1. pinMode()

Description

Configures the specified pin to behave either as an input or an output. See the description of digital pins for details on the functionality of the pins.

Syntax

pinMode(pin, mode)

Parameters

pin: the number of the pin whose mode you wish to set

mode: INPUT, OUTPUT, or INPUT_PULLUP.

2. digitalWrite()

Description

Write a HIGH or a LOW value to a digital pin.

If the pin has been configured as an OUTPUT with pinMode(), its voltage will be set to the corresponding value: 5V (or 3.3V on 3.3V boards) for HIGH, 0V (ground) for LOW.

If the pin is configured as an INPUT, writing a HIGH value with digitalWrite() will enable an internal 20K pullup resistor (see the tutorial on digital pins). Writing LOW will disable the pullup. The pullup resistor is enough to light an LED dimly, so if LEDs appear to work, but very dimly, this is a likely cause. The remedy is to set the pin to an output with the pinMode() function.

Syntax

digitalWrite(pin, value)

Parameters

pin: the pin number

value: HIGH or LOW

Returns

None

3. delay()

Description

Pauses the program for the amount of time (in miliseconds) specified as parameter. (There are 1000 milliseconds in a second.)

Syntax

delay(ms)

Parameters

ms: the number of milliseconds to pause (unsigned long)

Returns

Nothing

4. delayMicroseconds()

Description

Pauses the program for the amount of time (in microseconds) specified as parameter. There are a thousand microseconds in a millisecond, and a million microseconds in a second.

Syntax

delayMicroseconds(us)

Parameters

us: the number of microseconds to pause (unsigned int)

Returns

None

5. digitalRead()

Description

Reads the value from a specified digital pin, either HIGH or LOW.

Syntax

digitalRead(pin)

Parameters

pin: the number of the digital pin you want to read (int)

Returns

HIGH or LOW

6. analogRead()

Description

Reads the value from the specified analog pin. The Arduino board contains a 6 channel (8 channels on the Mini and Nano, 16 on the Mega), 10-bit analog to digital converter. This means that it will map input voltages between 0 and 5 volts into integer values between 0 and 1023.

Syntax

analogRead(pin)

Parameters

pin: the number of the analog input pin to read from (0 to 5 on most boards, 0 to 7 on the Mini and

Nano, 0 to 15 on the Mega)

Returns

int (0 to 1023)

7. analogWrite()

Description

Writes an analog value (PWM wave) to a pin. Can be used to light a LED at varying brightnesses or drive a motor at various speeds. After a call to analogWrite(), the pin will generate a steady square wave of the specified duty cycle until the next call to analogWrite() (or a call to digitalRead() or digitalWrite() on the same pin).

Syntax

analogWrite(pin, value)

Parameters

pin: the pin to write to.

value: the duty cycle: between 0 (always off) and 255 (always on).

Returns

nothing