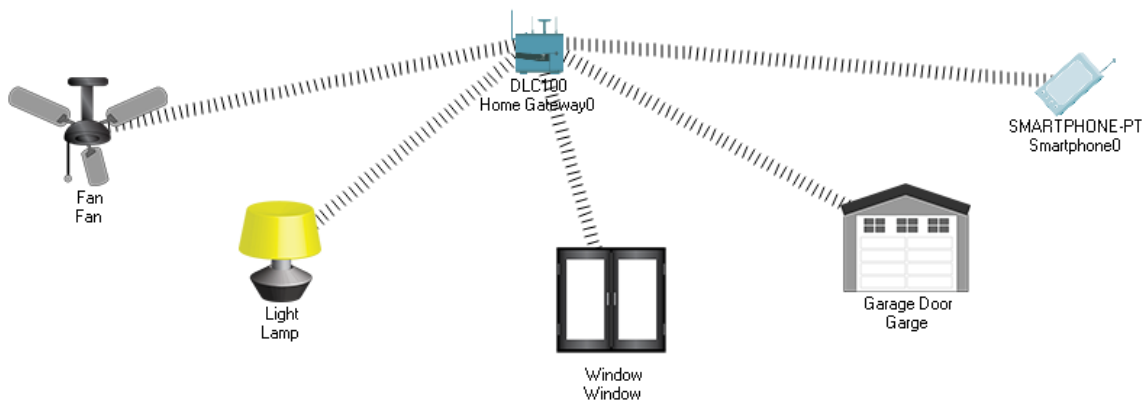


# PRACTICAL NO: 08

**AIM: Simulate Mobile Ad-hoc Network with Directional Antenna.**

**STEP 1:** Consider the following topology



**STEP 2:** Click on the Fan and do the following

The screenshot shows the configuration window for a device named 'Fan'. The window has tabs for 'Specifications', 'Physical', 'Config', and 'Attributes', with 'Config' currently selected. On the left, there is a sidebar with a tree view containing 'GLOBAL' (with sub-items 'Settings', 'Algorithm Settings', and 'Files') and 'INTERFACE' (with sub-items 'Wireless0' and 'Bluetooth'). The main configuration area is divided into three sections:

- Gateway/DNS IPv4:** Includes radio buttons for 'DHCP' (selected) and 'Static'. The 'Default Gateway' is set to '192.168.25.1'.
- Gateway/DNS IPv6:** Includes radio buttons for 'Automatic' and 'Static' (selected). Fields for 'Default Gateway' and 'DNS Server' are present.
- IoT Server:** Includes radio buttons for 'None', 'Home Gateway' (selected and highlighted with a red box), and 'Remote Server'. Fields for 'Server Address', 'User Name', and 'Password' are also present.

At the bottom left, there is a 'Top' button, and at the bottom right, there is an 'Advanced' button.

