COMPUTER NETWORKING & IT ADMINISTRATION AT NEXERP

BY

AL MAMUN ID: 191-15-12455

This Report Presented in Partial Fulfillment of the Requirements for the Degree of Bachelor of Science in Computer Science and Engineering

Supervised By

Nishat Sultana Lecturer Department of CSE Daffodil International University

Co-Supervised By

Raja Tariqul Hasan Tusher Sr. Lecturer Department of CSE Daffodil International University



DAFFODIL INTERNATIONAL UNIVERSITY

DHAKA, BANGLADESH

05 JANUARY 2022

©Daffodil International University

APPROVAL

This Project/internship titled **COMPUTER NETWORKING & IT ADMINISTRATION AT NEXERP**, submitted by AL MAMUN, ID No: 191-15-12455 to the Department of Computer Science and Engineering, Daffodil International University has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of B.Sc. in Computer Science and Engineering and approved as to its style and contents. The presentation has been held on 05 January 2022.

BOARD OF EXAMINERS

Thi)

Dr. Sheak Rashed Haider Noori (SRH) Associate Professor and Associate Head Department of Computer Science and Engineering Faculty of Science & Information Technology Daffodil International University

2 Habil

Md. Tarek Habib (MTH) Assistant Professor Department of Computer Science and Engineering Faculty of Science & Information Technology Daffodil International University

Raduan

Md. Reduanul Haque (MRH) Assistant Professor Department of Computer Science and Engineering Faculty of Science & Information Technology Daffodil International University

mit

Dr. Mohammad Shorif Uddin Professor Department of Computer Science and Engineering Jahangirnagar University Internal Examiner

Chairman

Internal Examiner

External Examiner

DECLARATION

We hereby declare that this project has been done by us under the supervision of **Nishat Sultana**, **Lecturer, Department of CSE** Daffodil International University. We also declare that neither this project nor any part of this project has been submitted elsewhere for award of any degree or diploma.

Supervised by:

Nishat Sultana Lecturer Department of CSE Daffodil International University

Co-Supervised by:



Raja Tariqul Hasan Tusher Sr. Lecturer Department of CSE Daffodil International University

Submitted by:

Al Mamun ID: -19-15-12455 Department of CSE Daffodil International University

ACKNOWLEDGEMENT

It is my great pleasure that I acknowledge whose suggestion and encouragements contributed to the preparation of this report, this report was incomplete without their help and guidance. First we express our heartiest thanks and gratefulness to almighty Allah for His blessing make possible to complete the final year internship successfully.

We really grateful and wish our profound our indebtedness to **Nishat Sultana**, **Lecturer**, Department of CSE Daffodil International University, Dhaka. Deep Knowledge & keen interest of our supervisor in this internship to carry out this project. His endless patience ,scholarly guidance ,continual encouragement , constant and energetic supervision, constructive criticism , valuable advice ,reading many inferior draft and correcting them at all stage have made it possible to complete this project.

I would like to express our heartiest gratitude to **Professor Dr. Touhid Bhuiyan**, **Professor and Head**, Department of CSE, for his kind help to finish our project and also to other faculty member and the staff of CSE department of Daffodil International University.

We would like to thank our entire course mate in Daffodil International University, who took part in this discuss while completing the course work.

Finally, we must acknowledge with due respect the constant support and patients of our parents.

ABSTRACT

The purpose of the project is to act as a user of network computers. My goal is implement the required functionality of your company. Helps to understand it. Knowledge is better like this.

A network administrator is someone who assigns responsibility to a company. This includes maintaining computer infrastructure with a focus on local area networks. Extensive network. As a network administrator, I learned as much as I could from here. I hope it will benefit me in the future.

