

Robotics Workshop

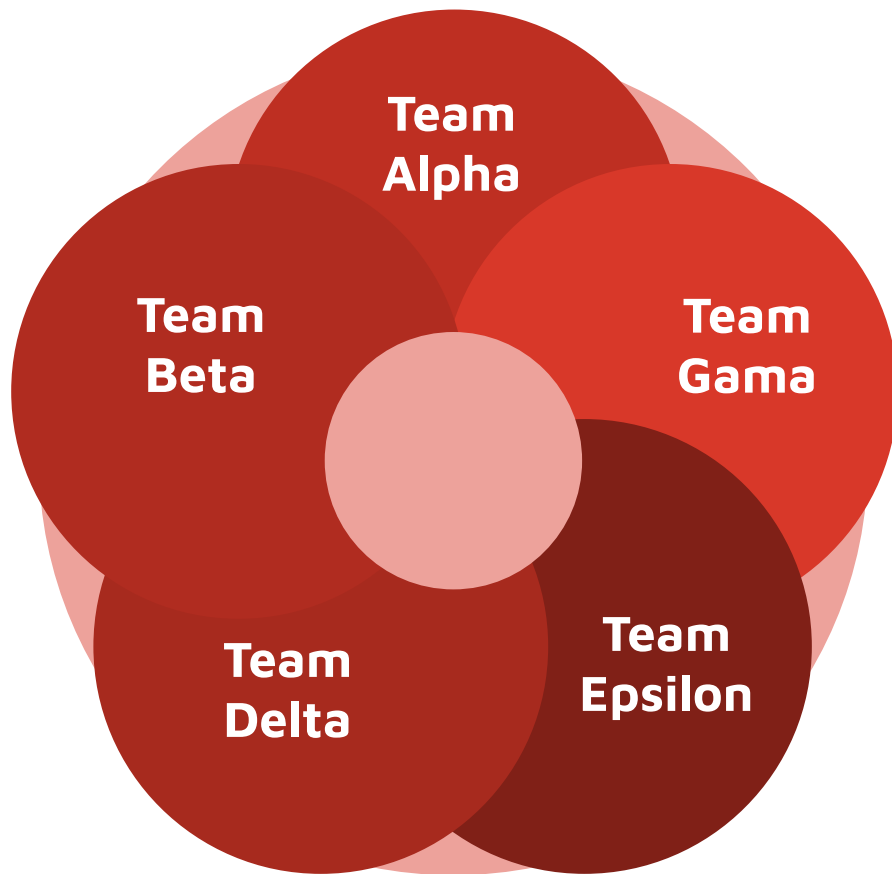
For Mentorship Program





Workshop Outline :

Date	Event
24 March 2022	Circuits & Arduino
25 March 2022	Working Principle of Different Sensors
26 March 2022	Line Follower Robot
27 March 2022	Project Hunt
28 March 2022	Project Hunt
29 March 2022	Project Hunt



Team Alpha  Shad & Joy Raj

Team Beta  Mowaz & Sajjad

Team Gama  Aditto & Nihal

Team Delta  Afif & Razin

Team Epsilon  Prमित & Anwoy



Juniors (2019 Batch)



Circuit

1. Electricity
2. Voltage
3. Current
4. Resistance
5. Ohm's Law
6. Resistance in Series and Parallel
7. Resistance Color Coding
8. Breadboard

