Developing and Designing Network Infrastructure for Tier One Entertainment

A Network Proposal presented to the

Information Communications Technology Department

STI College Global City

As Partial Fulfillment of the Requirements for the Degree
Bachelor of Science in Information Technology

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Submitted to:

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1.1 TIER ONE ENTERTAINMENT

In the digital era of advertising, those who don't take gaming seriously will be left behind. – Dave John G. Ravina, CEO OF TIER ONE ENTERTAINMENT.

Developer of a gaming and Esports talent platform designed to reach the coveted gaming audience. The company's platform aims to revolutionize the Esports landscape by developing gaming talents with a focus on streamers, and professional teams, enabling Esports gamers to connect with brands to generate revenue.

Since 2017 Tier One Entertainment has been transforming South East Asia’s most progressive brands into global influencers. Through powerful storytelling, immersive experiences and strategic partnerships across Esports, Gaming, Fashion, Music and Digital Entertainment.

Company Department

Department	Persons
Employees	**50 in Total**
CEO	**1**
HR	**1**
Administration	**1**
Secretary	**1**
Marketing Department	**4 (Total)**
Head of Marketing	**1**
Marketing Team	**3**
Finance Department	**4 (Total)**
Head of Finance	**1**
Finance Team	**3**
IT (Software Development Department)	**24 (Total)**
Creatives	**6**
Streamer	**10**
Podcast	**4**
Shout Caster	**4**
IT (Network Operations Department)	**2**
Receptionist	**1**
Security Guard	**3**
Janitor	**8**

Dave John G. Ravina

CHIEF EXECUTIVE OFFICER

Dave John G. Ravina is locally known as one of the first two shout casters in the country. He is also known for organizing numerous events and one of the pioneers of Philippine esports. He has numerous experiences in esports from shout casting, event organizing, esports publications, influencer management, marketing thru esports, managing professional esports teams, and more. He was once a competitive player that started out organizing events due to the lack of opportunities for tournaments in the region.

1.2 Problems

STATEMENT OF THE PROBLEM

They are expecting the Internal Support Team to develop the network infrastructure plan. This will include, but is not limited to:

1. **Recommendations on network equipment**

a. Computer Specification

1st Floor	**SPECIFICATIONS**
Reception Area 1PC	Processor: AMD A6-6400K APU WITH RADEON™ HD GRAPHICS 3.90 GHZ Installed Memory (RAM): 4.00GB System Type: 32-bit Operating System Storage: 500GB SSD
Creative Team/Department Team 6 PC	Corsair One A200 CPU: Intel Core i9 GPU: Up to RTX 3080 Ti RAM: Up to 64GB DDR4 3200 Storage: 1TB SSD

2ND FLOOR	**SPECIFICATIONS**
Streaming Rooms 6PC	Corsair Vengeance CPU: Intel 10850K GPU:Nvidia RTX 3090 RAM: Up to 64GB DDR4-3200 Storage: 1TB SSD
	HP Omen CPU: Intel Core i9 10900K

Entertainment Room (Podcast) 1PC	GPU: Up to Nvidia RTX 3080 RAM: Up to 64GB DDR4-3200 Storage: 1TB SSD
Shout casting Room 1PC	HP Omen CPU: Intel Core i9 10900K GPU: Up to Nvidia RTX 3080 RAM: Up to 64GB DDR4-3200 Storage: 1TB SSD

3RD FLOOR	**SPECIFICATIONS**
Finance Department 3PC	Processor: AMD A6-6400K APU WITH RADEON™ HD GRAPHICS 3.90 GHZ Installed Memory (RAM): 4.00GB System Type: 32-bit Operating System
Marketing Department 3PC	Processor: AMD A6-6400K APU WITH RADEON™ HD GRAPHICS 3.90 GHZ Installed Memory (RAM): 4.00GB Storage: 500GB SSD System Type: 32-bit Operating System

IT DEPARTMENT 2PC	Processor: AMD A6-6400K APU WITH RADEON™ HD GRAPHICS 3.90 GHZ Installed Memory (RAM): 4.00GB Storage: 500GB SSD System Type: 32-bit Operating System
SERVER ROOM 3PC	**Database Server** cisco ucs c220 Form factor: 1RU rack server Processors: second-generation Intel Xeon Scalable processors (2x) Memory: 128 GB to 2666mhz ● Internal controllers: Cisco 12-Gbps Modular RAID Controller (PCIe 3.0) with 1- or 2-GB Flash-Backed Write Cache (FBWC) ● External controller: Cisco 12-Gbps 9400-8e SAS HBA **Web Server** SERVER: HPE ProLiant DL20 Gen10 (Intel® Pentium® G5420) STORAGE: HPE 4TB 6G 7.2k rpm SATA (3.5in) Non-Hot Plug Standard MEMORY: HPE 128GB Dual Rank x8 PC4-2666V-E 2666MHz Unbuffered

	MAIL SERVER SERVER: HPE ProLiant DL20 Gen10 (Intel® Pentium® G5420) STORAGE: HPE 4TB 6G 7.2k rpm SATA (3.5in) Non-Hot Plug Standard MEMORY: HPE 128GB Dual Rank x8 PC4-2666V-E 2666MHz Unbuffered

