

Internet of things.

Internet :- The Internet is a vast network that connects computers all the over the world. Through the Internet, people can share information and communicate from anywhere with an Internet connection.

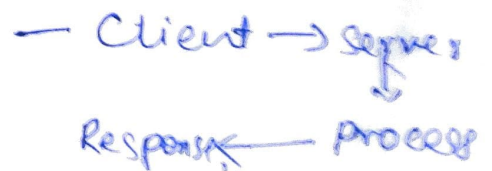
Things (IoT) :- Connected appliances

- Smart home security system
- Autonomous farming equipment
- Wearable health monitors.
- Smart factory equipment

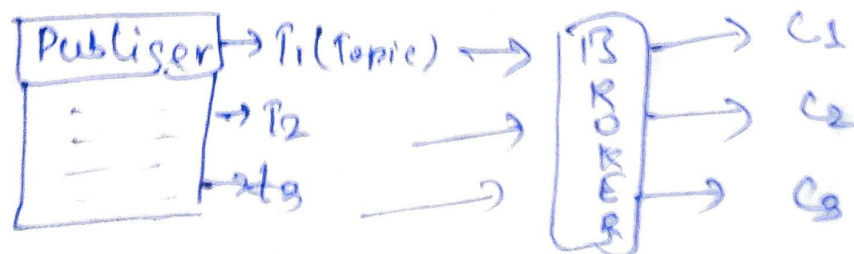
IOT : — The internet of things is a system of interrelated devices, mechanical and digital machines, that have ability to transfer data over a network without requiring human-to human or human to computer interaction.

Communication model

1. Request & Response model.



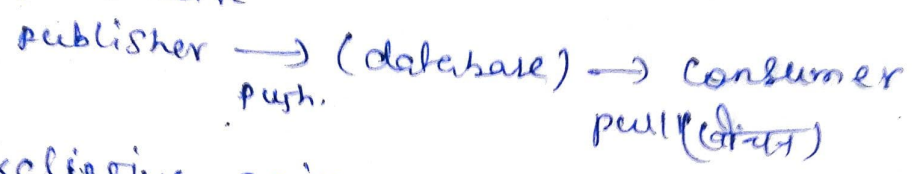
2. Publishers Subscriber model.



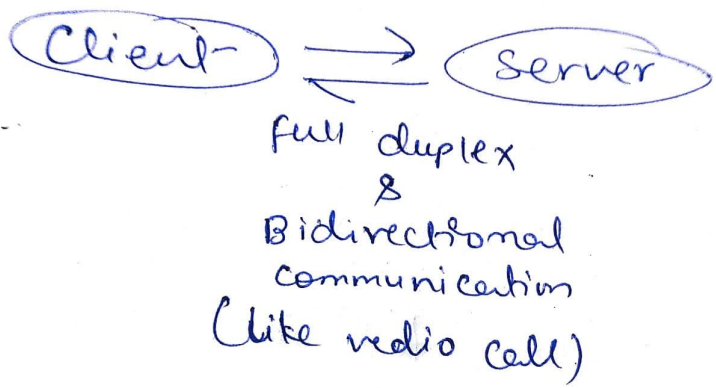
like - website.

3. Push-pull model

↓
like website



4. Exclusive pair



Characteristics of IOT :-

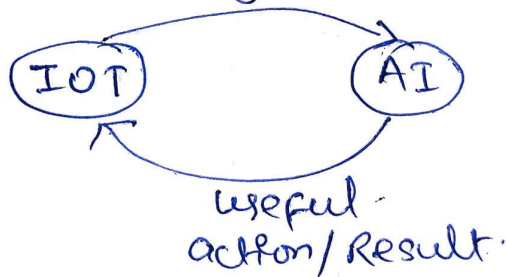
- ① Unique Identity. [Like mobile number]
- ② Dynamic Nature
- ③ Self-adapting [servitance camera - auto mode]
- ④ Self-configuring [
- ⑤ Heterogeneity [maintain different protocol]
- ⑥ Integrated to Information Network. [Like weather Software]

Benefits of IOT.

- ① Efficient Resourcis utilization
- ② Save times
- ③ Human efforts & errors.
- ④ Security
- ⑤ User friendly/ Easy to use.

future of IOT.

- ① AI & IOT [using sensors and data]



- ② VUI (voice user Interface) [Like Alexa]
- ③ Miniaturization of "things" [means make small devices]
- ④ Power [less power use]
- ⑤ Big data & IOT [dealing data]

REST

Representational State Transfer.

1. Stateless
2. Request-Response communication model.
3. Each ~~model~~ request involves setting up a new TCP connection.
4. Header overhead.
5. Not suitable for RTA (Real time Application)

Web socket

1. Statefull, (like-cookies)
2. Full duplex.
3. Single TCP connection.
4. No Header overhead
5. Suitable for RTA

IOT Security problems.

1. DOS (Denial of service)
2. DDOS (Distributed DOS)
3. Unauthorized Access
4. Information manipulation
5. Information Disclosure.

[Like server Down]

Key element of IOT Security

1. Authentication
2. Access Control. [Like whatsapp Administrator]
3. Data Security. [Like whatsapp]
4. Non-Repudiation.
5. Availability

Application of IOT

1. ~~Smart~~ Smart City [Like Smart Dustbin]
2. Health Care. [
3. Education [Like attendance auto punching]
4. Agriculture [Like cooler maintaner]
5. Smart Home. [Like auto fan, bulb, Ac. etc]
6. Vehicle Industry. [Like helmet compulsory]

Sensing

- Analog
- Digital
- Scalar
- Vector.

Actuation.

- Hydraulic [Like car hydrolic]
- Pneumatic [Like truck break]
- Electrical
- Thermal magnetic
- mechanical