

5.1 Resistor Identification (3 marks)

Look at the three sample resistors your lab instructor brings to lab and record their values. Submit your answers online as an electronic document - .pdf is preferred. They are easy to make with LibreOffice.

Answer:

Resistor H = Yellow, Purple, Blue, Gold

Value = 47,000,000 or 47M Ω , 5% tolerance

Resistor E = Brown, Green, Blue, Gold

Value = 15,000,000 or 15M Ω , 5% tolerance

Resistor A = Brown, Black, Yellow, Gold

Value = 100,000 or 100K Ω , 5% tolerance

5.2 Morse Code (7 marks: 2 for demo, 4 for sketch code)

Well, you now know how to make a light blink.

What can we do with a blinky light? How about making a message with Morse Code?

You have the choice of making SOS or the initials of your name.

Please use any pin other than pin 13 for this exercise.

/*

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Morse Code - SOS

Turns an LED on and off in a morse code sequence displaying SOS.

Code modified from Blink code:

modified 8 May 2014
by Scott Fitzgerald
modified 2 Sep 2016
by Arturo Guadalupi
modified 8 Sep 2016
by Colby Newman

This example code is in the public domain.

(Some comments kept from original code)

<http://www.arduino.cc/en/Tutorial/Blink>

*/

```
// the setup function runs once when you press reset or power the board
int led = 9; //symbolic variable for changing LED Pin number on Arduino Uno
int uTime=500; //unit of time variable. number can change to make this a variable called uTime.
void setup() {
  // initialize digital pin LED_BUILTIN as an output.
  pinMode(led, OUTPUT); //sends voltage out to the pin LED_BUILTIN
}
```

// SOS, the S is three dots and the O is three dashes.

```
void loop() {
  digitalWrite(led, HIGH); // turn the LED on (HIGH is the voltage level)
  delay(uTime);           // wait for time provided in uTime variable
  digitalWrite(led, LOW);  // turn the LED off by making the voltage LOW
  delay(uTime);           // wait for time provided in uTime variable
  digitalWrite(led, HIGH); // turn the LED on (HIGH is the voltage level)
  delay(uTime);           // wait for time provided in uTime variable
  digitalWrite(led, LOW);  // turn the LED off by making the voltage LOW
  delay(uTime);           // wait for time provided in uTime variable
  digitalWrite(led, HIGH); // turn the LED on (HIGH is the voltage level)
  delay(uTime);           // wait for time provided in uTime variable
  digitalWrite(led, LOW);  // turn the LED off by making the voltage LOW
  delay(uTime*3);         // wait for time provided in uTime variable
```

```
digitalWrite(led, HIGH); // turn the LED on (HIGH is the voltage level)
delay(uTime*3);          // wait for time provided in uTime variable
digitalWrite(led, LOW);  // turn the LED off by making the voltage LOW
delay(uTime);           // wait for time provided in uTime variable
digitalWrite(led, HIGH); // turn the LED on (HIGH is the voltage level)
delay(uTime*3);          // wait for time provided in uTime variable
digitalWrite(led, LOW);  // turn the LED off by making the voltage LOW
delay(uTime);           // wait for time provided in uTime variable
digitalWrite(led, HIGH); // turn the LED on (HIGH is the voltage level)
delay(uTime*3);          // wait for time provided in uTime variable
digitalWrite(led, LOW);  // turn the LED off by making the voltage LOW
delay(uTime*3);          // wait for time provided in uTime variable
```

```
digitalWrite(led, HIGH); // turn the LED on (HIGH is the voltage level)
delay(uTime);           // wait for time provided in uTime variable
digitalWrite(led, LOW);  // turn the LED off by making the voltage LOW
delay(uTime);           // wait for time provided in uTime variable
digitalWrite(led, HIGH); // turn the LED on (HIGH is the voltage level)
delay(uTime);           // wait for time provided in uTime variable
digitalWrite(led, LOW);  // turn the LED off by making the voltage LOW
```

```
delay(uTime);          // wait for time provided in uTime variable
digitalWrite(led, HIGH); // turn the LED on (HIGH is the voltage level)
delay(uTime);          // wait for time provided in uTime variable
digitalWrite(led, LOW); // turn the LED off by making the voltage LOW
delay(uTime*7);        // wait for time provided in uTime variable
}
```

Challenge : Posted in separate sheet

Intermediate

- use your piezo speaker to beep rather than blink. There's a simple piezo circuit in the ARDX manual for reference. Use the *tone* function listed on the [Arduino Language Reference Homepage](#) to generate sounds.
- use constants instead of variables to control timing intervals.