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(Formerly Known as Amritsar College of Engineering & Technology | Amritsar Pharmacy College)

PROJECT REPORT

ON

"DESIGN A NETWORK FOR SCHOOL USING PACKET TRACER"

Submitted in the Partial fulfillment of the requirement for the Award of Degree
of Bachelor of Technology in
COMPUTER SCIENCE & ENGINEERING (2020-24)

SUBMITTED TO

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Er.Bhuvnesh Kumar
(Assistant Professor)

SUBMITTED BY

Aashna Sagar (2000046)
Abhinav Anand (2000050)
Amritpal Singh (2000062)
Sumit Kumar Giri (2000213)

ACKNOWLEDGEMENT

This is a humble effort to express our sincere gratitude towards those who have guided and helped us to complete this project.

A project is major milestone during the study period of students. As such this project was a challenge to us and was an opportunity to prove our caliber. we are highly grateful and obliged to each and everyone making us help out of problems being faced by us.

It would not have been possible to see through the undertaken project without the guidance of **Er. Bhuvnesh Kumar (Assistant Professor)**. It was purely on the basis of their experience and knowledge that we able to clear all the theoretical and technical hurdles during the development phases of this project work.

Last but not the least we are thankful to our Head of Department and all Members of Computer Science Deptt. who gave us an opportunity to face real time problems while fulfilling need of an organization by making projects for them.

DECLARATION

We Name hereby declare that the project work entitled **"DESIGN A NETWORK FOR SCHOOL USING PACKET TRACER"** is an authentic record of our work carried out as requirements of Computer Network project for the award of degree of B.Tech(CSE), Amritsar College of Engg. And Technology, Amritsar, under the guidance of **Er. Bhuvnesh Kumar (Assistant Professor)**.

Name of Students with university roll number:

Aashna Sagar (2000046)

Abhinav Anand (2000050)

Amritpal Singh (2000062)

Sumit Kumar Giri (2000213)

Certified that the above statement made by the students is correct to the best of our knowledge and belief.

Faculty Coordinator

Er. Bhuvnesh Kumar(Assistant Professor)

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CISCO PACKET TRACER

Cisco Packet Tracer as the name suggests, is a tool built by Cisco. This tool provides a network simulation to practice simple and complex networks.

As Cisco believes, the best way to learn about networking is to do it.

The main purpose of Cisco Packet Tracer is to help students learn the principles of networking with hands-on experience as well as develop Cisco technology specific skills. Since the protocols are implemented in software only method, this tool cannot replace the hardware Routers or Switches. Interestingly, this tool does not only include Cisco products but also many more networking devices.

Using this tool is widely encouraged as it is part of the curriculum like CCNA, CCENT where Faculties use Packet Trace to demonstrate technical concepts and networking systems. Students complete assignments using this tool, working on their own or in teams.

Engineers prefer to test any protocols on Cisco Packet Tracer before implementing them. Also, Engineers who would like to deploy any change in the production network prefer to use Cisco Packet Tracer to first test the required changes and proceed to deploy if and only if everything is working as expected.

This makes the job easier for Engineers allowing them to add or remove simulated network devices, with a Command line interface and a drag and drop user interface.

Workspace :

1. Logical –

   Logical workspace shows the logical network topology of the network the user has built. It represents the placing, connecting and clustering virtual network devices.

2. Physical –

   Physical workspace shows the graphical physical dimension of the logical network. It depicts the scale and placement in how network devices such as routers, switches and hosts would look in a real environment. It also provides geographical representation of networks, including multiple buildings, cities and wiring closets.

Key Features:

- Unlimited devices
- E-learning
- Customize single/multi user activities
- Interactive Environment
- Visualizing Networks
- Real-time mode and Simulation mode
- Self-paced
- Supports majority of networking protocols
- International language support
- Cross platform compatibility

INTRODUCTION TO DESIGN A NETWORK FOR SCHOOL

The scope of this proposal is to create a better network for the School Area that will allow them flexibility in the following categories:

1. Security
2. Network Scalability
3. Emailing and FTP using
4. Own Server
5. Data Backup

There is no VPN for the school to provide separation from the public network.

