Left Sidebar

The Arduino equivalent of “Hello World!”

Overview

Digital Output

Conclusion

Difficulty rating: 1

Fun Rating: 1

Time taken: 10 mins

Dimmer Control

Understand basic programming and digital output by flashing the onboard LED.



There’s a small LED on QuadBot that’s hooked up directly to one of the digital pins on the microcontroller. In this most simple exercise let’s make it flash

There’s a handy dial on QuadBot that we can program to control any of features. In this activity you’ll program the dial to control the brightness of LEDs. First let’s look at analog input.

**Digital Output**

There are two voltage levels when it comes to a digital output pin, High and Low. High means 5V and Low means 0V on QuadBot. When the digital pin 3 is high, an LED on QuadBot turns on. When digital pin 3 is low, the LED turns off. Simples.

What is a digital signal? Read our Input and Output tutorial.

To toggle the voltage on this pin we can use the digitalWrite() function like this…

void setup(){

pinMode(3, OUTPUT);

}

void loop(){

digitalWrite(3, HIGH); *//Send out a HIGH on digital pin 3*

digitalWrite(3, LOW); *//Send out a HIGH on digital pin 3*

}

You expect to see the LED flashing right? But if you tried it, you’d see that the LED is constantly on? Why?

Well the microcontroller runs very quickly at up to 16 million operations per second. That means that even though the LED is being turned on and off, it is so quick we can’t see it. To solve this let’s use the delay() function to make the microcontroller wait between each toggle..

void setup(){

pinMode(3, OUTPUT);

}

void loop(){

digitalWrite(3, HIGH); *//Send out a HIGH on digital pin 3*

delay(1000); *//Wait for 1 second*

digitalWrite(3, LOW); *//Send out a HIGH on digital pin 3*

delay(1000); *//Wait for 1 second*

}

Now you’ll see a second delay between each toggle. Try changing the delay times and see what it does to the flashing LED.

**Conclusion**

Now that’s a start. That’s your most basic microcontroller introduction. Now move onto something more exciting!