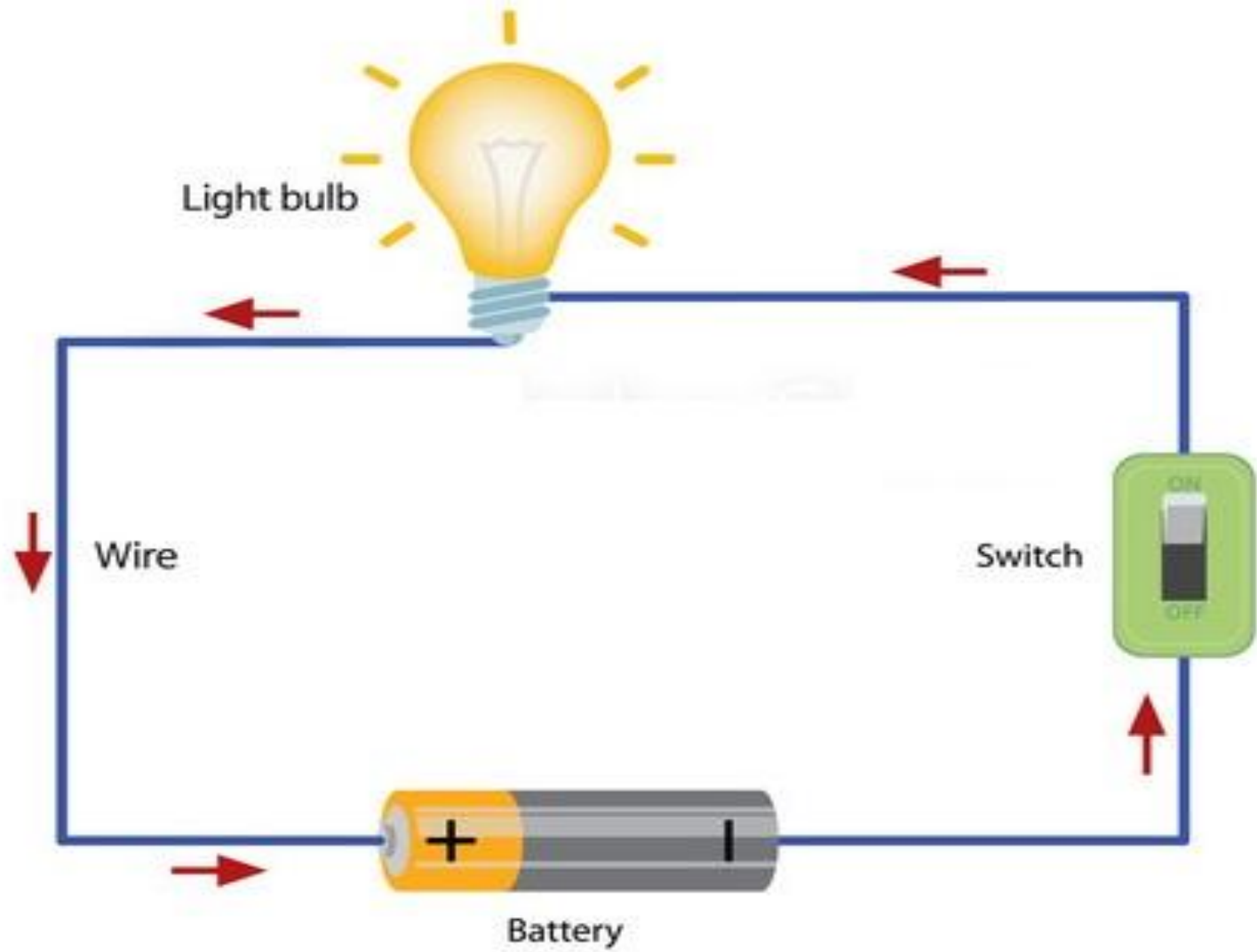
Arduino

1. About Arduino
2. Parts of the Arduino
3. Arduino IDE
4. Blinking LED with Arduino



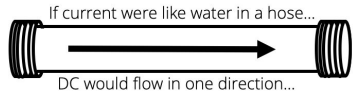
Electricity

- Static Electricity
- Dynamic Electricity
 - Direct Current
 - Alternating Current