TABLE OF CONTENTS

CONTENTS	PAGE
Board of examiners	i
Declaration	ii
Acknowledgements	iii
Abstract	iv

CHAPTER

CHAPTER 1: INTRODUCTION	1-2
1.1 Introduction	1
1.2 Motivation	1
1.2 Internship Objectives	2
1.3 Expected Outcome	2

CHAPTER 2: Internship at NEXERP	3-3
2.1 Introduction to the Company	3
2.2 Product and Market Situation	3
2.3 Target Group	3

CHAPTER 3: TASKS, PROJECTS, AND ACTIVITIES	4-12
3.1 Types of Networks	4
3.1.1 Local Area Network	5
3.1.2 Advantages of LAN network	6
3.1.3 Disadvantage of LAN network	6
3.2 Metropolitan Area Network	7
3.12 Advantages of MAN Network	7
3.2.2 Disadvantage of MAN network	7
3.3 Wide Area Network	8
3.3.1 Advantage of WAN	8
3.3.2 Disadvantage of WAN	8
3.4 Types of network cables	9
3.4.1 Coaxial cable	9
3.4.2 Twisted pair cable	10
3.4.3 Unshielded Twisted pair	10
3.4.4 Shielded Twisted pair	11
3.4.5 Fiber optic cable	12
CHAPTER 4: NETWORK DEVICES	12-16

4.1 Network Devices	12
4.1.1 HUB	12

vi

4.1.2 Switches	13
4.1.3 Media converter	13
4.1.4 Repeater	14
4.1.5 Router	15
CHAPTER 5: CCTV INSTALLATION & MAINTENANCE	17-25
5.1 Benefits of CCTV	17
5.2 Classification of CCTV	19
5.3 Installation of CCTV	20
5.4 CCTV Working Process	25
5.5 Monitoring CCTV Networks	26
CHAPTER 6: CONLUSION AND LIMITATION	27
6.1 Conclusion	28
APPENDIX	29
REFERENCES	30
PLAGIARISM REPORT	31-33

LIST OF FIGURES

FIGURES	PAGE NO
Figure 3.1: local area network	5
Figure: 3.2: Metropolitan Area Network	7
Figure3.3: wide area network	8
Figure3.4: Coaxial cable	9
Figure 3.5: Unshielded twisted pair cable	10
Figure 3.6: Shielded twisted pair cable	11
Figure: 3.7: Fiber optic cable	12
Figure 4.1: Hub	13
Figure: 4.2 CISCO Switch	14
Figure 4.3: Media converter	15
Figure 4.4:A Repeater	16
Figure:4.5: Cisco router	17
Figure:4.6:802.11ac Router	17
Figure4.7: 802.11n Router	18
Figure:4.8:802.11g Router	18

Figure:5.1: Login Page	22
Figure 5.2: NVR Men-Advance –Network Option	22
Figure-5.3 IP Address	23
Figure:5.4 choose apply option	23
Figure: 5.5 NVR Menu - Advance - Remote-ip modify Option	24
Figure: 5.6 IP address Subnet Mask and gateway	24
Figure: 5.7 Select IP Camera	25
Figure 5.8 Click batch Edit	25
Figure:5.9 Click Modify	26
Figure:5.10: CCTV Working Process	27

ix

CHAPTER 1 Introduction

1.1 Introduction

An electronic network is a network that allows computers to exchange data. On a computer Network devices in a network pass data to each other. The data is transferred in the form. Pair. Connections between nodes are made using either cable media or cable media. Wireless media. Computer networks use different transmission media to carry signals. Network size a communication protocol for planning network traffic in a topology Organizational Purpose In most cases, communication protocols are added on top of everything else. Individual or more general communication protocols, excluding the physical

1.2 Motivation

As I am studying my bachelor's degree in computer science and Engineering with IT sector, I believe that internship in the same sector will help me to gain the practical experience will academic study.

There is another reason for choosing network sector due to day die day increase the advantage of IT sector demand. The demand in Network and sector is highly valued in the job sector.

1.3 Internship Objectives

I want to gain practical experience from my internship in network Sector. I want to earn corporate experience from my network Sector. I want to earn corporate experience from this reputed and want to execute this in real life.

