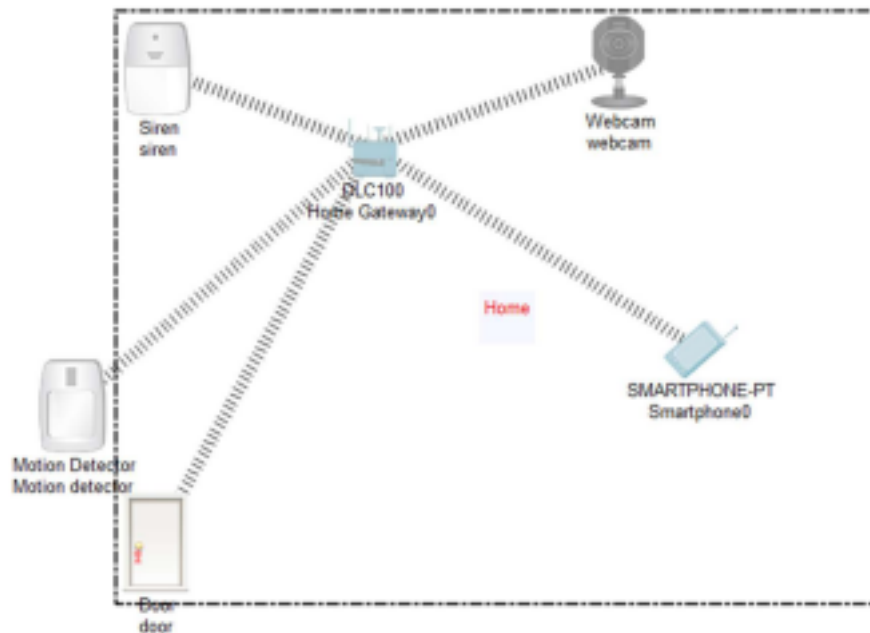


Architecture/Design



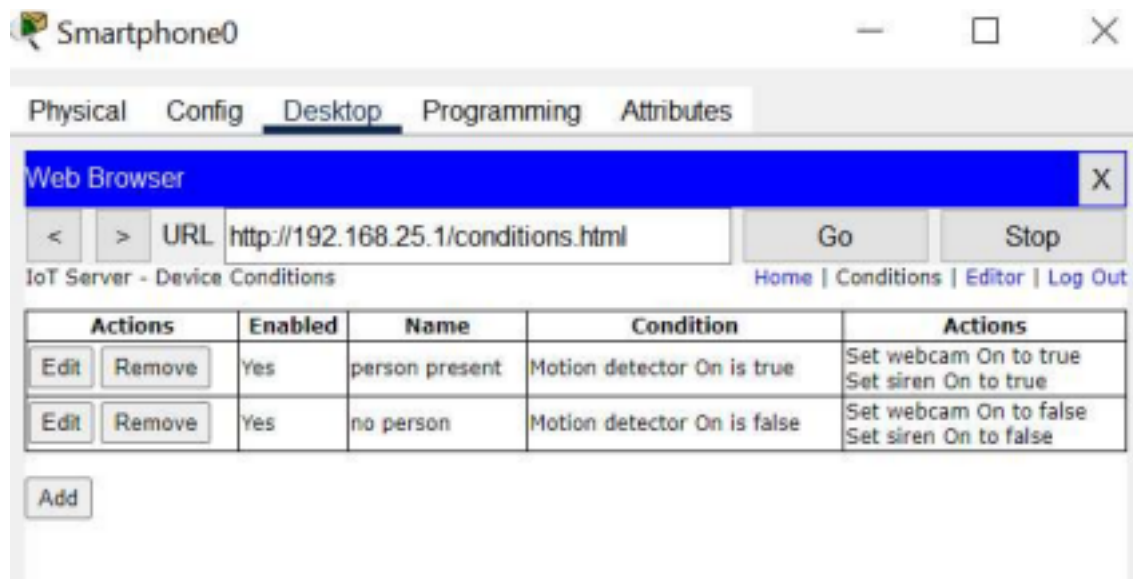
Implementation

- Home Gateway have 4 Ethernet ports in addition to a wireless access point configured with the "Home Gateway" SSID (see fig 2). To secure wireless connection WEP / WPA-PSK / WPA2 enterprise can be configured on home gateway.
- The Home Gateway internal (LAN) IP address is 192.168.25.1 but it can also be accessed through its Internet facing IP address
- Home gateway also works as DHCP server

by assigning IP address to each smart device that connected to it.

