



# A MINI PROJECT REPORT ON Water Level Monitor

Submitted in fulfillment of the  
Requirement of computer communication lab

By

RA2011027010070 RIYANSH DAGAR  
RA2011027010075 AAYUSH ANAND  
RA2011027010086 ISHITA SHARMA  
RA2011027010089 VAASUDEV SHARMA  
RA2011027010090 DIVYANSH GAUR

Under the Guidance of  
MS SONIA ANAND  
ASSISTANT PROFESSOR (DSBS)  
DEPARTMENT OF COMPUTING TECHNOLOGIES  
SRM institute of science and Technology,  
Kattankulathur



## ***CERTIFICATE***

This is to certify that Computer Communication Lab Mini Project titled

### **“WATER LEVEL MONITOR”**

Submitted by “Riyansh Dagar” (RA2011027010070), “Aayush Anand” (RA2011027010075),

“Ishita Sharma” (RA2011027010086), “Vaasudev Sharma (RA2011027010089), and

“Divyansh Gaur” (RA2011027010090) for the partial fulfillment of the requirement for

Semester IV Subject of Computer Communication Lab to the SRM Institute of Science and

Technology, is a bonafide work carried out during Semester IV in Academic Year 2021-2022.

---

*Ms. SONIA ANAND*

*(Subject in-Charge)*



## ***DECLARATION***

*We declare that this written submission represents our ideas in our own words and where others' ideas or words have been included, we have adequately cited and referenced the original sources. We also declare that I have adhered to all principles of academic honesty and integrity and have not misrepresented or fabricated or falsified any idea/data/fact/source in my submission. We understand that any violation of the above will be cause for disciplinary action by the Institute and can also evoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been taken when needed.*

**RIYANSH DAGAR**

**ISHITA SHARMA**

**AAYUSH ANAND**

**VAASUDEV SHARMA**

**DIVYANSH GAUR**

**Date:**



## ***TABLE OF CONTENTS***

<b><i>Sr. No.</i></b>	<b><i>Chapter</i></b>
<b>1</b>	<b><i>Abstract</i></b>
<b>2</b>	<b><i>Objective</i></b>
<b>3</b>	<b><i>Introduction</i></b>
<b>4</b>	<b><i>Network Topology Diagram</i></b>
<b>5</b>	<b><i>Module of the Project</i></b>
<b>6</b>	<b><i>Output Screenshots</i></b>
<b>7</b>	<b><i>References</i></b>



## ***ABSTRACT***

Irrigation is the process of supplying water to the land at regular intervals by means of canals and other artificial methods, to enhance agricultural growth and maintain the landscape during periods of less average rainfall. A sprinkler is a device used to spray water. Sprinklers are used to water plants or grass, or to put out fires in buildings. A sprinkler system is important for this, as it is a very efficient method/form of watering the landscape. It helps to put in the water in exact amounts, at exact spots, even much better than hoses and movable sprinklers. In other words, only part of the water is used efficiently, and the rest of the water is lost for the crops on the fields that were to be irrigated. It releases water similar to rainfall through a small diameter nozzle placed in the pipes. Water is distributed through a system of pipes, sprayed into the air and irrigates in most the soil type due to the wide range of discharge capacity. In this project, we have used Cisco Packet Tracer to create a water level monitor. We have made this using two lawn sprinklers, a home gateway, water level monitor all this is being controlled using a smartphone.



## ***OBJECTIVE***

Water is a limited resource and is also essential for agriculture, industry and for creature survival on the earth including human beings. Nowadays more water is being wasted in many uncontrolled ways. This leads to the extinction of water as it is a limited resource. Therefore, efficient use and water monitoring are essential. With the help of a water monitoring system, water wastage will be reduced, also power consumption is reduced. Thereby, we can preserve water for the next generations. Through water level monitoring, we can avoid the over-flowing of water from the tank. Water level monitoring system application is more significant in-home applications. Internet of Things (IoT) is the network of physical devices, sensors, actuators and connectivity which enables these objects to connect and exchange data. “Things” in the IoT sense refers to various devices such as heart monitoring implants, biochip transponders, cameras, sensors, etc., These devices collect useful data with the help of various existing technologies and then autonomously flow the data between other devices. IoT allows objects to be sensed or controlled remotely across existing networks. IoT creates more opportunities for more direct integration of the physical world into computer-based systems which improves the efficiency and accuracy of the systems.

