Applied Industrial IOT: Assessment

SURVEILLENCE AND MOTION SENSOR ALERT SYSTEM:

Notifying users through motion detection

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Aim:

Design an **advanced alert system** utilizing motion detection and surveillance infrastructure to promptly notify users of detected movement, ensuring rapid response in industrial or residential settings

Problem description:

Traditional surveillance systems may lack real-time notification and automation, leading to delays in responding to possible security breaches. The challenge is to integrate motion detection with instant alert mechanisms using tools like **Cisco Packet tracer**, enabling automated alarms and user notifications when motion is detected in sensitive areas

Scope of solution:

- The system employs IOT Devices such as motion detectors, webcams, and networked sirens for comprehensive monitoring.
- Automated alerts are generated and sent to users (e.g., via connected tablets or PCs) when motion is detected, streamlining surveillance and ensuring immediate action.

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- The solution demonstrates how industrial surveillance can be optimized with real-time automation, cost-effective components, and scalable design using Cisco Packet Tracer simulation.

Required Components

1. **Cisco Packet Tracer** (IDE/software for simulation)
2. Motion Detector (IoT hardware)
3. Webcam (for live feed capture)
4. Siren (alert/response device)
5. Home Gateway (DLC100) for network interconnection
6. Tablet PC (for notification demonstration)
7. (Optional) TinkerCad/Fritzing for alternate simulation environments

Procedure:

- Open Cisco Packet Tracer.
- Add Home Gateway, Motion Detector, Siren, Webcam, and Tablet PC.
- Connect devices wirelessly to the Home Gateway.
- Configure Motion Detector to detect movement.
- Set Siren to activate on motion detection.
- Configure Tablet PC to receive alerts.
- Run simulation and test motion detection and alerts.
- Verify all devices respond correctly.

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Screenshot: