



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 1 – OVERVIEW OF INTERNET OF THINGS

TOPIC 1 –BASICS OF IoT



Module 1- Basics of IoT



- 1.1 Introduction to Internet of things
- 1.2 Various sensors and sensing techniques
- 1.3 Technological trends in IoT.
- 1.4 Impact of IoT on society.
- 1.5 IoT application -Agriculture
- 1.6 IoT application - Healthcare,
- 1.7 IoT application - Manufacturing and device management
- 1.8 IoT application - Vehicle to vehicle communication
- 1.9 IoT application - Wearable computing devices



1.1 - Introduction to IoT



Agenda

- Introduction
- History of IoT
- Definition of IoT
- How IoT Work
- Test your Knowledge



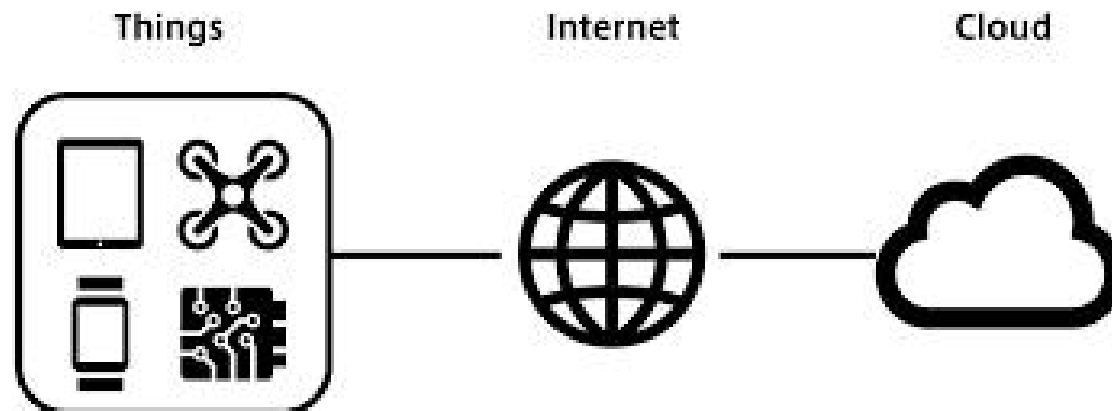
1.1 Introduction to Internet of things



1.1 Introduction to IoT



Internet of things is the **network of physical objects or things** embedded with electronics, software's, sensors and network connectivity, which enables these objects to **collect and exchange data**.





History of IoT



- 1999- The term "Internet of Things" was used by Kevin Ashton during his work at P&G which became widely accepted
- 2004 - The term was mentioned in famous publications like the Guardian, Boston Globe, and Scientific American
- 2005-UN's International Telecommunications Union (ITU) published its first report on this topic.
- 2008- The Internet of Things was born
- 2011- Gartner, the market research company, include "The Internet of Things" technology in their research



History of IoT



**"Machine to Machine" (M2M)
(~1970s +)**



Internet of Things Beginnings



**Carnegie Mellon Internet
Coke Machine (1982, 1990)**



**Internet Toaster
(1990)**



**Trojan Room Coffee
Pot
(first webcam)
(1991)**



IoT Definition



IoT is.... (According to EU)



A global network infrastructure, linking physical and virtual objects through the exploitation of data capture and communication capabilities

IoT is.... (According to ITU)



A global infrastructure for the information society, enabling advanced services by interconnecting (physical and virtual) things based on, existing and evolving, interoperable information and communication technologies

IoT is.... (According to IEEE)



A network of items each embedded with sensors which are connected to the Internet.



Defining IoT



- The Internet of Things allows objects to be sensed and controlled **remotely** across existing network infrastructure.
- The Ultimate goal of IoT is to ***“Automate Human Life”***

