WORKSHEET 1.1

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Branch: CSE **Section/Group: 626/B**

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Subject Name: IoT **Subject Code: 21CSP-344**

Aim:

To Assemble Arduino Uno with the system and perform necessary software installation.

Objectives:

1. To study hardware and software related to IoT
2. To understand the function of Arduino Uno and other controllers.

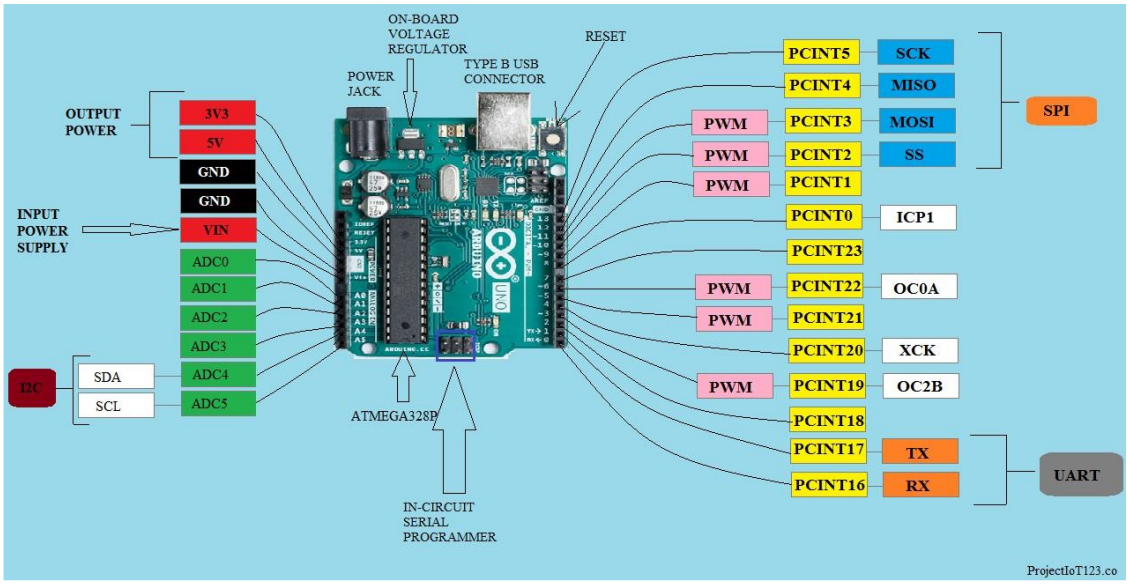
Components Required:

1. Arduino Uno
2. Connecting Cable
3. Arduino IDE

Arduino Uno:

An Arduino is actually a micro controller based kit. It is basically used in communications and in controlling or operating many devices. Arduino UNO board is the most popular board in the Arduino board family. They have digital and analog pins for connecting sensors and devices. It consists of two memories- Program memory and the data memory. The code is stored in the flash program memory, whereas the data is stored in the data memory. Arduino Uno consists of 14 digital input/output pins (of which 6 can be used as PWM outputs), 6 analog inputs, a 16 MHz crystal oscillator, a USB connection, a power jack, an ICSP header, and a reset button.

Figure: Diagram of Arduino Board



Arduino Uno Circuit:

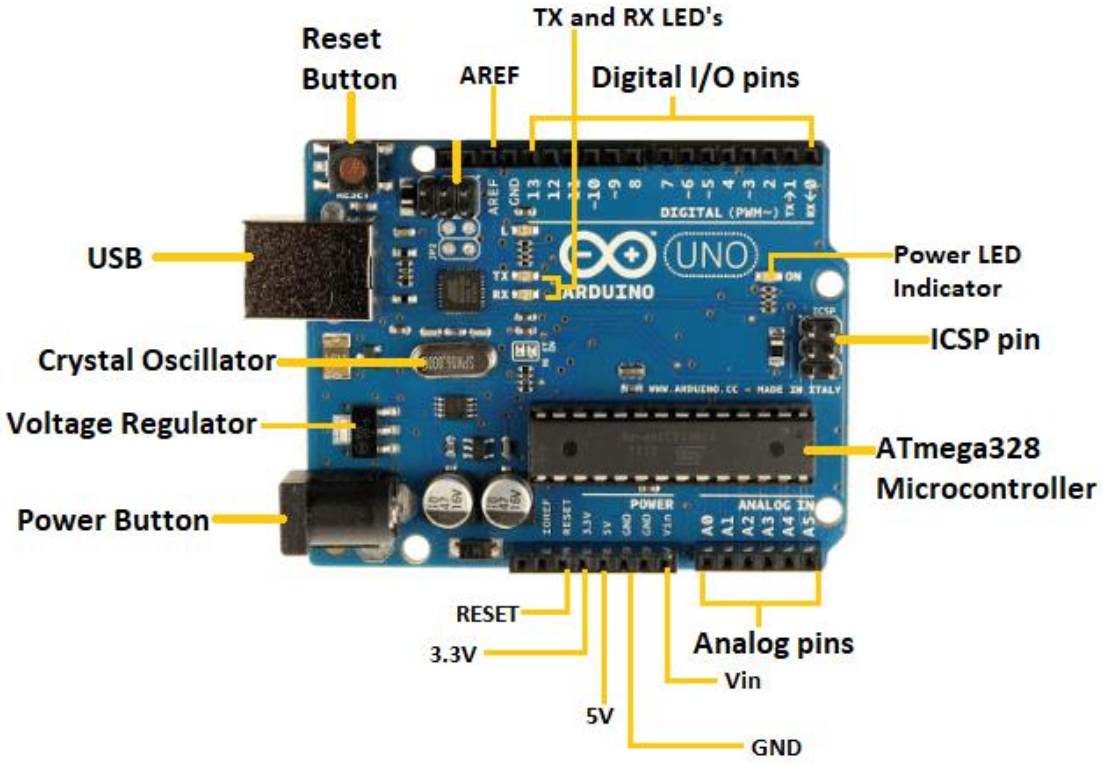
Arduino is a microcontroller-based open source electronic prototyping board which can be programmed with an easy-to-use Arduino IDE.