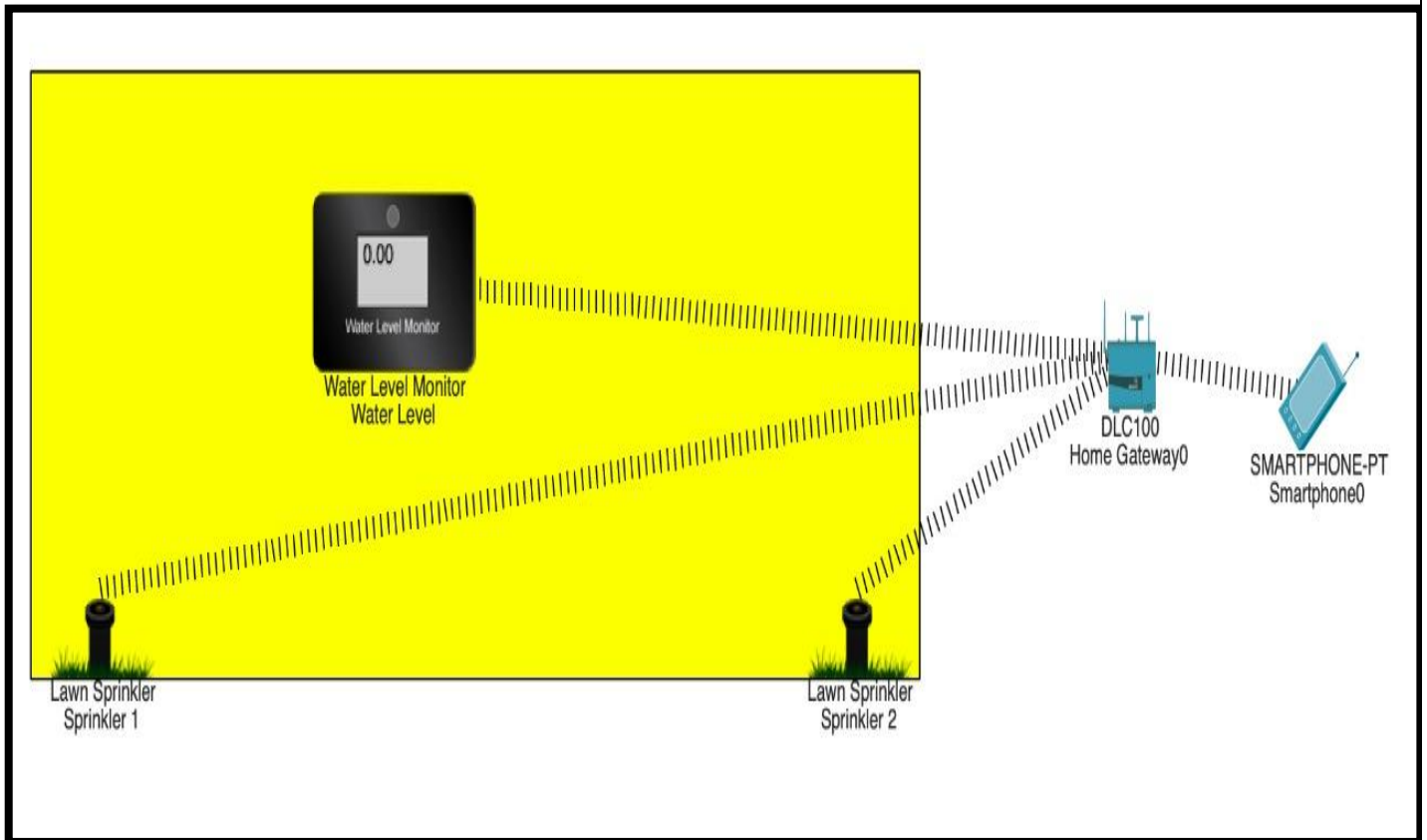


## ***INTRODUCTION***

Water is distributed through a system of pipes, sprayed into the air and irrigates in most the soil type due to the wide range of discharge capacity. In this project, we have used Cisco Packet Tracer to create a water level monitor. We have made this using two lawn sprinklers, a home gateway, water level monitor all this is being controlled using a smartphone. These devices collect useful data with the help of various existing technologies and then autonomously flow the data between other devices. IoT allows objects to be sensed or controlled remotely across existing networks. IoT creates more opportunities for more direct integration of the physical world into computer-based systems which improves the efficiency and accuracy of the systems.