**STEP 3:** Click on the Light and do the following

Lamp

Specifications Physical **Config** Attributes

**GLOBAL**

Settings

Algorithm Settings

Files

**INTERFACE**

Wireless0

Bluetooth

Display Name Lamp

Serial Number PTT0810M687-

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

User Name

Password

Top

Advanced

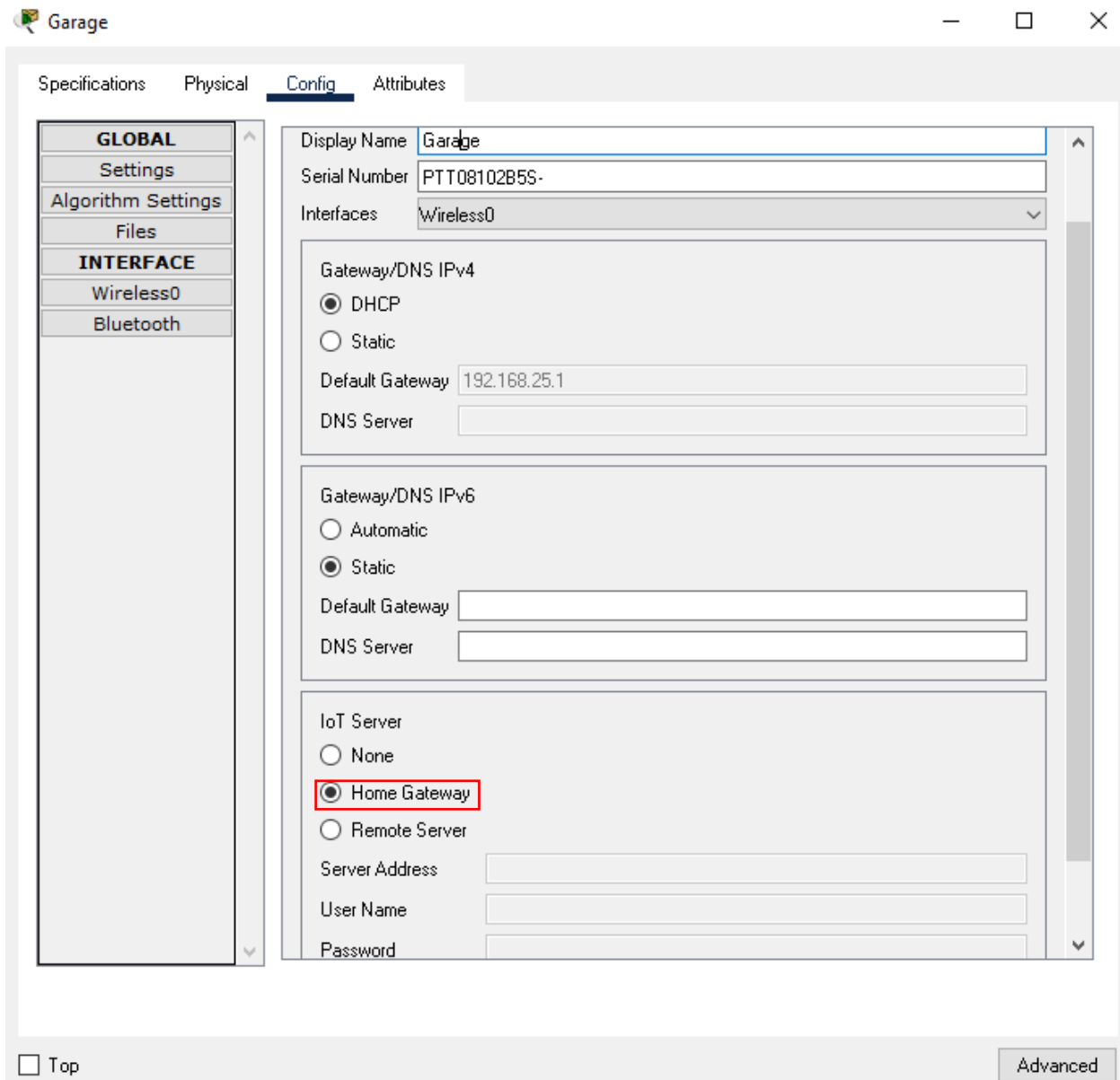
**STEP 4:** Click on the Window and do the following

The screenshot shows a web-based configuration interface for a device named 'Window'. The interface has a sidebar on the left with a tree view containing 'GLOBAL' (with sub-items 'Settings', 'Algorithm Settings', 'Files') and 'INTERFACE' (with sub-items 'Wireless0' and 'Bluetooth'). The 'Wireless0' interface is selected. The main area is titled 'Config' and contains the following fields:

- Display Name: Window
- Serial Number: PTT08107465-
- Interfaces: Wireless0 (dropdown menu)
- Gateway/DNS IPv4:
  - ☒ DHCP
  - ☐ Static
  - Default Gateway: 192.168.25.1
  - DNS Server: (empty field)
- Gateway/DNS IPv6:
  - ☐ Automatic
  - ☒ Static
  - Default Gateway: (empty field)
  - DNS Server: (empty field)
- IoT Server:
  - ☐ None
  - ☒ Home Gateway (highlighted with a red box)
  - ☐ Remote Server
  - Server Address: (empty field)
  - User Name: (empty field)
  - Password: (empty field)

At the bottom of the window, there is a 'Top' button and an 'Advanced' button.

