Controlling a LED

Code

void setup()

 pinMode(LED\_BUILTIN, OUTPUT);

}

void loop() {

 digitalWrite(LED\_BUILTIN, HIGH);

 delay(1000);

 digitalWrite(LED\_BUILTIN, LOW);

 delay(1000);

}

Photo

What I Learned

Well, this project is cool haw you can vary the time settings to have it do a mini light show. At first I was confused; there are no integers(variables) included in the sketch. But at second glance I realised you can just do manually(without the variables) by typing it directly into were the variable would go otherwise.

Controlling 8 LEDs

Code

int ledCount = 8;

int ledPins[] = { 6, 7, 8, 9, 10, 11, 12, 13 };

int ledDelay = 300;

void setup() {

 for (int thisLed = 0; thisLed < ledCount; thisLed++) {

 pinMode(ledPins[thisLed], OUTPUT);

 }

}

void loop() {

 for (int thisLed = 0; thisLed < ledCount-1; thisLed++) {

 digitalWrite(ledPins[thisLed], HIGH);

 delay(ledDelay);

 digitalWrite(ledPins[thisLed], LOW);

 }

 for (int thisLed = ledCount-1; thisLed > 0; thisLed--) {

 digitalWrite(ledPins[thisLed], HIGH);

 delay(ledDelay);

 digitalWrite(ledPins[thisLed], LOW);

 }

}

Photo

What I learned

Well, first of all I’d like to say that this isn’t easy. I thought I killed three LEDs! But actually, the breadboard was malfunctioning and the LED on pin 13 was not working so, I switched out the LED and replaced it with another one and that didn’t work. Next I changed out the resistor and no, it still didn’t work. Then I modified it so the pin 13 was on a different column. Finally it was working! Other than that it was good. I learn how to debug the hardware and the software.

Reading Digital (On/Off) Input

Code

int ledCount = 14;

int ledPins[] = { 6, 7, 8, 9, 10, 11, 12, 13, 12, 11, 10, 9, 8, 7 };

int ledDelay = 300;

int buttonPin = 2;

void setup() {

 for (int thisLed = 0; thisLed < ledCount; thisLed++) {

 pinMode(ledPins[thisLed], OUTPUT);

 }

 pinMode(buttonPin, INPUT);

}

void loop() {

 for (int thisLed = 0; thisLed < ledCount-1; thisLed++) {

 digitalWrite(ledPins[thisLed], HIGH);

 delay(ledDelay);

 while(digitalRead(buttonPin) == HIGH) {

 delay(10);

 }

 digitalWrite(ledPins[thisLed], LOW);

 }

}

Photo

What I Learned

Well, the main thing is that the “ digitalWrite(ledPins[thisLed], HIGH);” was a bit confusing at first, but now I know that in the “(int thisLed = 0; thisLed < ledCount-1; thisLed++)” that it sets the “int thisLed” to the pin that it is currently has a status of “HIGH” so that if the Momentary pushbutton has an output of 5V and the pin D2 has a reading of high, with in turn signals to the computer what is going on. Once the computer registers the signal, it tells the Arduino to “delay(ledDelay);” with delays the one that is lit to pause until the voltage from D2 registers 0V.

Reading Analog (Variable) Input

Code

int led = 11;

int lightLevel;

void setup()

{

 Serial.begin(38400);

 pinMode(led, OUTPUT);

}

void loop()

{

 lightLevel = analogRead(A0);

 Serial.print("Light level: ");

 Serial.println(lightLevel, DEC);

 digitalWrite(led, HIGH);

 delay(lightLevel);

 digitalWrite(led, LOW);

 delay(lightLevel);

}

Photo

What I learned

The whole script makes out to be a bit less gibberish than the last. The main reason is that I’ve kind of gotten used to the programming language now after reading the book a couple of times and done a couple of experiments. And while I’m writing this I have the serial monitor open and I’ve seen quite a drop in the light level, I think it’s a great module!

Dimming LEDs with PWM

Code

int led = 11;

int brightness = 0;

int delayTime = 10;

void **setup**() {

  pinMode(led, OUTPUT);

}

void loop() {

  while(brightness < 255)

  {

    analogWrite(led, brightness);

    delay(delayTime);

    brightness = brightness + 1;

  }

  while(brightness > 0)

  {

    analogWrite(led, brightness);

    delay(delayTime);

    brightness = brightness - 1;

  }

}

Photo

What I Learned

The use of PWM is really useful in thing like in car’s headlights when you dim them. Other than that it is a neat little experiment. Actually, I don’t have much to say about this project, unlike the others.