Security Actions

- When a person appears in front of the door. Motion detector is switched on and then webcam and siren are set to action
- When no person appears in front of the door the motion detector is not switched on also the webcam and siren are put switched off

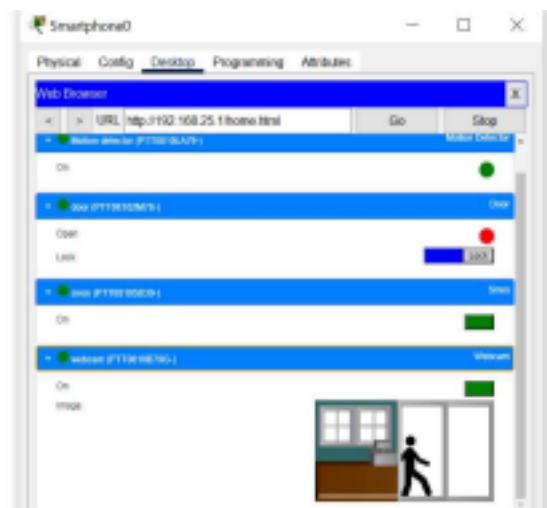
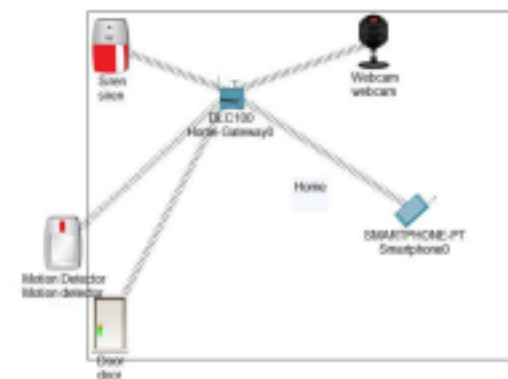
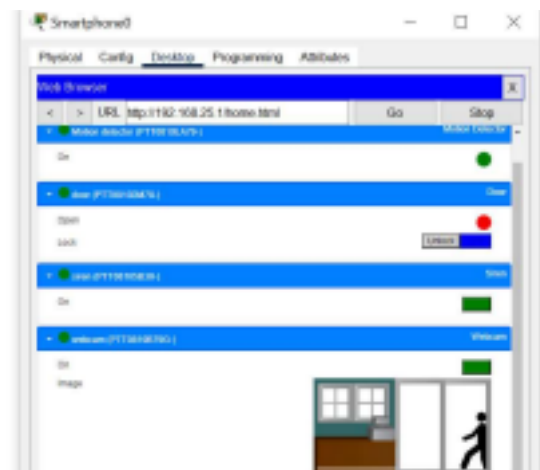
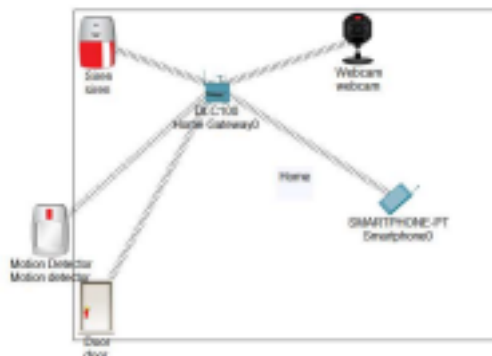
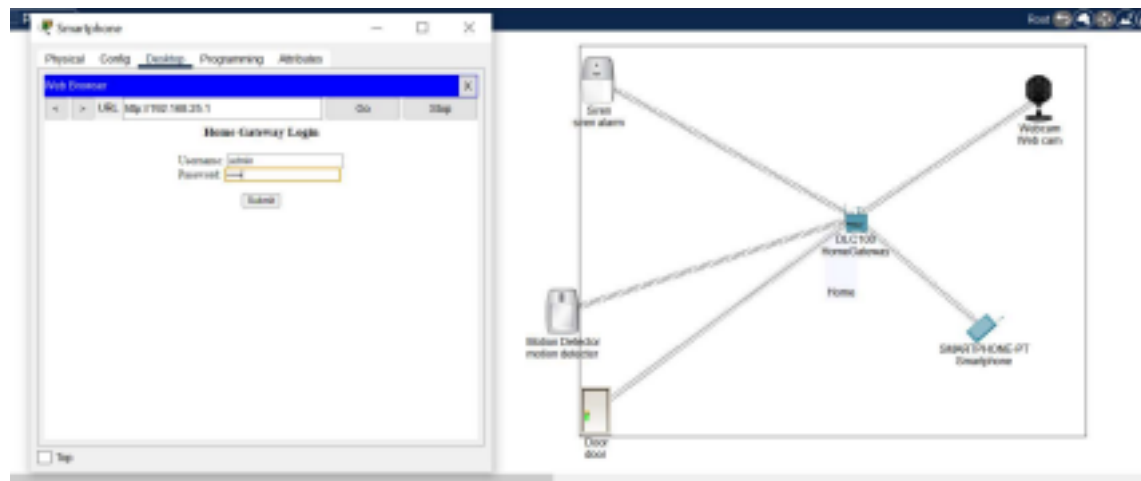