Therefore, using CISCO PACKET TRACER we have built the water monitor model.

## ***NETWORK TOPOLOGY DIAGRAM***







# MODULES OF THE PROJECT

- Water level monitors
- Gateway
- Sprinklers
- Mobile device

# CONFIGURATION SCREENSHOTS

The screenshot displays the 'Water Level' configuration window with the 'Config' tab selected. The left sidebar shows a navigation menu with 'GLOBAL' (Settings, Algorithm Settings, Files) and 'INTERFACE' (Wireless0, Bluetooth). The main area is titled 'Wireless0' and contains the following settings:

- Port Status:** On (checked)
- Bandwidth:** 300 Mbps
- MAC Address:** 00E0.A3C8.1989
- SSID:** HomeGateway
- Authentication:**
  - Disabled (radio button)
  - WEP (radio button)
  - WPA-PSK (radio button)
  - WPA2-PSK (radio button, selected)
  - WPA (radio button)
  - WPA2 (radio button)
  - 802.1X (radio button)
- Method:** MD5 (dropdown menu)
- WEK Key:** (text input field)
- PSK Pass Phrase:** Riyansh22
- User ID:** (text input field)
- Password:** (text input field)
- User Name:** (text input field)
- Password:** (text input field)
- Encryption Type:** AES (dropdown menu)
- IP Configuration:**
  - DHCP (radio button, selected)
  - Static (radio button)
- IPv4 Address:** 192.168.25.104
- Subnet Mask:** 255.255.255.0
- IPv6 Configuration:**
  - Automatic (radio button)
  - Static (radio button, selected)

● ● ●
Sprinkler 1

Specifications
Physical
Config
Attributes

GLOBAL

Settings

Algorithm Settings

Files

INTERFACE

Wireless0

Bluetooth

Wireless0

Port Status ☒ On  
  
Bandwidth 300 Mbps  
  
MAC Address 0050.0F4A.D5C5  
  
SSID HomeGateway

Authentication  
☐ Disabled      ☐ WEP  
☐ WPA-PSK      ☒ WPA2-PSK  
☐ WPA      ☐ WPA2  
☐ 802.1X      Method:

WEP Key   
PSK Pass Phrase Riyansh22  
User ID   
Password   
  
User Name   
Password   
  
Encryption Type AES ↕

IP Configuration  
☒ DHCP  
☐ Static  
IPv4 Address 192.168.25.105  
Subnet Mask 255.255.255.0

IPv6 Configuration  
☐ Automatic  
☒ Static

11

Sprinkler 2

SpecificationsPhysicalConfigAttributes

GLOBAL

Settings

Algorithm Settings

Files

INTERFACE

Wireless0

Bluetooth

Global Settings

Display Name

Sprinkler 2

Serial Number

PTT0810B1H8-

Interfaces

Wireless0

Gateway/DNS IPv4

DHCP

Static

Default Gateway

192.168.25.1

DNS Server

Gateway/DNS IPv6

Automatic

Static

Default Gateway

DNS Server

IoT Server

None

Home Gateway

Remote Server

Server Address

Home Gateway0

PhysicalConfigGUIAttributes

GLOBAL

Settings

Algorithm Settings

INTERFACE

Internet

LAN

Wireless

LAN Settings

IP Configuration

IPv4 Address

192.168.25.1

Subnet Mask

255.255.255.0

13

Smartphone0

PhysicalConfigDesktopProgrammingAttributes

GLOBAL

Settings

Algorithm Settings

INTERFACE

Wireless0

3G/4G Cell1

Bluetooth

Wireless0

Port Status

On

Bandwidth

300 Mbps

MAC Address

0001.6385.4C30

SSID

HomeGateway

Authentication

Disabled

WPA-PSK

WPA

802.1X

WEP

WPA2-PSK

WPA2

WEP Key

PSK Pass Phrase

Riyansh22

User ID

Password

Method

MD5

User Name

Password

Encryption Type

AES

IP Configuration

DHCP

Static

IPv4 Address

192.168.25.103

Subnet Mask

255.255.255.0

IPv6 Configuration

Automatic

Static

Smartphone0

Physical Config **Desktop** Programming Attributes

Web Browser X

< > URL  Go Stop

## Home Gateway Login

Username:

