NAME: GOPINATH K **DATE:** 17 – 07 – 2021

REG. NO.: 19BEC10003 **ASSIGNMENT 1**

1. **List out 20 use cases of the Internet of Things.**

1) Autonomous and Connected Vehicles

Today, however, car makers and automotive startups are working on getting level 2, 3, and 4 self-driving technology right. Cameras, radar, LIDAR and a host of other onboard sensors are being used to capture information about road conditions, inform appropriate driving actions, and potentially prevent accidents.

2) Smart Security for Businesses and Homes

Now, smart security systems are being purpose-built to capture, store, and analyze continuous video streams. On top of the 4K video captured by high-resolution cameras, these systems can use an analytics layer with machine learning software to carry out pattern recognition and motion detection

3) Connecting Your Home to the Internet (of Things)

Smart speakers function like central command, enabling your household electronics to perform a variety of voice-activated functions. You could, for example, instruct your TV to stream the latest episode of your favorite show, while dimming the living room lights and setting the thermostat to a cozy temperature.

4) Smart Watches, Fitness Trackers, and other Wearables

This global adoption is due in large part to smart watches, which are expected to make up over half of all wearables sold in the coming years. Consumers are looking for seamless connection and interaction between their smartphones and smartwatches to track, manage, and secure their data. Another opportunity is in portable medical devices that monitor blood pressure and heart rate, as well as alert ambulance dispatchers during a medical emergency.

5) Machine-to-Machine (M2M) Connected Devices

Today’s factories are using IoT-enabled machines to work smarter, not harder. By equipping machines with sensors, factory managers can more accurately map machine workloads, inputs, and outputs. They can also more closely track machine wear-and-tear, which leads to maintenance that is predictive rather than reactive and improves lifespan.

6) Supply Chains of the Future

Another IoT use case is in supply chains, which are increasingly global and complex. Customer requirements evolve rapidly, products have to be procured, shipping and delivery routes have to be coordinated – you get the picture. In response, companies are creating connected enterprise systems and using data modeling as a key part of a broader data management strategy.

7) Drones for Industrial and Search & Rescue Operations

For cinematographers and photographers, drones have helped record stunning landscapes previously unavailable to visual artists. But, these flying devices aren't just used for this purpose. Oil rig workers are using drones to complete quicker, without sacrificing worker safety or production downtime.

8) Smart Cities: Energy, Transportation, Parking, and More

One of the most promising IoT use cases is in creating Smarter home cities. Public energy grids can be optimized to balance workloads, predict energy surges, and distribute energy more equitably to customers. The same goes for transportation systems in dense, urban environments. Traffic lights could be synced using IoT to adapt to traffic conditions in real-time.

9) Farm to Tech to Table

Today's farmers are bringing the power of IoT to streamline their operations. As the use of free-range livestock becomes widely adopted, connected technology can track animals as they graze in open pastures. Smart sensors placed in irrigation systems can reduce water consumption to create just the right moisture level in soil for a given crop.

10) AR/VR

Whether in gaming, shopping, entertainment, or medical procedures, augmented reality (AR) and virtual reality (VR) are gaining traction to create experiences in an "extended reality."

AR layers information onto the real world. Whether ani-morphing faces in a video chat or hunting cute little creatures in one's backyard, your devices are using real-world information, then layering on digital information to change or augment reality. VR places users in a digital world, then uses captured motions (eyes, head turns, etc.) to make them feel immersed in that world.

11) Smart Cities: Energy, Transportation, Parking and More

One of the most promising IoT use cases is in creating smarter, more efficient cities. Public energy grids can be optimized to balance workloads, predict energy surges, and distribute energy more equitably to customers. The same goes for transportation systems in dense, urban environments. Traffic lights could be synced to adapt to traffic conditions in real-time.

12) Healthcare

IoT devices at the edge are changing patients' healthcare experience, whether it's a mobile device collecting patient information at an emergency room visit or a diabetic's on-body continuous glucose monitoring system.

13) Companion Robots

An IoT use case that has emerged in tandem with this year's pandemic is companion robots. For those who have been shut in at home during the shelter-in-place, companion robots have become a welcome friend. They have names, some can converse, and one day may even be able to take vitals and administer medicine to elders living alone.

14) IoT Opens the Data Floodgates

IoT shows accelerated growth driven by connectivity, data economy and affordable compute power at the edge and endpoints. The role storage plays in this is indispensable, powering one of the most valuable products of IoT – Data.

15) 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.

16) Fall Detection

Falling into the ground and not being able to get up or request help can be a scary experience for senior citizens. 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.

17) Medical Fridges

Medical fridges monitor the temperature of vaccines, medicines and organic elements for clinics and health centers. Medical fridges provide an opportunity to follow all safety standards and national regulations of the pharmaceutical market using IoT sensors. They prevent medicines and vaccines from spoiling.

18) Patient Surveillance/Remote Patient Monitoring

RPM enables real-time data collection about patients' body temperature which is the main indicator of infections. With RPM, doctors can observe patients' data and provide early diagnoses without requiring patients to be physically present at the hospital.

19) Smart locks

Eyelock is a security provider vendor that offers its clients an iris-based authentication solution.

20) 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.
