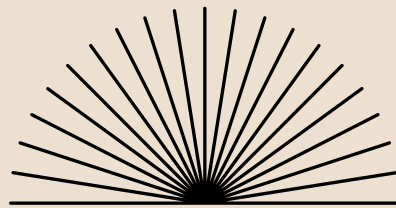
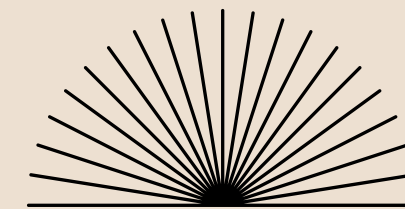
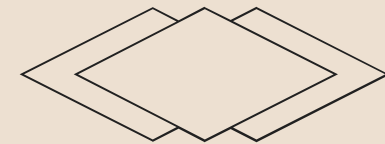

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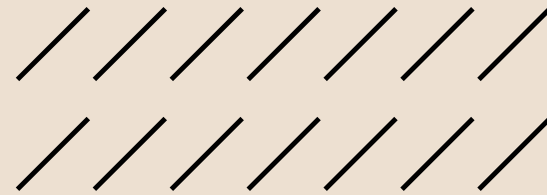




Hospital Network Infrastructure for Efficient Management and Connectivity using cisco.

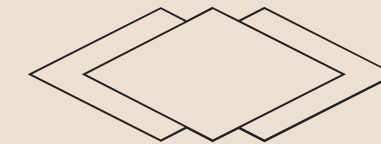


Introduction



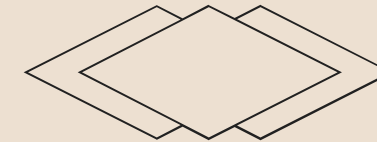
The hospital management system project aims to create a smart network using Cisco Packet Tracer. It connects IoT devices like cameras, fire alarms, smart lights, doors, windows, and fans to a central server. These devices can be controlled from the server room using a smartphone. The design includes different hospital rooms and cabins, providing better security, convenience, and energy efficiency for a modern healthcare facility.

Objectives



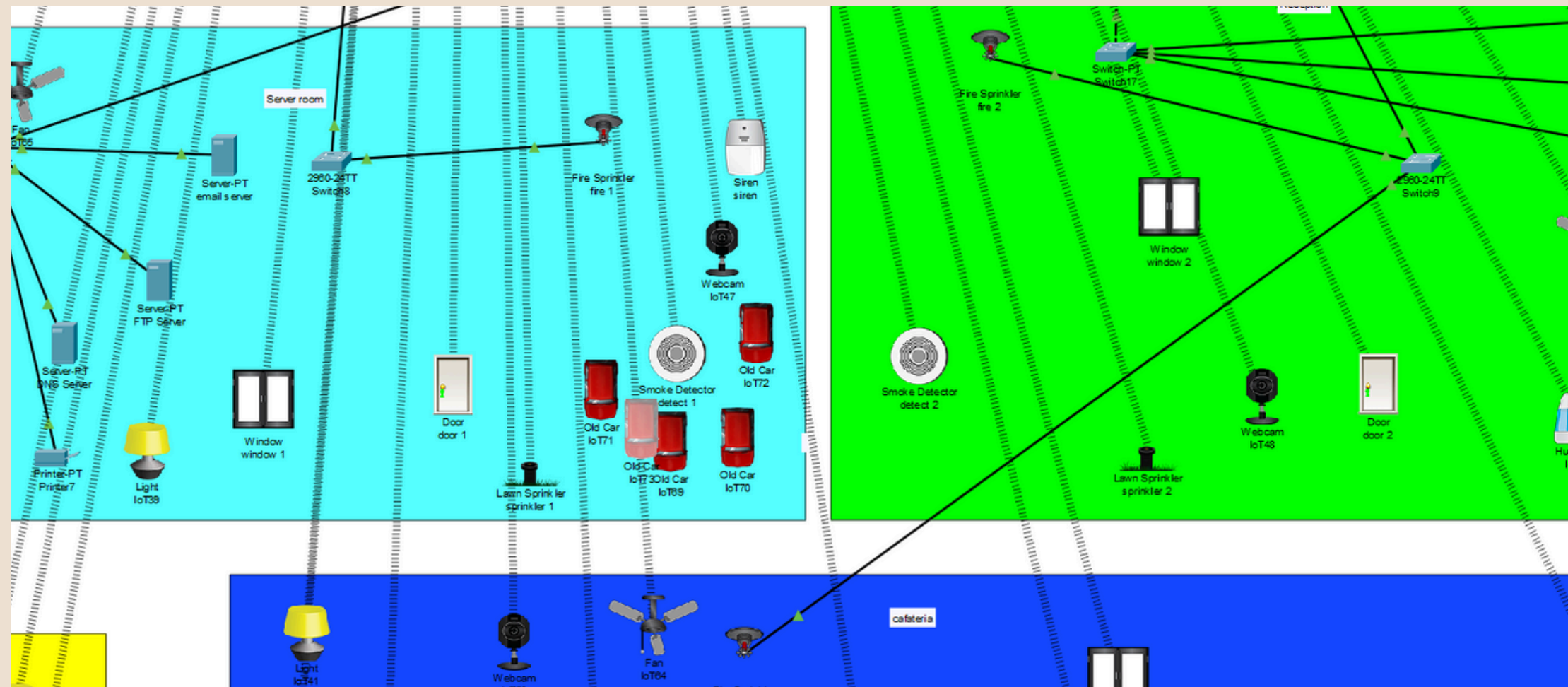
- To design a secure and efficient hospital network using Cisco Packet Tracer.
- To configure DHCP for dynamic IP allocation.
- To ensure wireless connectivity for all departments.
- To enforce access control and port security for data protection.
- To achieve high availability and redundancy in the network.