The screenshot shows the 'Smartphone0' IoT Server interface. The 'Desktop' tab is active, displaying a 'Web Browser' window. The browser's address bar shows the URL 'http://192.168.25.1/conditions.html'. Below the browser, there is a table titled 'IoT Server - Device Conditions' with two columns: 'Conditions' and 'Actions'. The table lists two conditions: 'person present' and 'no person'. Each condition has a set of actions associated with it. The 'person present' condition triggers 'Motion detector On is true', which then sets the 'webcam On' and 'siren On' to true. The 'no person' condition triggers 'Motion detector On is false', which then sets the 'webcam On' and 'siren On' to false. There are 'Edit' and 'Remove' buttons for each condition, and an 'Add' button at the bottom.

Actions	Enabled	Name	Condition	Actions
Edit Remove	Yes	person present	Motion detector On is true	Set webcam On to true Set siren On to true
Edit Remove	Yes	no person	Motion detector On is false	Set webcam On to false Set siren On to false

[Add](#)

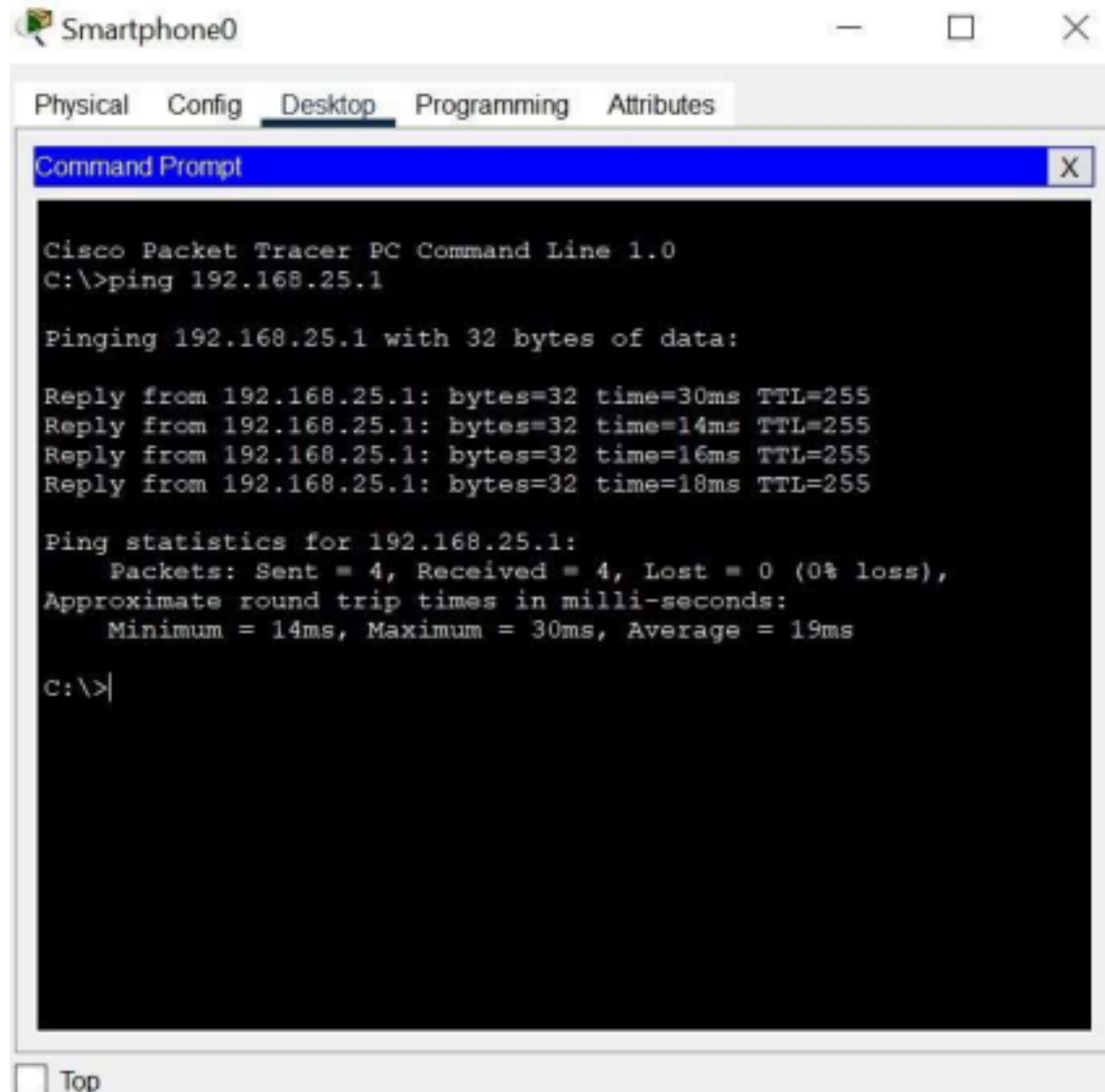
Demonstration



Results and Discussion:

Connection Check:

The network connections were checked by ping requests:



The screenshot shows a Cisco Packet Tracer interface with a 'Smartphone0' device selected. The 'Desktop' tab is active, displaying a 'Command Prompt' window. The command prompt shows the execution of a ping command to the IP address 192.168.25.1. The output indicates that the ping was successful, with 4 packets sent, 4 received, and 0% loss. The round trip times are listed as Minimum = 14ms, Maximum = 30ms, and Average = 19ms.

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.25.1

Pinging 192.168.25.1 with 32 bytes of data:

Reply from 192.168.25.1: bytes=32 time=30ms TTL=255
Reply from 192.168.25.1: bytes=32 time=14ms TTL=255
Reply from 192.168.25.1: bytes=32 time=16ms TTL=255
Reply from 192.168.25.1: bytes=32 time=18ms TTL=255

Ping statistics for 192.168.25.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 14ms, Maximum = 30ms, Average = 19ms

C:\>
```

HTTPS Check:

The server access was checked with HTTPS by using a browser:

