

Dated... 27/02/2023.....

ASSIGNMENT - 1

SET - 1

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Branch :- CSE (Lateral Entry)

Group :- 616 - A

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Subject :- IOT

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- Q1. Timeline the journey from evolution of Internet to Internet of everything.

Ans. The journey from the evolution of the internet to the Internet of Everything (IoE) can be summarized in the following timeline.

IOT is a set of interconnected devices that exchange data over the network. An IoT system can be established within homes, offices, universities and cities. The evolution of IoT started with the first connected network ARPANET. A coke vending machine at Carnegie Mellon University connected to the university ARPANET in 1982 was the first connected device.

1. 1960s : The US Department of Defense starts working on ARPANET, a network that would allow researchers to share computing resources.
2. 1970s : ARPANET is officially launched, connecting four US Universities. This marks the birth of the internet.

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Dated.....

3. 1980s: The internet becomes more accessible to the general public with "development of TCP/IP".
4. 1990s: The world wide web is invented by Tim Berners-Lee.
5. 2000s: The internet becomes more interactive and social with the rise of Web 2.0 technologies, such as blogs, social networking sites, and video sharing platforms.
6. 2010s: The internet starts to connect not just people, but also things. The Internet of Things (IoT) emerges, with devices systems connecting to the internet to collect and share data.
7. 2013s: The term Internet of Everything (IOE) is coined by Cisco to describe the next phase of the internet evolutions. IOE refers to the connection of not just devices, but also people, processes and data.
8. 2020s: The IOE continues to evolve, with advances in artificial intelligence, machine learning and 5G technology enabling even more devices.

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Q2. Classify characteristics of a sensor in detail.

Ans.

Important static characteristics of sensors include sensitivity, resolution, linearity, zero drift and full-scale drift, range, repeatability and reproducibility. Sensitivity is a measure of the change in output of the sensor relative to a unit change in the input.

A sensor is a device that detects and responds to a physical stimulus, such as light, temperature, pressure, motions, or other phenomena. There are many different types of sensors, but they are all share certain common characteristics which can be classified as follows:

1. Sensing Range :- The sensing range of a sensor refers to the range of values that it can detect. For example, a temperature sensor may have a sensing range of -40°C to 150°C .
2. Sensitivity :- The sensitivity of a sensor refers to the degree to which it can detect changes in the physical stimulus, it is designed to detect. For example, a pressure sensor may have a sensitivity of 0.1 psi.
3. Resolution : The resolution of a sensor refers to the smallest change in the physical stimulus that it

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Dated.....

can detect. For example, a temperature sensor may have a resolution of 0.1°C .

4. Accuracy :- The accuracy of a sensor refers to how closely its readings match the true value of the physical stimulus it is designed to detect. For example, a temperature sensor may have an accuracy of $\pm 0.5^\circ\text{C}$.
5. Repeatability :- The repeatability of a sensor refers to its ability to produce the same readings when exposed to the same physical stimulus multiple times. For example, a pressure sensor may have a repeatability of $\pm 0.2\text{ psi}$.
6. Response Time :- The response time of a sensor depends upon the processing speed and time taken by sensor to generate the electrical signal.
7. Environmental conditions :- Overall, the characteristics of a sensor determine its suitability for a particular application. Understanding the sensing range, sensitivity, resolution, accuracy, repeatability, response time, and environmental condition can help in selecting the right sensor for a given application.

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Q3. In five steps explain how you will implement IoT in Chandigarh University.

Ans. Following are five steps that I can follow to implement IoT in Chandigarh University.

1. Identify the needs:- The first step in implementing IoT in university is to identify the needs. We should identify the areas where IoT can be useful. like :- improve energy efficiency, security or improve student experience.
2. Plan the implementation:- Once the needs have been identified, I'll go for the implementation. This includes identifying the hardware and software needed, the data collection methods, and how the data will be analyzed and acted upon.
3. Implement the IoT devices:- After planning the implementation, I will start implementing IoT devices. This includes installing the devices, configuring them, and connecting them to the networks.
4. Collect and analyze data:- After planning the implemented, I will start collecting data. This includes analyzing the data to identify patterns and trends. This data can be used to make informed decisions about the university's operations.

Dated.....

5. Take action based on data :- Finally, the student can take action based on the data collected. For example, if the data shows that energy consumption in that building.

Implementing IoT in Chandigarh University requires careful planning, implementation, and analysis of data. The process can be challenging, but the benefits are enormous.

- Q4. In an Avengers movie series list and explain various technologies shown that can be relevant to IoT?

Ans.

There are several technologies showcased in the Avengers movie series that can be relevant to IoT. Here are a few examples:

1. JARVIS :- JARVIS (Just A Rather Very Intelligent System) is a sophisticated AI system created by Tony Stark (Iron Man). JARVIS is capable of controlling and managing all the electronic devices in Stark's mansion, including security systems, lighting, and HVAC systems. This technology can be related to IoT because it involves controlling and managing multiple devices remotely.

2. Arc Reactor :- The Arc Reactor is a device created by

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Tony Stark's arc reactor that produces clean energy. The device is integrated into his Iron Man Suit, providing it with unlimited power. The concept of using clean energy to power devices is very relevant to IoT as well.

3. Ultron :- 'Ultron' is a sophisticated AI system created by Tony Stark and Bruce Banner in 'Avengers: Age of Ultron'. Ultron has the ability to connect to and control other electronic devices, making it a formidable opponent. This technology highlights the importance of securing IoT devices from potential threats such as cyberattack.

4. Wakandan Technology :- In the movie 'Black Panther', the Wakandans showcase a variety of advanced technologies, including vibranium-powered weapons and advanced medical technologies. These technologies demonstrate the potential for IoT to revolutionize various industries, including healthcare and defense.

5. Extremis etc.