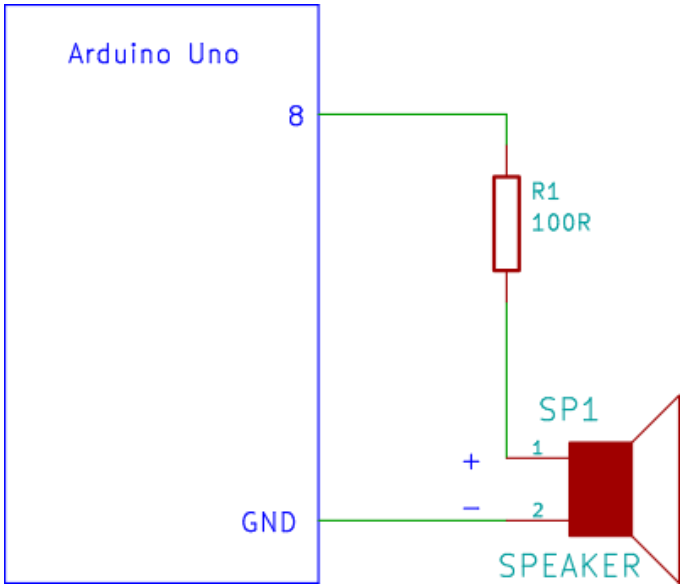
## Introduction

A very easy tutorial that uses only two components. The Arduino plays a short melody on a loudspeaker. The program to load to the Arduino is one of the programs that is built into the Arduino UNO.

## Specification

- Speaker 8R / 0.25W
- Diameter: 29mm

## Image Set Up Diagram



The circuit diagram shows that the positive terminal of the speaker is connected through a 100 ohm resistor to pin 8 of the Arduino. The negative terminal of the speaker is connected to one of the Arduino GND pins.

