**Name**: Jiaming Deng **Student ID**: 22302794 **Course Code**: CS7NS1 **Branch**: Data Science

**Paper 1:** D. Minoli, K. Sohraby and B. Occhiogrosso, "IoT Considerations, Requirements, and Architectures for Smart Buildings—Energy Optimization and Next-Generation Building Management Systems," in IEEE Internet of Things Journal, vol. 4, no. 1, pp. 269-283, Feb. 2017, doi: 10.1109/JIOT.2017.2647881.

1. 1. The BMS is a comprehensive platform for improving efficiency and reducing waste by interacting with the control hardware in various mechanical and electrical systems and regulating the energy they use.
2. The migration of the BMS to an IP network facilitates centralised monitoring of the operation of the various devices, as IP-based cameras can help with signal distribution and computer storage analysis
3. The BMS of the future will focus on more energy sources, such as natural gas and new energy sources. In addition BMS will be used to manage other public affairs.
4. PoE can provide two services over a single cable: LAN-based transmission and electrical power.

ii)1. Building Management Systems 2. Power over Ethernet (PoE) 3. OSiRM Model 4. IP

iii) 1. BMS systems can be integrated with energy management, accessing various IoT based data such as sensors, controllers, communication media.

2. PoE technology enables the transmission of DC currents over data conductors and it consists of IoT component-powered devices and point-receiving devices.

3. More energy can be saved by controlling the voltage and current of LED lamps through a dense network of sensors. Devices with low voltage DC are also safer and more efficient.

4. One future application of visible light communication technology is for the visible light emitted by LED lights to become a transmitter of indoor data to enhance the communication capabilities of the IoT.

**Paper2:** L. -M. Ang, K. P. Seng, A. M. Zungeru and G. K. Ijemaru, "Big Sensor Data Systems for Smart Cities," in IEEE Internet of Things Journal, vol. 4, no. 5, pp. 1259-1271, Oct. 2017, doi: 10.1109/JIOT.2017.2695535.

1. 1. The low cost and ease of use of BLE gives it an advantage over GPS as a positioning system.
2. BLE can measure the proximity of an object to an area to convey information.
3. The hardware specifications of BLE are mainly represented by power consumption, chipset options, energy storage and energy cellular capabilities, etc.
4. The software system for BLE is only as good as the battery monitoring, distance estimation, security, scalability, etc.
5. 1. Bluetooth low energy(BLE) 2. RSS Threshold Optimisation Method 3. Cloud-based token authentication 4. MPPT
6. 1. The use of low-power wireless devices is the most appropriate solution to a number of problems in IoT technology.
7. BLE beacons are suitable for integration into smartphones to perform more tasks in conjunction with other IoT applications.
8. BLE beacons are used in a wide range of innovative IoT applications, such as museum navigation, indoor positioning, etc.
9. The deployment of multiple beacons allows for many-to-many interactions.