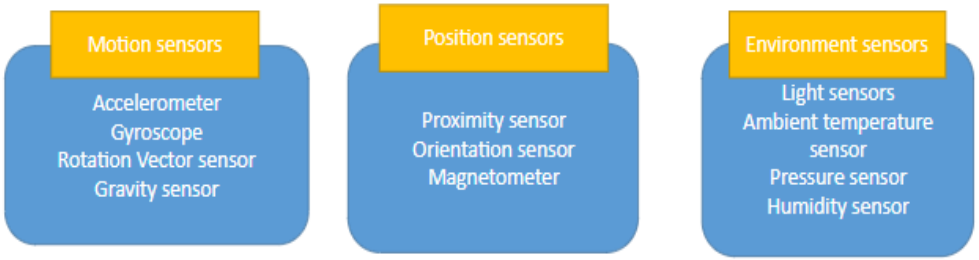
Mobile Platform Sensor Classification



What is ARDUINO??

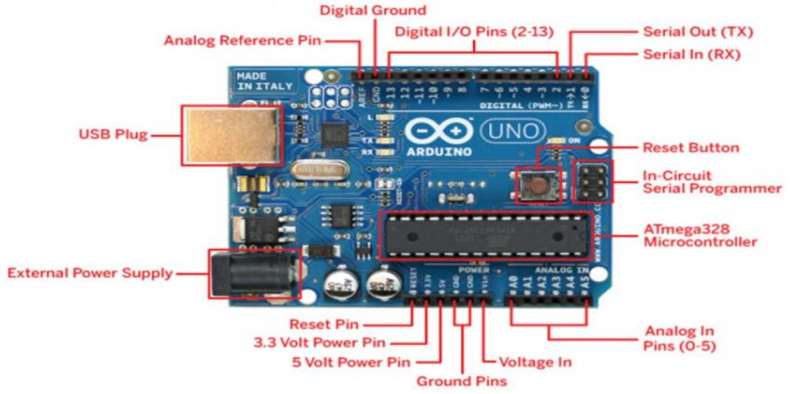
- ✓Arduino is an open-source physical computing platform.
- ✓It is a small microcontroller board with a USB plug.
- ✓Based on a simple i/o board and a development environment that implements the Processing/writing language.
- ✓Arduino can be used to develop stand-alone interactive objects or can be connected to software on your computer.
- ✓Easy-to-use hardware and software.

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++.
- ✓Way more easy to program compared to other microcontroller packages.
- ✓The Arduino is a microcontroller development platform (not a microcontroller….)

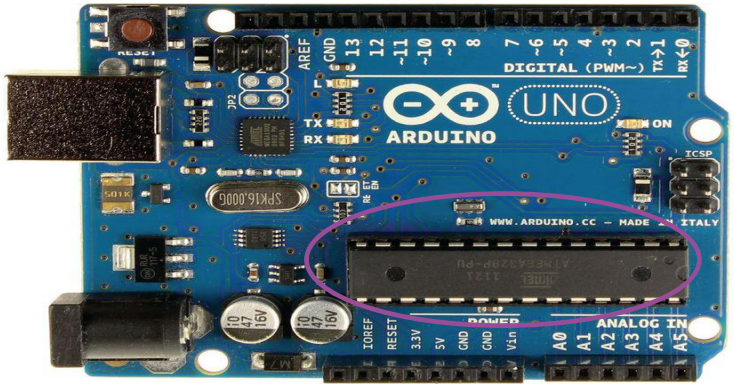
The ARDUINO development board

Arduino (The name is an Italian , meaning "strong friend") is an open-source platform used for building electronics projects. Arduino consists of both a physical programmable circuit board (often referred to as a microcontroller) and a piece of software, or IDE (Integrated Development Environment) that runs on your computer, used to write and upload computer code to the physical board.



Why we use ATmega328

Arduino Uno contains ATmega328.



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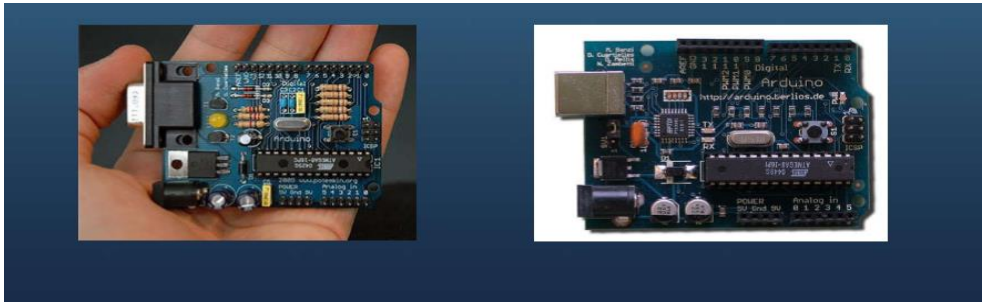
ARDUINO is a platform

A physical Input/ Output board (I/O) with a programmable Integrated Circuit (IC)



What is the Arduino

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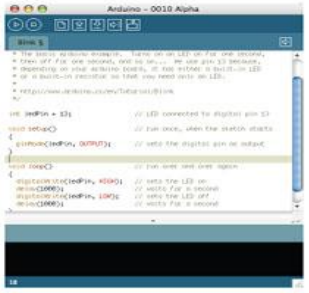
The word "Arduino" can mean 3 things

A physical piece of hardware

A programming environment



A community & philosophy

What can it do?

