



SNS COLLEGE OF TECHNOLOGY

Coimbatore-35

An Autonomous Institution

Accredited by NBA – AICTE and Accredited by NAAC – UGC with
'A++' Grade

Approved by AICTE, New Delhi & Affiliated to Anna University,
Chennai



DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

19ECT213- IoT SYSTEM ARCHITECTURE

II ECE / IV SEMESTER

UNIT 2 – MICROCONTROLLER AND INTERFACING TECHNIQUES FOR IoT

DEVICES

Introduction to Arduino



WHAT IS ARDUINO?

- Open-source physical computing platform which is a small microcontroller board with a USB plug
- Based on a simple i/o board and a development environment that implements the processing/writing language
- Arduino can be used to develop stand-alone interactive objects or can be connected to software on computer



WHAT IS ARDUINO?

- It's intended for students, artists, designers, hobbyists and anyone who tinker with technology.
- It is programmed in Arduino Programming Language (APL) similar to C/C++
- More easy to program compared to other microcontroller packages
- The Arduino is a microcontroller development platform (not a microcontroller...)



WHY ARDUINO?

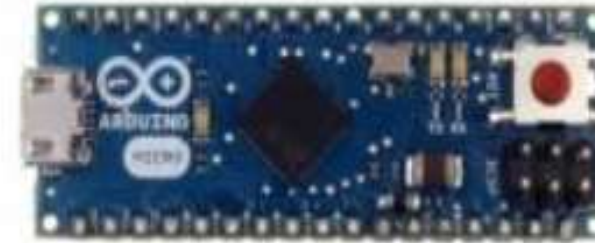
- It is open source, both in terms of Hardware and Software
- It is cheap
- USB Connectivity
- More powerful than a BASIC stamp
- Simple and easy to use



