Module 1

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Contents

1 IOT

1.1 How IOT Works?

1. Sensors
   - Collecting data
2. Connectivity
   - Sending data to the cloud

3. Data Processing
    - Making the Data Useful
4. User interface
    - Delivering the information to the user

1.2 Definition of IOT

"IOT is an umbrella term that refers to the billions of physical devices connected to the internet, all collecting and exchanging data with one another."

1.3 Types of IOT

- Consumer IOT
    - IOT for everyday use
- Commercial IOT
    - Healthcare and Transport industries
- IoMT (Military)
    - Used in the Military field
- IIoT (Industrial)
    - Manufacturing and Energy sectors
- Infrastructure IoT
    - Connectivity in smart cities

1.4 Why is IOT Important

1. Generates new Business Models
2. Data driven business decisions from IoT data
3. Increase productivity and efficiency
4. Enhances customer experience

1.5 Examples of IOT Devices

- Home Security
- Activity Trackers
- Home appliances

1.5.1 Popular IoT Devices

- Google Home voice controller
- Amazon Echo
- August Doorbell cams
- Foobot (Air Quality checker)

1.6 Characteristics and Architecture of IOT Devices

1.6.1 Connectivity

1.6.2 Intelligence and identity

1.6.3 Scalability

- They should be able to connect to multiple devices

1.6.4 Self-Adjusting

1.6.5 Architecture

- IoT Devices should support devices from different manufacturers and their protocols

1.6.6 Safety

- Securing User Information from threats

1.6.7 Self Configuring

- Automatically updating their software, connecting to devices, etc

1.7 4-stage Architecture of IoT

(Bottom to top)

1. Sensing layer
2. Network Layer
3. Data Processing Layer
4. Application Layer