This internship on Network and security & IT administration will help me to gain the practical experience with academic study.

1.4 Expected Outcome

Through this internship, I can increase my developing skills, knowledge; understand the specific roles and responsibilities for job field. And it will be very helpful for decision making in my job sector gain success.

CHAPTER 2

Internship at NEXERP

2.1 Introduction to the Company

NexERP provides user-friendly ERP software, ensures after sales customer support, and offers a variety of the best quality products - all in the most affordable price. With optimized ERP software technology stack to deliver dynamic performance, we are best at providing SOHO ERP systems that deliver unparalleled capabilities to run businesses efficiently. NexERP has developed an integrated system to maintain all kinds of day-to- day business operation with operational efficiency.

2.2 Product and Market Situation

Creating client-oriented software at NexERP ensures a mix of technical excellence and clear communication. We have over 20 years of system development expertise in a variety of business models. We know that each customer is unique and that each customer is unique. We strive to provide an innovative and affordable ERP system.

2.3 Target Group

It's ERP. Support chain; e-commerce; CRM HR self-service portal. Vertical apps; Workflow content management; Digital media; integrated enterprise software platform with over 100 modules for project collaboration and social media. Companies need to be able to automate their operations. Work is done by providing end-to-end functionality and smooth collaboration between people as much as possible throughout the process.

NEXERP Limited

House-752, Road-1, Avenue -4, Mirpur DOHS, Dhaka-1216. Phone: +880 1919 111444 info@nexerp.com.bd nexerp.com.bd

CHAPTER 3

TASKS, PROJECTS, AND ACTIVISTS

Normally, if two computers are connected to each other, then it is also a network, and if thousands of computers are connected to each other, then it is also a network. In this way, when computers are connected to each other through a medium, they can exchange communication data between themselves

3.1 Types of Networks:

There are three type of network

- Local area network
- Metropolitan area network
- Wide area network

3.1.1 Local Area Network

Basically I worked with the local area network. Local Area Network is a type of small network that we organize in school university office building etc

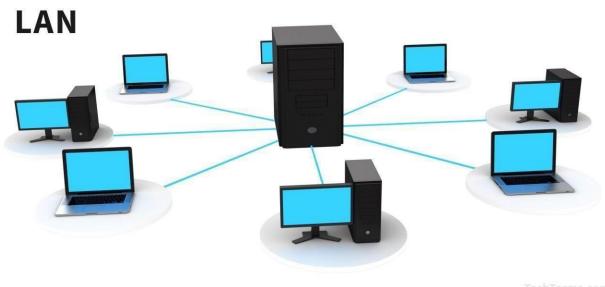


Figure 3.1: Local area network

TechTerms.com

3.1.2 Advantages of LAN network

- Easily change the LAN configuration.
- Improve security.
- Resource Sharing
- Convenient Communication
- Centralized Data
- Computer Identification

3.1.3 Disadvantage of LAN network

- If the fake server cures a fault, all the users will be affected.
- Implementation Cost
- Policy Violations
- Maintenance
- Area Coverage
- Malware Spreading

3.2 Metropolitan Area Network

A metropolitan area network is a computer network that allows users to interact with computer resources based on the geographic location of the metropolitan area city.

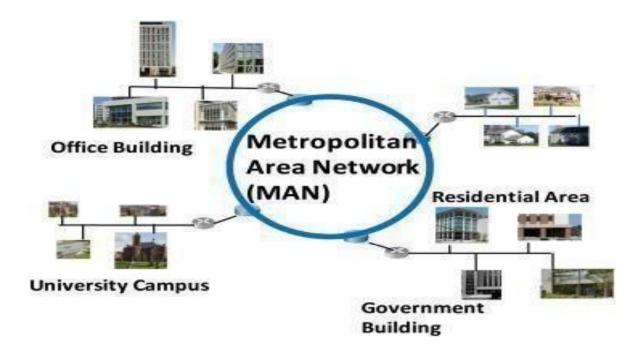


Figure: 3.2: Metropoliton Area Network

3.12 Advantages of MAN Network

- Data transmission is fast.
- And fiber optics cable are used

3.2.2 Disadvantage of MAN network

• Too expensive.

