

CS3004 - Computer Networks

Semester – 5

Packet Tracer Project

Title – SMART GARDEN SYSTEM

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PROJECT REPORT

1. ABSTRACT:

Garden is protecting plants from extreme environmental conditions and also grows plants in a controlled environment. Streetlights are important while in night times. Garden is made smarter by using different techniques. This project presents a wireless IoT (Internet of things) based smart garden. A smart garden based on IoT (Internet of Things) is implemented using a Cisco packet tracer and the output is verified with the expected results

2. INFORMATION:

This leads to higher comfortability, water use efficiency, and less human supervision effort. This paper proposes a cloud-based Internet of Things (IoT) smart garden monitoring and irrigation system using Arduino Uno. The watering requirement for a plant can be adjusted by monitoring the soil moisture.

Measuring the soil moisture of the plant gives information if the plant is ideally watered, watered, or underwater.

3. KEYWORDS: Cisco packet tracer, IoT, Sensors.

4. TOOLS:

1. Home Router
2. Lawn Sprinkler
3. Street Lamp
4. Server
5. Door

6. Water Level Monitor
7. Laptop

5. OBJECTIVE OF THE PROJECT:

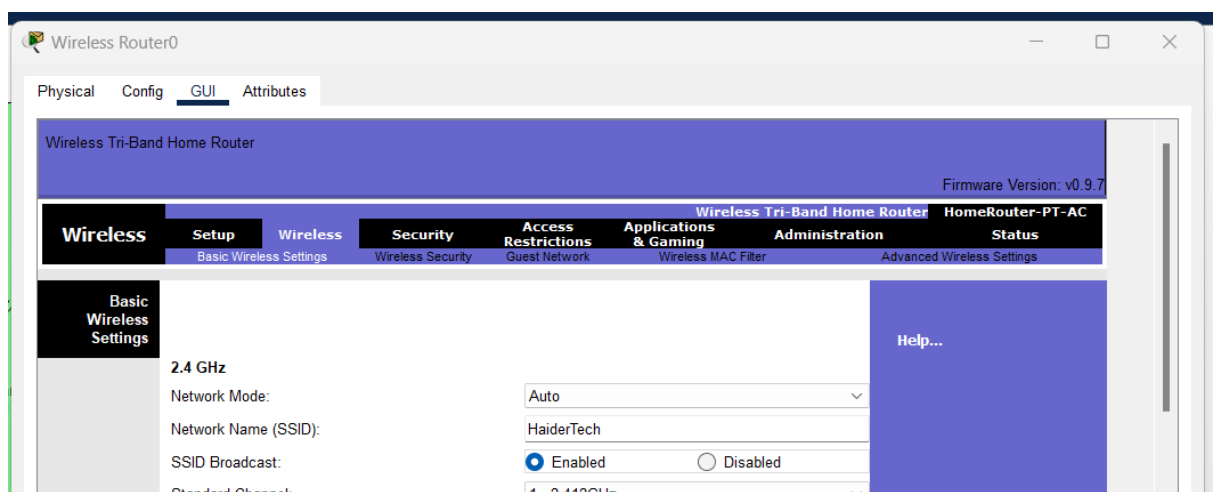
A network has to be designed for a small garden system. The organization hosts an e-commerce application on a server that is accessible to internet users using a Water level Monitor and with a public IP address.

6. PROJECT MISSION:

To establish a product in healthy condition for daily use in their backyard, rooftop, or even inside the garden and take good care of plants even in their absence.