Scope

- The project is primarily intended for small organizations, which include startups & otherorganizations, and small to medium-sized schools.
- The project has been made keeping in mind both cost and efficiency.
- Lastly, the project can be used both as a blank slate, and for upgrading a pre-existing network.

Utility

We firmly believe that the template provided by this design is applicable for any network provided it is not large enough.

Tools Used and Key Highlights:

- Tools
- The main tool used is Cisco Packet Tracer, provided free of charge for educational oracademic use by Cisco Inc.
- DHCP
- DNS
- EMAIL
- Routing

• Printer

Devices:

Network Devices need

1. 6 Switches
2. 3 Routers
3. 5 Hubs

Server Equipment

1. 1 Print server
2. 1 Web and 1 FTP server
3. 1 DHC

• Professional

• Broadened my horizons - learnt that there is more to life than studies.

• Managed to set deadlines, and abide by them – so that there is no undue pressure near the end.

• Technical

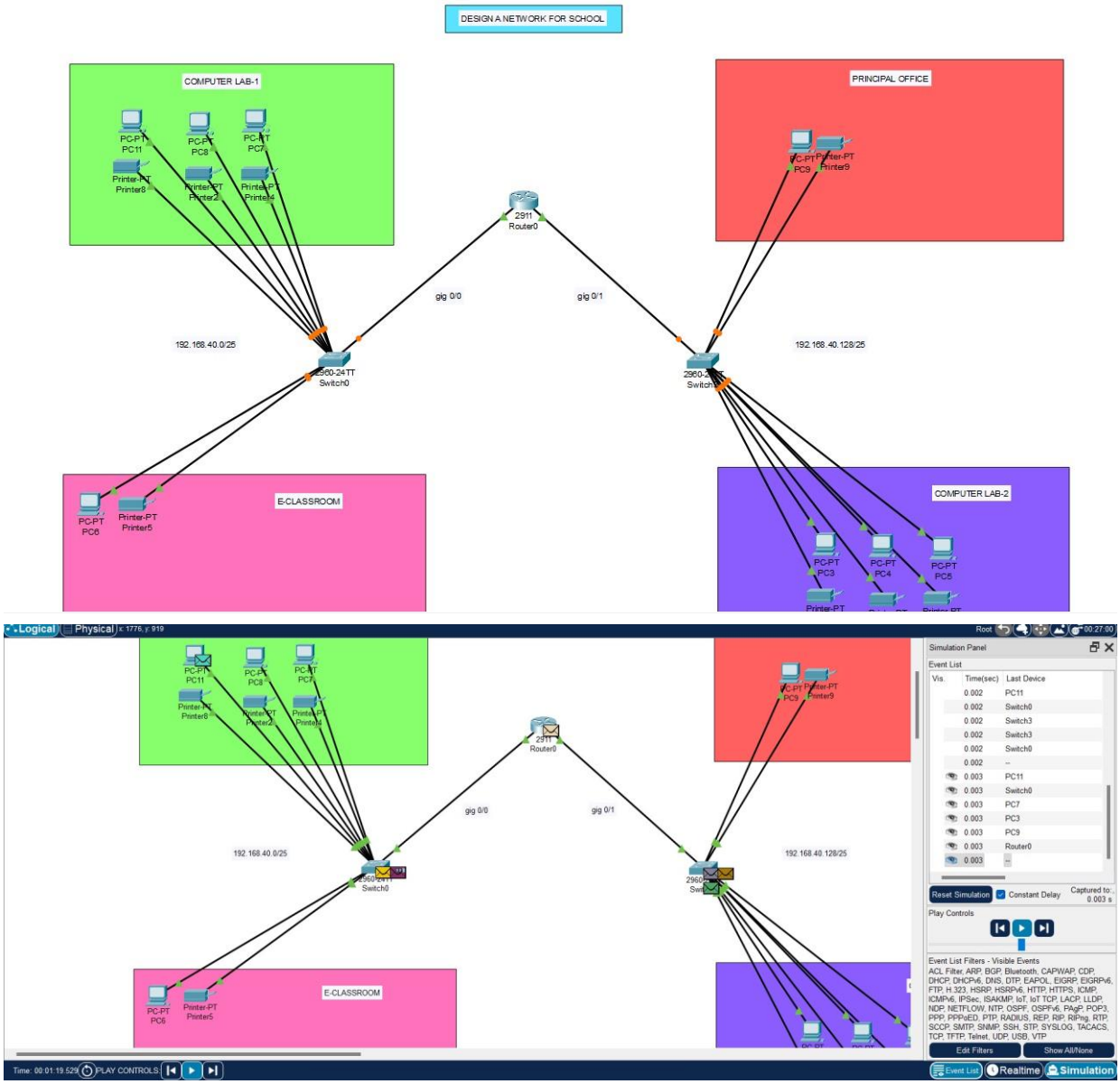
• Learned the OSI and the TCP/IP model in great detail.

