"Internet of Things (IOT)”

1. Introduction
   1. The Internet of Things (IOT) refers to the interconnected network of devices and objects that collect, exchange, and act on data, enabling smart and autonomous functions.
   2. Since its inception in the early 2000s, IOT has grown exponentially, revolutionizing various aspects of everyday life.
   3. Its importance lies in seamless integration of technology into our daily activities, enhancing efficiency, convenience, and quality of life.
2. How IOT works
   1. IOT systems consist of several core components that work together to create a cohesive ecosystem.
   2. This includes sensors that collects data, connectivity that enables data transfer, data processing units that analyse the information and user interfaces that allow interaction with system.
3. Basic Components
   1. Sensors:
      1. Devices that detects and measures changes in the environment, such as temperature, motion, or light.
   2. Connectivity:
      1. The network that allows data to be transmitted between devices,
      2. Often via Wi-Fi, Bluetooth, or cellular networks.
   3. Data Processing:
      1. The analysis of collected data, often performed in cloud, to derive actionable insights.
   4. User Interface:
      1. The means by which user interact with IOT devices, such as mobile apps or voice assistants.
4. **IOT Architecture and Ecosystem:**
   1. An IOT system typically follows a layered architecture comprising the perception layer (sensors), network layer (connectivity), middleware layer (data processing), and application layer (user interface).
5. **Examples** **of** **IOT** **devices**
   1. Common IOT devices includes smart thermostats, wearable fitness trackers, connected cars, and smart home security systems, all of which contribute to making life more convenient and efficient
6. Impact **of IoT on Everyday Life**

* **Smart homes:**
  1. IOT enables home automation, allowing users to control lighting, heating, and appliances remotely via smartphones or voice commands
  2. This continuous monitoring improves patient outcomes and reduces hospital visits.
* **Healthcare:** 
  1. In healthcare, IOT devices help monitor patients remotely. Wearable devices like smart watches can track your heart rate, steps, and sleep patterns, sending this information to your doctor if needed.
  2. This helps in managing chronic conditions and staying healthy without frequent visits to the clinic. For elderly people, IOT devices can detect falls and send alerts to caregivers or family members.
* **Transportation:**
  1. IoT is transforming how we travel. Smart cars come with features like real-time navigation, automatic braking, and parking assistance.
  2. Some cars even drive themselves using IOT technology. Traffic management systems use IOT to monitor and control traffic lights, reducing congestion and making travel safer.
  3. Fleet management for delivery and transportation companies becomes more efficient with real-time tracking of vehicles.
* **Wearables:**
* Wearable IoT devices like fitness trackers and smartwatches keep us connected and healthy. They track physical activities, monitor vital signs, and provide reminders to stay active. These devices can also handle notifications, make calls, and even make payments, making everyday tasks more convenient**.**