***Arduino:***

*Arduino is an open source programmable circuit board that can be integrated into a wide variety of makerspace projects both simple and complex. This board contains a microcontroller which is able to be programmed to sense and control objects in the physical world. By responding to sensors and inputs, the Arduino is able to interact with a large array of outputs such as LEDs, motors and displays. Because of it’s flexibility and low cost, Arduino has become a very popular choice for makers and makerspaces looking to create interactive hardware projects.*

***Digital pins:***

*Digital Input pins can be configured as pinMode(pin, INPUT), where the pin is the digital pin number you want to initialize. Often it is useful to steer an input pin to a known state if no input is present. This can be done by adding a pull-up resistor (to +5V), or a pulldown resistor (resistor to ground) on the input.*

***Analog pins:***

*Analog pins are the ADC (analog to digital converter) input pins. They are used for reading analog voltage (between 0-5V on arduino, by default). Check out the sample program for analogRead() command. Digital pins are used mainly as output pins.*

***Raspberry Pi:***

*The Raspberry Pi is a low cost,****credit-card sized computer****that plugs into a computer monitor or TV, and uses a standard keyboard and mouse. It is a capable little device that enables people of all ages to explore computing, and to learn how to program in languages like Scratch and Python. It’s capable of doing everything you’d expect a desktop computer to do, from browsing the internet and playing high-definition video, to making spreadsheets, word-processing, and playing games.*

***Jumper Wire:***

*A jumper wire is an electric wire that connects remote electric circuits used for printed circuit boards. By attaching a jumper wire on the circuit, it can be short-circuited and short-cut (jump) to the electric circuit*

Types of Jumper Wires

Jumper wires come in three versions:

* Male-to-male jumper
* Male-to-female jumper
* Female-to-female jumper

***Ultra sonic sensor:***

*An ultrasonic sensor is an electronic device that measures the distance of a target object by emitting ultrasonic sound waves, and converts the reflected sound into an electrical signal. Ultrasonic waves travel faster than the speed of audible sound (i.e. the sound that humans can hear).*

***Temperature sensor:***

*A temperature sensor is a device used to measure temperature. This can be air temperature, liquid temperature or the temperature of solid matter. There are different types of temperature sensors available and they each use different technologies and principles to take the temperature measurement.*

***Bread board:***

*A breadboard consists of plastic block holding a matrix of electrical sockets of a size suitable for gripping thin connecting wire, component wires or the pins of transistors and integrated circuits (ICs). The sockets are connected inside the board, usually in rows of five sockets.*

***PIR SENSOR:***

*A device used to detect motion by receiving infrared radiation. When a person walks past the sensor, it detects a rapid change of infrared energy and sends a signal. PIR sensors are used for applications such as automatically turning on lights when someone enters a room or causing a video camera to begin operating.*

***BUZZER***

*An audio signaling device like a beeper or buzzer may be electromechanical or*[*piezoelectric*](https://www.elprocus.com/what-is-a-piezoelectric-material-working/)*or mechanical type. The main function of this is to convert the signal from audio to sound. Generally, it is powered through DC voltage and used in timers, alarm devices, printers, alarms, computers, etc. Based on the various designs, it can generate different sounds like alarm, music, bell & siren.*

***Resistor:***

*A resistor is an electrical component that limits or regulates the flow of electrical current in an electronic circuit. Resistors can also be used to provide a specific voltage for an active device such as a transistor.*

***LED:***

*A light-emitting diode (LED) is a*[*semiconductor*](https://en.wikipedia.org/wiki/Semiconductor)[*light source*](https://en.wikipedia.org/wiki/Light_source)*that emits light when*[*current*](https://en.wikipedia.org/wiki/Electric_current)*flows through it.*[*Electrons*](https://en.wikipedia.org/wiki/Electron)*in the semiconductor recombine with*[*electron holes*](https://en.wikipedia.org/wiki/Electron_hole)*, releasing energy in the form of*[*photons*](https://en.wikipedia.org/wiki/Photon)*.*

***SERVO MOTOR:***

*A servo motor is a rotary actuator that allows for precise control of angular position. It consists of a motor coupled to a sensor for position feedback. It also requires a servo drive to complete the system. The drive uses the feedback sensor to precisely control the rotary position of the motor.*