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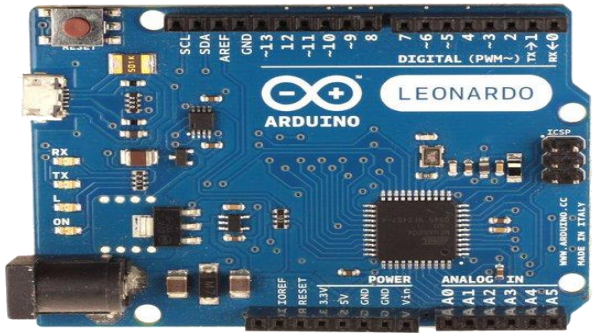
- It can run standalone from a computer (Chip is programmable) and it has memory (A small amount)
- It can work with both Digital and Analog electronic signal, Sensors and Actuators
- Sensors (to sense stuff)-
  - Push buttons, touch pads, tilt switches
  - Variable resistors (eg. Volume knob / sliders)
  - Photoresistors (Sensing light levels)
  - Thermistors (Temperature)
  - Ultrasound (Proximity range finder)
- Actuators (to do stuff)
  - Lights, LED's
  - Motors
  - Speakers
  - Displays (LCD)

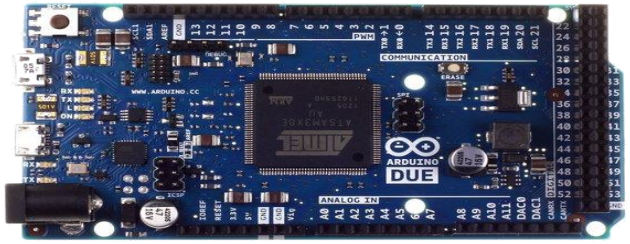
Leonardo

- Compared to the Uno, a slight upgrade.
- Built in USB compatibility



Due

- Much faster processor, many more pins
- Operates on 3.3 volts
- Similar to the Mega



Micro

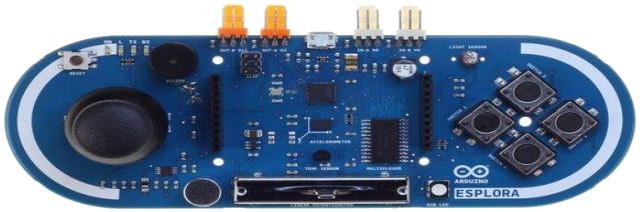
- When size matters: Micro, Nano, Mini
- Includes all functionality of the Leonardo
- Easily usable on a breadboard

LilyPad

- LilyPad is popular for clothing-based projects.

Esplora

- Game controller
- Includes joystick, four buttons, linear potentiometer (slider), microphone, light sensor, temperature sensor, three-axis accelerometer.
- Not the standard set of IO pins.