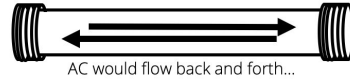
Alternating Current vs Direct Current

DC

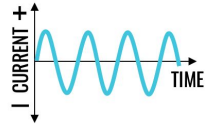


FREEING
ENERGY

AC



Things that use DC



Things that use AC

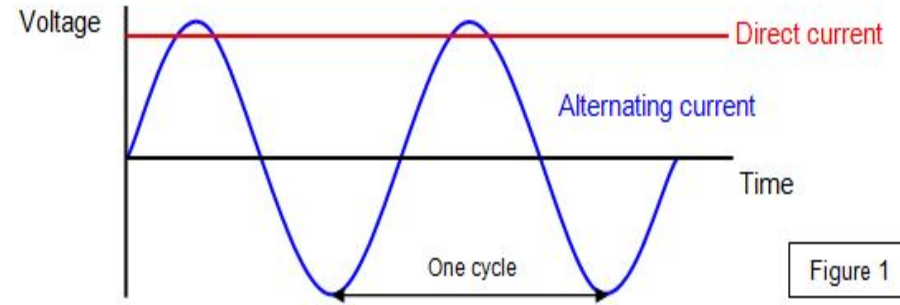
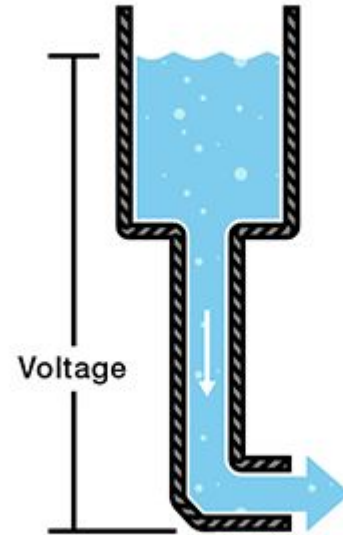
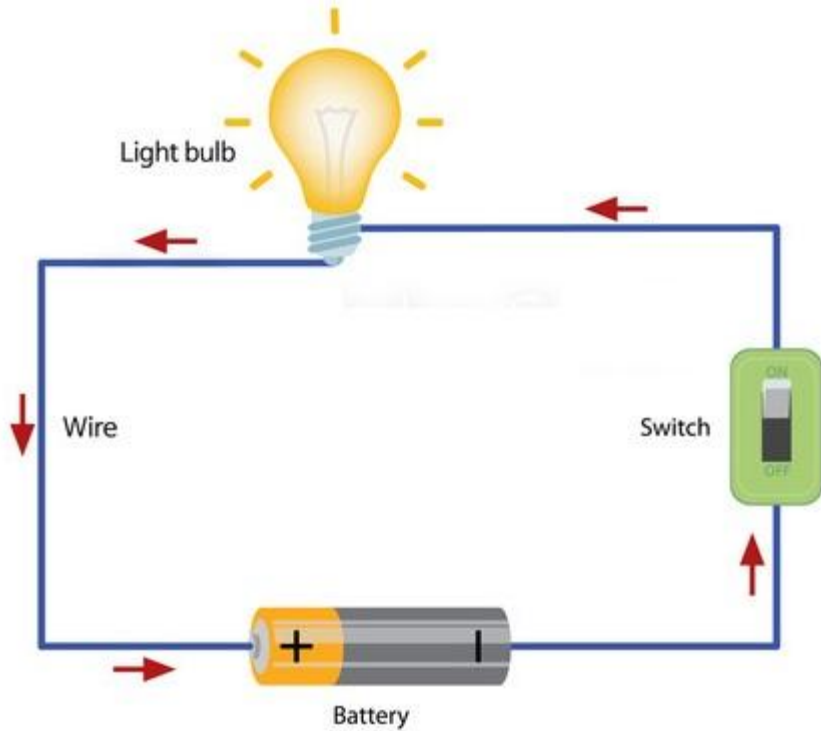
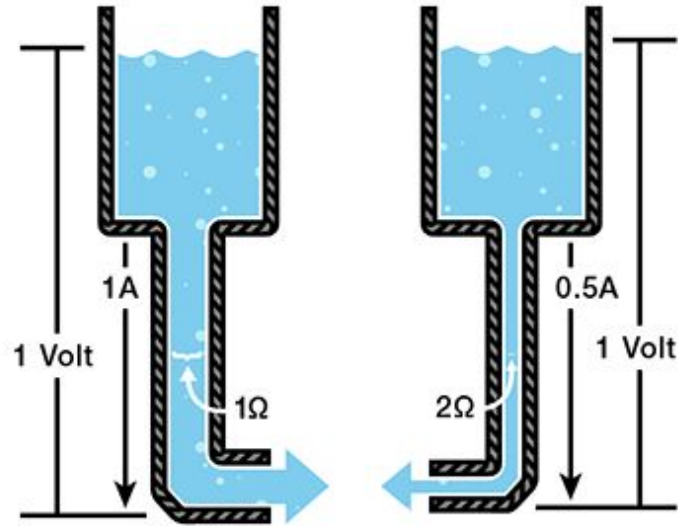


