



SNS COLLEGE OF TECHNOLOGY

Coimbatore-35
An Autonomous Institution



Accredited by NBA – AICTE and Accredited by NAAC – UGC with 'A++' Grade(Cycle III)
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

SMART IOT APPLICATIONS

III YEAR/ V SEMESTER

1

UNIT 3 -BASIC APPLICATIONS

TOPIC-1 -OVERVIEW OF IOT AND ITS SIGNIFICANCE



INTRODUCTION TO IOT



What is IoT?

- **Definition:** IoT is a network of physical objects embedded with sensors, software, and other technologies to connect and exchange data with other devices and systems over the internet.
- **Basic Concept:** Connecting devices via the internet to collect and exchange data.
- **Examples:** Smart home devices, wearable tech, smart appliances.



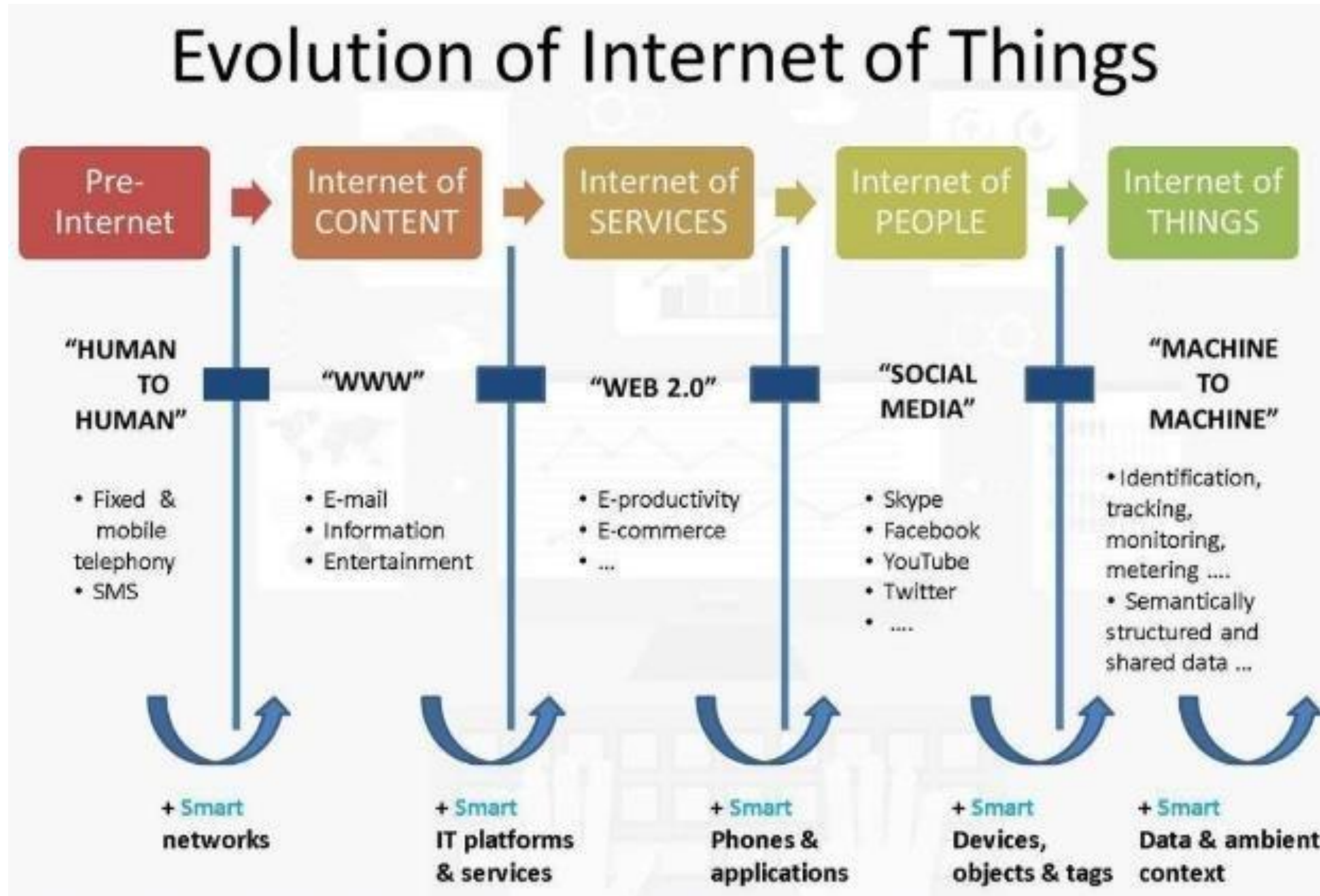
INTRODUCTION TO IOT



Smart Home



EVOLUTION OF IOT





COMPONENTS OF IOT



Key Components of IoT

- **Sensors and Actuators:** Collect and act on data.
- **Connectivity:** Wi-Fi, Bluetooth, Cellular.
- **Data Processing and Analytics:** Analyze collected data.
- **User Interface:** Mobile apps, web dashboards for user interaction.



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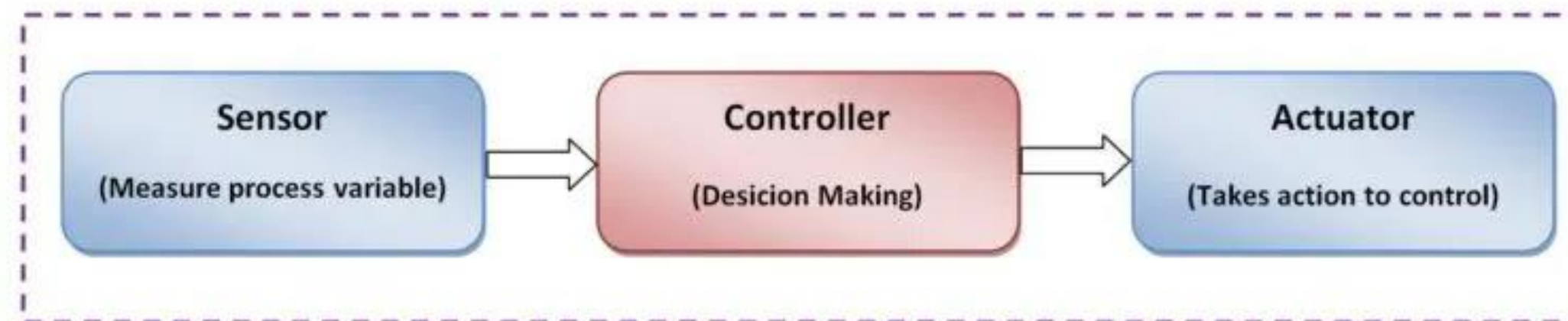