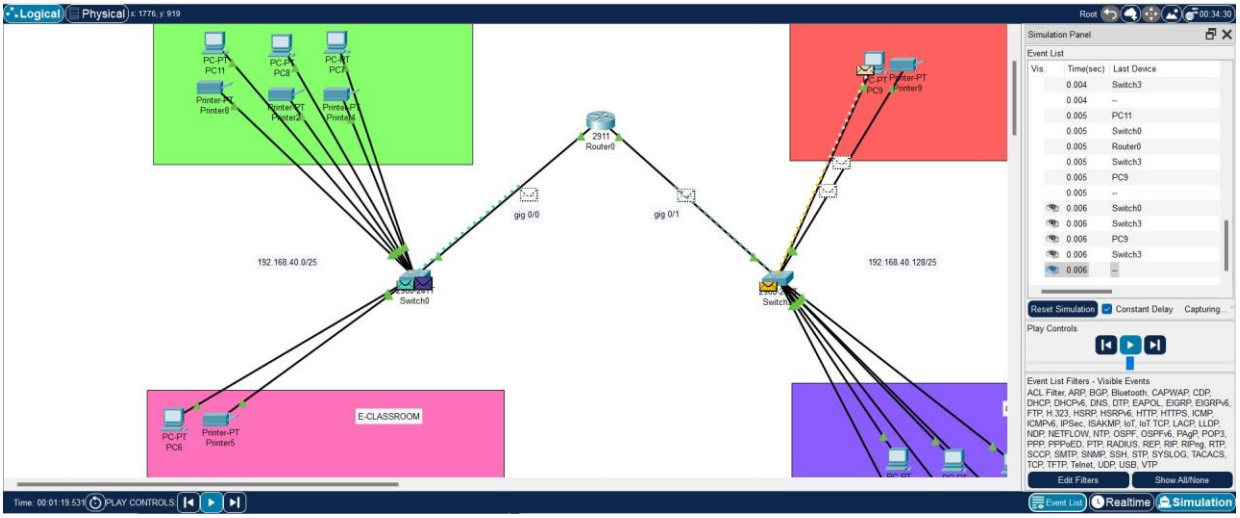
• Learned about various protocols, and why they are (or not) in use.