Figure 1

Voltage

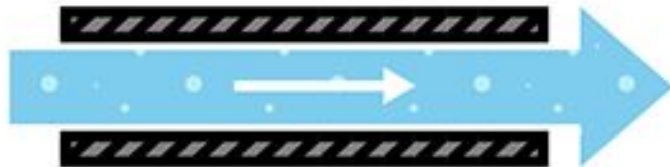


Current



Resistance

Less resistance



More resistance



Electricity is like a water hose

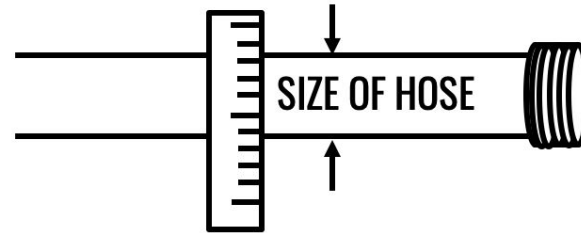
Voltage

Volts (V)



Current

Amps (A or I)



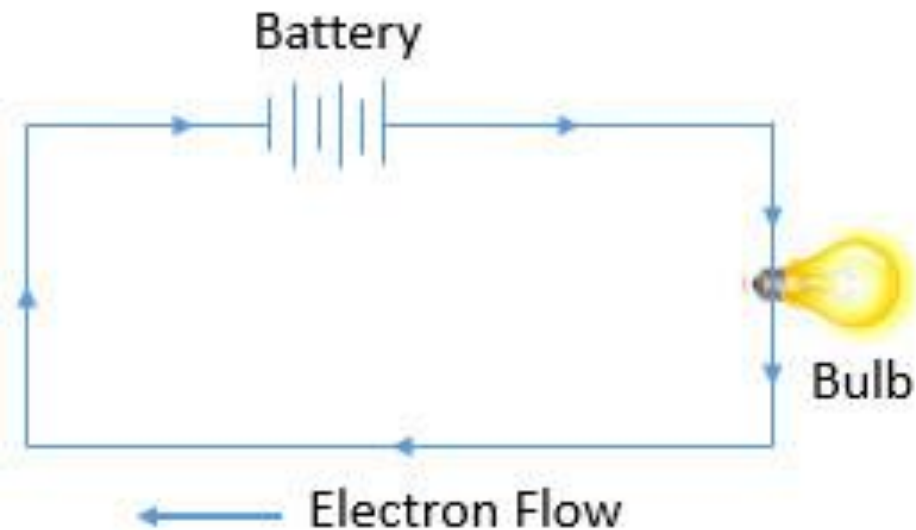
Resistance

Ohms (R or Ω)



