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Sem - 8 Sem
Sub - IOT(CS-801)
RN - 0501CS171025

Q.① —
(A)

Ans- **Internet of Things (IOT) —**

The IOT, or IOT, is a system of interrelated computing Devices, mechanical and Digital machines, object, animals or people that are provided with unique identifiers (UIDs) and the ability to transfer data over a network requiring human to human or human to computer interaction.

characteristics of IOT —

There are many Type of characteristics of IOT

① **Intelligence** — IOT comes with the combination of Algo and computation, software, hardware that makes it smart. Ambient intelligence in IOT enhances its capabilities which facilitate the things to respond in an intelligence way to particular situation and support them in carrying out specific tasks.

② Connectivity – Connectivity empowers internet of things by bringing together everyday objects.

③ Dynamic Nature – The primary activity of internet of things is to collect Data from its environment, this is achieved with the dynamic changes that take place around the Devices.

④ Sensing – IOT would't be possible without sensors which will Detect or measure any changes in the environment to generate Data.

⑤ Security – IOT Devices are naturally vulnerable to security threats. As we gain efficiences, moral experience and other benefits from the IOT.

Applications of IOT –

1. Smart Home
2. Connected cars.
3. Smart Retail
4. IOT in Healthcare
5. industial Internet.

(1) Smart Home — Smart Home is the most searched to associated feature on google But what is a smart home. Smart Home has become the revolutionary ladder of succes in the residential spaces.

(2) connected cars — A connected car is a vihicle which is able to optimize it's own operation. maintances as well as comfort of passengers. using onbord sensors and internet connectivity.

(3) Smart Retail — The potential of IOT in the sector in enormous. IOT provides an opportunity to retailers to connect with the customer to enhance the in store experiences.

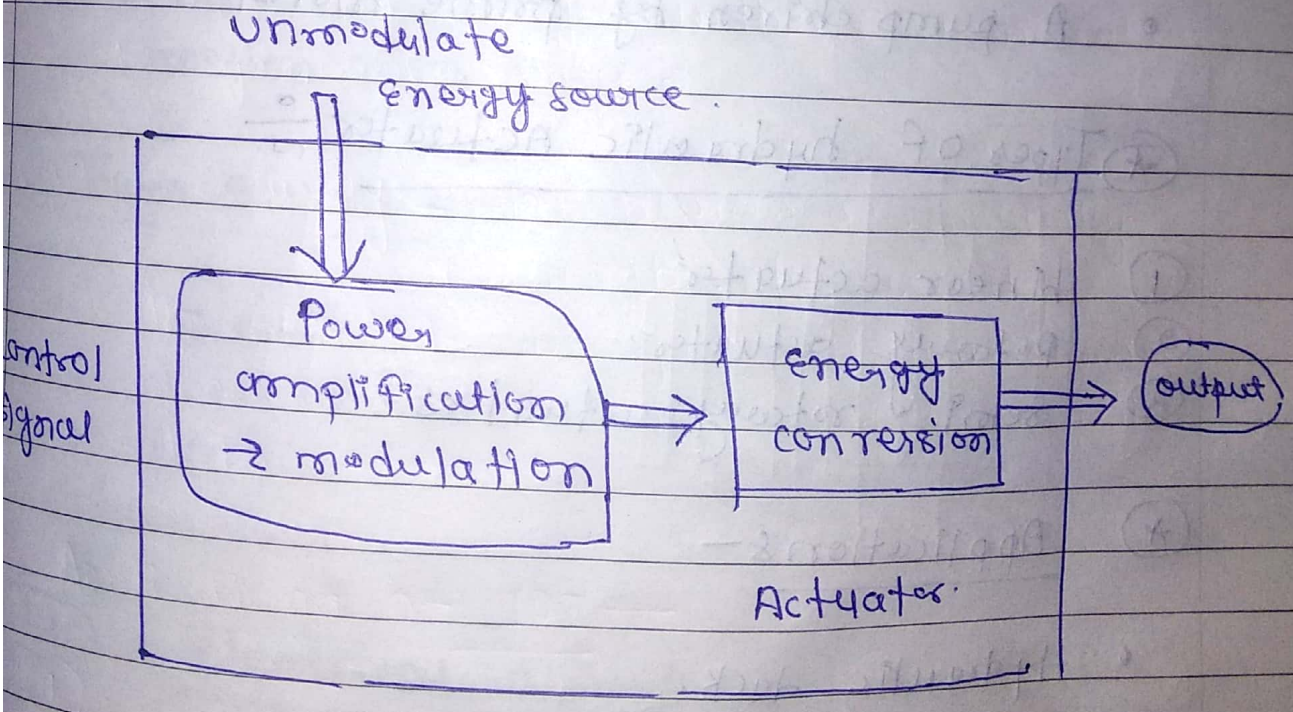
(4). IOT in Healthcare —

conneted healthcare yet remains the sleeping giant of the Internet of things applications

(3)

Ans- Actuator →

- Actuators are Devices used to produce action or motion.
- Input (mainly electrical signal, air, fluids)
- Electrical signal can be low power or high power.
- Actuation can be from few microns to few meters.



