Internet of Things

- The **Internet of Things (IoT)** refers to the network of interconnected physical devices embedded with sensors, software, and connectivity to collect and exchange data. It enables real-time monitoring, automation, and decision-making across industries.
- It allows objects to be sensed and controlled remotely across existing network infrastructure, creating opportunities for more direct integration between the physical world and computer-based systems, and resulting in improved efficiency, accuracy and economic benefit.

Exploring the Internet of Things

Sensors

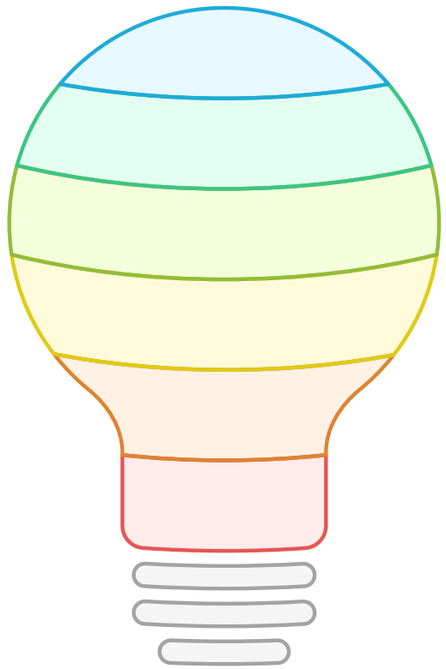
Devices that detect and measure physical properties

Connectivity

Infrastructure allowing devices to communicate

Automation

Systems that operate without human intervention



Software

Programs that enable data processing and control

Real-time Monitoring

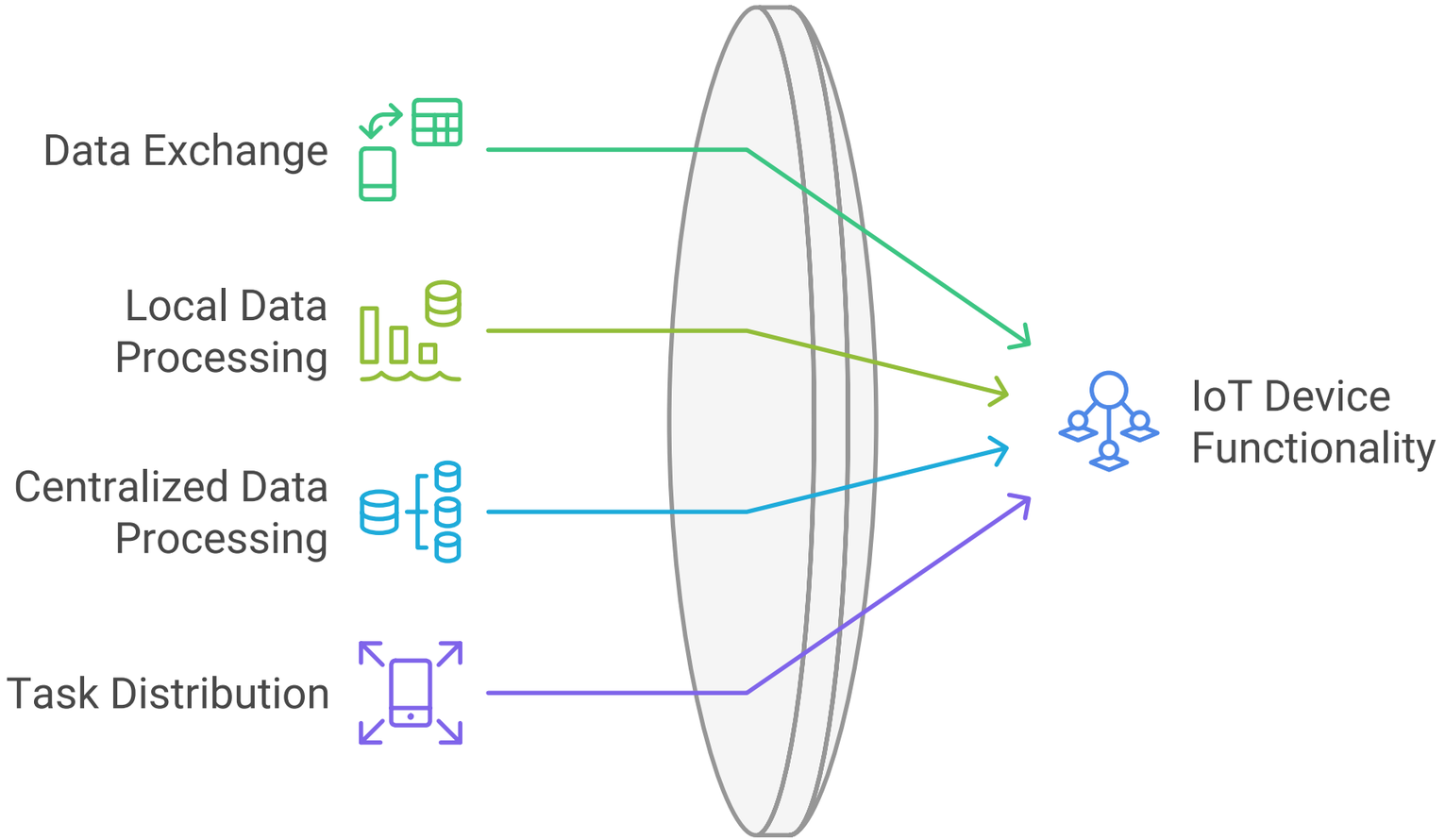
Continuous observation and analysis of data

Decision-making

Processes that lead to informed choices

- The "Things" in IoT usually refers to IoT devices which have unique identities and can perform remote sensing and actuating and have monitoring capabilities.
- IoT devices can:
    - Exchange data with other connected devices and applications (directly or indirectly), or
    - Collect data from other devices and process the data locally, or
    - Send the data to centralized servers or cloud-based application back-ends for processing the data, or
    - Perform some tasks locally and other tasks within the IoT infrastructure, based on temporal and space constraints

Unified IoT Operations



- An IoT device may consist of several interfaces for connections to other devices, both wired and wireless.
    - I/O interfaces for sensors
    - Interfaces for internet connectivity
    - Memory and storage interfaces
    - Audio/video interfaces