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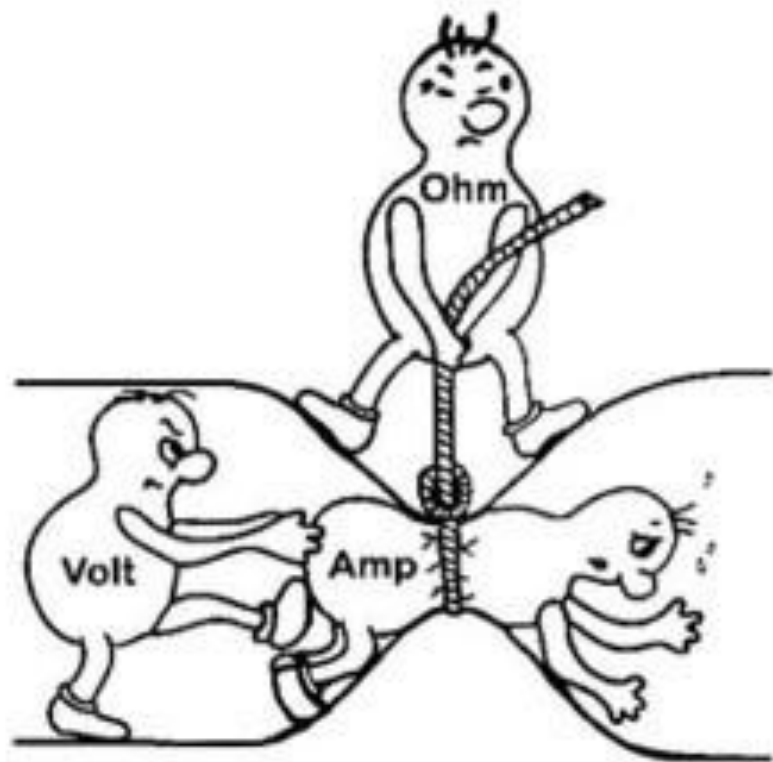
Ohm's Law



