INTERNET OF THINGS

Gontina tejaswi naidu

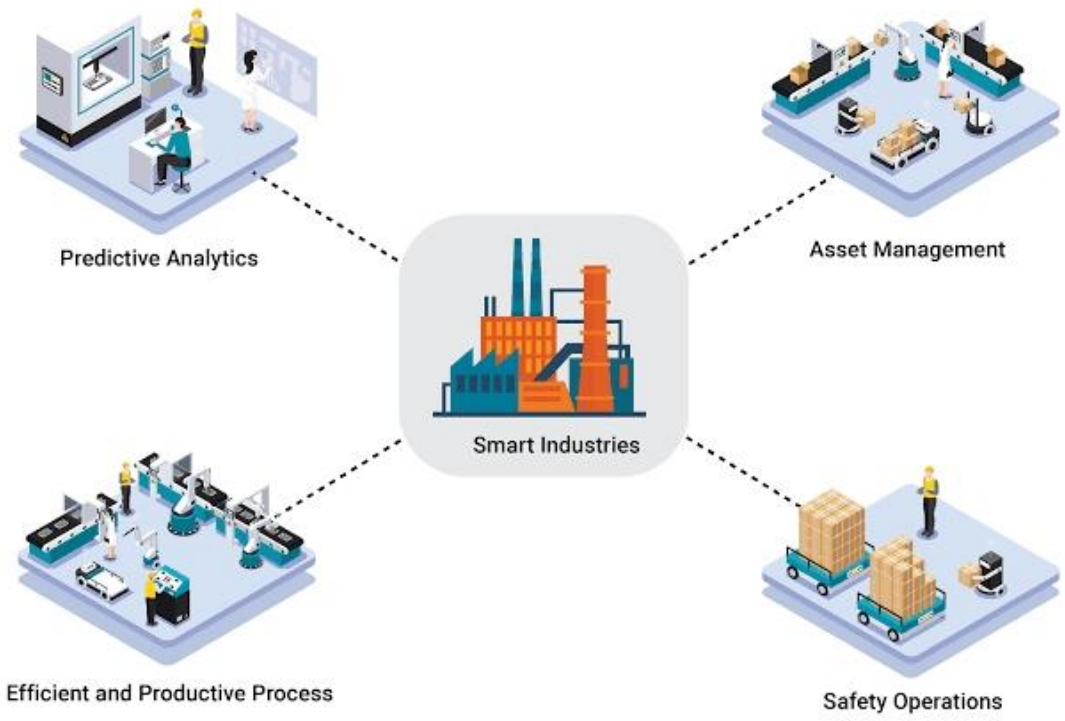
Tejaswi.19bes7001@vitap.ac.in

ASSIGNMENT-1

List out 20 use cases of Internet of things?

1)Smart Factories

Enterprise Asset management



Businesses collect real-time data from an asset with IoT sensors.

2) Smart Cities: The COVID-19 pandemic is slowing down spending, however, governments across the globe continue to use IoT technologies and solutions to improve citizen safety.