Password:

Smartphone0

Physical
Config
Desktop
Programming
Attributes

Web Browser

<

>

URL

http://192.168.25.1/conditions.html

Go

Stop

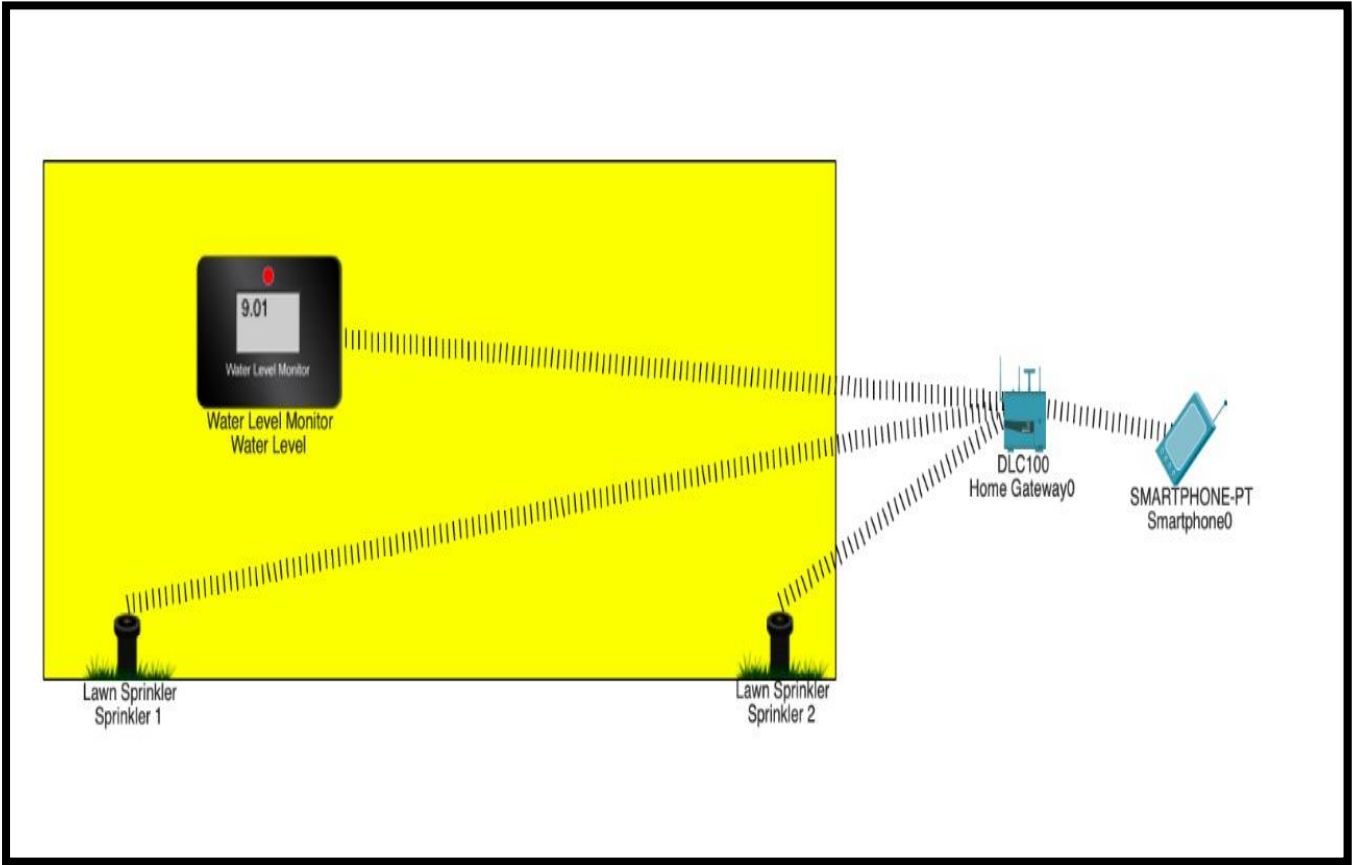
IoT Server - Device Conditions

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

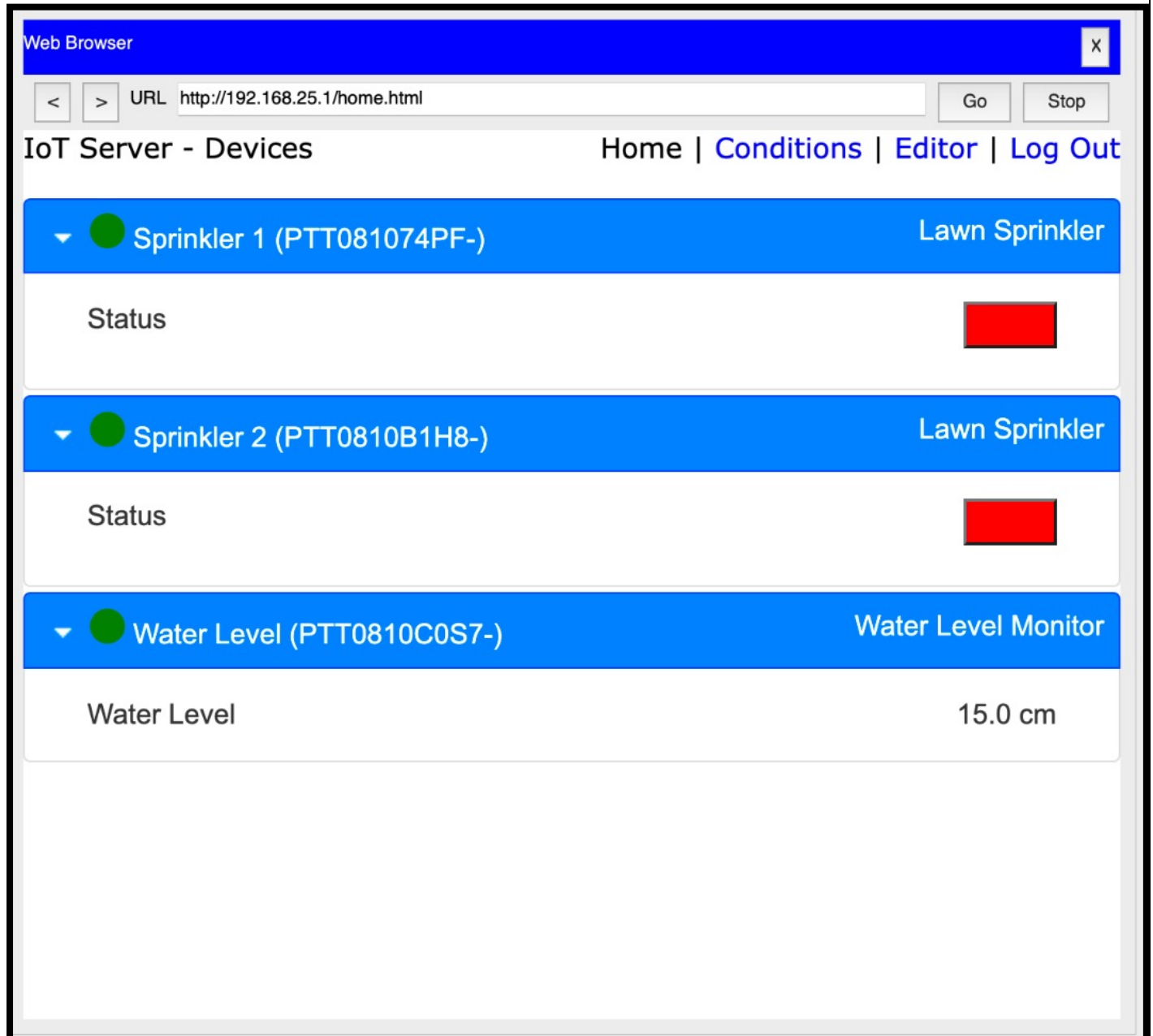
Actions	Enabled	Name	Condition	Actions
<div>Edit</div> <div>Remove</div>	Yes	SprinklerON	Water Level Water Level < 5.0 cm	Set Sprinkler 1 Status to true Set Sprinkler 2 Status to true
<div>Edit</div> <div>Remove</div>	Yes	SprinklerOFF	Water Level Water Level >= 10.0 cm	Set Sprinkler 1 Status to false Set Sprinkler 2 Status to false