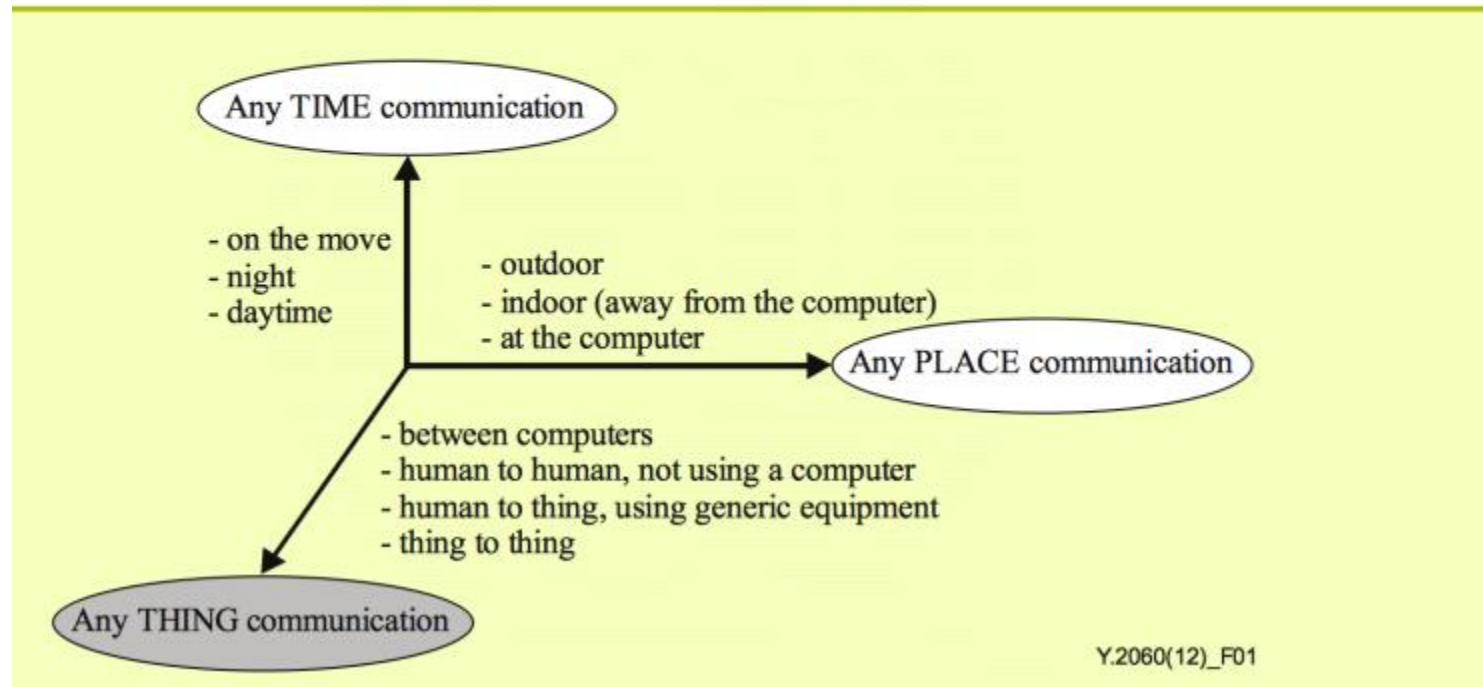




Defining IoT



Any-Time/Place/Thing



Animation



How IoT Works?



- The Internet of Things allows objects to be sensed and controlled **remotely** across existing network infrastructure.

- 1) Sensors/Devices
- 2) Connectivity
- 3) Data Processing
- 4) User Interface





How IoT Works?



1) Sensors/Devices

- Sensors or devices are a key component that helps you to collect live data from the surrounding environment.
- All this data may have various levels of complexities.
- It could be a simple temperature monitoring sensor, or it may be in the form of the video feed.





How IoT Works?



2) Connectivity

- All the collected data is sent to a cloud infrastructure.
- The sensors should be connected to the cloud using various mediums of communications.
- These communication mediums include mobile or satellite networks, Bluetooth, WI-FI, WAN, etc.





How IoT Works?



3) Data Processing

- Once that data is collected, and it gets to the cloud, the software performs processing on the gathered data.
- This process can be just checking the temperature, reading on devices like AC or heaters.
- However, it can sometimes also be very complex like identifying objects, using computer vision on video





How IoT Works?



4) User Interface

- Sensors or devices are a key component that helps you to collect live data from the surrounding environment.
- All this data may have various levels of complexities.
- It could be a simple temperature monitoring sensor, or it may be in the form of the video feed.