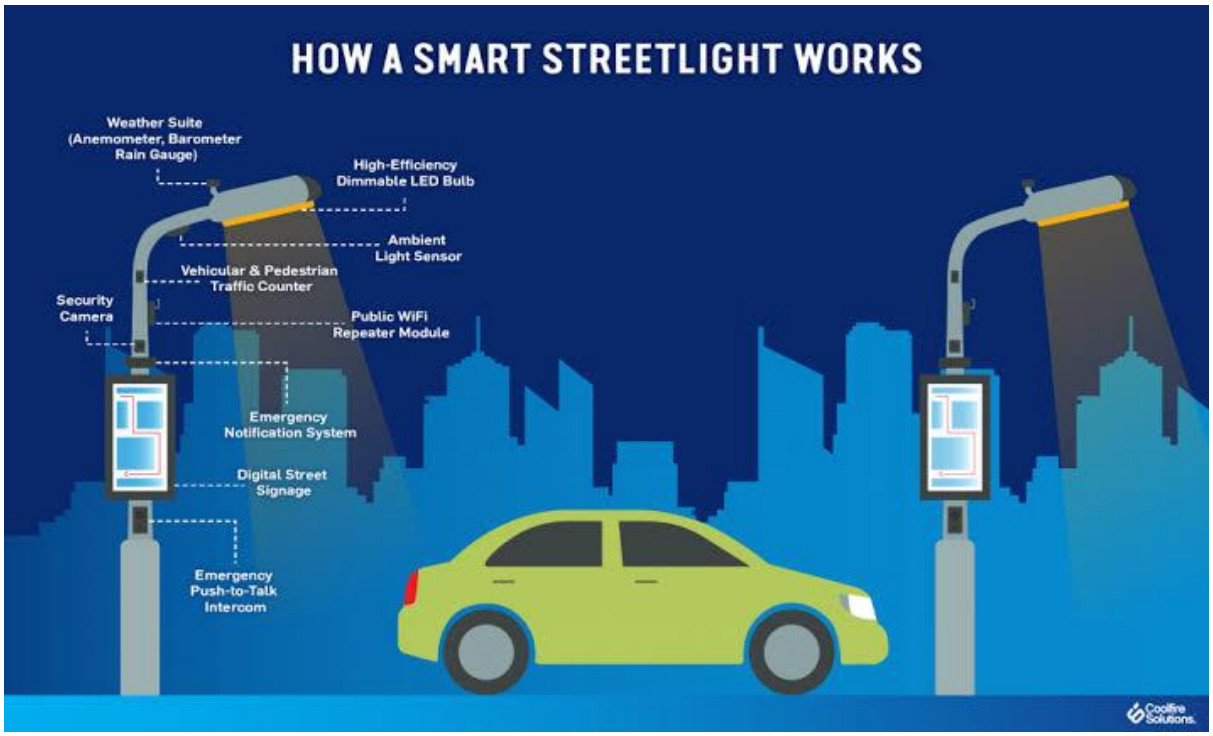
Table 1. Top 5 Government IoT Endpoint Electronics and Communications Revenue by Use Cases, 2019-2021 (Billions of U.S. Dollars)

Use Case	2019	2020	2021
Outdoor Surveillance	6.2	6.7	7.6
Road Toll and Traffic Management	1.9	1.6	2.0
Street and Outdoor Lighting	2.0	1.7	1.9
City Asset Tracking	1.4	1.6	2.0
Police Evidence Gathering	0.6	0.9	1.3
Others	1.9	2.1	2.5
Total Market	**13.9**	**14.7**	**17.4**

3) Outdoor surveillance

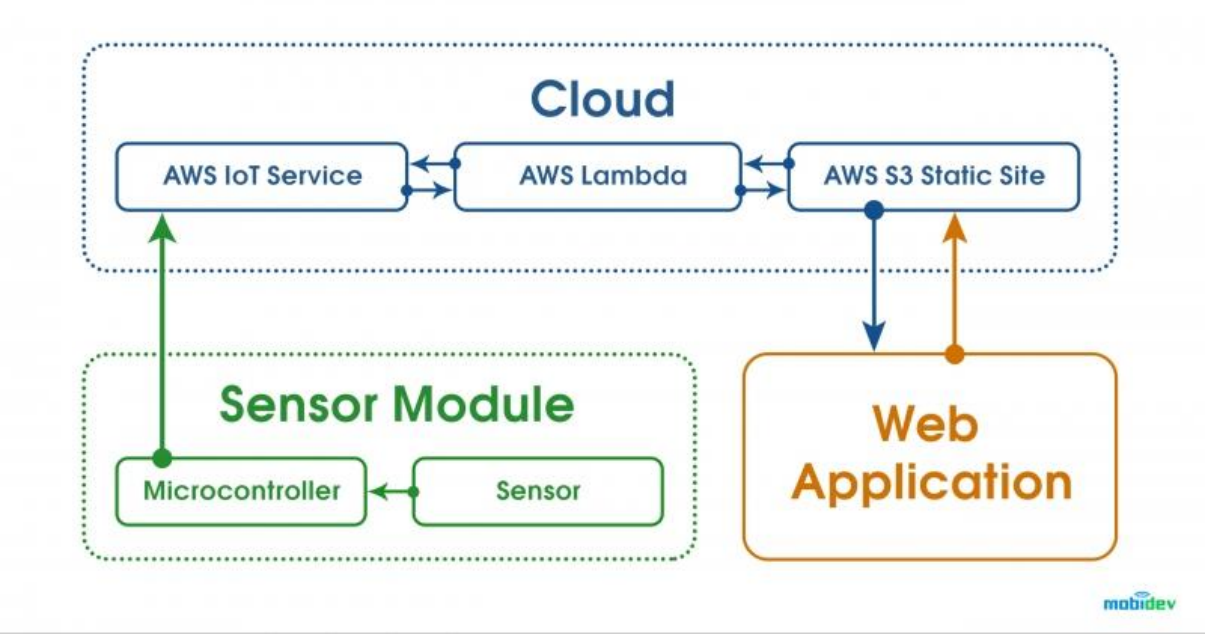
When IoT CCTV cameras combined with artificial intelligence and machine vision, governments can automate surveillance of streets through cameras.

4)Smart lighting: Smart lighting is made up of street lighting with IoT sensors. Sensors collect data about the condition of traffic and pedestrians. With that data, street lights provide optimum lighting so that street lighting systems can save up to 80% of the energy.



4) Smart parking: Working principle of smart parking is:

- Sensors are attached to parking lots to detect parked cars
- Measurements are periodically sent to the cloud by microcontrollers
- Mobile Apps use cloud data to identify empty parking spaces,
- Drivers check mobile apps to identify vacant parking spaces close to the location they aim to go to.



5) Leakage Management

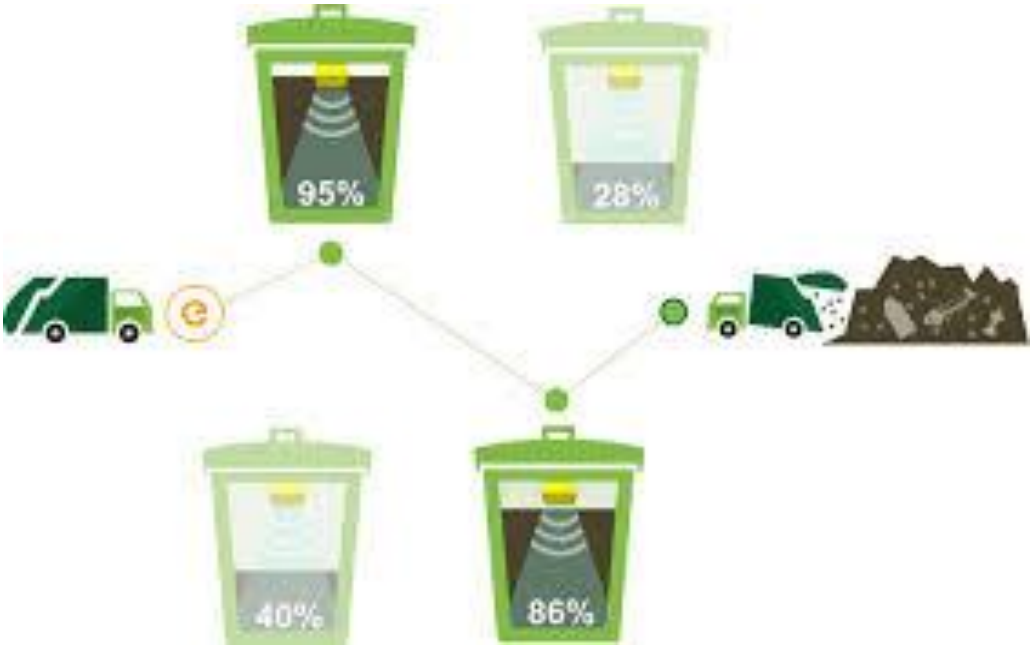
IoT sensors can detect temperature changes, water leakage, chemical leakage, and pressure level in water tanks.

6) Medical Fridges

Efento is an IoT sensor and IoT platform vendor that has a variety of temperature measurement products along with wireless monitoring of temperature in medical refrigerators.

7) Waste Management

IoT sensors can monitor fill levels for conventional bins and send the data to the relevant department of the city hall. With that information, the garbage truck routes can be optimized for trash collection.