Motivation

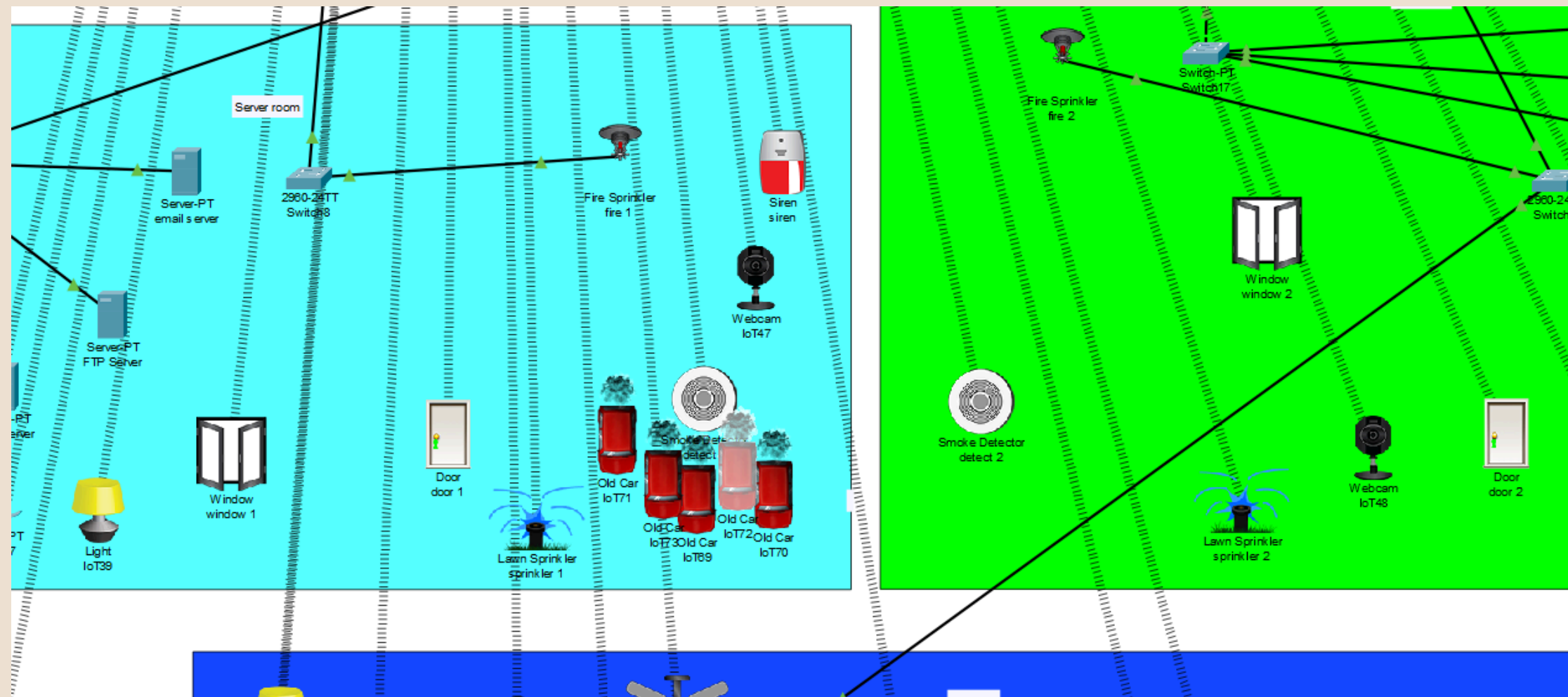


The motivation behind this project is to create a modern and efficient hospital environment that enhances patient care and staff productivity. By integrating IoT devices and smart technologies, we aim to simplify the management of hospital facilities, improve security, and reduce energy consumption.