3.3 Wide Area Network

A wide area network is a communication network that extends a large geographic area for the primary purpose of a computer network.

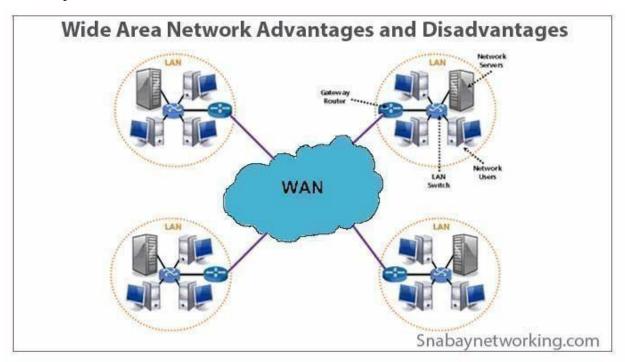


Figure 3.3: wide area network

3.3.1 Advantage of WAN

- WAN covers the large geographical area
- Everyone on that network can access the same data.
- Setting up the network could b expensive

3.3.2 Disadvantage of WAN

• Books can be used in various information magazines by collecting the nature of the film. Sometimes there are some problems

3.4 Types of network cables

There are three type of network cable used in a network

- Coaxial cable
- Twisted pair cable
- Fiber Optic cable

Now I will discuss briefly those 3 types of network cable

3.4.1 Coaxial cable

Coaxial cable is a type of shielded and shielded copper wire used in computer networks, and is used by telephone companies to operate customers.

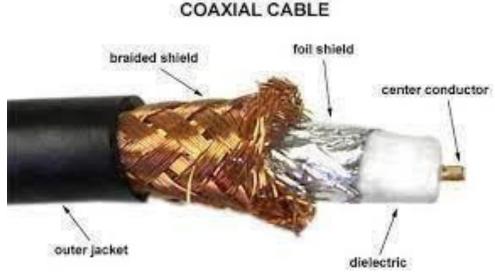


Figure 3.4: Coaxial cable

Coaxial cable is a faster transmission medium. With speed up to 200MBPS. The three most common cable sizes are RG6, RG11 and RG59.

3.4.2 Twisted pair cable

Twisted pair cable is a standard copper cable that connects a home computer to multiple business computers and shares information with each other over the Internet.

There have two types of twisted pair cable

- Unshielded twisted pair(UTP)
- Shielded twisted pair (STP)

3.4.3 Unshielded Twisted pair

Unshielded twisted pair cables are mainly used in the ICT industry as Ethernet cable and telephone wires.

Unshielded Twisted Pair Cable

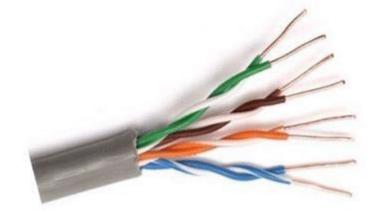


Figure 3.5: Unshielded twisted pair cable

It does not offer as good protection from interference as other cables, but it is less expensive and easier to work with.

3.4.4 Shielded Twisted pair

Each pair of twist straps is inside a shield or a snug-fitting cover. The result is safer and less electrical interference. These shields are usually made of aluminum / polyester. Each pair of hoods is hidden in the center of the plastic jacket.