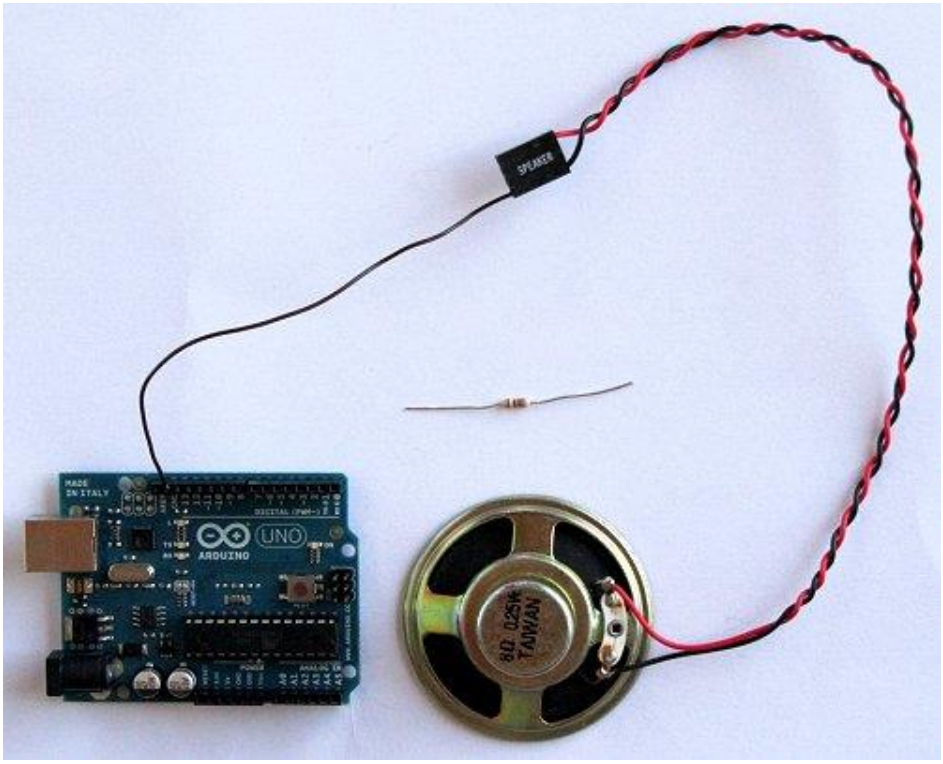
## Packing List

- Arduino UNO
- Speaker 8R / 0.25W
- 100Ω Resistor
- Breadboard
- Jumper wire

## Pin Assignment

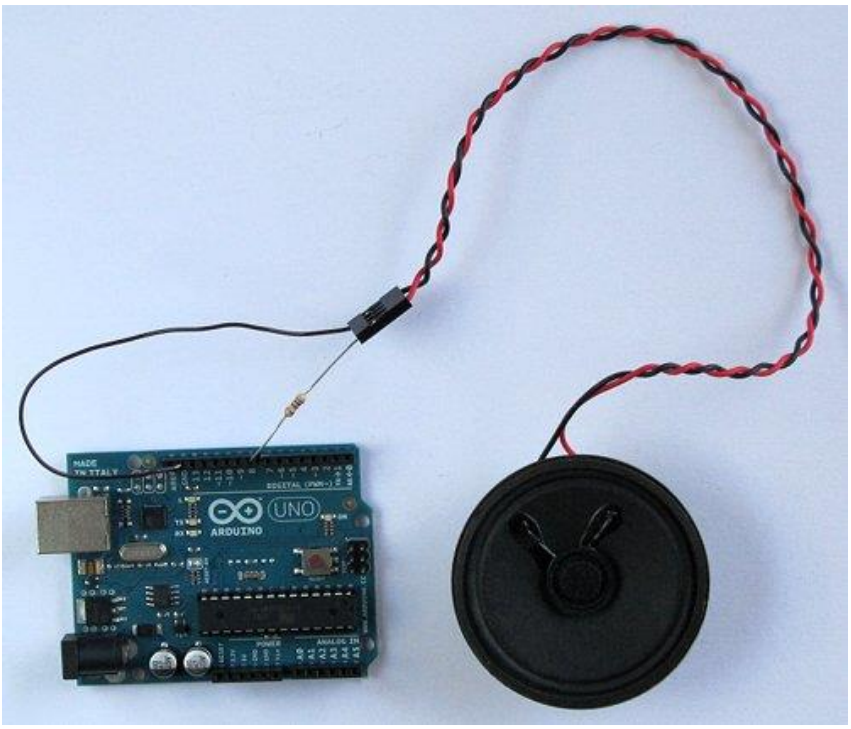
## BUILDING THE CIRCUIT

Start by connecting the negative speaker terminal (black wire) to a GND pin on the Arduino. Note that it is not necessary to use a breadboard when using a speaker that is taken from an old PC as it has a connector that a single core wire can be plugged into.



## Hardware Interface/Setup

Connect a 100 ohm resistor to pin 8 of the Arduino and to the positive terminal of the speaker (red wire).




## Example Code

This is example code for play melody speaker 8R / 0.25W.

```
/*
Melody
Plays a melody
circuit:
- 8 ohm speaker on digital pin 8
created 21 Jan 2010
 modified 30 Aug 2011
by Tom Igoe

This example code is in the public domain.
http://www.arduino.cc/en/Tutorial/Tone

*/
#include "pitches.h"
// notes in the melody:
```

```
int melody[] = {
  NOTE_C4, NOTE_G3, NOTE_G3, NOTE_A3, NOTE_G3, 0, NOTE_B3, NOTE_C4
};
// note durations: 4 = quarter note, 8 = eighth note, etc.:
int noteDurations[] = {
  4, 8, 8, 4, 4, 4, 4, 4
};

void setup() {
 // iterate over the notes of the melody:
   for (int thisNote = 0; thisNote < 8; thisNote++) {

// to calculate the note duration, take one second divided by the note type.
//e.g. quarter note = 2000 / 4, eighth note = 2000/8, etc.
   int noteDuration = 2000 / noteDurations[thisNote];
   tone(8, melody[thisNote], noteDuration);

// to distinguish the notes, set a minimum time between them.
// the note's duration + 30% seems to work well:
   int pauseBetweenNotes = noteDuration * 1.30;
   delay(pauseBetweenNotes);
// stop the tone playing:
   noTone(8);
  }
}

void loop() {
  // no need to repeat the melody.
}
```

## Applications

1. Household Appliance Alarms
2. Watch Alarms
3. Smoke Detectors
4. Buzzers and Speakers
5. Toys and Games
6. Electronic toys
7. Radio
8. Interphone
9. Multimedia speakers
10. Mini box speakers