IoT smoke detector




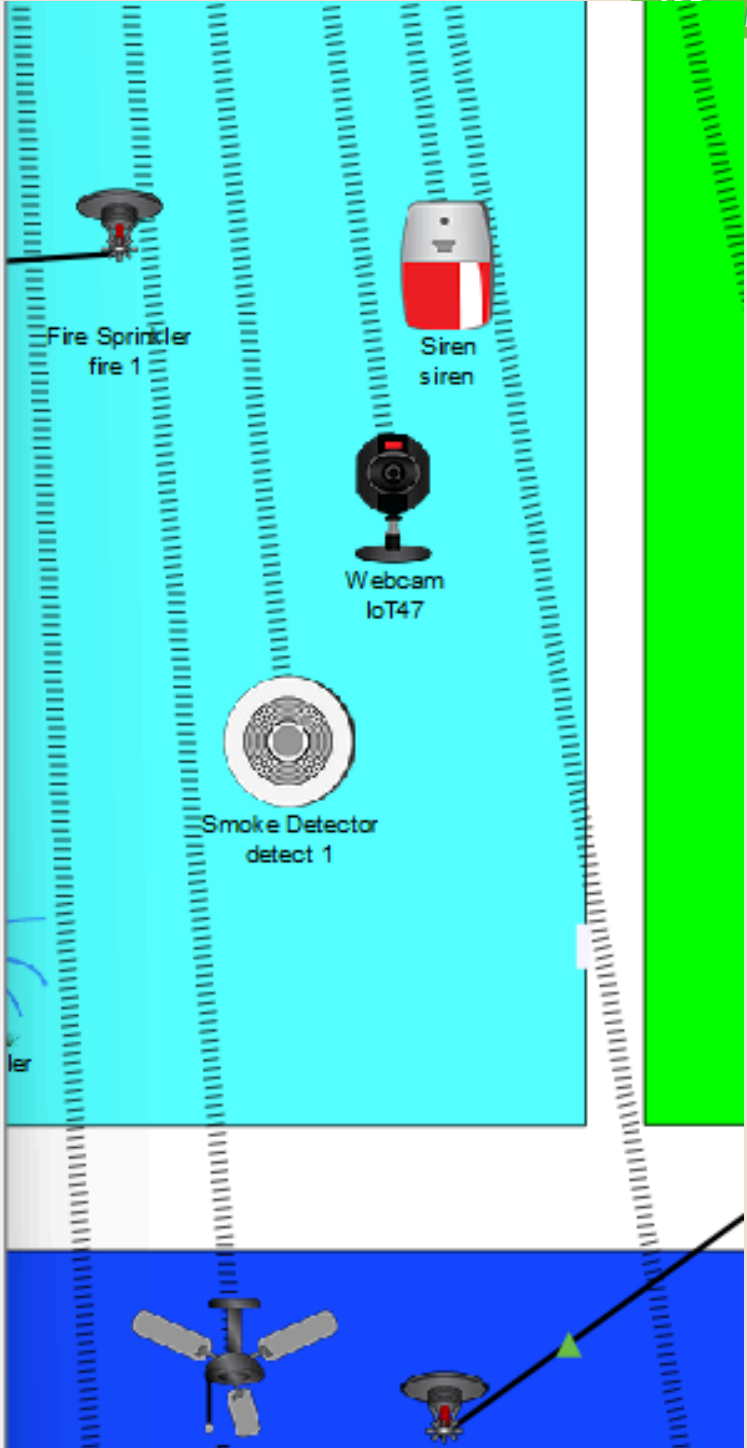
IoT smoke detector