Figure- Sensor and actuator in a system



HOW IOT WORKS

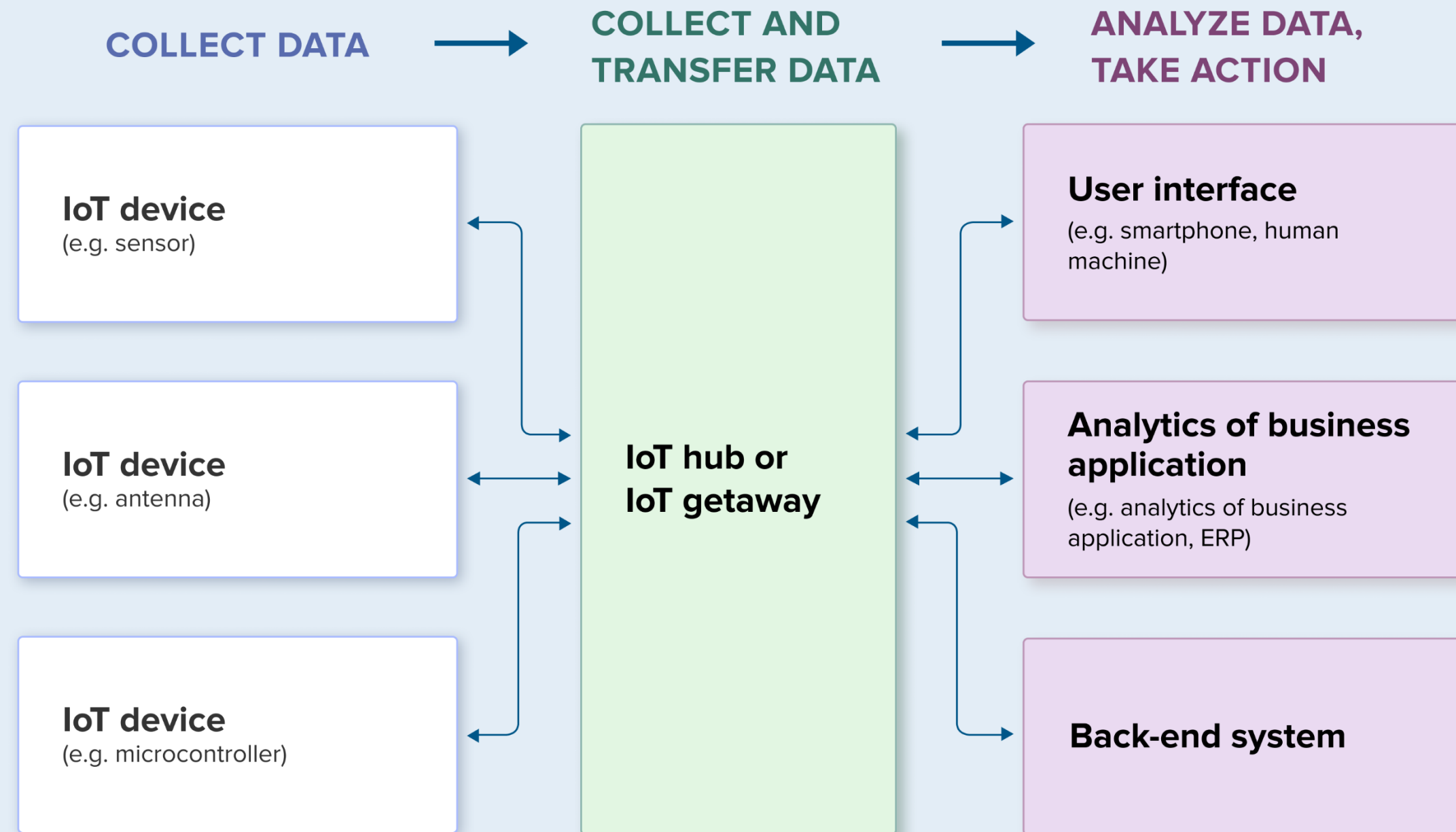


How IoT Works

- **Data Collection:** Sensors gather data from the environment.
- **Transmission:** Data is sent to the cloud via connectivity solutions.
- **Processing:** Data is processed and analyzed in the cloud.
- **Action:** Commands are sent back to devices based on data analysis.



Example of an IoT system



Reference: https://uploads-ssl.webflow.com/5ca1e52b062058be53febb8/60be33f8a5fb6bb60ac3d28e_Desktop%20-%202033.png



IOT ARCHITECTURE



- ❖ **Device Layer:** Physical devices and sensors.
- ❖ **Communication Layer:** Connectivity methods.
- ❖ **Data Processing Layer:** Cloud computing, data analytics.
- ❖ **Application Layer:** User applications and interfaces.