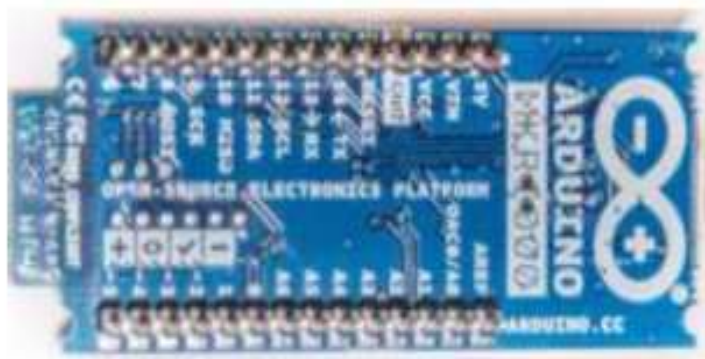
Arduino Boards



Arduino Mega



Arduino Micro



ArduinoMKR1000



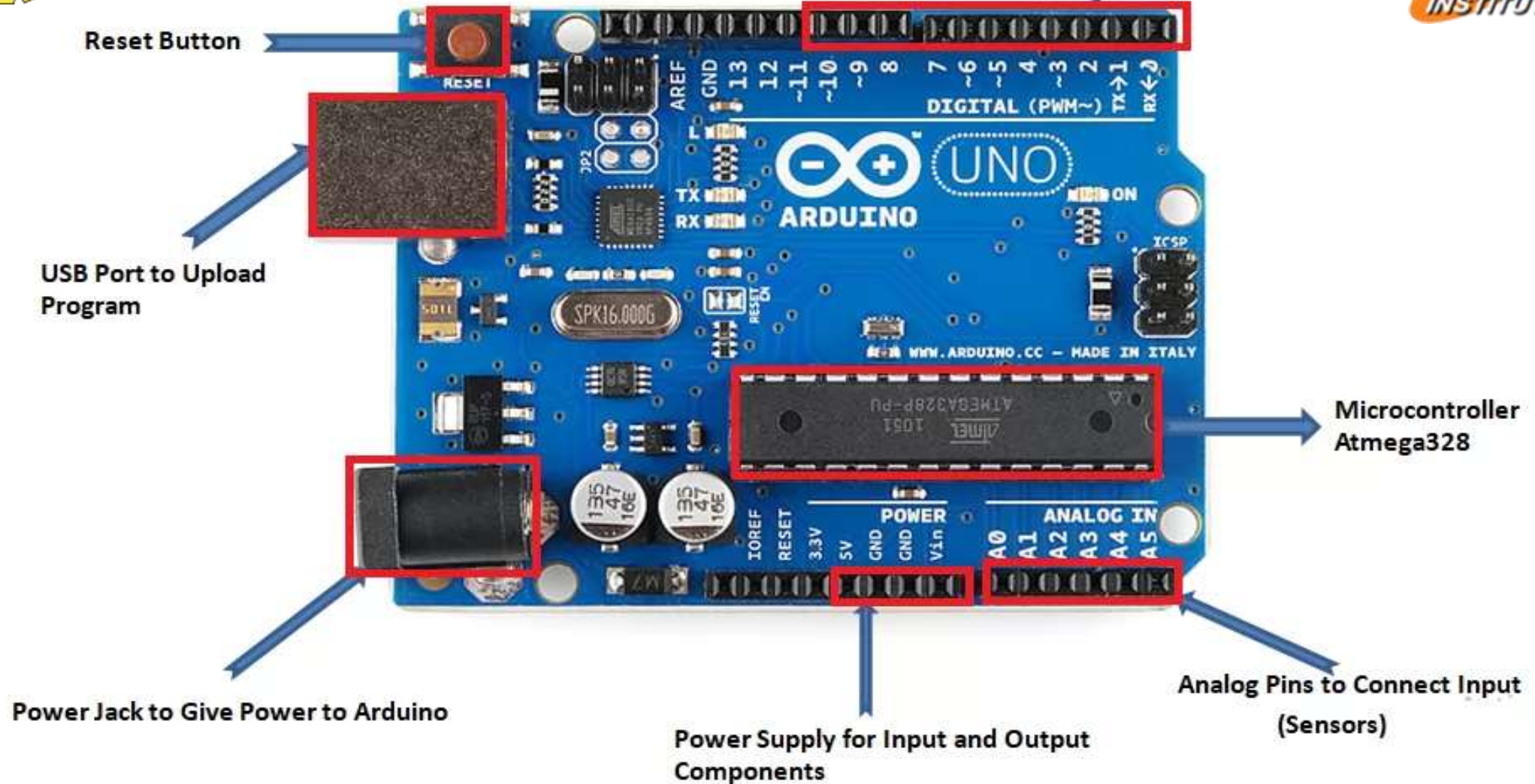
Flora



Digital Pins to Connect C (LED, LCD, Relay, etc)



Arduino Uno





Hardware structure of Arduino



- Microcontroller
- 14 Digital Pin
- 6 Analog Pins
- Power Supply
- Power Jack
- USB Port
- Reset Button



Hardware structure of Arduino Uno



Microcontroller: Microcontroller is the central processing unit of Arduino Uno.

Digital Pins: There are 14 digital pins on Arduino Uno which can be connected to components like LED, LCD, etc.

Analog Pins: There are 6 analog pins on the Uno. These pins are generally used to connect sensors because all the sensors generally have analog values. Most of the input components are connected here.

Power Supply: The power supply pins are IOREF, GND, 3.3V, 5V, Vin are used to connecting sensors because all the sensors generally have analog values. Most of the input components are connected here.