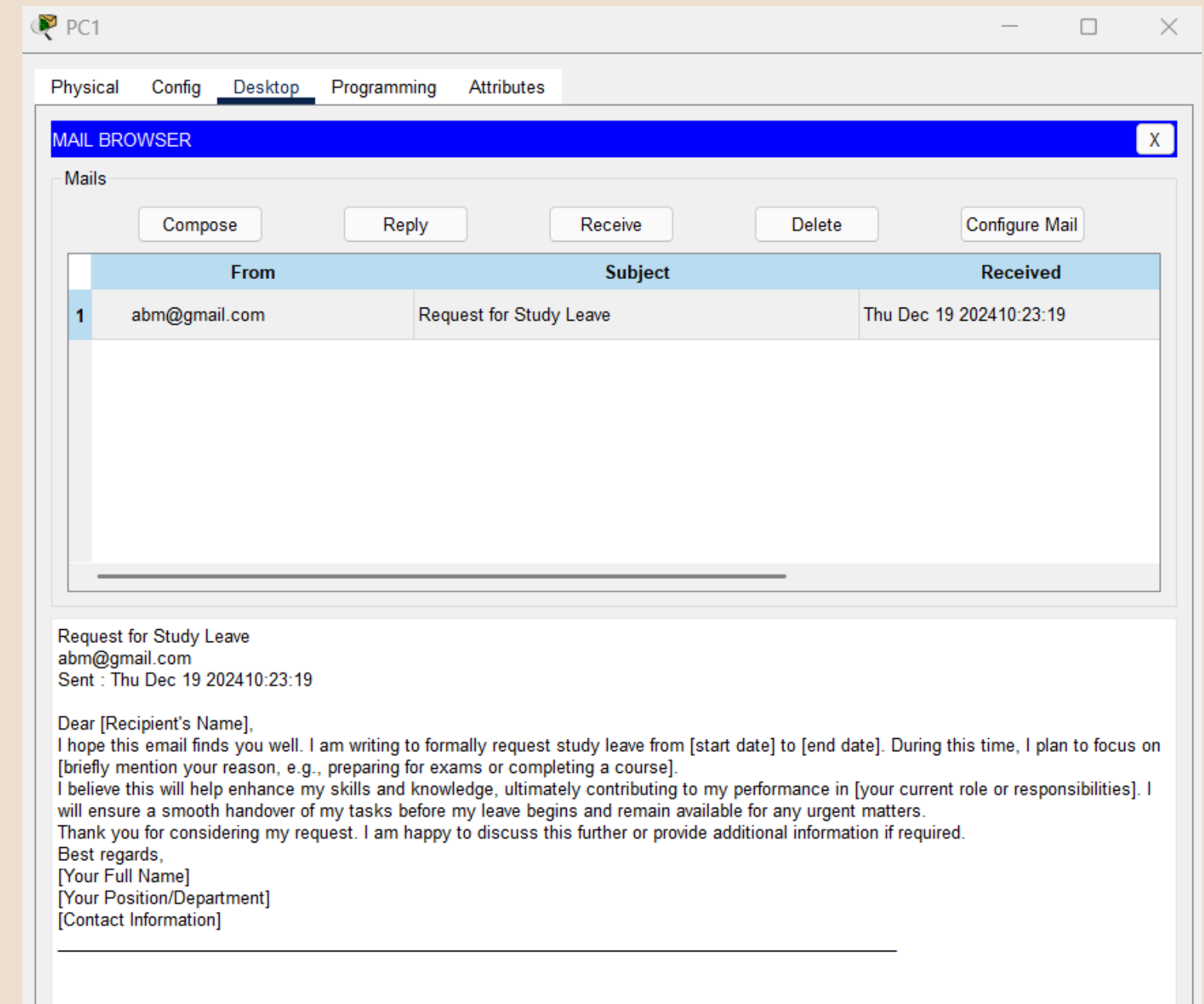
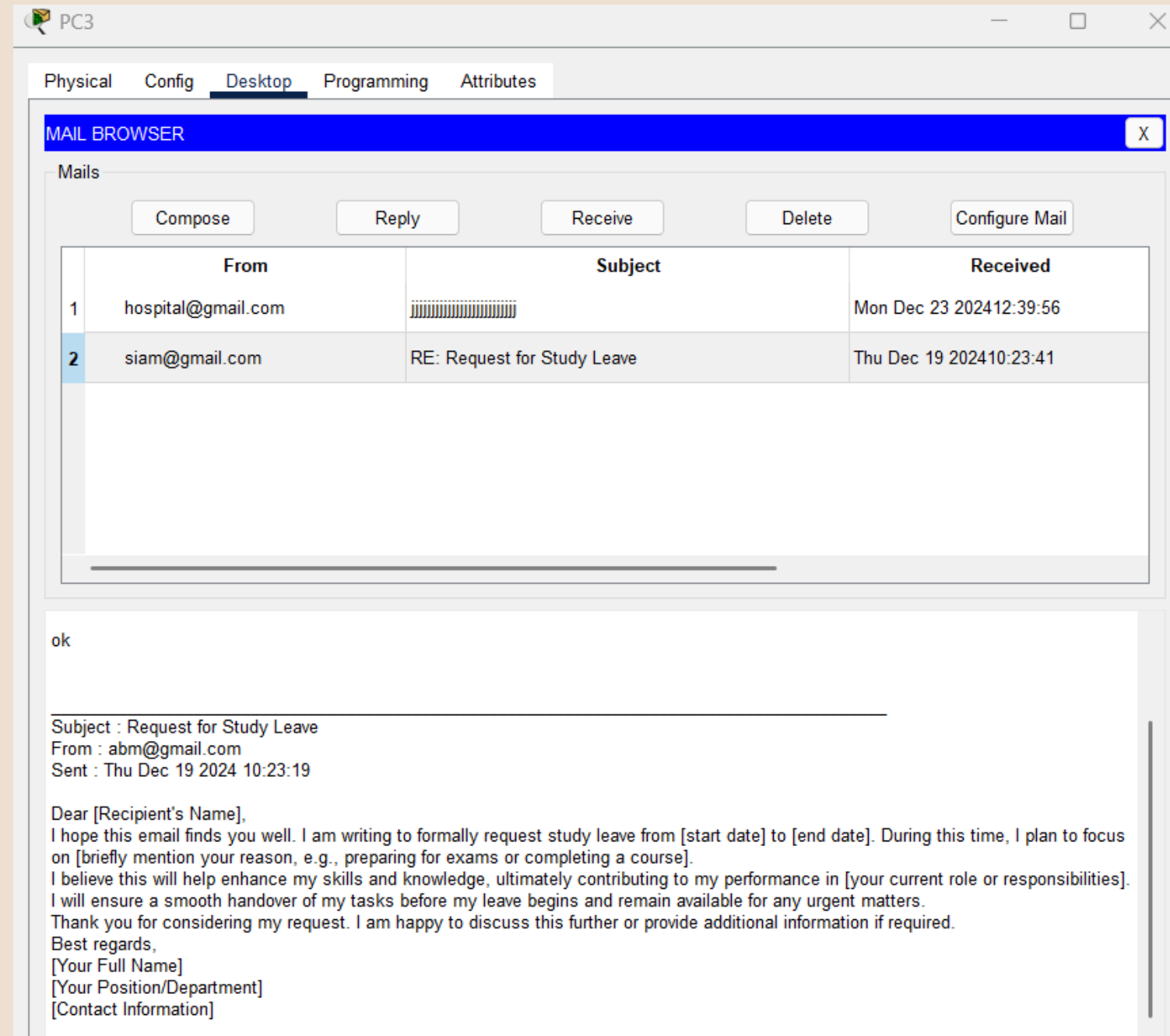
cctv camera