Resistance (R) = Bulb

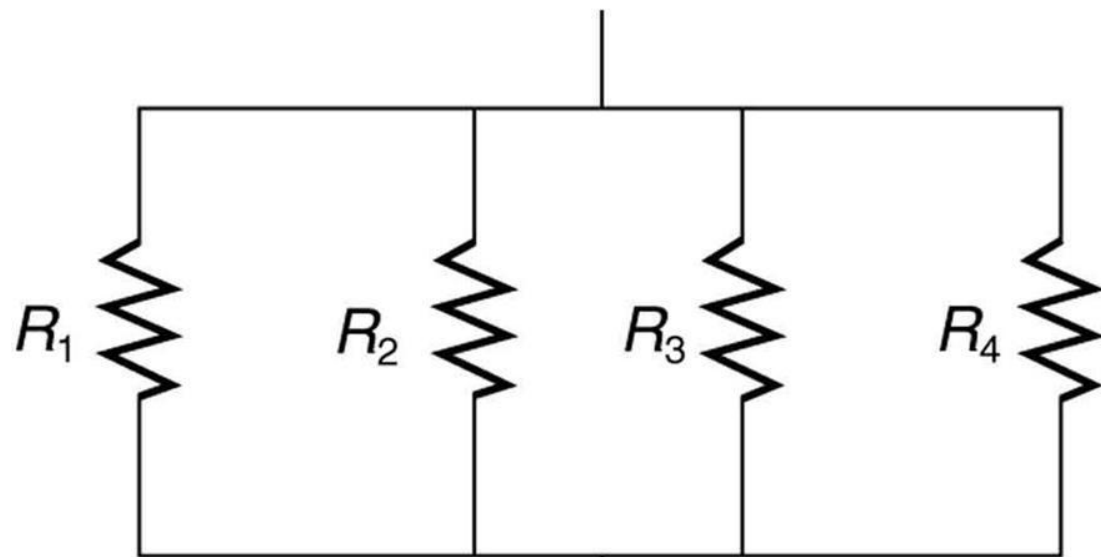
Current (I) = Flow of Electron

Voltage (V) = Battery

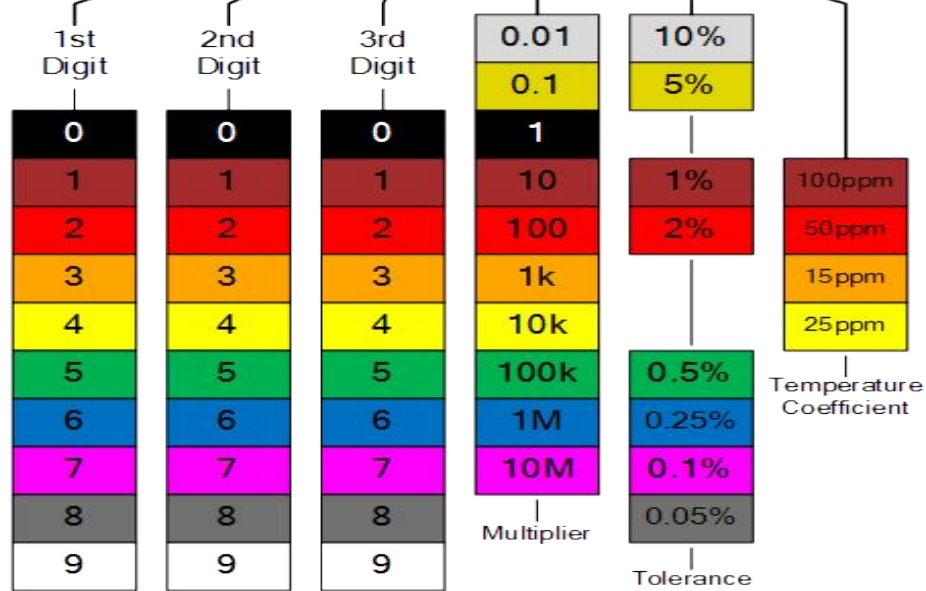
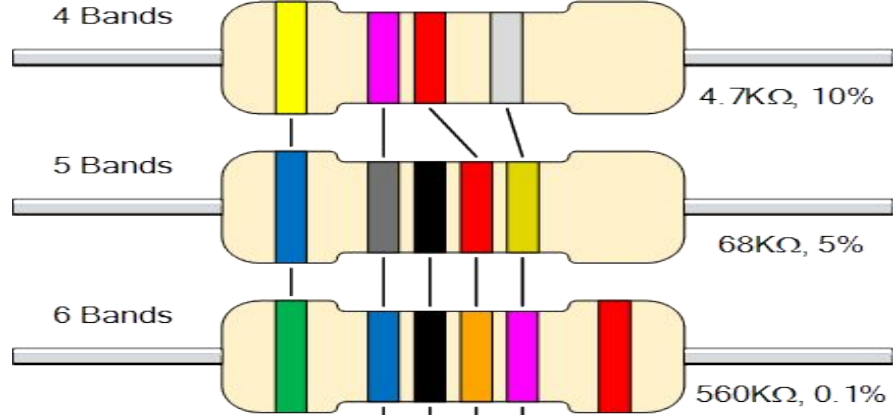




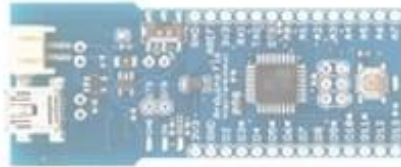
(a)



(b)



Arduino





Arduino Specifications

- Microcontroller : ATmega328
- Operating Voltage : 5 V
- Input Voltage (Recommended) : 7-12 V
- Input Voltage (Limits) : 6-20 V
- Digital I/O pins : 14 (PWM pin = 6)
- Analog Input Pins : 6
- DC Current per I/O pin : 40mA
- DC Current for 3.3V pin : 50mA
- Flash Memory : 32 KB
- Clock Speed : 16 MHz