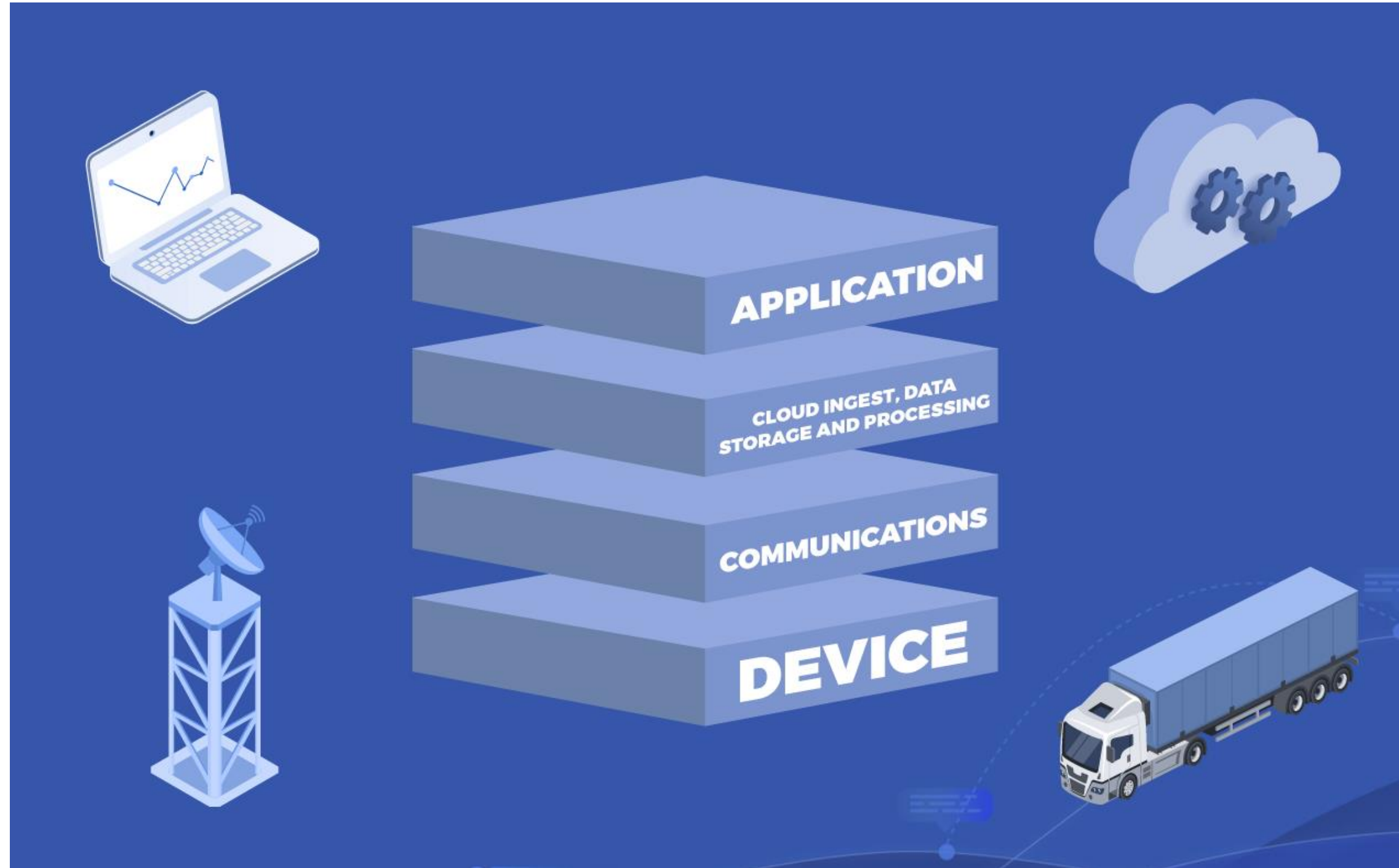
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IOT ARCHITECTURE