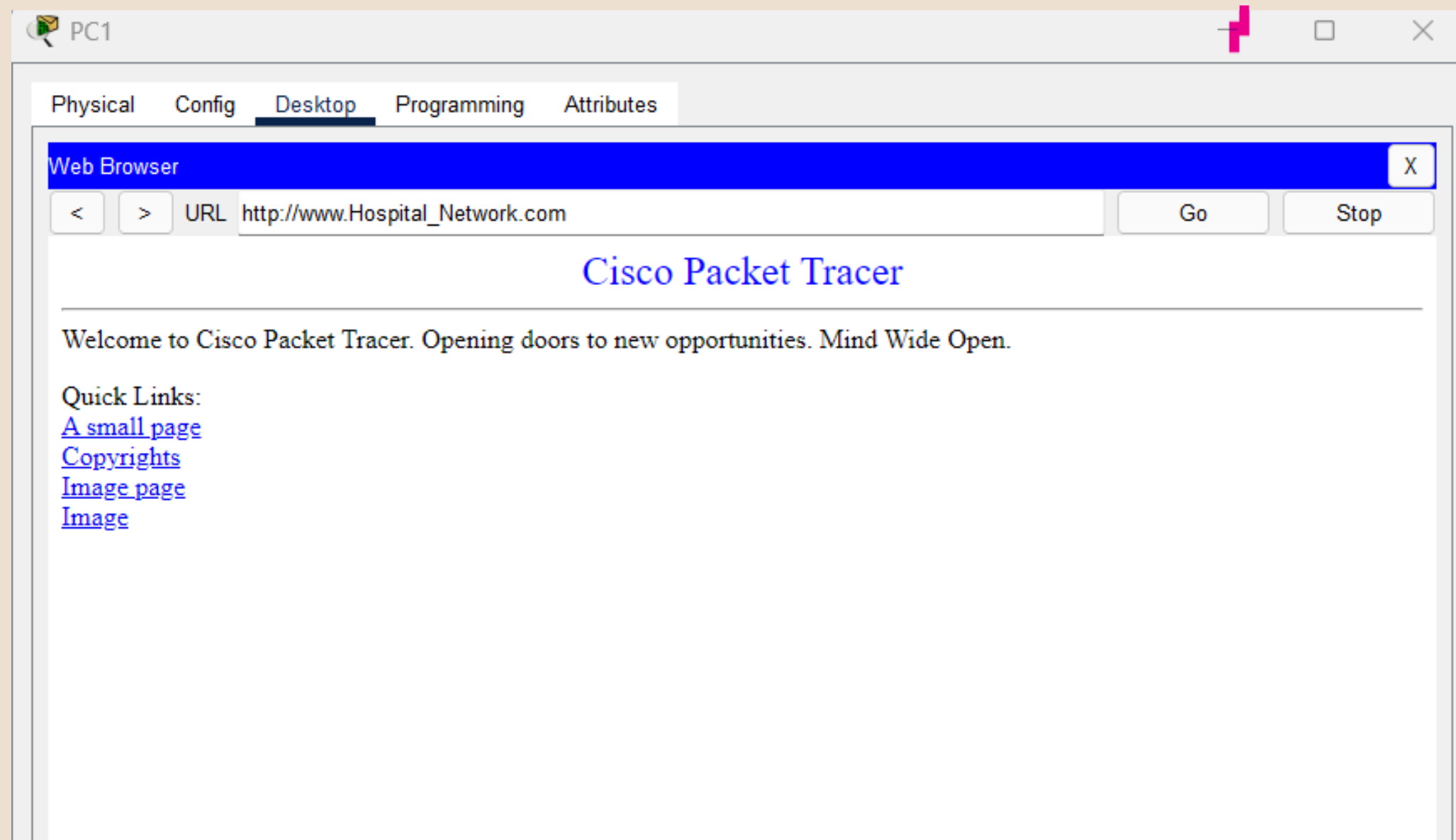
▶ ● sprinkler 1 (PTT0810CKE5-)	Lawn Sprinkler
▶ ● detect 1 (PTT0810L35G-)	Smoke Detector
▶ ● detect 2 (PTT081080VR-)	Smoke Detector
▶ ● sprinkler 2 (PTT0810UIIW-)	Lawn Sprinkler
▶ ● door 2 (PTT0810OH5E-)	Door
▶ ● window 2 (PTT0810C9J5-)	Window
▶ ● window 3 (PTT0810YTR7-)	Window
▶ ● detect 3 (PTT0810028Z-)	Smoke Detector
▶ ● door 3 (PTT0810ZAW7-)	Garage Door
▶ ● sprinklar 3 (PTT08108SQU-)	Lawn Sprinkler
▼ ● IoT47 (PTT0810UEWR-)	Webcam
On Image	
	



