

Understanding Smart Home IoT

Definitions & Concepts

Core Concepts & Technologies

IoT (Internet of Things): Physical objects connected to the internet to send/receive data.

Smart Home: A home setup with devices that can be controlled remotely or automate tasks.

Smart Device: A connected device that performs functions intelligently or remotely.

Hub (Smart Hub): A device that connects and manages multiple smart home devices.

App (Control App): A smartphone or tablet application for managing IoT devices.

Edge Computing: Processing data on the device instead of relying solely on the cloud.

Cloud: Internet-based services that store, analyze, or manage your device data remotely.

Latency: The delay between sending a command and the device's response.



Outreach Materials

Scan the QR code to download customizable community resources.

Connectivity & Protocols

Wi-Fi: A common method for smart devices to connect to your home network.

Bluetooth: Short-range wireless communication often used for pairing devices.

Zigbee: A low-power, mesh-based wireless protocol for home automation.

Z-Wave: A wireless communication protocol that creates a mesh network similar to Zigbee.

Thread: A low-power, secure mesh network protocol designed specifically for IoT.

Matter: A universal smart home standard that aims to unify device compatibility across brands.

Mesh Network: Devices connect to each other directly to expand range and reliability.

Ethernet: A wired connection for high-speed, stable networking.

NFC (Near Field Communication): Used for quick pairing or automation triggers.

Radio Frequency (RF): Used by some remote controls and smart devices to communicate.



This project was supported by Grant No. 5PBJA-21-GK-03995-INTE awarded by the Bureau of Justice Assistance. Points of view or opinions in this document are those of the author and do not necessarily represent the official position or policies of the U.S. Department of Justice.



Smart Features & Controls

Automation: Programming devices to act on their own based on triggers.

Scene: A group of device actions triggered together for a specific situation.

Routine: A series of scheduled or condition-based automation tasks.

Geofencing: Using GPS to trigger actions when entering/leaving an area.

Presence Detection: Devices recognizing if someone is home or nearby.

Voice Assistant: AI like Alexa, Google Assistant, or Siri that responds to voice.

IFTTT (If This Then That): Service that links apps/devices to create automation.

Interoperability: Ability of devices from different brands to work together.

Over-the-Air (OTA) Update: Firmware or software updates delivered wirelessly.

Security & Privacy

Encryption: Protects data so it can't be read without authorization.

Two-Factor Authentication (2FA): Adds a second step to logins for better security.

MAC Address: A unique ID assigned to each device on a network.

Firewall: Controls network traffic to protect your home network.

VPN (Virtual Private Network): Encrypts your internet connection for privacy.

Authentication: Verifying a user or device's identity.

Permission Settings: Controls which devices/apps can access your data.

Devices & Ecosystem Terms

Gateway: Connects different communication protocols (e.g., Zigbee to Wi-Fi).

Sensor: Detects conditions like motion, temperature, or humidity.

Actuator: Performs actions like unlocking a door or adjusting blinds.

Device Pairing: Connecting a device to your app, hub, or network.

Smart Plug: Adapter that turns traditional devices into smart-controlled ones.

Compatibility: Whether a device works with your platform (Alexa, Google, etc.).

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