SIT314/SIT729 – Week 6 Group Activity  
Designing IoT Applications based on the simplified IoT Architecture

short line

# Overview

# In this task, we will think about different applications in the context of the Simplified IoT Architecture discussed this week.

# A diagram of a security system AI-generated content may be incorrect.

# Tasks

For each of the following, what functionality and what technology needs to be at the i. Things Layer, ii. Communications layer, and iii. Applications layer.

1. A room temperature sensor for the room you are in.

Things: Digital temperature sensor (e.g., DHT22)

Communications: Wi-Fi / Zigbee / BLE

Applications: Smart home dashboard, building automation system

1. The status of a self-driving car.

Things: Onboard sensors (GPS, LiDAR, radar, camera)

Communications: 5G / V2X / DSRC

Applications: Real-time navigation platform, traffic management system

1. The location of a person.

Things:

|  |
| --- |
|  |

|  |
| --- |
| Smartphone GPS, wearable tracker |

Communications: Cellular (4G/5G), BLE

Applications: Location tracking app, emergency response system

1. A weather update for a location.

Things: Weather station sensors (humidity, pressure, wind speed)

Communications: LoRaWAN / NB-IoT

Applications: Weather forecast app, public weather dashboard

1. The status of a smart vacuum cleaner.

Things: Internal sensors (IR, gyroscope, dirt sensor)

Communications: Wi-Fi / Zigbee

Applications: Mobile control app, cloud-based vacuum analytics

1. A TV program change request for a TV.

Things:

|  |
| --- |
| Smart TV IR or API control module |

|  |
| --- |
|  |

Communications: Wi-Fi / Bluetooth

Applications: Streaming control app, voice assistant service

1. The request message to set an air-conditioning setting.

Things: Smart thermostat or IR blaster

Communications: Wi-Fi / Zigbee / BLE

Applications: Home automation system, energy efficiency dashboard