Gmail server



DNS Server



FTP server



FTP Server

Physical Config Services Desktop Programming Attributes

Command Prompt

```
Cisco Packet Tracer SERVER Command Line 1.0
C:\>ftp 192.168.6.5
Trying to connect...192.168.6.5
Connected to 192.168.6.5
220- Welcome to PT Ftp server
Username:siam
331- Username ok, need password
Password:
230- Logged in
(passive mode On)
ftp>dir

Listing /ftp directory from 192.168.6.5:
 0 : c1841-advipservicesk9-mz.124-15.T1.bin          33591768
 1 : c1841-ipbase-mz.123-14.T7.bin                  13832032
 2 : c1841-ipbasek9-mz.124-12.bin                    16599160
 3 : c1900-universalk9-mz.SPA.155-3.M4a.bin          33591768
 4 : c2600-advipservicesk9-mz.124-15.T1.bin          33591768
 5 : c2600-i-mz.122-28.bin                           5571584
 6 : c2600-ipbasek9-mz.124-8.bin                     13169700
 7 : c2800nm-advipservicesk9-mz.124-15.T1.bin        50938004
 8 : c2800nm-ipbase-mz.123-14.T7.bin                 5571584
 9 : c2800nm-ipbasek9-mz.124-8.bin                    15522644
10 : c2900-universalk9-mz.SPA.155-3.M4a.bin          33591768
11 : c2950-i6q412-mz.121-22.EA4.bin                 3058048
12 : c2950-i6q412-mz.121-22.EA8.bin                 3117390
13 : c2960-lanbase-mz.122-25.FX.bin                  4414921
14 : c2960-lanbase-mz.122-25.SEE1.bin                4670455
15 : c2960-lanbasek9-mz.150-2.SE4.bin                 4670455
16 : c3560-advipservicesk9-mz.122-37.SE1.bin         8662192
17 : c3560-advipservicesk9-mz.122-46.SE.bin          10713279
18 : c800-universalk9-mz.SPA.152-4.M4.bin             33591768
19 : c800-universalk9-mz.SPA.154-3.M6a.bin            83029236
20 : cat3k_caa-universalk9.16.03.02.SPA.bin           505532849
21 : cgr1000-universalk9-mz.SPA.154-2.CG              159487552
22 : cgr1000-universalk9-mz.SPA.156-3.CG              184530138
23 : ir800-universalk9-bundle.SPA.156-3.M.bin         160968869
24 : ir800-universalk9-mz.SPA.155-3.M                 61750062
25 : ir800-universalk9-mz.SPA.156-3.M                 63753767
26 : ir800_yocto-1.7.2.tar                           2877440
27 : ir800_yocto-1.7.2_python-2.7.3.tar             6912000
28 : pt1000-i-mz.122-28.bin                           5571584
ftp>delete c1841-advipservicesk9-mz.124-15.T1.bin
```

