# IOT Smart City Project

# Smart City using Cisco Packet Tracer

## 1. Aim

To design and simulate a smart city environment using Cisco Packet Tracer, integrating intelligent surveillance, automated street lighting, and fire safety systems. The aim is to build a responsive urban infrastructure using IoT sensors and actuators that ensure safety, security, and energy efficiency.

## 2. Problem Statement

Urban environments require smart monitoring systems to ensure public safety and optimize resource usage. This project addresses the need for real-time surveillance, automated lighting control, and fire hazard detection. By simulating an IoT-based smart city using Cisco Packet Tracer, we aim to demonstrate how sensor-triggered actions can automate surveillance and infrastructure management.

## 3. Scope of the Solution

The solution covers the simulation of:  
- Smoke detection systems for fire hazard alerts and response  
- Motion detection systems for theft and intrusion alerts  
- Smart street lamps that activate based on motion detection and ambient light conditions  
- Centralized home gateway to control and automate responses based on sensor inputs  
- Actuators such as fire sprinklers, sirens, and lighting systems for real-time reactions

## 4. Overview/Architecture of the Solution

The architecture includes:  
- A central Home Gateway device that connects all sensors and actuators  
- Smoke detectors connected to a fire sprinkler and alarm system  
- Motion detectors connected to surveillance CCTV and sirens  
- Smart street lamps that respond to environmental triggers (motion and light)  
- A tablet or PC to monitor and control the system

## 5. Required Components to Develop the Solution

Hardware (simulated in Cisco Packet Tracer):  
- Home Gateway (IoT Controller)  
- Smoke Detector  
- Fire Sprinkler  
- Motion Detector  
- Sirens (for fire and theft)  
- CCTV Camera (Webcam)  
- Smart Street Lamps  
- Tablet or PC for monitoring  
- Window and Door sensors (optional for extended features)  
  
Software:  
- Cisco Packet Tracer (IoT-enabled version)