Figure 3.6: Shielded twisted pair cable

3.4.5 Fiber optic cable

Optical fiber is basically an English word. Which is basically a kind of cable. The goal is to move data accurately and quickly from one place to another. Optical fiber is one of the most invisible and easy to carry. This is so subtle that it is even more subtle than the hair on our heads. This is mainly used for data transfer through itslight

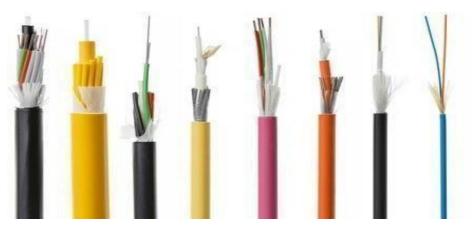


Figure: 3.7: Fiber optic cable

CHAPTER 4

NETWORK

DEVICES

4.1 Network Devices

For a network system, network devices are most important components to connect computers together so that they can share files or resources with each other.

Some essential networking devices are:

- HUB
- Switches
- Media converter
- Repeater
- Router

4.1.1 HUB

HUB - A hub is a network device that connects computers to each other. It works in the datalink layer of OSI Model. The hub does not store any addresses of any device. When data comes to the hub from any device, the hub transmits that data through all its ports without seeing any of it



Figure 4.1: Hub

4.1.2 Switches

On a network, a switch is a high-speed network transmission device that received oncoming data and passes to their desired destination. Switches are like hubs, it is smarter than a hub.





This is a Cisco network switch. There are also have some popular switch manufacturers like NETGEAR,D-link etc

4.1.3 Media converter

Media converters are also known as fiber media converters. Media converters are network connectors used to connect two unfamiliar media types, such as fiber optic cables, to twisted pair cables. The fiber media converter can connect to different types of LAN media and adjust the satin speed.



Figure 4.3: Media converter

4.1.4 Repeater

A network repeater is a network device that receives a signal and sends more data back to the extended topology network. Add-on devices can remove unwanted alerts from incoming alarms. Repeaters allow you to clearly restore the signal each week. Repeaters are also known as signal boosters.



Figure 4.4:A Repeater

4.1.5 Router

A router is a layer-3 networking device, that recived a data packet, then analyze and move that incoming packets to another network.this device determines the best wy for a packet to be forwaded to the destination. Router contains several kinds of memory, a processor ,and some input-interface.



Figure:4.5: cisco router

There are many type of different type of router available in markets.

- 802.11ac Router(Linksys Ea6500, netgear AC1750).
- 802.11n Router (Nrtgesr n300 W2000, TP-link TL-WR84IN)
- 802.11g Router(Netgear WGR614,linksys WRT54G)



Figure:4.6:802.11ac Router



Figure4.7: 802.11nRouter



Figure:4.8:802.11gRouter

CHAPTER 5

CCTV INSTALLATION & MAINTENANCE

CCTV stands for Video Surveillance and is commonly known as Video Surveillance. "Closed circuit" means "broadcast" to a "closed" monitor, unlike "normal" television, which is normally broadcast. CCTV networks are often used to detect criminal activity and record traffic jams, but they also have other uses.

5.1 Benefits of CCTV

1. Case Management: CCTV Surveillance Can Prevent Criminals When a crime occurs Video recordings can investigate the rule of law and provide evidence for later proceedings in court.

2. Disaster management: CCTV Camera; Paramedics and rescue teams can monitor the "situation" via video to the disaster management team. for example. Inside a burning building. From a cave or from a helicopter flying over the scene.

3. Street and Community Street Surveillance: At traffic lights and elsewhere in the city, cameras monitor people to collect traffic statistics and evidence of speeding. Oat, the successor to Iota, provides real-time data about the city. This is a Chicago initiative that primarily collects weather and the environment.

4. Medical Surveillance and Diagnosis: There are about 43 facial muscles that express human thoughts and emotions. Smart software can identify these terms. For example, it's easier than the pictures that people with pain and anxiety can get. CCTV cameras can be used to detect potential medical problems in patients such as children and the elderly. For example, stroke or epilepsy or asthma. 5. Behavioral Survey: CCTV found that 83% of suicide attempts were reported in front of the train. They were later analyzed by CCTV footage and are now used as potential warning signs for observers.