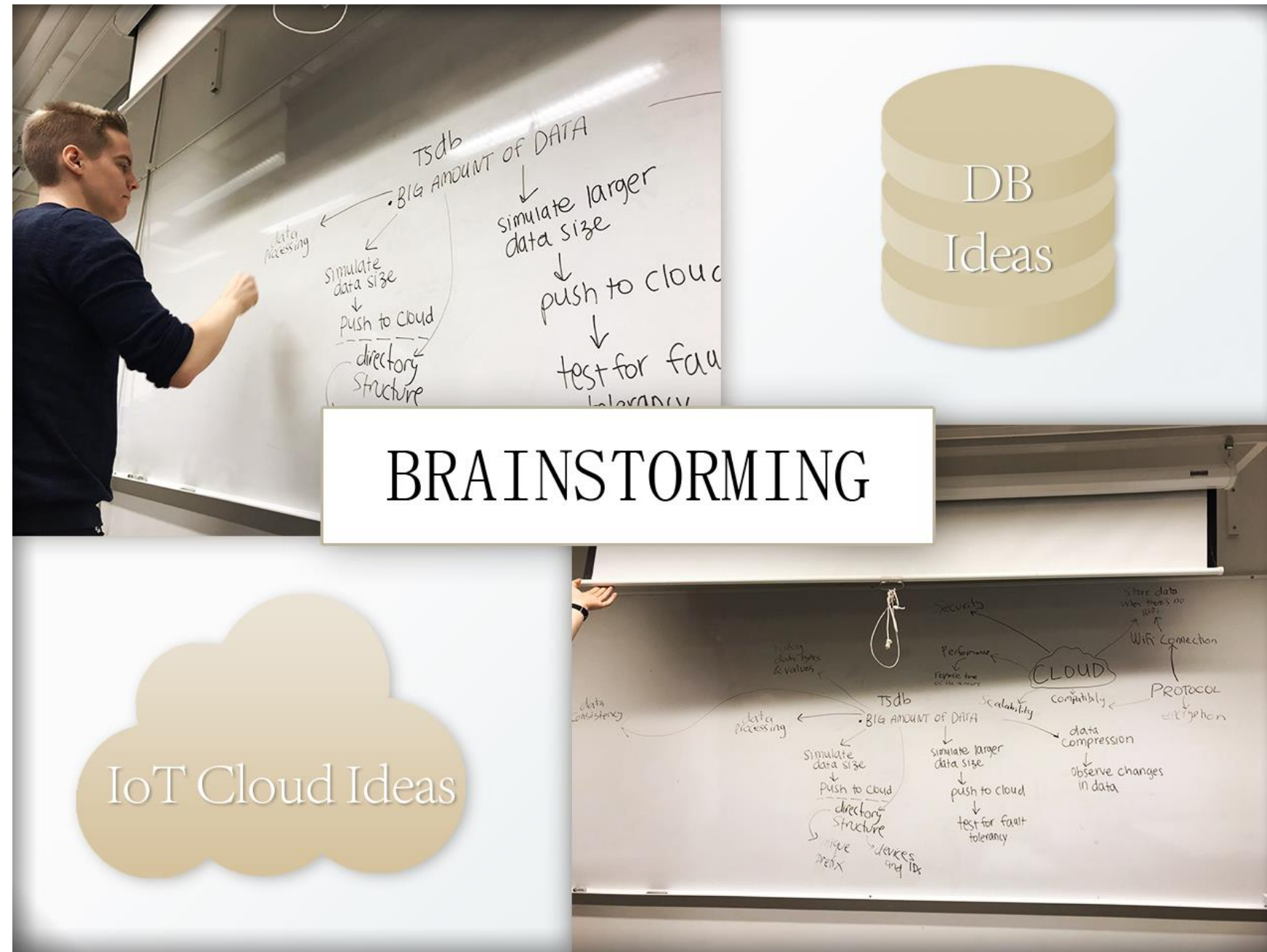
Reference : <https://www.zipitwireless.com/hubfs/4%20Layers%20of%20IoT%20Architecture.png>



ACTIVITY



Interactive IoT Brainstorm and Design





IOT APPLICATIONS IN DAILY LIFE



- ❖ **IoT Applications in Daily Life**
Smart Homes: Automated lighting, security systems, smart thermostats.
- ❖ **Wearable Devices:** Fitness trackers, smartwatches.
- ❖ **Smart Cities:** Traffic management, smart parking, waste management.



INDUSTRIAL IOT APPLICATIONS



- ❖ **Agriculture:** Smart farming, livestock monitoring.
- ❖ **Manufacturing:** Predictive maintenance, automation.
- ❖ **Healthcare:** Remote patient monitoring, smart medical devices.



Reference: <https://techieloops.com/wp-content/uploads/2021/09/farm-automation-systems.jpg>



BENEFITS OF IOT



- ❖ **Improved Efficiency:** Automation and optimized operations.
- ❖ **Enhanced Customer Experience:** Personalized services.
- ❖ **Cost Savings:** Reduced operational costs.
- ❖ **Better Decision-Making:** Data-driven insights.