☐ Top

FTP server



```
FTP Server
Physical Config Services Desktop Programming Attributes
Command Prompt X
19 : c2600-universalk9-mz.SPA.154-3.M4a.bin 83029236
20 : cat3k_caa-universalk9.16.03.02.SPA.bin 505532849
21 : cgr1000-universalk9-mz.SPA.154-2.CG 159487552
22 : cgr1000-universalk9-mz.SPA.156-3.CG 184530138
23 : ir800-universalk9-bundle.SPA.156-3.M.bin 160968869
24 : ir800-universalk9-mz.SPA.155-3.M 61750062
25 : ir800-universalk9-mz.SPA.156-3.M 63753767
26 : ir800_yocto-1.7.2.tar 2877440
27 : ir800_yocto-1.7.2_python-2.7.3.tar 6912000
28 : pt1000-i-mz.122-28.bin 5571584
ftp>delete c1841-advipservicesk9-mz.124-15.T1.bin

Deleting file c1841-advipservicesk9-mz.124-15.T1.bin from 192.168.6.5: ftp>
[Deleted file c1841-advipservicesk9-mz.124-15.T1.bin successfully ]
ftp>rename c1841-ipbasek9-mz.124-12.bin siam

Renaming c1841-ipbasek9-mz.124-12.bin
ftp>
[OK Renamed file successfully from c1841-ipbasek9-mz.124-12.bin to siam]
ftp>dir

Listing /ftp directory from 192.168.6.5:
0 : c1841-ipbase-mz.123-14.T7.bin 13832032
1 : c1900-universalk9-mz.SPA.155-3.M4a.bin 33591768
2 : c2600-advipservicesk9-mz.124-15.T1.bin 33591768
3 : c2600-i-mz.122-28.bin 5571584
4 : c2600-ipbasek9-mz.124-8.bin 13169700
5 : c2800nm-advipservicesk9-mz.124-15.T1.bin 50938004
6 : c2800nm-ipbase-mz.123-14.T7.bin 5571584
7 : c2800nm-ipbasek9-mz.124-8.bin 15522644
8 : c2900-universalk9-mz.SPA.155-3.M4a.bin 33591768
9 : c2950-i6q412-mz.121-22.EA4.bin 3058048
10 : c2950-i6q412-mz.121-22.EA8.bin 3117390
11 : c2960-lanbase-mz.122-25.FX.bin 4414921
12 : c2960-lanbase-mz.122-25.SEE1.bin 4670455
13 : c2960-lanbasek9-mz.150-2.SE4.bin 4670455
14 : c3560-advipservicesk9-mz.122-37.SE1.bin 8662192
15 : c3560-advipservicesk9-mz.122-46.SE.bin 10713279
16 : c800-universalk9-mz.SPA.152-4.M4.bin 33591768
17 : c800-universalk9-mz.SPA.154-3.M6a.bin 83029236
18 : cat3k_caa-universalk9.16.03.02.SPA.bin 505532849
19 : cgr1000-universalk9-mz.SPA.154-2.CG 159487552
20 : cgr1000-universalk9-mz.SPA.156-3.CG 184530138
21 : ir800-universalk9-bundle.SPA.156-3.M.bin 160968869
22 : ir800-universalk9-mz.SPA.155-3.M 61750062
```


FTP server



```
FTP Server
Physical Config Services Desktop Programming Attributes

Command Prompt
25 : c1841-advipservicesk9-mz.124-15.T1.bin 33591768
26 : ir800_yocto-1.7.2.tar 2877440
27 : ir800_yocto-1.7.2_python-2.7.3.tar 6912000
28 : pt1000-i-mz.122-28.bin 5571584
ftp>delete c1841-advipservicesk9-mz.124-15.T1.bin

Deleting file c1841-advipservicesk9-mz.124-15.T1.bin from 192.168.6.5: ftp>
[Deleted file c1841-advipservicesk9-mz.124-15.T1.bin successfully ]
ftp>rename c1841-ipbasek9-mz.124-12.bin siam

Renaming c1841-ipbasek9-mz.124-12.bin
ftp>
[OK Renamed file successfully from c1841-ipbasek9-mz.124-12.bin to siam]
ftp>dir

Listing /ftp directory from 192.168.6.5:
0 : c1841-ipbase-mz.123-14.T7.bin 13832032
1 : c1900-universalk9-mz.SPA.155-3.M4a.bin 33591768
2 : c2600-advipservicesk9-mz.124-15.T1.bin 33591768
3 : c2600-i-mz.122-28.bin 5571584
4 : c2600-ipbasek9-mz.124-8.bin 13169700
5 : c2800nm-advipservicesk9-mz.124-15.T1.bin 50938004
6 : c2800nm-ipbase-mz.123-14.T7.bin 5571584
7 : c2800nm-ipbasek9-mz.124-8.bin 15522644
8 : c2900-universalk9-mz.SPA.155-3.M4a.bin 33591768
9 : c2950-i6q412-mz.121-22.EA4.bin 3058048
10 : c2950-i6q412-mz.121-22.EA8.bin 3117390
11 : c2960-lanbase-mz.122-25.FX.bin 4414921
12 : c2960-lanbase-mz.122-25.SEE1.bin 4670455
13 : c2960-lanbasek9-mz.150-2.SE4.bin 4670455
14 : c3560-advipservicesk9-mz.122-37.SEE1.bin 8662192
15 : c3560-advipservicesk9-mz.122-46.SE.bin 10713279
16 : c800-universalk9-mz.SPA.152-4.M4.bin 33591768
17 : c800-universalk9-mz.SPA.154-3.M6a.bin 83029236
18 : cat3k_caa-universalk9.16.03.02.SPA.bin 505532849
19 : cgr1000-universalk9-mz.SPA.154-2.CG 159487552
20 : cgr1000-universalk9-mz.SPA.156-3.CG 184530138
21 : ir800-universalk9-bundle.SPA.156-3.M.bin 160968869
22 : ir800-universalk9-mz.SPA.155-3.M 61750062
23 : ir800-universalk9-mz.SPA.156-3.M 63753767
24 : ir800_yocto-1.7.2.tar 2877440
25 : ir800_yocto-1.7.2_python-2.7.3.tar 6912000
26 : pt1000-i-mz.122-28.bin 5571584
27 : siam 16599160
ftp>
```

