

Lab 3 Arduino Blinking

Experiment 1 Blinking and Fading

1. Connect your Arduino to the computer via the USB connector
2. Observe that the ON LED is illuminated
3. Launch the Arduino IDE and select the BLINK sketch

File>Examples>01 Basics>Blink

4. Click on the Verify icon on the IDE.
5. When successful, click on the Upload icon on the IDE.
6. Observe that the L LED is blinking.
7. Make a video of this.
8. On your breadboard connect a red LED and a 220 Ohm resistor in series with the short end of the LED to the resistor.

Note that the short end of the LED is the cathode and the long end is the anode.

9. Connect the other side of the resistor to ground on the Arduino board and the long end of the LED to digital pin 13.
10. Observe that both the red LED and the L LED are blinking in unison.
11. Make a video of this
12. Launch the Arduino IDE and select the FADE sketch

File>Examples>01 Basics>Fade

13. Move the LED to pin 9
14. Click on the Verify icon on the IDE
15. When successful, click on the Upload icon on the IDE.
16. Observe that the ON LED is illuminated but starts to dim and then brightens
17. Make a video of this

Experiment 2 SOS

1. Modify your Sketch to flash the Morse Code SOS signal word:
dot dot dot dash dash dash dot dot dot.
2. For timing use
 - a. 0.5 seconds for a dot
 - b. 1.5 seconds for a dash
 - c. 0.5 seconds between dot and dashes that are apart of the same letter
 - d. 1.5 seconds between letters
 - e. 3 seconds between words.
3. Make sure that the output is continuous.

Experiment 3 Potentiometer Control

1. Connect a potentiometer to the Arduino in the following fashion. The middle terminal (the wiper) connect to A0 and the two outside terminal get connected to 5volts and ground respectively.
2. Write a Sketch to read A0 and send the value to the Serial Monitor. Turning the potentiometer clockwise to the stop should either produce 0 or 1023 at the Serial Monitor. Turning it counterclockwise to the stop should yield the opposite value 1023 or zero.
3. Modify the Sketch to vary the reading sent to the Serial Monitor from 0 to 255 instead of 0 to 1023.
4. Connect a potentiometer an LED with a series resistor as was done in Experiment 1 to pin 9.
5. Modify the Sketch to vary the PWM value at pin 9 based on what is read from the potentiometer scaled to 0 to 255.
6. Turning the potentiometer should vary the brightness of the LED connected to pin 9.
7. Make a video of this.