CHALLENGES IN IOT



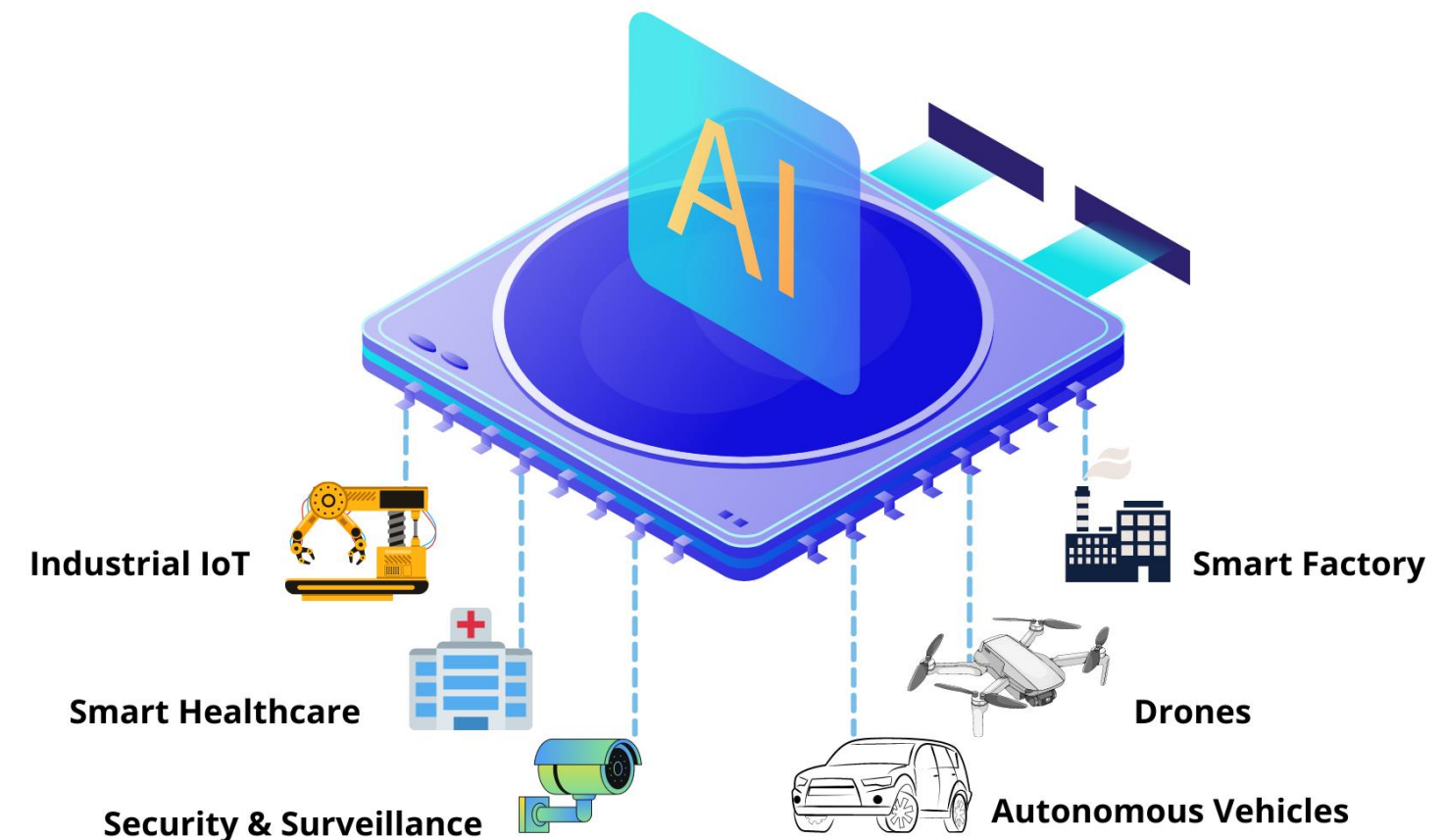
- ❖ **Security and Privacy:** Protecting data and devices.
- ❖ **Data Management:** Handling large volumes of data.
- ❖ **Interoperability:** Ensuring devices work together seamlessly.
- ❖ **Initial Costs:** High setup and deployment costs.



FUTURE OF IOT



- **Growth Projections:** Increasing number of connected devices.
- **Emerging Technologies:** 5G, AI, edge computing.
- **Industry Impact:** Potential to revolutionize multiple sectors.



https://sp-ao.shortpixel.ai/client/to_webp,q_glossy,ret_img,w_1920,h_1080/https://contenteratechspace.com/wp-content/uploads/2023/03/edge-ai.png



ASSESSMENT



- 1.What is IOT**
- 2.List applications of IOT**
- 3.What is future of IOT**
- 4.Explain IOT architecture**



THANK YOU