UNO is not the only board in the Arduino family. There are other boards like Arduino Lilypad, Arduino Mini, Arduino Mega, and Arduino Nano. However, the Arduino UNO board became more popular than other boards in the family because it has documentation that is much more detailed. This led to its increased adoption for electronic prototyping, creating a vast community of electronic geeks and hobbyists.

The major components of Arduino Uno board :

1. USB connector
2. Power port
3. Microcontroller
4. Analog input pins
5. Digital pins
6. Reset switch
7. Crystal oscillator
8. USB interface chip
9. TX RX LEDs

Figure: Arduino Uno Circuit



Adruino IDE:

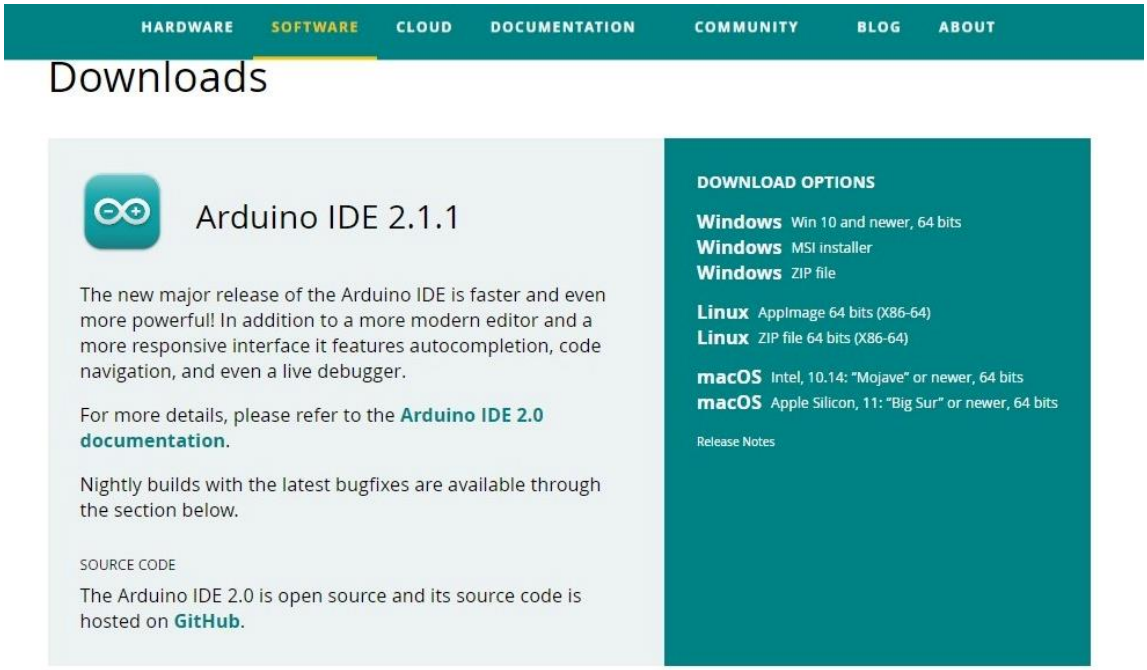
Arduino IDE is the open source software, designed by Arduino.cc and mainly used for writing, compiling and uploading code. It is an official Arduino software, making code compilation too easy. It is available for all operating system i.e. Mac, Linux, Windows and runs on the java platform that comes with inbuilt functions and commands. The main code is known as sketch, created on the IDE platform will ultimately generate a Hex File which is then transferred and uploaded in the controller in the board. The IDE environment contains two basic parts : Editor and compiler

Steps to install Arduino IDE:

1. Step 1 - First you must have your Arduino board (you can choose your favorite board) and a USB cable. ...

2. Step 4 - Launch Arduino IDE
3. Step 5 - Open your first project.
4. Step 6 - Select your Arduino board.
5. Step 7 - Select your serial port.
6. Step 8 - Upload the program to your board.

Figure: Arduino IDE



Result:

Installation of Arduino IDE and setup is successfully done.