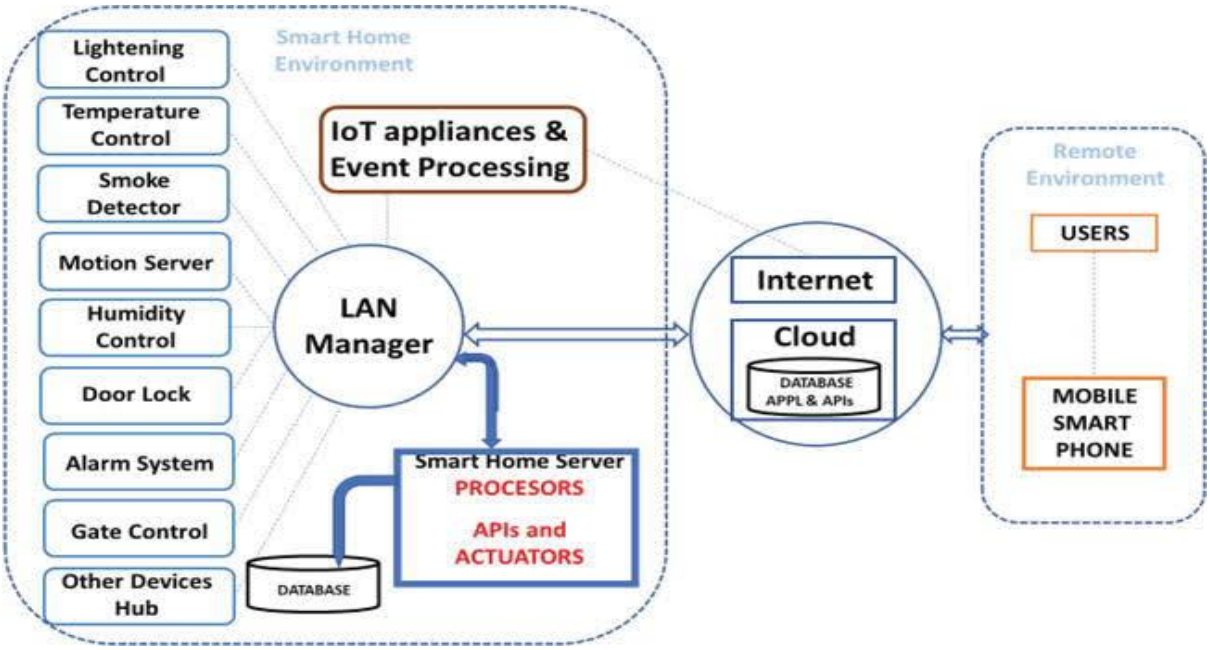


8) Smart Homes

Remote Control Appliances

IoT powered home appliances let residents remotely switch on and off devices using smartphone apps to avoid incidents and save energy.

- turning on lights,
- starting the coffee maker,



- setting temperature,
- open up a music playlist,

9) Home Intrusion Detection Systems:

IoT based home security applications give users capabilities such as smart locks and security cameras that detect motions and send alerts to their smartphones so that they can monitor the safety conditions of their home from anywhere.

10) Connected Vehicles

Autonomous vehicles are also an application of IoT devices

11) Digital Twins

A digital twin is a virtual replica of physical entities such as devices, people, processes, or systems that help businesses make model-driven decisions. With the help of IoT sensors, businesses collect data that is needed to create a digital twin.

12) Water Quality Management

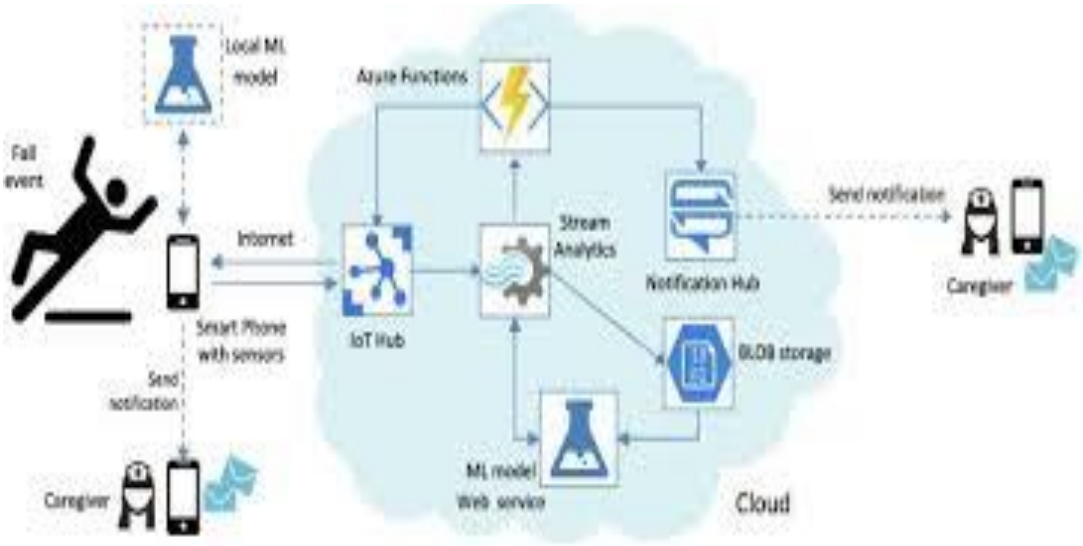
IoT sensors determine what kind of chemicals are in the water. They also identify metrics such as total dissolved solids (TDS), bacteria, chlorine, electrical conductivity, etc.