the hardware structure of Arduino

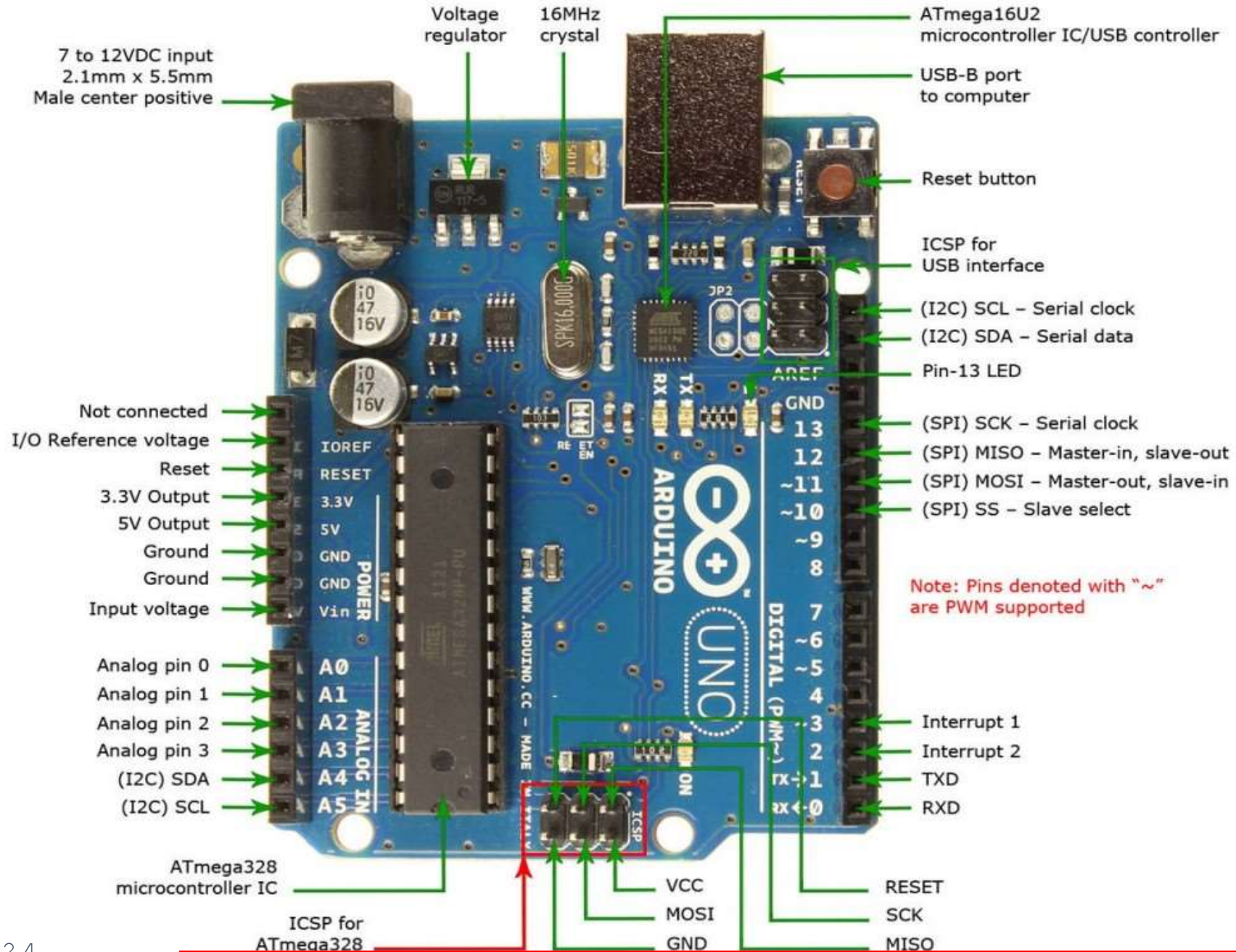


Power Jack: Uno board can be powered both by external supply and via USB cable.

USB Port: This port function is to program the board or to upload the program. The program can be uploaded to the board with the help of Arduino IDE and USB cable.

Reset Button: This is used to restart the uploaded program

Arduino Uno





Blink Example Programme



```
void setup() // initialize digital pin LED_BUILTIN as an output.
{
  pinMode(LED_BUILTIN, OUTPUT);
}

// the loop function runs over and over again forever

void loop()
{
  digitalWrite(LED_BUILTIN, HIGH); // turn the LED on (HIGH is the voltage level)
  delay(1000); // wait for a second
  digitalWrite(LED_BUILTIN, LOW); // turn the LED off by making the voltage LOW
  delay(1000); // wait for a second
}
```