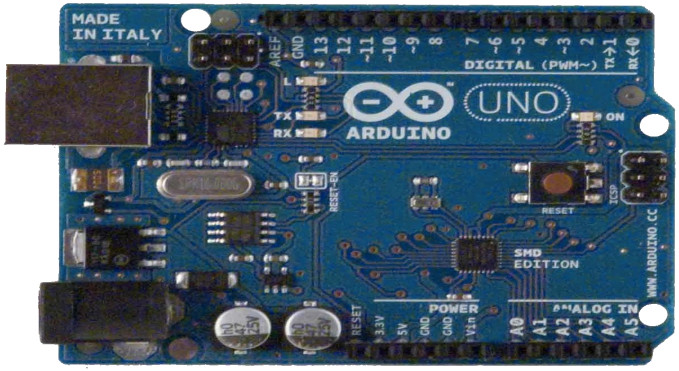


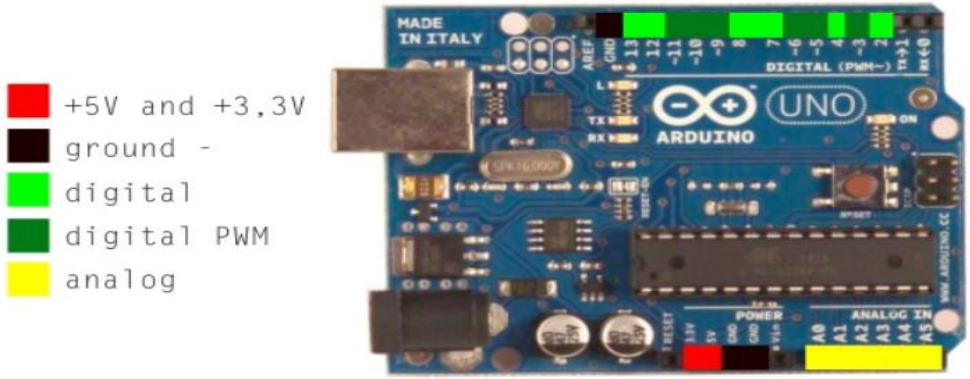
Mega

- Compared to the Uno, the Mega:
  - Many more communication pins
  - More memory
  - Some interface hardware doesn't work

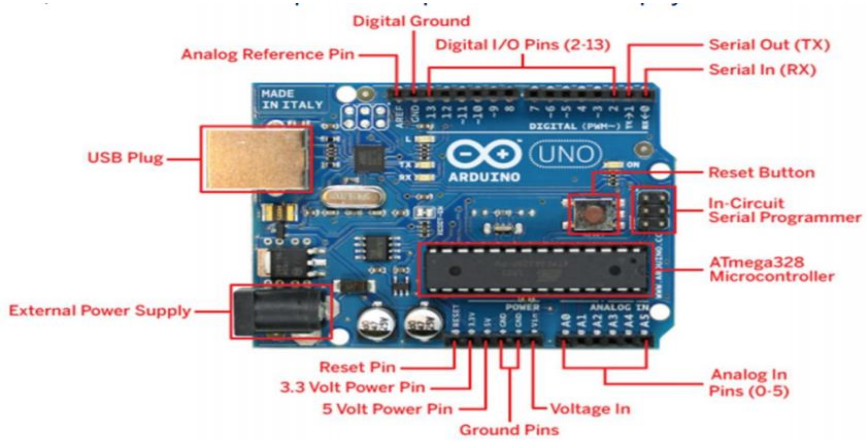
Uno

- The pins are in three groups:
  - Invented in 2010
  - 14 digital pins
  - 6 analog pins
  - power





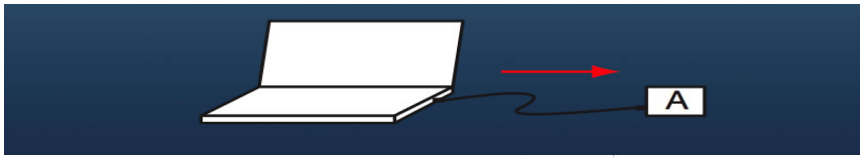
About Arduino Uno



Writing and Downloading Code

Write sketch on PC

Download sketch to Arduino



Running Code

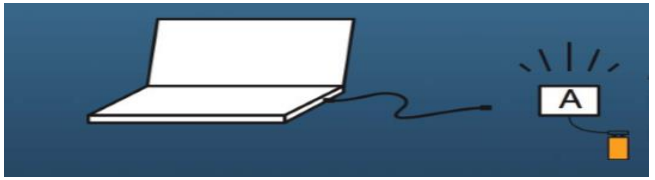
Run sketch on Arduino
And send back to PC