Test Your knowledge



1. How would you define the Internet of Things (IoT)?"
 - A) A network of computers
 - B) The interconnection of physical devices through the internet
 - C) Virtual reality technology
 - D) Cloud computing services

2. What is the primary purpose of sensors in IoT devices?"
 - A) To provide internet access
 - B) To collect data from the environment
 - C) To generate electricity
 - D) To enhance device aesthetics

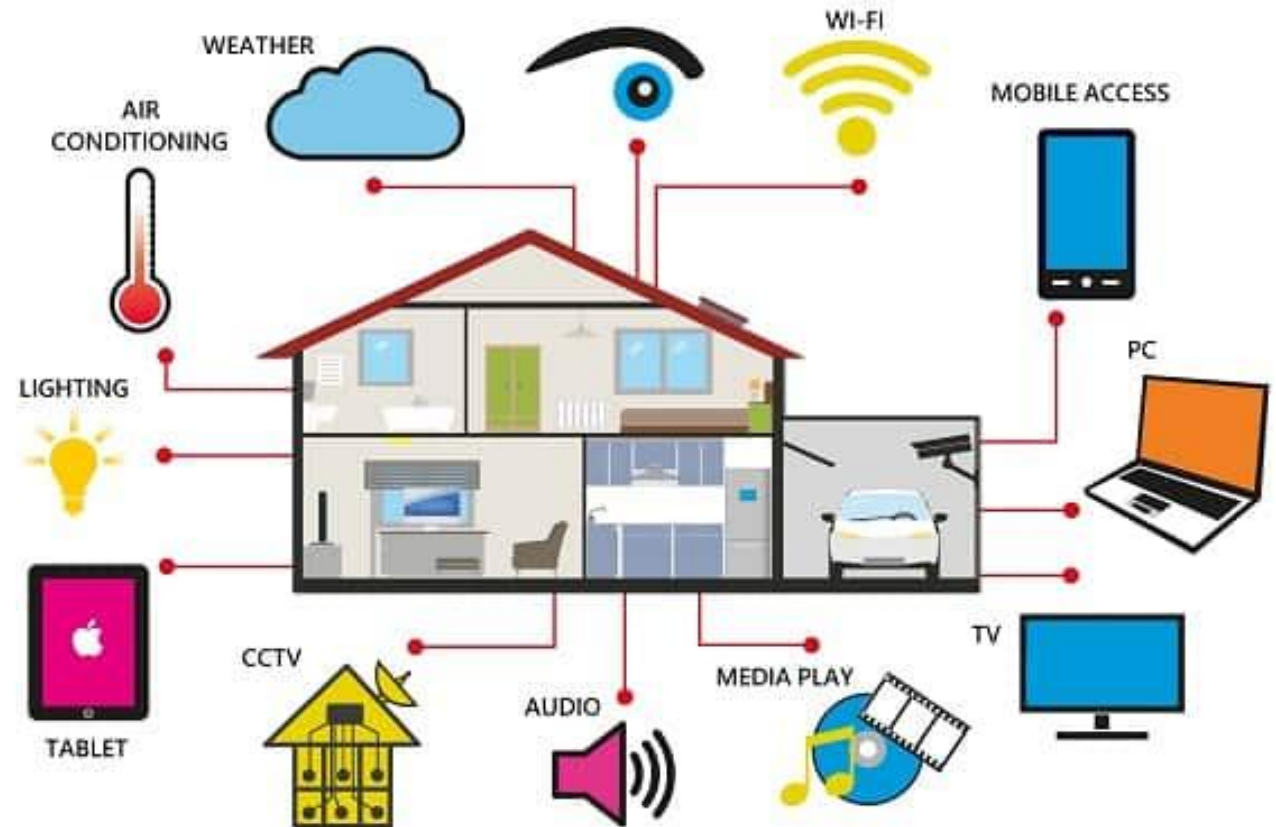




Story Telling- Home Automation



- Smart Door access control system
- Smart lighting for home and office
- Automated Gate and garage
- Smart thermostats & humidity controller





Story Telling- Smart Watch





Test Your knowledge



- Only high-tech devices can be part of the IoT. (True / False)
- Understanding IoT is crucial for future careers. (True / false)
- IoT devices are always secure from hacking. (True / False)



- Thank you