# INTERNET of THINGS

Internet of Things

- The Internet of Things (IoT) is the network of physical devices, vehicles, home appliances, and other items embedded with electronics, software, sensors, actuators, and connectivity which enables these things to connect and exchange data, creating opportunities for more direct integration of the physical world into computer-based systems, resulting in efficiency improvements, economic benefits, and reduced human exertions

That is what wikipedia and several other scholars say ..
But what is IoT in common terms ?

IoT Architecture
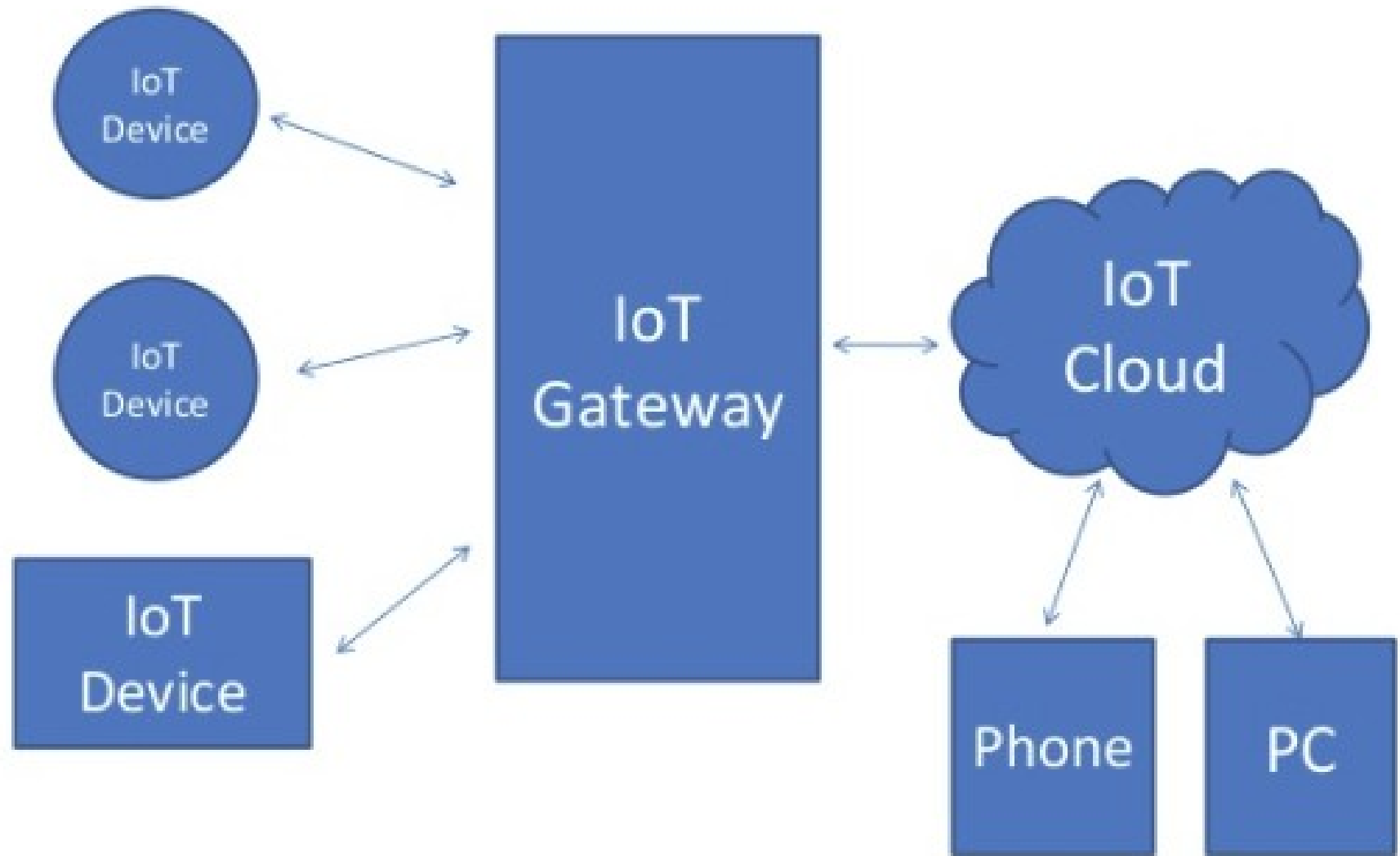
IoT Architecture
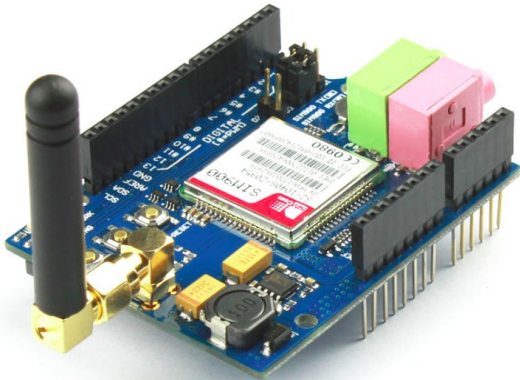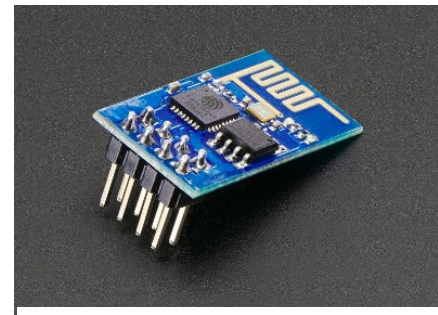
ThingSpeak