**STEP 5:** Click on the Garage and do the following



The screenshot shows the 'Garage' application window with the 'Config' tab selected. The left sidebar contains a tree view with 'GLOBAL' (Settings, Algorithm Settings, Files) and 'INTERFACE' (Wireless0, Bluetooth) sections. The main area displays configuration for the 'Wireless0' interface. The 'Display Name' is 'Garage' and the 'Serial Number' is 'PTT08102B5S-'. The 'Interfaces' dropdown is set to 'Wireless0'. Under 'Gateway/DNS IPv4', 'DHCP' is selected. Under 'Gateway/DNS IPv6', 'Static' is selected. Under 'IoT Server', 'Home Gateway' is selected and highlighted with a red box. At the bottom, there is a 'Top' button and an 'Advanced' button.

Garage

Specifications Physical **Config** Attributes

**GLOBAL**

- Settings
- Algorithm Settings
- Files

**INTERFACE**

- Wireless0
- Bluetooth

Display Name: Garage

Serial Number: PTT08102B5S-

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:

User Name:

Password:

☐ Top

Advanced

**STEP 6:** For the Smartphone copy the SSID from the SSID in the Home Gateway0

Home Gateway0

Physical Config GUI Attributes

**GLOBAL**

Settings

Algorithm Settings

**INTERFACE**

Internet

LAN

Wireless

**Wireless Settings**

SSID: HomeGateway

2.4 GHz Channel: 6 - 2.437GHz

Coverage Range (meters): 250.00

Authentication:

☒ Disabled ☐ WEP ☐ WPA-PSK ☐ WPA2-PSK ☐ WPA ☐ WPA2

WEP Key:

PSK Pass Phrase:

RADIUS Server Settings:

IP Address:

Shared Secret:

Encryption Type: Disabled

☐ Top

**STEP 7:** As seen above the SSID is HomeGateway, we use the same and set the SSID in the Smartphone

Smartphone0

Physical Config Desktop Programming Attributes

GLOBAL

Settings

Algorithm Settings

INTERFACE

Wireless0

3G/4G Cell1

Bluetooth

Wireless0

Port Status ☒ On

Bandwidth 300 Mbps

MAC Address 00D0.5839.816A

SSID HomeGateway

Authentication

☒ Disabled

☐ WEP

☐ WPA-PSK

☐ WPA

☐ 802.1X

☐ WPA2-PSK

☐ WPA2

Method:

WEP Key

PSK Pass Phrase

User ID

Password

User Name

Password

MD5

Encryption Type Disabled

IP Configuration

☒ DHCP

☐ Static

IPv4 Address 192.168.25.104

Subnet Mask 255.255.255.0

IPv6 Configuration

☐ Automatic

☒ Static

IPv6 Address

Link Local Address: FE80::2D0:58FF:FE39:816A

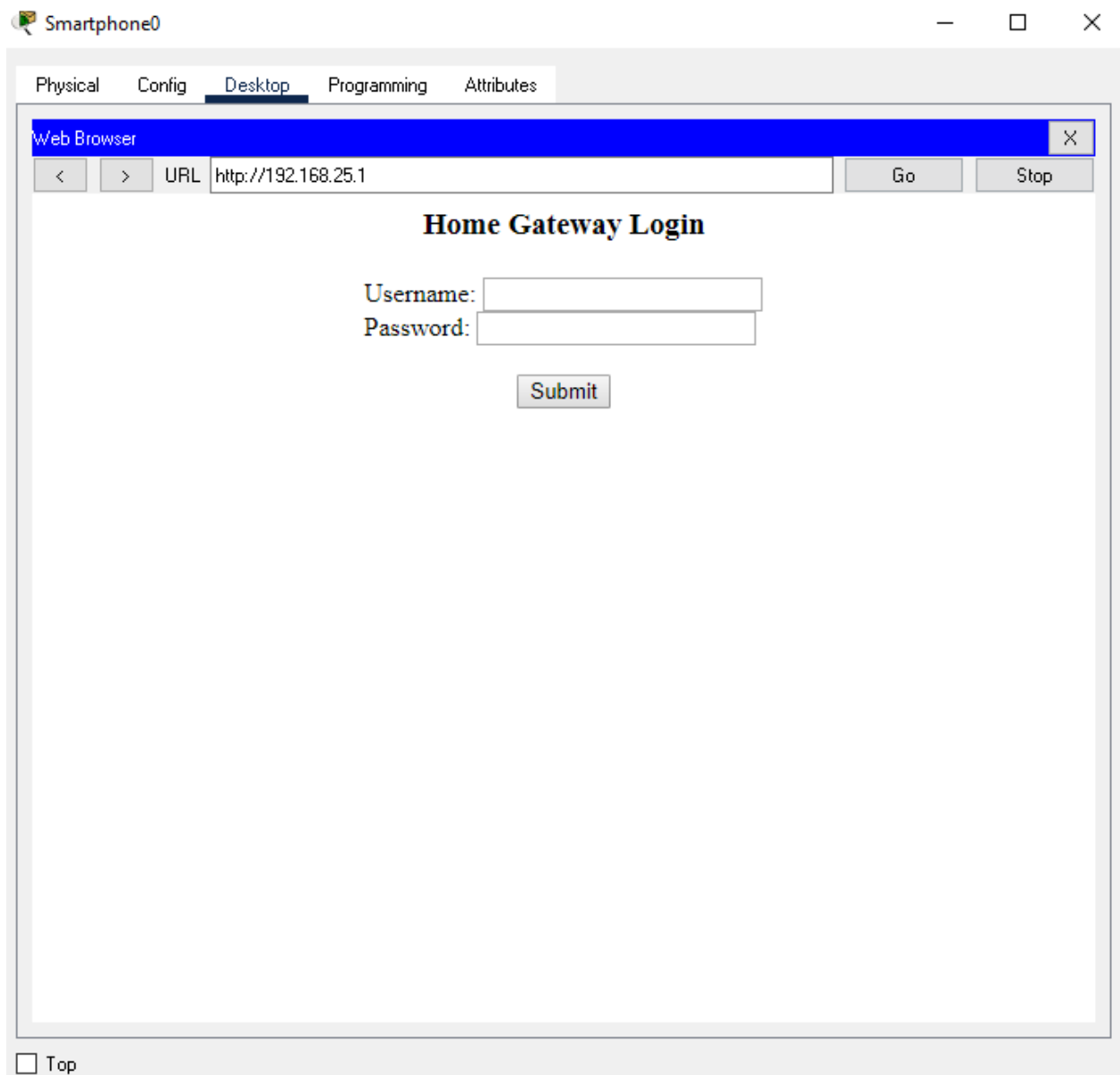
☐ Top

**STEP 8:** Now open the Web browser of the SmartPhone and type the IP address of the HomeGateway

The screenshot shows a web browser window titled "Home Gateway0". The interface has a top navigation bar with tabs: "Physical", "Config" (selected), "GUI", and "Attributes". On the left side, there is a vertical menu with categories: "GLOBAL" (containing "Settings" and "Algorithm Settings"), "INTERFACE" (containing "Internet", "LAN" (selected), and "Wireless"). The main content area is titled "LAN Settings" and contains a table for IP Configuration:

IP Configuration	
IPv4 Address	192.168.25.1
Subnet Mask	255.255.255.0

At the bottom left of the window, there is a "Top" button with a square icon.



**Username: admin**

**Password: admin**



**STEP 9:** After logging click on conditions and do the following

The screenshot shows a web browser window titled "Smartphone0" with a tab for "IoT Server - Device Conditions". The browser's address bar shows the URL "http://192.168.25.1/conditions.html". The page has a navigation bar with links: "Home", "Conditions", "Editor", and "Log Out". The "Conditions" link is highlighted. The main content area displays a table of conditions. The first condition is selected, and an "Edit Rule" dialog box is open over it. The dialog box has a title bar "Edit Rule" and a close button. It contains the following fields and controls:

- Name:** A text input field containing "fan-on".
- Enabled:** A checkbox that is checked.
- If:** A section for defining the condition. It includes a "Match" dropdown set to "All", a "Window" dropdown, and a value "On" followed by "is true". There are "+ Condition" and "+ Group" buttons to the right.
- Then set:** A section for defining the action. It includes a "Fan" dropdown, a "Status" dropdown, and a value "High". There is a "+ Action" button to the right.
- Buttons:** "OK" and "Cancel" buttons at the bottom right of the dialog.