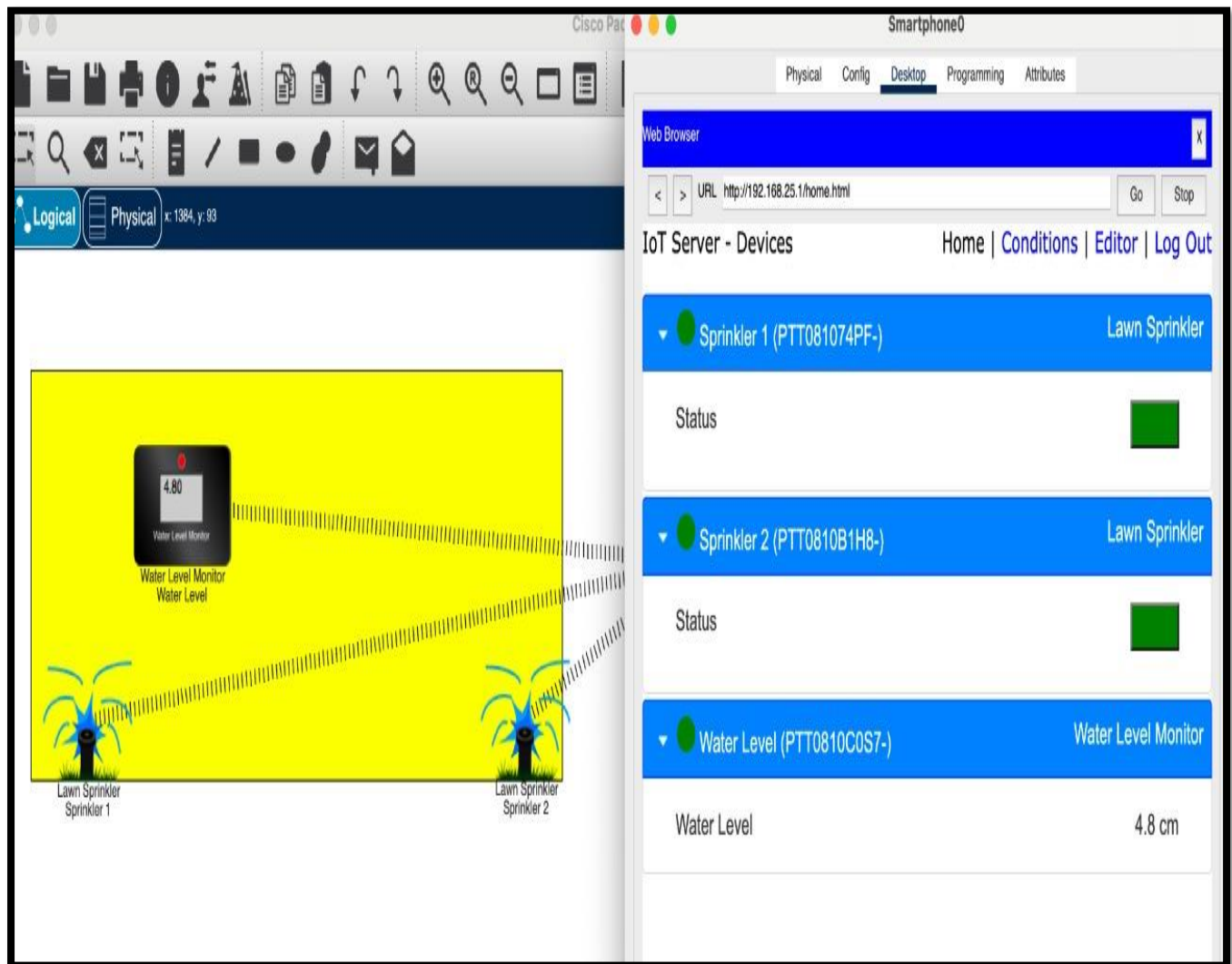
Add





## OUTPUT SCREENSHOTS







## ***CONCLUSION***

***Hence, we have successfully created a sustainable water monitoring system which monitors the water level of the soil.***

***It can be implemented very easily and efficiently.***



## ***REFERENCES***

- ***YOUTUBE-***

***<https://youtu.be/ReOy2kQIPbw>***

- ***WEBSITE***

***<https://ieeexplore.ieee.org/document/9767184>***

- ***PDF FILE –***

***[https://www.ijcseonline.org/pdf\\_paper\\_view.php?paper\\_id=5299&3-IJCSE-08461.pdf](https://www.ijcseonline.org/pdf_paper_view.php?paper_id=5299&3-IJCSE-08461.pdf)***