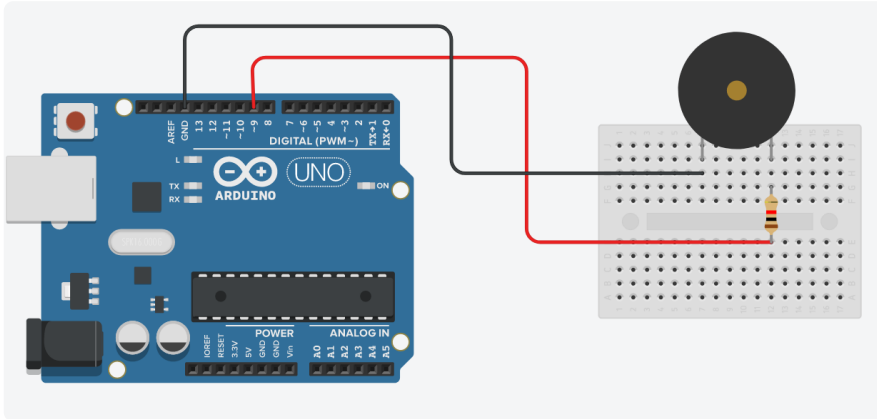


Lab - Piezo Sounder Player (project 4)

- **Circuit in VM Environment:**



- **Code :**

```
int speakerPin = 9;
int length = 15; // the number of notes
char notes[] = "ccggaagffeeddd "; // a space represents a rest
int beats[] = { 1, 1, 1, 1, 1, 1, 1, 2, 1, 1, 1, 1, 1, 1, 2, 4 };
int tempo = 300;

void playTone(int tone, int duration){
  for (long i=0; i< duration*1000L; i+=tone*2){
    digitalWrite(speakerPin,1);
    delayMicroseconds(tone);
    digitalWrite(speakerPin,0);
    delayMicroseconds(tone);
  }
}

void playNote(char note, int duration) {
  char names[] = { 'c', 'd', 'e', 'f', 'g', 'a', 'b', 'c' };
  int tones[] = { 1915, 1700, 1519, 1432, 1275, 1136, 1014, 956 };
  // play the tone corresponding to the note name
  for (int i = 0; i < 8; i++) {
    if (names[i] == note) {
      playTone(tones[i],duration);
    }
  }
}

void setup() {
  pinMode(speakerPin, OUTPUT);
}

void loop() {
  for (int i = 0; i < length; i++) {
    if (notes[i] == ' ') {
      delay(beats[i] * tempo); // rest
    } else {
      playNote(notes[i], beats[i] * tempo);
    }
  }
}
```

- hardware test :

