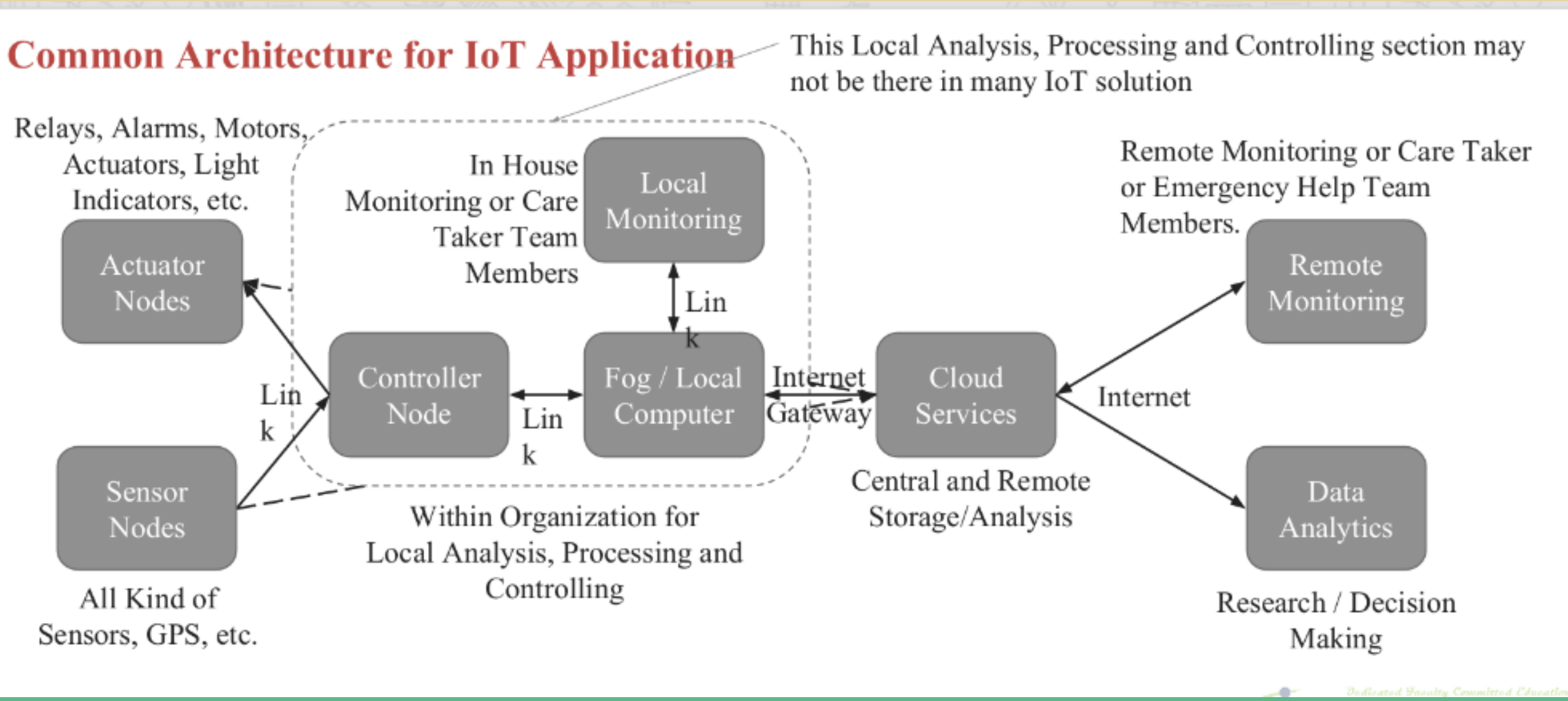
Applications of IoT

Unit - V

Topics to be covered

- Generic Architecture of Components in an IoT Application
- Smart Home Automation
- Agricultural System
- Smart Parking

Generic Components Architecture



Generic Components Architecture

How Its Work.

- All the sensor and actuator nodes should be placed at appropriate place and connected properly with controller nodes or direct to the cloud server .
- The sensor nodes sends the sensed data to the controller nodes or directly to the cloud server.
- The controller node apply business logic on sensed data as per requirements of application and send the result of it to local computer or to the cloud server.
- The controller node should connect with Local computer/Fog Computer or directly connect with cloud server via internet.

Generic Components Architecture

- Fog or local computer perform following task on collected data.
  - Execute some business logic and Do analysis
  - Send the filtered limited data to the cloud computer as well as
  - Send the alert messages to the local team.
- We can also use cloud server data for remote monitoring as well as for research purpose.
- All the in Local Monitoring team members can access status of all the sensors from the Fog/Local computer.
- The cloud Stores all the data received from the Fog/Local computer or directly from the sensors and Execute some business logic for analysis.
- All those who have rights to access the cloud data can get desire information from it.