Arduino interacts
With its environment

Serial communication
Back to host

Running Code stand - alone

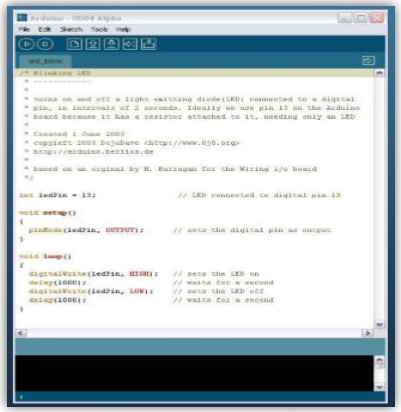
Run Arduino in stand alone mode



Arduino interact with
Its environment and
Runs on battery power

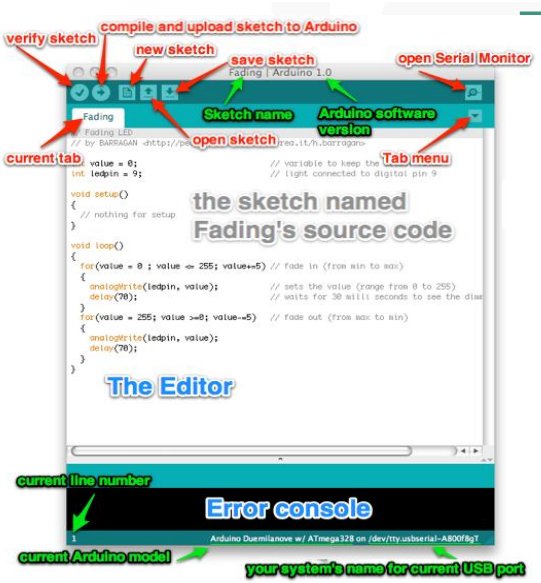
Arduino is a platform

- Also including an Integrated Development Environment (IDE) for programming
- The Arduino is programmed in C language.
- The language is very simple and provides many abstraction for simplicity of reading and writing powerful applications.
- It provides a serial monitor to see the serial data from the USB virtual COM port.
- Allows one click compiling, verification and burning of code onto the Arduino.

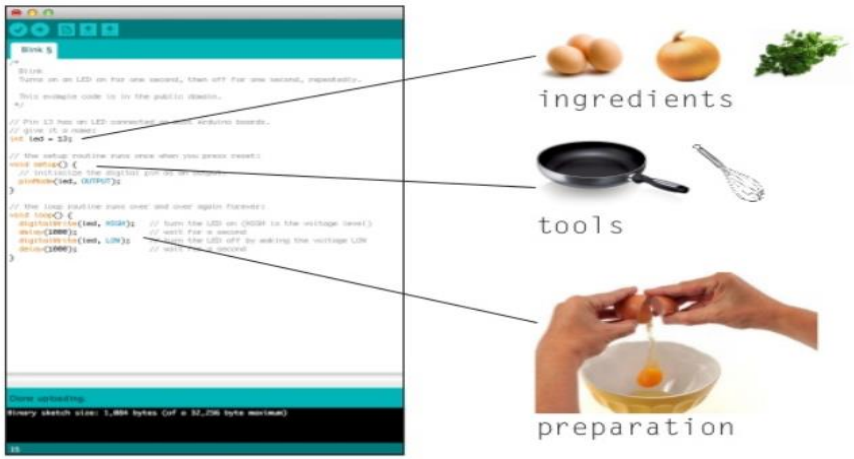


Arduino IDE

- Program used to code and upload it to arduino boards (using PC)
- Free download from: http://arduino.cc/en/Main/Software
- Editor (for code edit)
- Sketch (piece of program)



How code works



THE SIX PHASES OF PROJECT MANAGEMENT

- ✓ Initiation phase - **Idea**
- ✓ Definition phase – **What ?**
- ✓ Design phase – **How ?**
- ✓ Development phase – **How to implement ?**
- ✓ Implementation phase - **Implementation**
- ✓ Follow-up phase – **Maintenance**

PROJECT PROPOSAL SHOULD COVER FALLOWING AREAS

Introduction 01
Give brief introduction of the project with background

The Objective 02
What is your objective and there can be one objective, but you can have specific objectives

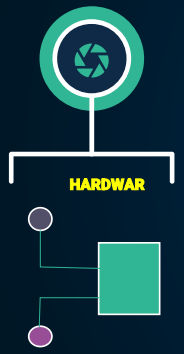
The Issues 03
What are the issues your going to address

Methodology 04
It should be with diagram of arctecher of your project

Results 05
Out come of the project

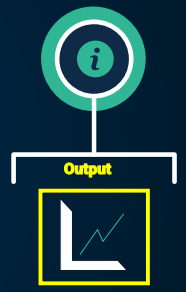
Conclusion 06
Conclude the project with benefits and feather works

GUIDELINE



Component needs Sensors/ Activators

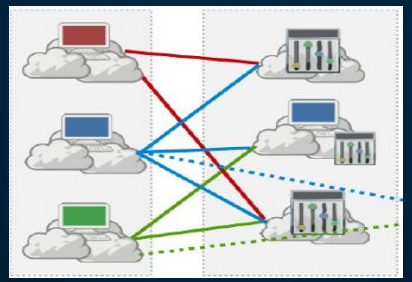
What are the programming language, Cloud hosting, any other development



What is your Output

IoT Technologies : Cloud (Sensing as-a-service Model)

Sensors



Sensor data publishers

Sensor Data Consumers

Project Ideas

- ✓ IoT Based Weather Reporting System
- ✓ Home Automation System
- ✓ Liquid Level Monitoring System
- ✓ IoT Based Air Pollution Monitoring System
- ✓ Smart Parking System
- ✓ IoT Based Health Monitoring System
- ✓ IoT Based Smart Water Irrigation System
- ✓ IoT Based Traffic Management System
- ✓ IoT Based Garbage Monitoring System
- ✓ Smart Anti-theft System
- ✓ IoT based Water Quality Management system
- ✓ IoT Based Fire Detection System