6. Retail Intelligence: Market intelligence collected from customer video surveillance to analyze demand and develop better strategies. for example. Shopping is what most people go through. How likely are you to respond to action requests in different store configurations?

5.2 Classification of CCTV

- 1. **Analog** Use the Bayonet Neill-Councilman (BNC) connector on the coaxial cable to send continuous video signals. They are less efficient, but cheaper and more efficient. There are more barriers in analog systems. for example. Regular coaxial cables usually do not transmit sound.
- 2. **Digital** Digitize the signal at the camera level. These systems do not require a video card because the images are stored directly on the computer, but they are often compressed because they require a lot of space to store the recordings.
- 3. Network or IP Used in analog or digital cameras. These systems use a video server to stream live video files over the Internet. The advantages are: Remote control; Power over Ethernet (POE) and a clearer analysis with wife and voice. In addition to distributed artificial intelligence (DAI), IP cameras have the ability to cover multiple cameras, usually a single camera that can cover multiple angles or cover different camera systems.

5.3 Installation of CCTV

I will need some hardware device to install CCTV

- NVR
- IP Camera
- LAN cable
- Centralize power supply
- Monitor

Step 1: First, connect the plug adapter cable to the power adapter or centralized PSU and IP camera. Connect the IP camera cable to the network switch center and the NVR.

DEVICE ID USER NAME PASSWORD	o admin] (0) T
	LOGIN	

Figure: 5.1: Login Page

Step2: And I will Go to NVR Men-Advance –Network

ALARM	СН	Enable	Sensitivity	Area	Schedule	Trigger
Motion	1		5 🚽	Settings	Settings	Settings
Video loss	2		5 🐨	Settings	Settings	Settings
Video loss	3		5 🚽	Settings	Settings	Settings
Others	4		5 🔫	Settings	Settings	Settings
NETWORK	5		5 👻	Settings	Settings	Settings
	6		5 👻	Settings	Settings	Settings
сомм	7		5 -	Settings	Settings	Settings
REMOTE	8		5 🔫	Settings	Settings	Settings
P.T.Z	Copy CH	1		and the second sec	Cop	

Figure 5.2: NVR Men-Advance –Network Option

Step3: and I will check the use following IP address

A	💿 🔍 🍯	🗢 🕐 🖄 💿
	O Obtain an IP address au	tomatically
. NETWORK	O Use the following IP add	
O LAN	IP address	192.168.000.100
	Subnet mask	255.255.255.000
PPPoE	Default gateway	192.168.000.001
• 3G	Obtain DNS server addre	and automatically
Port	☐ Use the following DNS s	
Sub-stream1	Preferred DNS server	203.248.252.002
Sub-stream2	Alternate DNS server	202.096.134.133
сомм		
		Default Apply Exit

Figure-5.3 IPAddress

Step3: If the Ip Address is correct then i will click apply

	🍑 🔍 👼	🤝 🕐 💿
	Obtain an IP address auto	****
O LAN	IP address	192.168.000.100
	Subnet mask	255.255.255.000
- PPPoE	Default gateway	192.168.000.001
3G Port	Obtain DNS server addres	
Sub-stream1	Preferred DNS server	203.248.252.002
Sub-stream2	Alternate DNS server	202.096.134.133
сомм		
		Default Apply Exit