Healthcare Application with IoT

Overview

- The healthcare sector consists of medical and related goods and services.
- Healthcare sector provides medical services for maintaining or improving many health areas like
  - Prevention
  - Diagnosis
  - Treatment
  - Recovery or cure of disease, illness, injury, and other physical and mental harms in people.

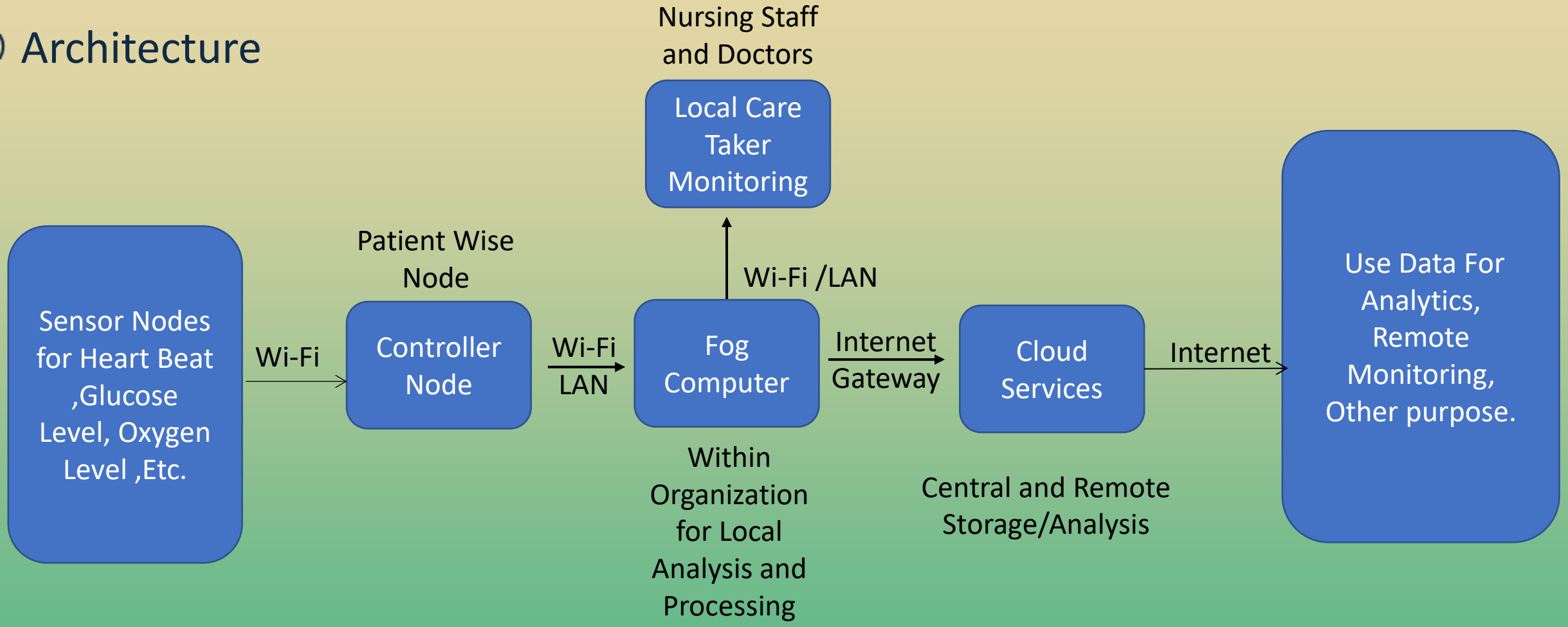
Healthcare Application with IoT

Importance

- Before Internet of Things, patients' interactions with doctors were limited to visits and maintain on record on paper so it is not available at remote location if needed.
- In some measure daises we need to monitor patients' health continuously but it is not possible or very difficult to using this method.
- IoT enabled devices have made remote monitoring as well as monitor patients' health continuously as per need in the healthcare sector possible.
- IoT helps
  - To keep patients safe and healthy,
  - Empowering physicians to deliver superlative care.

Healthcare Application with IoT

Architecture



Healthcare Application with IoT

How it works

- All the sensor nodes should be placed on patient body, either direct or using wearable.
- The sensor nodes should have Wi-Fi connectivity with a controller node of the patient.
- The sensor nodes sends the sensed data to the controller node.
- The controller node collects
  - The data from all the sensors,
  - Apply some business logic on it as per the requirements and
  - Send it to Fog computer.
- All the controller nodes of all the patients should have connected with the Fog computer network.

Healthcare Application with IoT

How it works

- Fog computer
  - Execute some business logic and do analysis.
  - Send the filtered limited data to the cloud computer as well as
  - Send the alert messages to the care taker team.
- The Fog computer should have Internet connectivity for the cloud communication.
- All the local care taker team members can be accessed health status of all the patients from the Fog computer.

Healthcare Application with IoT

- The cloud
  - Stores all the data received and execute some business logic if required for analysis.
- All those who have rights to access the cloud data can get health records of the patients,.
- The care taker and data analytics teams may execute corrective action based on the data and alert messages.