7. IMPLEMENTATION:

- We have linked all the devices with the same IP address and linking all the devices to the **Home router**.
- Initial we did all the devices with the same SSID : **HaiderTech** and Phrase Password : **123456789**

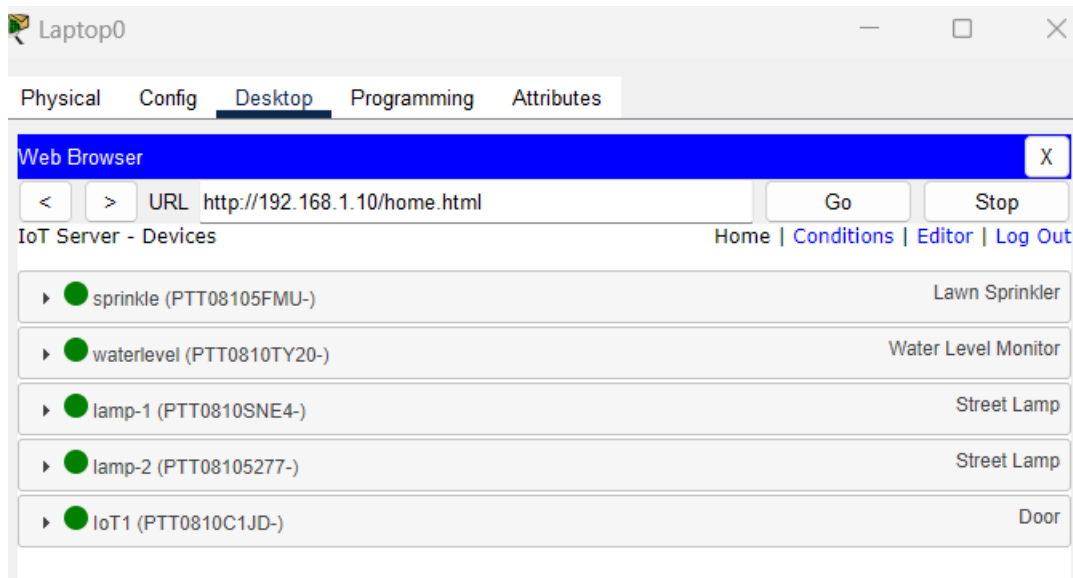


creating a new Network Name (SSID) : Haider Tech

- We sign up and create one login details and it will

connect to all the other devices.

- We can see which devices will register with that log in details on Laptop



smart garden monitoring

- After all the devices are connected to the Laptop we are checking on the Laptop whether each packet is sending the message or not.

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.1.10

Pinging 192.168.1.10 with 32 bytes of data:

Reply from 192.168.1.10: bytes=32 time=25ms TTL=128
Reply from 192.168.1.10: bytes=32 time=19ms TTL=128
Reply from 192.168.1.10: bytes=32 time=31ms TTL=128
Reply from 192.168.1.10: bytes=32 time=13ms TTL=128

