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Topic 3. Arduino Introduction

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Arduino

Arduino was a project started at IDII in Ivrea, Italy with its primary goal being creating affordable and straightforward tools for non-engineers to use and create digital projects.

Hardware

One of the main reasons for arduino being so accessible and affordable across the globe is because all of the arduino hardware is open source. Since Arduino is open-source, it has its own devoted community that strives to help the core company develop and improve its hardware products.

Eg. Arduino Uno

The Uno is one of the more popular boards in the arduino family and a great choice for beginners.

Types of Arduino Boards

Arduino Uno R3

Arduino Nano

Arduino Micro

Arduino Due

Lily Pad Arduino Board

Arduino Bluetooth

Arduino Diecimila

RedBoard Arduino Board

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What is Arduino capable of ?

The arduino hardware and software was designed for artists, designers, hobbyists, hackers, newbies and anyone interested in creating interactive objects or environments. Arduino can interact with buttons, LED's, motors, speakers, GPS units, cameras, the internet and even your smart phone or your TV.

Arduino IDE

The open source arduino software (IDE) makes it easy to write code and upload it to the board. It runs on Windows, Mac OS X and Linux. The environment is written in Java and based on Processing and other open source software.

Raspberry Pi and Arduino difference

Arduino is microcontroller board, while Raspberry Pi is a microprocessor based mini computer (SBC). Raspberry Pi SBC has all features of a computer with a processor, memory, storage, graphics, drive, connectors on the board. Raspberry Pi needs an OS to run.

Arduino instead of Microcontroller

Arduino simplifies the process of working with microcontrollers, but it offers some advantage for everyone. Its also Inexpensive

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Topic: Light an LED

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Aim: Write a program to interface a simple single LED with arduino uno with delay of one second. Basic interface for monitoring purpose.

```
int ledpin = 13; // set pin number of arduino to which led is connected.
void setup () {
  pinMode ( ledpin, OUTPUT);
  // initialize digital pin LED_BUILTIN as an output
  }
// the loop function runs over & over again forever
void loop() {
digitalWrite (ledpin, LOW);
// turn the LED off by making the voltage LOW
delay (1000);
digitalWrite (ledpin, HIGH);
// turn the LED ON by making the voltage HIGH
delay (1000);
}
```

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