Figure:5.4 choose apply option

Step5: Then I will Go to NVR Menu -Advance -Remote-IP modify

<u>.</u>			- 💿 🔊	
9				
СН	Enable	Device name	lp&Port	Operate
1		IPC	192.168.2.118:9006	
2	L.	IPC	0.0.0:9006	C.9 C.9
3	V	IPC	0.0.0.0:9006	
4	V	IPC	0.0.0:9006	
5	v	IPC	0.0.0:9006	C.3 6.3
6	V			
7	V			
8				
	1 2 3 4 5 6 7	1 2 3 4 5 6 7 7	1 IPC 2 IPC 3 IPC 4 IPC 5 IPC 6 IPC 7 IPC	1 IPC 192.168.2.118:9006 2 IPC 0.0.0.0:9006 3 IPC 0.0.0.0:9006 4 IPC 0.0.0.0:9006 5 IPC 0.0.0.0:9006 6 IPC 0.0.0.0:9006 7 IPC IPC

Figure:5.5 NVR Menu -Advance -Remote-ip modify Option

Step6: I will assign IP address Subnet Mask and gateway.

- IP Address192.168.000.101
- Subnet masks 255.255.255.0
- GATEWAY 192.168.002.001

	сн	M	AC	IP address	Port	Result
	2	- 00	:18:F5:1E:C1:05	000.000.000.000	9007	None
	3	- 00	:18:F5:1E:C1:58	000.000.000.000	9007	None
	4	- 00	:18:F5:1E:C1:EF	000.000.000.000	9007	None
	5	▼ 00	:18:F5:1E:C2:45	000.000.000.000	9007	None
itart	IP addre		192.168.000.101	Betch edit		

Figure: 5.6 IP address Subnet Mask and gateway

Step7: And I will Select IP Camera

		СН	MAC	IP address	Port	Result
NETWORK	2	2	00:18:F5:1E:C1:05	000.000.000.000	9007	None
сомм		3 👻	00:18:F5:1E:C1:58	000.000.000.000	9007	None
СОММ		4 👻	00:18:F5:1E:C1:EF	000.000.000.000	9007	None
REMOTE	$\mathbf{\nabla}$	5 👻	00:18:F5:1E:C2:45	000.000.000.000	9007	None
Device						
a ip Modily						
Contraction of the second s					a or	

Figure: 5.7 Select IP Camera

Step8: Then I will Click batch Edit

ALARM		СН		MAC	IP address	Port	Result
NETWORK	V	1	-	00:18:F5:1E:C1:05	192.168.000.101	9007	None
сомм		2	-	00:18:F5:1E:C1:58	192.168.000.102	9007	None
сомм		3	-	00:18:F5:1E:C1:EF	192.168.000.103	9007	None
REMOTE		4	-	00:18:F5:1E:C2:45	192.168.000.104	9007	None
Device							

Figure 5.8 Click batch Edit

Step9: Now I will Click Modify



Figure:5.9 Click Modify

• AND SUCCESSFULLY IT IS COMPLETED INSTALL

5.4 CCTV Working Process: Analog and digital systems behave differently, but modern CCTV networks use conversion software and hardware to convert them to analog.

Includes CCTV system:

- Each camera (analog or digital) has a lens with an image sensor.
- One or more monitors output the output image.
- Adapter
- BNC Connector or Video Val loon

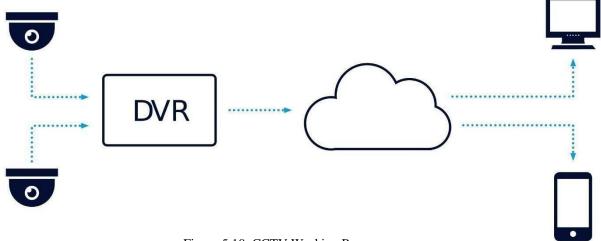


Figure:5.10: CCTV Working Process

- 1. The camera uses an image sensor to record an image through the lens.
- 2. The monitor can be activated (via software) or monitored (by a person). They need to monitor the CCTV network itself.

5.5 Monitoring CCTV Networks

CCTV Security; One of the fastest growing trends in web surveillance. This software ensures that your CCTV system is up and running, provides 24/7 monitoring of your area and provides reliable notifications. The monitoring system can alert employees (and automatically switch to backup power) in the event of a power outage. It constantly checks for network malfunctions and detects misuse and abuse. You can identify risks and needs.