Ping statistics for 192.168.1.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 13ms, Maximum = 31ms, Average = 22ms
```

All devices' packet is sending the message correctly.

We are giving conditions to implement each device properly

IoT Server - Device Conditions

[Home](#) | [Conditions](#) | [Editor](#) | [Log Out](#)

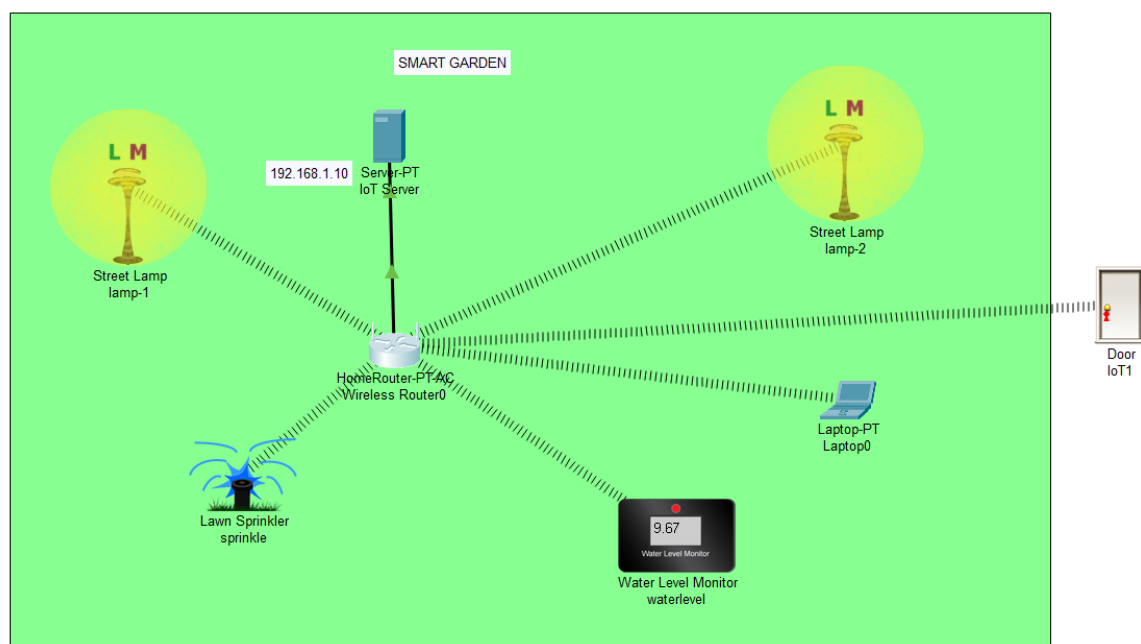
Actions	Enabled	Name	Condition	Actions
Edit Remove	Yes	TURN ON - SPRINKLE	waterlevel Water Level <= 10.0 cm	Set sprinkle Status to true
Edit Remove	Yes	TURN OFF- SPRINKLE	waterlevel Water Level > 11.0 cm	Set sprinkle Status to false
Edit Remove	Yes	DOORS OPEN	Match all: • sprinkle Status is true • waterlevel Water Level < 6.0 cm	Set IoT1 Lock to Unlock
Edit Remove	Yes	DOORS LOCK	sprinkle Status is false	Set IoT1 Lock to Lock

Conditions to impletion the system

8. RESULT:

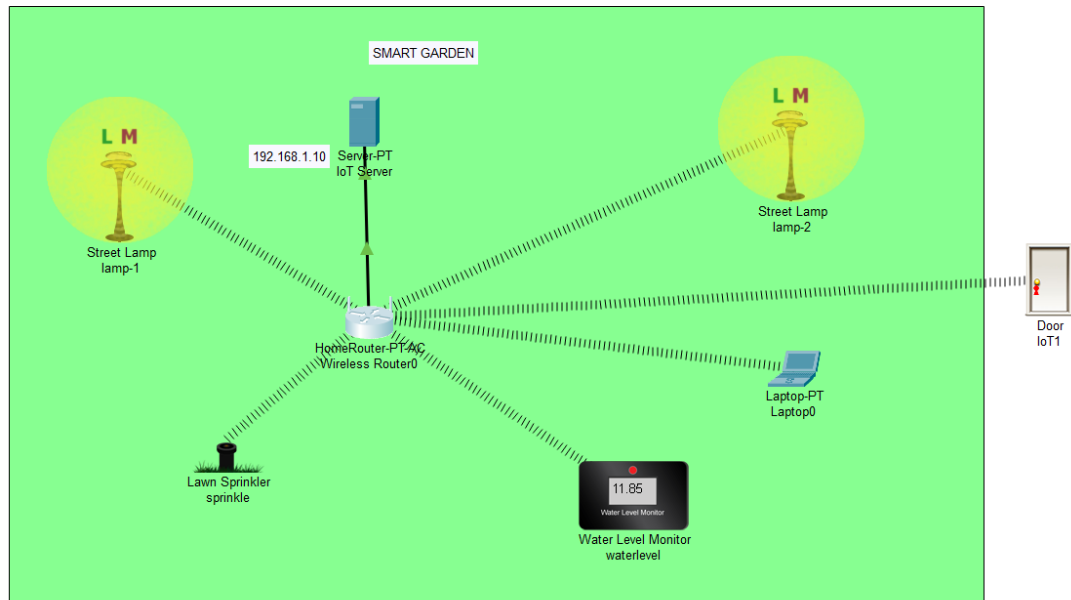
Here is the final result of the project

- If all the conditions is true then the system will works correctly.



Sprinkler is ON

- If one of the conditions is false then the system will work correctly.



Sprinkle is OFF