At the bottom left of the browser window, there is a "Top" button.

## STEP 10: Add another condition as follows

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

Edit Rule

Name fan-off

Enabled ☒

If:

Match All

Window On is false

+ Condition + Group

Then set:

Fan Status to Off

+ Action

OK Cancel

Top

Physical Config **Desktop** Programming Attributes

Web Browser

✕

< > URL 

Go

Stop

IoT Server - Device Conditions

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

Edit Rule

✕

Name Enabled ☒

If:

Match All ▾

Garage ▾

On ▾

is

true ▾

+ Condition

+ Group

-

Then set:

Lamp ▾

Status ▾

to

On ▾

+ Action

-

OK

Cancel

Physical Config **Desktop** Programming Attributes

Web Browser

✕

< > URL 

Go

Stop

IoT Server - Device Conditions

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

Edit Rule

✕

Name Enabled ☒

If:

Match All ▾

Garage ▾

On ▾

is

false ▾

+ Condition

+ Group

Then set:

Lamp ▾

Status ▾

to

Off ▾

+ Action

OK

Cancel

## STEP 11: Press the go button after adding the four conditions

Smartphone0

Physical Config **Desktop** Programming Attributes

Web Browser

< > URL  Go Stop

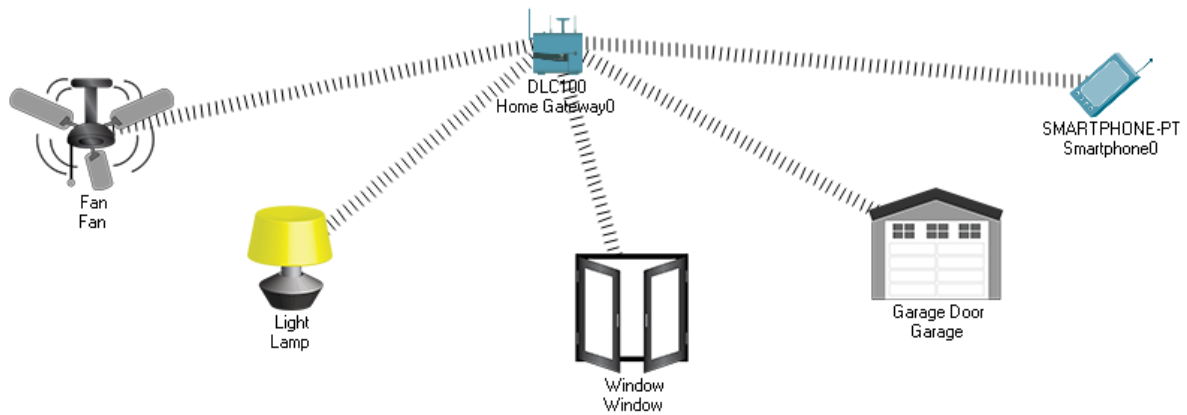
IoT Server - Device Conditions [Home](#) | [Conditions](#) | [Editor](#) | [Log Out](#)

Actions		Enabled	Name	Condition	Actions
Edit	Remove	Yes	fan-on	Window On is true	Set Fan Status to High
Edit	Remove	Yes	fan-off	Window On is false	Set Fan Status to Off
Edit	Remove	Yes	light-on	Garage On is true	Set Lamp Status to On
Edit	Remove	Yes	lamp-off	Garage On is false	Set Lamp Status to Off

Add

☐ Top

**STEP 12:** In order to turn ON the fan Press the ALT key and left-click the mouse over the Window



**STEP 13:** In order to turn ON the Light Press the ALT key and left-click the mouse over the Garage

