Project Report (End Couse Assessment)

Applied Industrial Internet of Things

Room Automation System using Cisco Packet Tracer

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1. Author(s)

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2. Aim

To design and implement a room automation system in Cisco Packet Tracer that automatically manages a fan and a lamp using a motion sensor for remote monitoring and energy efficiency.

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3. Problem Statement

Traditional room appliances such as fans and lamps are often left running unnecessarily, leading to energy wastage. An IoT-based automation system can minimize this by allowing remote monitoring and automatic control of appliances through sensors.

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4. Scope of the Solution

- Automates room appliances to ensure energy efficiency.
- Enables control of devices without manual switching.

- Provides a simple simulation environment using Cisco Packet Tracer.
- Demonstrates practical application of IoT-based home automation.

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5. Required Components

- **Software:** Cisco Packet Tracer (IoT Simulation)
- **Devices Used:**
    - Home Gateway
    - Motion Sensor
    - Fan
    - Room Lamp
    - Tablet (for remote control/monitoring)

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6. Implementation

- A room is created in Cisco Packet Tracer.
- Fan and Lamp are connected to the Home Gateway.
- A Motion Sensor is placed in the room and linked to the gateway.
- Rules are configured for automatic control:

Conditions

- ***IF* Motion Detected → Fan = LOW**
  → Lamp = ON

- ***IF* No Motion Detected → Fan = OFF**
  → Lamp = OFF

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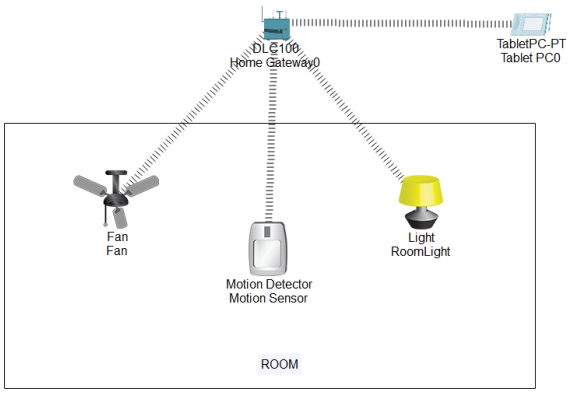
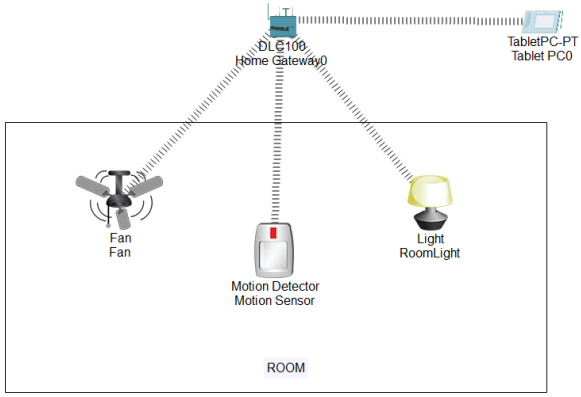
7. Results

- The fan and lamp automatically switch ON (in low/dim mode) when motion is detected.
- Both appliances turn OFF when no motion is detected.
- The system ensures energy is not wasted when the room is unoccupied.
- Demonstrated a simple yet effective IoT-based room automation model.





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8. Conclusion

The project successfully simulates a smart room automation system using Cisco Packet Tracer. With the use of a motion sensor, the system efficiently manages appliances, thereby reducing energy wastage. This simulation can be extended further with additional sensors (light, temperature) for more advanced automation.

9. References

- Cisco Packet Tracer Documentation
- Applied Industrial IoT course materials