IEEE - CSULB Branch
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Agenda

- Project

- Schematic

- Data Sheets

- Common Equipment

- Microcontroller Components

- Microcontrollers- Arduino

- Arduino Code-For Loop

- Arduino Code-While Loop

- Arduino Code-If/Else Statement

- Fun Example

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Project- Arduino Piano

- Sound Reactive Arduino Floor Piano
- Modules used
  - Arduino Uno/nano
- Components
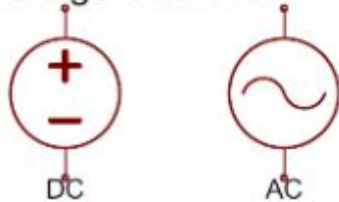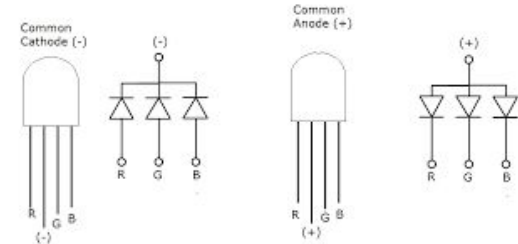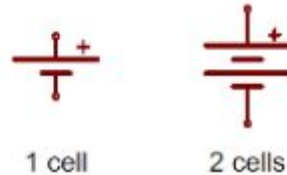 - Resistors
  - Jumper wires
  - Piezo
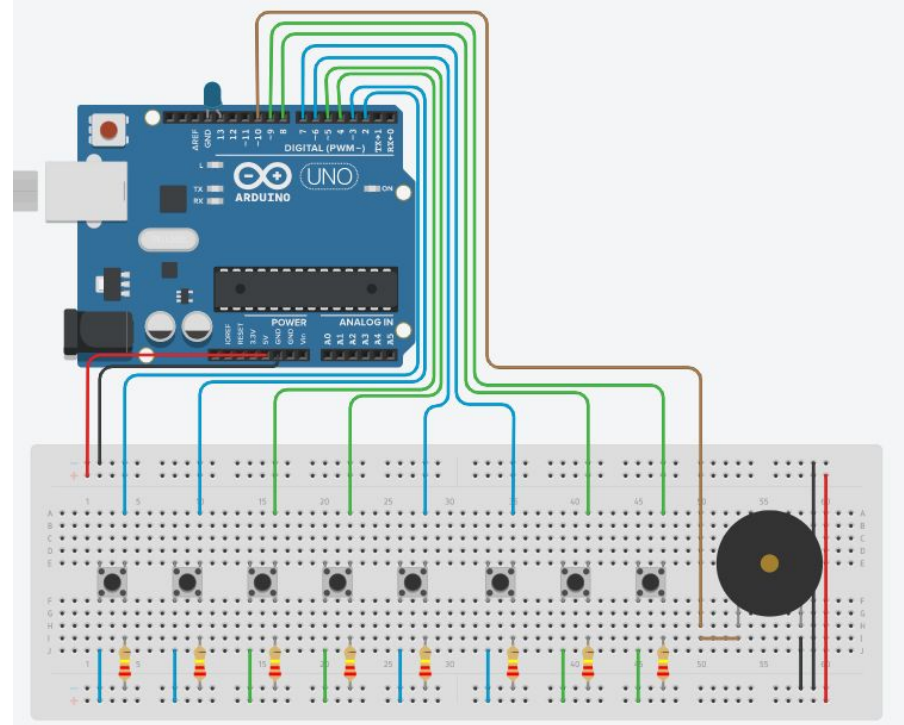
Schematic

Data Sheets

Mechanical Dimensions

Top View

Back View

Solder Pad
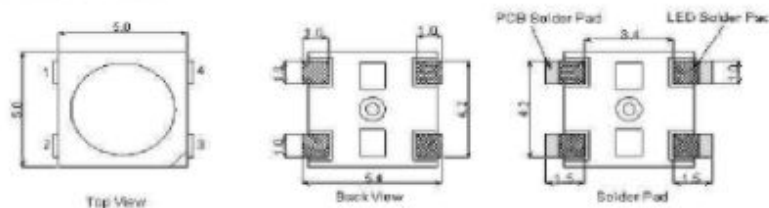
PIN configuration
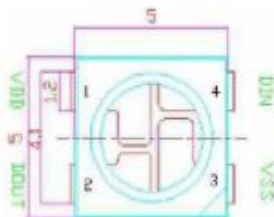
PIN function

NO.	Symbol	Function description
1	VDD	Power supply LED
2	DOUT	Control data signal output
3	VSS	Ground
4	DIN	Control data signal input

Absolute Maximum Ratings

Prameter	Symbol	Ratings	Unit
Power supply voltage	V_{DD}	+3.5~+5.3	V
Input voltage	V_I	-0.5~VDD+0.5	V
Operation junction temperature	Topt	-25~+80	℃
Storage temperature range	Tstg	-55~+150	℃

Common Equipment

- Wirestripper

- Multimeter

- DC Power Supply

Microcontroller Components

CPU
- The brain of microcontrollers
- Processes information
- Carries out functions

Memory
- Works as the bank of microcontrollers
- Stores information
- Allows for stored information to be accessed

System Clock
- Internal clocking mechanism
- Determines how fast processes are carried out

Microcontrollers-Arduino

What is **Arduino**? **Arduino** is an open-source electronics platform based on easy-to-use hardware and software.

- **Arduino** boards are able to read inputs such as

- light on a sensor

- a finger on a button

- Twitter message

- and turn it into an output such as

- activating a motor
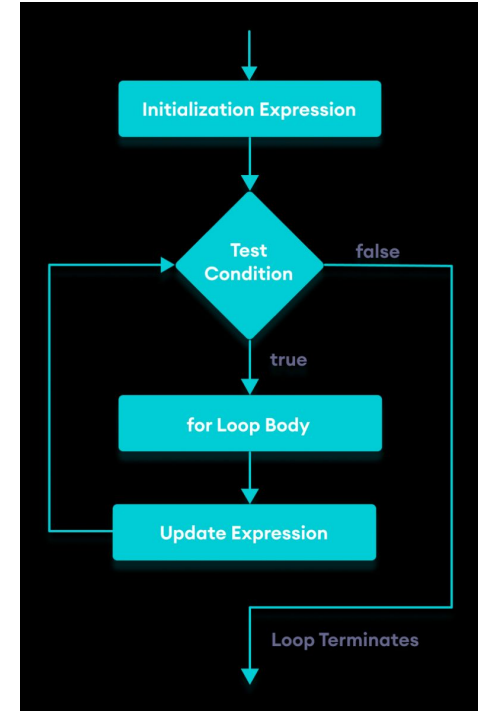
- turning on an LED

- publishing something online.
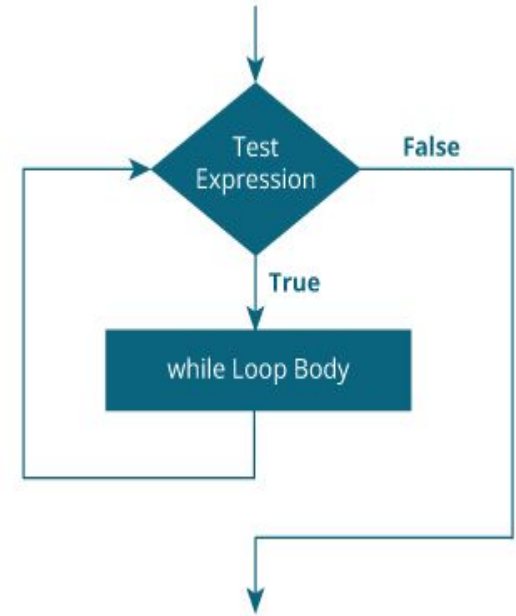
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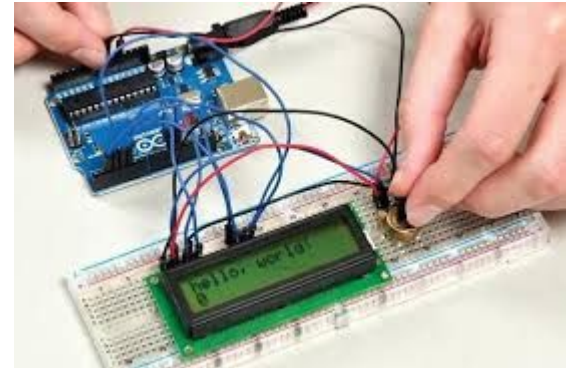
Arduino Code-For Loop

For Loop

1. Tests a condition

2. If condition is met, a certain action will be undertaken

3. If condition is unmet, nothing will happen
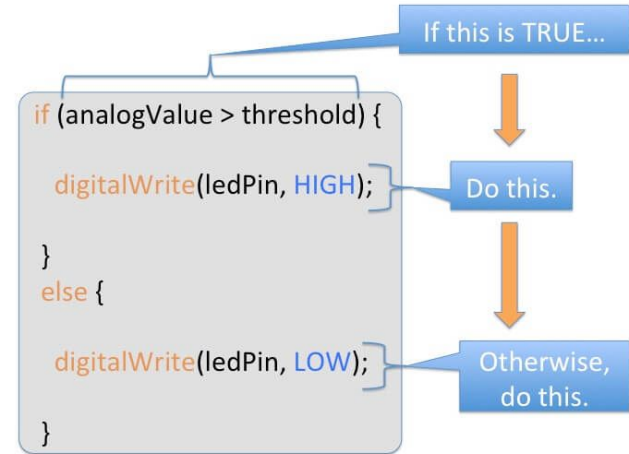
Arduino Code-While Loop

While Loop

1. Tests a condition

2. If condition is met, a certain action will be undertaken

   and the resultant will be tested again, back to step 1

3. If condition is unmet, nothing will happen

Arduino Code-If/Else

If/Else

1. Tests condition

2. If condition is met, do action A

3. Else if this other condition is met, do action B

Fun Example

- If John and Kiyo successfully do the dance from "BIG" on the wooden Piano

- John and Kiyo land successful Electrical Engineering jobs.

- Else if John and Kiyo mess up on the piano dance

- John and Kiyo have to live in their parents basement for the rest of their lives.