CHAPTER 6 CONLUSION AND LIMITATION

6.1 Conclusion

Our county is a developing county. So as a developing, the government of Bangladesh has a goal digitalize all sector .so, it is necessary to gain a lot of knowledge about IT-based technology. Basically, this focused on the networking and hardware support. Networking and hardware troubleshooting and solve those problem.

Technical books are not enough to gather knowledge. But when it comes to practical knowledge, it strengthens our knowledge and gives us confidence.

It's a quick work experience for me. There was a lot to learn in the internship. During the last four to three months at NEXERP, I adapted to the enterprise and IT environment and did my best to achieve each of these goals. Through my work, I have been involved in several type of network and hardware

Troubleshooting such as LAN troubleshooting, Connectivity checking, software/driver installation, network device installation, computer hardware installation and maintenance, install web servers, DHCP, telnet, DNS, MALL (postfix, dovecot, squirrel mail), SSH and much more. I have successfully achieved the concluding result of my internship "Hardware & Network".

APPENDIX

Abbreviation

- **IT** ----- Information Technology
- CCTV --- Stand for Closed Circuit
- **ISP**-----Internet service provider.
- LAN ----- Local Area Network
- MAN ----- Metropolitan Area Network
- WAN ----- Wide Area Network
- UTP----- Unshielded twisted pair cable
- STP ----- shielded twisted pair cable
- HTTP ---- Hypertext Transfer protocol
- **DNS-----** Domain Name server
- **ISDN** ---- Integrated service digital network
- CSMA/CD---- Carrier sense Multiple Access/Collision Detection
- FTP-----File Transfer Protocol
- MAC ---- Message Authentication Code
- TCP/IP -- Transmission Control protocol/Internet protocol
- **SMTP** --- simple Mail transfer protocol
- IPV6 ---- nternet protocol Version6

REFERENCES

[1] Computer network- types-of-computer-network.html, 9th edition russel scott, 2018

[2] Networking Cables-managing and troubleshooting network, 3rd edition (mike Meyers guides) 2019

[3] Computer networking note<< https://www.computernetworkingnotes.com>>

[4] Collecting all the pictures from << https://www.gettyimages.com/photos/router>>

[5] CCTV camera maintenance service<< https://www.caughtoncamera.net/news/cctvmaintenance-procedure/>>

[6] Network solution :<< https://www.networksolutions.com/>>

PLAGIARISM REPORT

ORIGIN	ORIGINALITY REPORT				
	8% 17% 2% INTERNET SOURCES PUBLICATIONS	9% STUDENT PAPERS			
PRIMAR	RY SOURCES				
1	www.paessler.com	6%			
2	dspace.daffodilvarsity.edu.bd:8080	3%			
3	en.wikipedia.org	1 %			
4	Submitted to Laureate Education Inc. Student Paper	1 %			
5	Submitted to International University - VNUHCM Student Paper	1 %			

6 www.answerok.com	1 %
7 www.coursehero.com	1 %
8 Submitted to MCC Training Institute Student Paper	1 %
9 Submitted to The Robert Gordon Univer Student Paper	rsity 1%
10 www.eversafe.com.au	1 %
11 Submitted to South Birmingham College Student Paper	e < 1 %
12 Submitted to Trinity College Dublin Student Paper	<1%
13 Submitted to Modi Apollo International Institute Student Paper	<1%
14 Submitted to University of Greenwich Student Paper	<1%
15 www.technicalhint.com	<1 %
16 agung-technology.blogspot.com	<1 %

17	studyres.com	<1%
18	turbofuture.com	<1%
19	vivadifferences.com	<1%
20	www.ukessays.com	<1 %
21	askoranswerme.com	

Z I Internet Source

		<1 %
22	www.imtj.com Internet Source	<1 %

Exclude quotes	Off
Exclude bibliography	Off

Exclude matches Off