

Activity 2 – Introduction to Arduino

The Arduino UNO is an electronics prototyping board with a small computer on it called a microcontroller. We are going to use the Arduino to make our LED light blink.

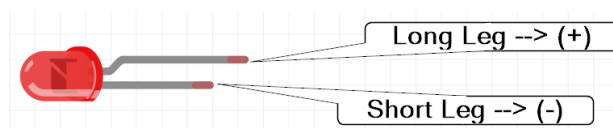
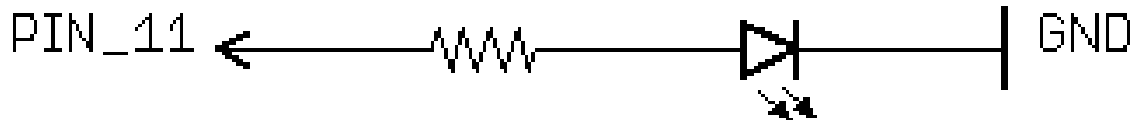
We can write instructions for the Arduino on a computer and upload them using a USB cable. We can attach sensors (inputs) and control electronic devices (outputs) using the Arduino. For example, we can attach a light sensor, then turn on a light when the room becomes dark.

Digital output

Digital output values can be either 0 (OFF) or 1 (ON). Previously, we talked about the (+) and (-) sides of a battery. The Arduino microcontroller provides +5V and GND. So for the Arduino, a 1 is represented by 5V and a 0 is represented by 0V.

Battery	Microcontroller	Digital Value
(+)	5V	1 (HIGH)
(-)	0V (GND)	0 (LOW)

Circuit Diagram



Programming the Arduino UNO using BlocklyDuino

The Arduino reads one instruction after the other. We will combine two instructions:

[BlocklyDuino](#) > web-based visual programm

Blocks

Logic

Control

Math

Text

Variables

Functions

Input/Output

Arduino XML

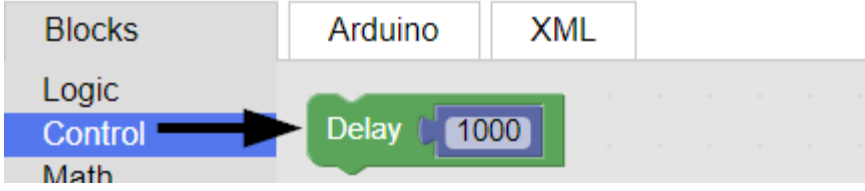
HIGH ▾

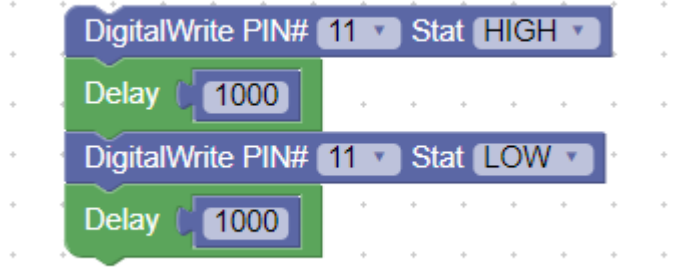
DigitalWrite PIN# 1 ▾ Stat HIGH ▾

DigitalRead PIN# 1 ▾

DigitalWrite

allows us to set a pin as HIGH (5V) or LOW (0V)

<p>BlocklyDuino > web-based visual programr</p>  <p>The screenshot shows the BlocklyDuino web-based visual programming interface. On the left, there is a sidebar with categories: 'Blocks', 'Logic', 'Control', and 'Math'. The 'Control' category is selected and highlighted in blue. An arrow points from the 'Control' category to a 'Delay' block in the workspace. The 'Delay' block is green and has a numerical input field set to '1000'. Above the workspace, there are tabs for 'Arduino' and 'XML'.</p>	<p>Delay will make the Arduino wait for a number of milliseconds. There are 1000 milliseconds in one second.</p>
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 <p>The screenshot shows a sequence of four code blocks on a grid background. The first block is 'DigitalWrite PIN# 11 Stat HIGH'. The second block is 'Delay 1000'. The third block is 'DigitalWrite PIN# 11 Stat LOW'. The fourth block is 'Delay 1000'.</p>	<p>Here is what our final program will look like to blink our LED Light on PIN 11!</p>
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When you are ready to upload the program to the Arduino, ask for help.

Ideas, Questions, Notes