Actuator function Diagram

Types of actuators :-

1. Hydraulic actuator
2. Pneumatic actuator
3. Mechanical actuator
4. Electrical actuator

(1) Hydraulic Actuator -

- Hydraulic Systems are used to control & transmit power.
- A pump driven by prime mover.

(*) Types of hydraulic Actuator :-

1. linear actuator
2. Rotary actuator.
3. Semi rotary actuators

(*) Applications -

- Hydraulic jack.
- Hydraulic brake.
- Hydraulic ram.

(2) Pneumatic actuator—

- It convert energy formed by compressed air at high pressure into either linear or rotary motion.

- Quickly respond in operation.

(3) Mechanical actuator—

- Mechanical linear actuators typically operate by conversion of rotary motion into linear motion.

Types of mechanics—

→ Screw
→ wheel and axle
→ Cam

(4) Electrical actuator—

→ Electrically actuated system are very widely used in control system.

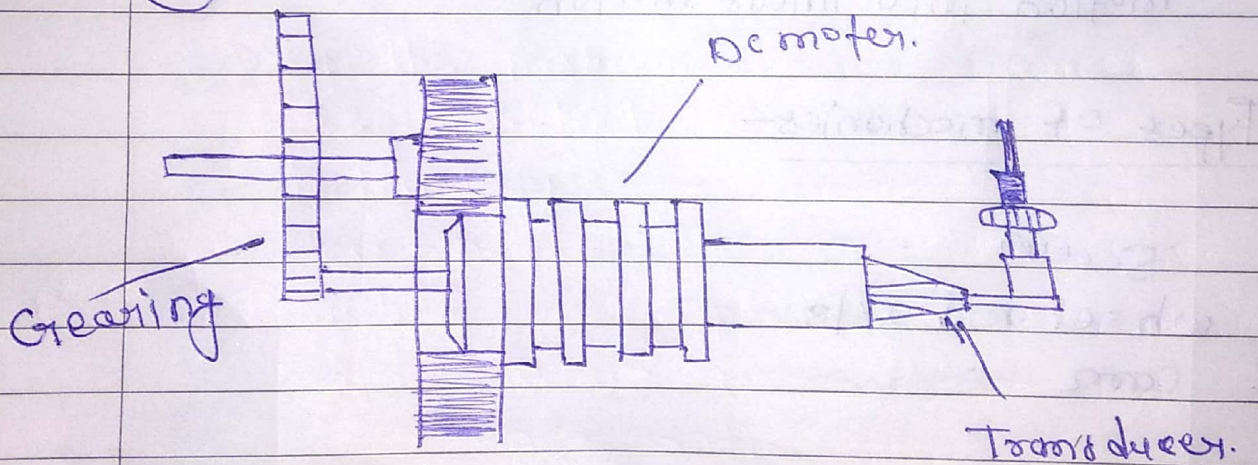
working principle of motor –

Every motor works on the principle that when a currently-carrying conductor is placed in a magnetic field. it experiences a mechanical force.

→ There are three types of motor used in control system.

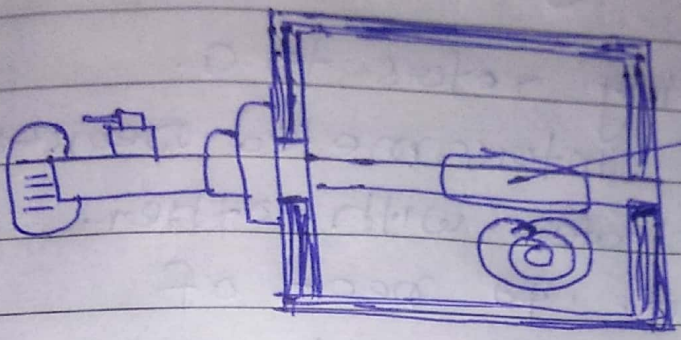
- D.C. motor.
- AC motor
- Stepper motor

(1)



DC motor

(2) AC motor-



(3) Stepper motor-

A stepper motor is an electromechanical device which converts electrical pulses into discreate mechanical movements.

→ Permanent megnet type

→ variable reductance type

→ Hybrid type.

Q(1)
(B)

Ans - (*) IOT networking -

An IOT networking refers to a collection of interconnected devices that communicates with other devices without the need of human interment such as autonomous cars, smart application and wearable technology comes under networking.

(*) Connectivity Technology -

over the past years IOT devices have involved from test-bed Technology for futuric from test-bed use cases to a core enable of operation improvements and product enhancement and customer satisfaction.

(*) Technical Requirements -

coverage, energy, Efficiency, Data rate other features relevent to specify application.

(A) Commercial Requirement-

Tco, reliability, security, scalability

(A) Eco System requirments-

- future - proofness, global reach and interoperability

No single techology is ideally suited to seare all potential IOT are cases.