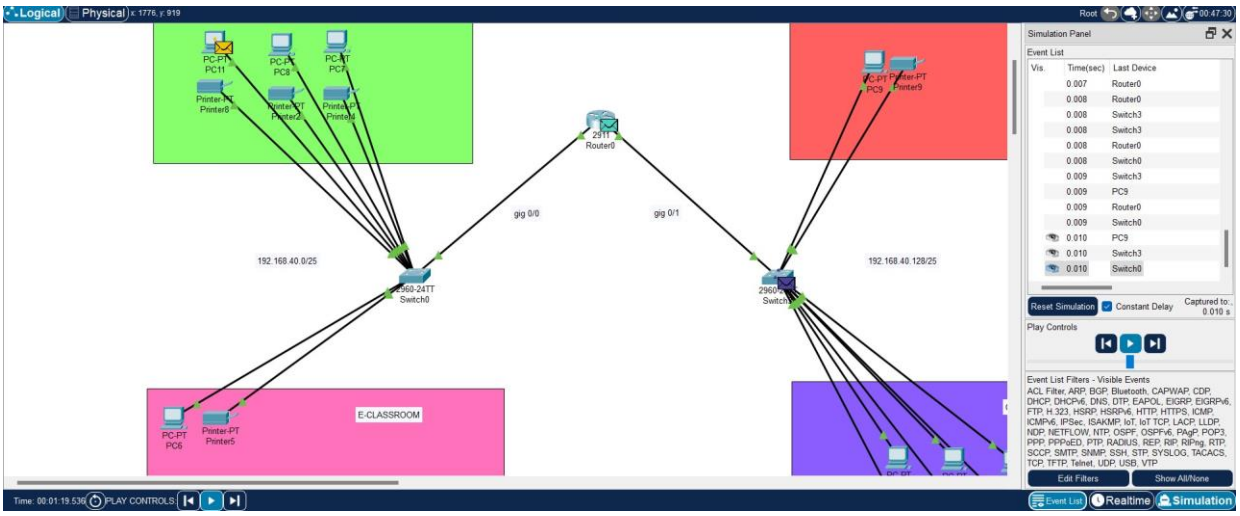
• Learned to build complex networks using Packet Tracer.

• Learned in great detail about various components of a network – switches, hubs, routers,servers, connecting wires, static and DHCP routings, VLans uses etc

SNAPSHOTS


DESIGN A NETWORK FOR SCHOOL
COMPUTER LAB-1
PC-PT PC11
PC-PT PC8
PC-PT PC7
Printer-PT Printer8
Printer-PT Printer2
Printer-PT Printer4
PRINCIPAL OFFICE
PC-PT PC9
Printer-PT Printer9
2911 Router0
gig 0/0
gig 0/1
192.168.40.0/25
192.168.40.128/25
2960-24TT Switch0
E-CLASSROOM
PC-PT PC6
Printer-PT Printer5
COMPUTER LAB-2
PC-PT PC3
PC-PT PC4
PC-PT PC5
Logical
Physical
Simulation Panel
Event List
Reset Simulation
Constant Delay
Play Controls
Edit Filters
Show All/None
Realtime
Simulation





TASK ALLOCATION

Aashna Sagar (2000046): Designing and Implementation.

Abhinav Anand(2000050): Designing and Implementation.

Amritpal Singh (2000062): Designing and Implementation.

Sumit Kumar Giri (2000213): Designing and Implementation.

We are working together for this project to do our best.We use packet tracer to design the Network of School Using Packet Tracer.

References

Anish2001Kumar/School-Network-Infrastructure-using-Cisco-Packet-Tracer

SaadAhmedSalim/NetworkDesignForSchool: Using Cisco Packet Tracer I have built a complex Network design for school. (github.com)

Boosting-Campus-Network-Design-Using-Cisco-Packet-Tracer.pdf (ijisrt.com)

IRJET-V8I4679.pdf

(202) CA2 Creating a College Campus Network in Cisco Packet Tracer - YouTube

2.1.1.5 Packet Tracer - Create a Simple Network Using Packet Tracer.pdf (netacad.com)

How to Connect Between Devices Via Network Wire on Cisco Packet Tracer(Virtual Program)? - GeeksforGeeks