Firebase

adafruit

Is that the workflow ??
Do you think this is the objective of IoT

PURPOSE

- Purpose here is not only MONITORING

- More important aspect is the CONTROL part

- It is not enough to monitor. It is essential to control the device(s) . That is, decisions must be made and actions must be taken to ensure the smooth working of the system considered

Importance of other domains

- Machine Learning
- Communication systems
- Computer Vision
- Signal Processing
- Random Processes and Markov Chains
- Block Chain Technology

Major Areas

- ESP 8266 NodeMCU

- TUNIOT

- MIT App inventor

- TCP Socket programming

- Raspberry Pi

- Block Chain

- IFTTT vs Python

- Hackathons and Publications

Courses you may like

- Python Bootcamp
- Python A-Z

  - Udemy

- Esp 8266 NodeMCU – Adel Kassah

  -Youtube

THE CONCEPT OF IP ADDRESSES

View your basic network information and set up connections

CHRIS-LAPTOP   TELUS2410   Internet

Has a Private IP Address   **Has a Public IP Address**

Recollect : 1.1
- What is my IP ? (google)
- What is my local IP ? (android hotspot)

Recollect 1.2

- http://ai2.appinventor.mit.edu
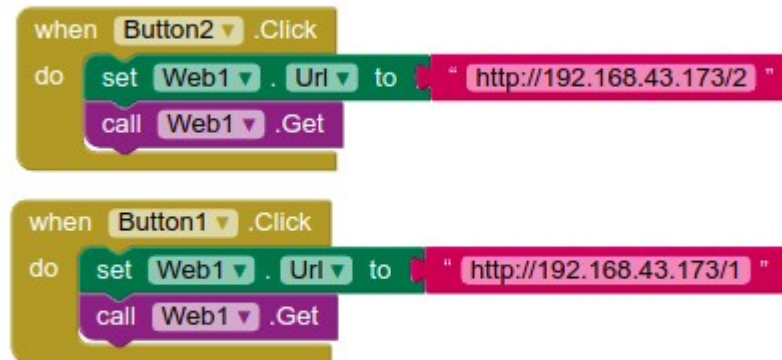
- Login using Google account

- Design the User Interface (UI Layout)

- Place the blocks as you need

- Remember to explore

- Once done, click Build ⟶ Save .apk to my computer

- Copy paste the .apk file on to your android mobile

- Install the app. If there is an error message,
  - Make sure your settings allows external apps to be installed

Exercise – 1.1

Design the app shown below as discussed in the class.
This exercise will be considered for your final validation.
User Interface can be as per your liking.
Functionality needs to be the same : Switch ON or OFF an LED

when Button2 .Click
do set Web1 . Url to " http://192.168.43.173/2 "
    call Web1 .Get

when Button1 .Click
do set Web1 . Url to " http://192.168.43.173/1 "
    call Web1 .Get

Remember to handle the IP address with care.

Exercise 1.2

1) What is a relay? Where is it used?

2) What is the difference between @Local IP and @Public IP