

Piezo

```
const int buzzer = 9; //buzzer to arduino pin 9
void setup(){
  pinMode(buzzer, OUTPUT); // Set buzzer - pin 9 as
  an output }
```

```
void loop(){
  tone(buzzer, 1000); // Send 1KHz sound signal...
  delay(1000);      // ...for 1 sec
  noTone(buzzer);    // Stop sound...
  delay(1000);      // ...for 1sec }
```

LED

```
void setup() {
  pinMode(LED_BUILTIN, OUTPUT);}

void loop() {
  digitalWrite(LED_BUILTIN, HIGH); // turn the LED
  on (HIGH is the voltage level)
  delay(1000);                      // wait for a second
  digitalWrite(LED_BUILTIN, LOW);  // turn the LED
  off by making the voltage LOW
```

Neopixel

```
#include <Adafruit_NeoPixel.h>

int neoPixelPin = 6;

int numPixels = 60;

Adafruit_NeoPixel strip =
Adafruit_NeoPixel(numPixels, neoPixelPin,
NEO_GRB + NEO_KHZ800);

void setup() {
  strip.begin(); // initialize the strip
  strip.show();  // make sure it is visible
  strip.clear(); // Initialize all pixels to 'off'
}

void loop() {
  // set the colors for the strip
  for( int i = 0; i < numPixels; i++ )
    strip.setPixelColor(i, 255, 0, 0); // show all pixels
  strip.show();
  delay(10);}
```

Resistors

4.7k - single one -temperature sensor
10k used for buttons/sensors

330ohm - used for LEDs - blue

Analog Write

```
int ledPin = 9;    // LED connected to digital pin 9
int analogPin = 3; // potentiometer connected to
analog pin 3

void setup(){
  pinMode(ledPin, OUTPUT); // sets the pin as
  output}

void loop(){
  val = analogRead(analogPin); // read the input pin
  analogWrite(ledPin, 100); // analogRead values go
  from 0 to 1023, analogWrite values from 0 to 255}

int sensorValue = analogRead(A0);
```

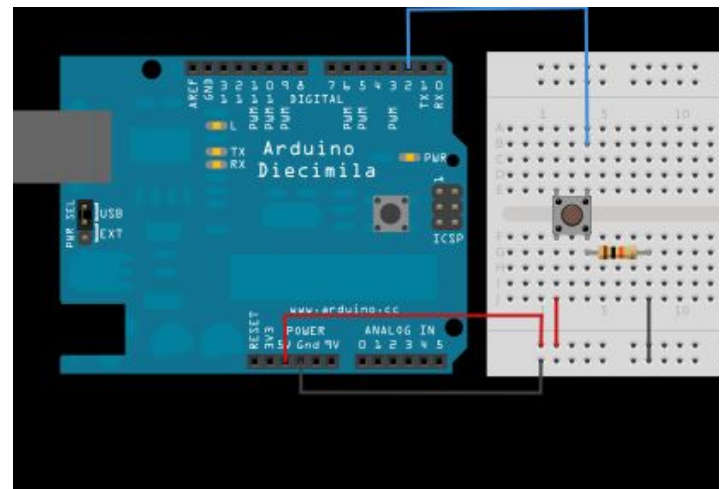
Photo resistor, Flex - analog -setup like pushbutton -
power in, ground in-10k-analog out & sensor in
void setup() {
 Serial.begin(9600);}

```
void loop() {
  int sensorValue = analogRead(A0);
  Serial.println(sensorValue);}
```

Potentiometer - Ground Analog Power

Temperature Sensor -

Libraries to install: neopixel, onewire, ssd1306,
adafruit gfx



Flex Sensor with Fading LED

```
int led = 6;           // the pin that the LED is attached to
int brightness = 0;    // how bright the LED is
int fadeAmount = 5;    // how many points to fade
                        // the LED by
```

```
void setup() {
  Serial.begin(9600);
  pinMode(led, OUTPUT);}
```

```
void loop() {
  int sensorValue = analogRead(A0);
  Serial.println(sensorValue);
  if(sensorValue < 190){
    analogWrite(led, brightness);
    brightness = brightness - fadeAmount;
  }else{
    digitalWrite(led, 0);
  }
  delay(20);}
```

```
map(analogpin, actual low, actual high, wanted low,
wanted high);
```

SCREEN

```
#include <SPI.h>
#include <Wire.h>
#include <Adafruit_GFX.h>
#include <Adafruit_SSD1306.h>
```

```
#define OLED_RESET 4
Adafruit_SSD1306 display(OLED_RESET);
```

```
#define NUMFLAKES 10
#define XPOS 0
#define YPOS 1
#define DELTAY 2
```

```
#define LOGO16_GLCD_HEIGHT 16
#define LOGO16_GLCD_WIDTH 16
```

```
const unsigned char umbrella [] PROGMEM = {
  // index, 32x32px
  0x00, 0x00, 0x00, 0x00, 0x00, 0x07, 0xe0, 0x00, 0x00,
  0x7f, 0xfe, 0x00, 0x00, 0xff, 0xff, 0x00,
  0x03, 0xff, 0xff, 0xc0, 0x07, 0xff, 0xff, 0xe0, 0x0f, 0xff, 0xff,
  0xf0, 0x1f, 0xff, 0xff, 0xf8,
  0x3f, 0xff, 0xff, 0xfc, 0x3f, 0xff, 0xff, 0xfc, 0x7f, 0xff, 0xff,
  0xfe, 0x7f, 0xff, 0xff, 0xfe,
  0xc7, 0x1e, 0x78, 0xf3, 0x00, 0x00, 0x00, 0x40, 0x00,
  0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00,
```

```
0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00,
0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00,
0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00,
0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x80, 0x00, 0x00,
0x00, 0x88, 0x00, 0x00, 0x00, 0xd8, 0x00,
0x00, 0x00, 0x20, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00,
0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00,
};
```

```
#if (SSD1306_LCDHEIGHT != 32)
#error("Height incorrect, please fix Adafruit_SSD1306.h!");
#endif
```

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

```
  // by default, we'll generate the high voltage from the 3.3v
  // line internally! (neat!)
  display.begin(SSD1306_SWITCHCAPVCC, 0x3C);
  display.clearDisplay();
  display.display();
}
```

```
void loop() {
  display.drawPixel(8, 5, WHITE);
  //display.drawCircle(7, 7, WHITE);
  //display.setCursor(10, 10);
  //display.setTextColor(WHITE, BLACK);
  //display.setTextSize(1);
  //display.print("hello world");
  display.drawBitmap(0, 0, umbrella, 32, 32, WHITE);
  display.display();
}
```

```
mode = 0;
Int button = 2;
```

```
Void setup(){
  pinMode(button, INPUT);}
```

```
Void loop(){
  switch(mode){
    Case 0: splash(); break;
    Case 1: mainMenu(); break;
    Case2: about(); break;
  }
```

```
Void checkButton(){
  Int raw = digitalRead(button);
  If(raw == 1){
    Mode = (mode + 1) % 3;
    delay(200);
  }
```

```
Void splash(){
  Serial.println("splash");
}
```