Applied Industrial Internet of Things – Smart City (Cisco Packet Tracer)

Aim

Design and simulate an intelligent urban environment where IoT devices communicate with a central server to automate safety and energy management tasks.

Problem Statement

Urban areas require efficient monitoring systems for safety and energy efficiency. Traditional systems often operate in silos. This project demonstrates a converged IIoT network in Cisco Packet Tracer where sensors and actuators communicate with an IoT Server to automate responses and alerts.

Scope of the Solution

- Networked IoT devices with automated registration to an IoT Server.
- Automated rules for street lighting, fire monitoring, and surveillance.
- Real-time dashboard monitoring and email notifications.
- Complete simulation within Cisco Packet Tracer.

Software Required

Cisco Packet Tracer 8.2.2 (with IoT support)

Hardware / Devices in Cisco Packet Tracer

- WRT Router (Wireless Router)
- PCs
- Tablets
- IoT / Registration Server (with DHCP, HTTP, Email)
- IoT devices: Smoke Detector, Street Lamp, Webcam

Repository Structure

SmartCity-IoT/

- README.md (Project overview and instructions)

- pkt/

  - SmartCity-IoT.pkt (Cisco Packet Tracer simulation file)

- docs/

- report.pdf (Detailed project report)

- media/

  - demo.mp4 (Demo video of simulation)

  - screenshots/

    - topology.png (Network topology screenshot)

Features / Results

- WRT 300N Router, PC, Tablet, Server, and IoT devices are connected in the network
- 2 Smoke Detectors, 2 Street Lamps, and 2 Webcams are operational in the simulation
- All devices are visible and can be monitored from the IoT Server
- Basic connectivity and device registration successfully demonstrated