FTP server



```
Physical Config Services Desktop Programming Attributes
Command Prompt X
Deleting file c1841-advipservicesk9-mz.124-15.T1.bin from 192.168.6.5: /ftp>
[Deleted file c1841-advipservicesk9-mz.124-15.T1.bin successfully ]
ftp>rename c1841-ipbasek9-mz.124-12.bin siam

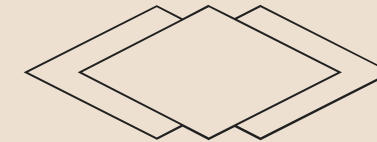
Renaming c1841-ipbasek9-mz.124-12.bin
ftp>
[OK Renamed file successfully from c1841-ipbasek9-mz.124-12.bin to siam]
ftp>dir

Listing /ftp directory from 192.168.6.5:
0 : c1841-ipbase-mz.123-14.T7.bin 13832032
1 : c1900-universalk9-mz.SPA.155-3.M4a.bin 33591768
2 : c2600-advipservicesk9-mz.124-15.T1.bin 33591768
3 : c2600-i-mz.122-28.bin 5571584
4 : c2600-ipbasek9-mz.124-8.bin 13169700
5 : c2800nm-advipservicesk9-mz.124-15.T1.bin 50938004
6 : c2800nm-ipbase-mz.123-14.T7.bin 5571584
7 : c2800nm-ipbasek9-mz.124-8.bin 15522644
8 : c2900-universalk9-mz.SPA.155-3.M4a.bin 33591768
9 : c2950-i6q4l2-mz.121-22.EA4.bin 3058048
10 : c2950-i6q4l2-mz.121-22.EA8.bin 3117390
11 : c2960-lanbase-mz.122-25.FX.bin 4414921
12 : c2960-lanbase-mz.122-25.SEE1.bin 4670455
13 : c2960-lanbasek9-mz.150-2.SE4.bin 4670455
14 : c3560-advipservicesk9-mz.122-37.SE1.bin 8662192
15 : c3560-advipservicesk9-mz.122-46.SE.bin 10713279
16 : c800-universalk9-mz.SPA.152-4.M4.bin 33591768
17 : c800-universalk9-mz.SPA.154-3.M6a.bin 83029236
18 : cat3k_caa-universalk9.16.03.02.SPA.bin 505532849
19 : cgr1000-universalk9-mz.SPA.154-2.CG 159487552
20 : cgr1000-universalk9-mz.SPA.156-3.CG 184530138
21 : ir800-universalk9-bundle.SPA.156-3.M.bin 160968869
22 : ir800-universalk9-mz.SPA.155-3.M 61750062
23 : ir800-universalk9-mz.SPA.156-3.M 63753767
24 : ir800_yocto-1.7.2.tar 2877440
25 : ir800_yocto-1.7.2_python-2.7.3.tar 6912000
26 : pt1000-i-mz.122-28.bin 5571584
27 : siam 16599160

ftp> get
remote filename not specified
ftp>get cgr1000-universalk9-mz.SPA.156-3.CG

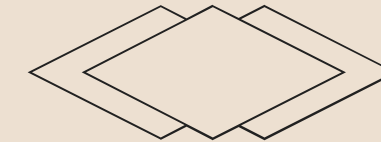
Reading file from 192.168.6.5:
File transfer in progress...
```

Future Scope

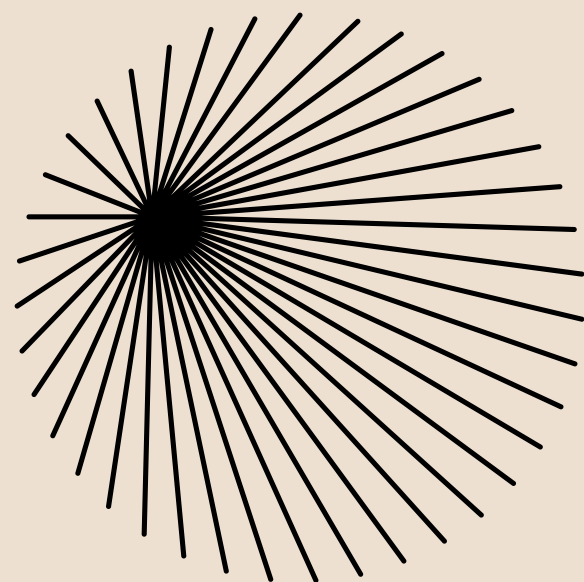


- Integrating AI for predictive maintenance and advanced automation.
- Adding more IoT-enabled medical equipment for real-time health monitoring.
- Implementing blockchain for secure patient data management and efficient record-sharing across departments.
- Utilizing advanced encryption methods to enhance network security.

Conclusion



The hospital management system network integrates IoT and smart devices to create an efficient, automated, and secure environment. The design ensures centralized control from the Admin Management Room, enabling seamless monitoring and operation of devices across departments, improving workflows, and enhancing patient care.



Thank You