13) Smart Irrigation

Bosch offers an IoT solution that measures how much water the tree needs and provides that amount of water.

14) Fall Detection

IoT sensors can detect falls using geolocation data and summon help so that it reduces the time the elderly remain on the floor after a fall which could lead to lethal consequences.



15) Smart Retail

Supply Chain Control

- Monitor warehouse conditions such as temperature, humidity, light intensity, and other environmental factors
- show the location of goods using GPS.

16) Motion detection

Manything is another vendor in IoT based home security market. It streams homes/office videos and lets users receive alerts when it detects any activity.

17) Platooning

Trucks use IoT sensors so that each truck communicates with the other trucks to adapt its speed and braking accordingly.

18) Structural Health Monitoring

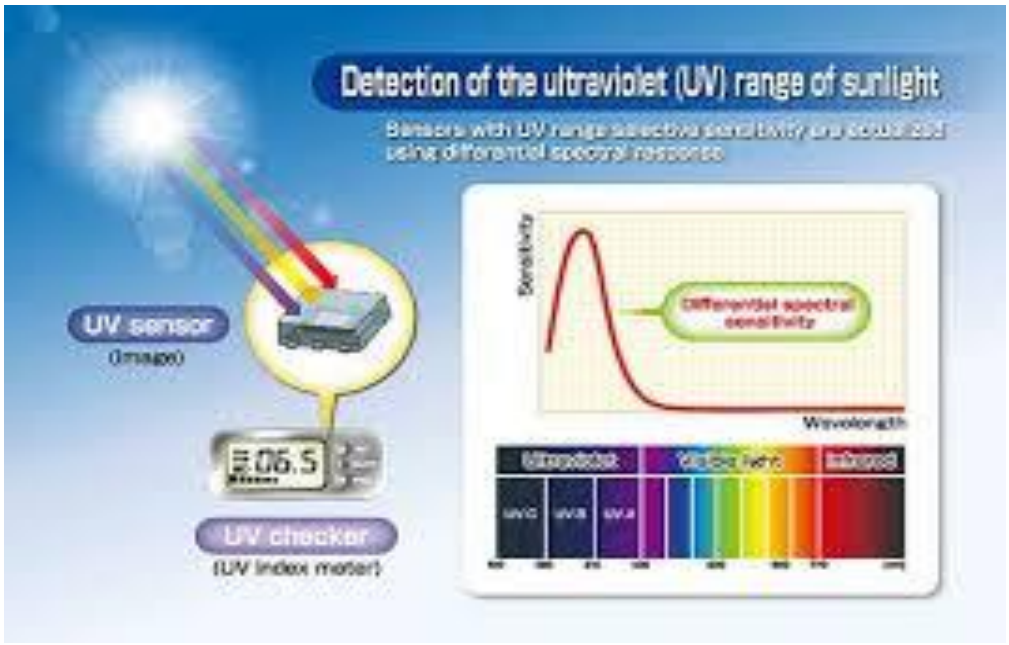
IoT allows remote collection of architectural data to monitor events such as vibrations and changes in material conditions, predict structural damage, and prepare action plans for structures such as bridges, buildings, stadiums, ships, airplanes, etc.

19) Electronic Road Toll Collection and Traffic Management

Traffic engineers augmented by smart systems at a central traffic management center (TMC) can analyze data from IoT sensors then optimize timing of traffic lights throughout the day

20) Ultraviolet Radiation Monitoring

IoT sensors fitted outdoors can regularly inform you of the UV levels and warn you not to step outside when levels are too high.


Detection of the ultraviolet (UV) range of sunlight
UV sensor
UV checker
(UV index meter)
Wavelength