4^{TH} FLOOR	SPECIFICATIONS
CEO 1PC	MOTHERBOARD: GIGABYTE B460M ULTRA DURABLE RAM: G. SKILL TRIDENT Z 32GB (16X2) NEO RGB 3200MHZ SSD: SAMSUNG 980 1TB M.2 NVME SSD PROCESSOR: INTEL i7 10700K GPU: ZOTAC NON-LHR RTX 3080 HOLO AMP PSU: ASUS ROG 850W STRIX GOLD 80+ CPU COOLER: DEEPCOOL 360 CASTLE ARGB FANS: STOCK GB 3X120 1X120 NON-NON-RGB

HR & Administration Department 2PC	Processor: 10th Generation Intel® Core™ i5-10500T Memory: 8GB SSD: 500GB Keyboard: Dell KB216 Wired Keyboard English Mouse: Dell Optical Mouse - MS116 (Black)
Finance & Marketing Head 2PC	Processor: 10th Generation Intel® Core™ i5-10500T Memory: 8GB SSD: 500GB Keyboard: Dell KB216 Wired Keyboard English Mouse: Dell Optical Mouse - MS116 (Black)
CONFERENCE ROOM	N/A

b. Other Network Equipment Specification

DEVICE	SPECIFICATION	PRODUCT
ASUS RT-AC88U **(Wi-Fi Router)** **2x**	Ultra-fast 802.11ac dual-band Wi-Fi router boosts speeds up to 3167 Mbps for low-latency online gaming, smooth 4K UHD video playback and extremely fast file-sharing. 4x4 antenna design with AiRadar universal beamforming for unrivaled Wi-Fi range.	
Cisco 2621XM Router (1x)	- The Cisco 2621XM provides flexible LAN ports as well with 2 flexible fast Ethernet ports.	

Switch Cisco Catalyst 2960-24TT (9x)	Switch Cisco Catalyst 2960-24TT (4x) - 24 Ethernet 10/100 ports and two 10/100/1000TX uplinks - 1 RU fixed-configuration - LAN Base Image installed	
POWEREDGE FD332 (2x)	Form factor Half-width – supports up to 16 small form factor 2.5” storage devices Up to 3 FD332 storage blocks per PowerEdge FX2 enclosure (configuration dependent) RAID controllers Internal Controllers: FD33xS (Single PERC), FD33xD (Dual PERC). Default is HBA mode; upgradeable to RAID mode via licens	

	2.4TB 10K RPM Self-Encrypting SAS ISE 12Gbps 2.5in Hot-plug Hard Drive, FIPS140 SED-2 (16x)	
48 Port CAT6 Rack Mount Patch Panel - 2U (2X)	Designed for use with CAT6 Patch Panels 48 CAT6 Ports Meets or Exceeds TIA/EIA 568-A and 568-B Standard 110 Style Punch Down 48 Dust Caps 568-A/B Wiring Code UL Listed TAA Compliant RoHS Compliant	

RS148 (3x)	Height: 42U Width: 24" (610mm) Depth: 48"(1200mm) Weight Capacity (Dynamic): 3000 lbs 19" EIA Square Mounting Holes Customizable Configuration	
APC SRT6KRMXLT 4U (3x)	Rack Height: 4U **Output** Output Power Capacity 6.0 KWatts / 6.0 kVA Max Configurable Power 6.0 KWatts / 6.0 kVA Nominal Output Voltage 208V **Input** Nominal Input Voltage 208V Input Frequency 40 - 70 Hz (auto sensing) Input Connections Hard Wire 3-wire (2PH + G)	

	Input voltage range for main operations 160 - 275 V **Batteries & Runtime** Battery Type Maintenance-free sealed Lead-Acid battery with suspended electrolyte: leakproof Typical recharge time 1.5 hour(s) Replacement Battery APCRBC140 RBC Quantity 1	
15A Horizontal Rackmount Power Strip **(5x)**	**Cord Length** 15 foot **Surge Protection** **Receptacles & Plugs** NEMA 5-15P, NEMA 5-15R **Number of Outlets** 8 Outlets **Powerstrip Orientation** Horizontal	

	Amperage 15A **Tech Notes** Rack units = 1U	
RS PRO Analogue Indoor, Outdoor IR CCTV Camera **(26x)**	Indoor, Outdoor Analogue Bullet 1312 x 1069 1312 x 1069 pixels @ 1.4 M 2.12MP	

2. Recommendations on network cabling

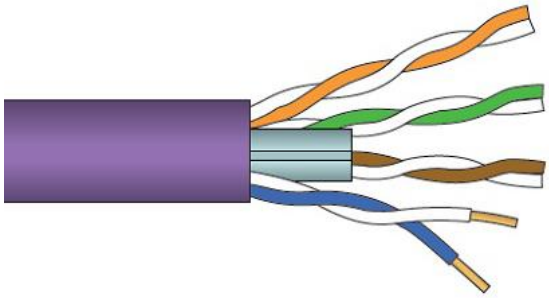


Figure 1. Cat 6 Illustration

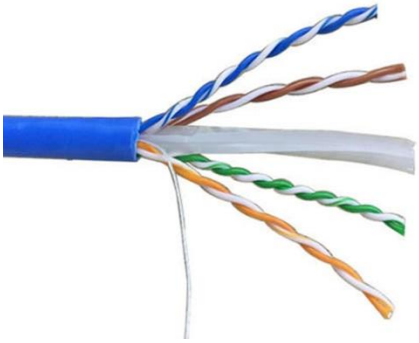


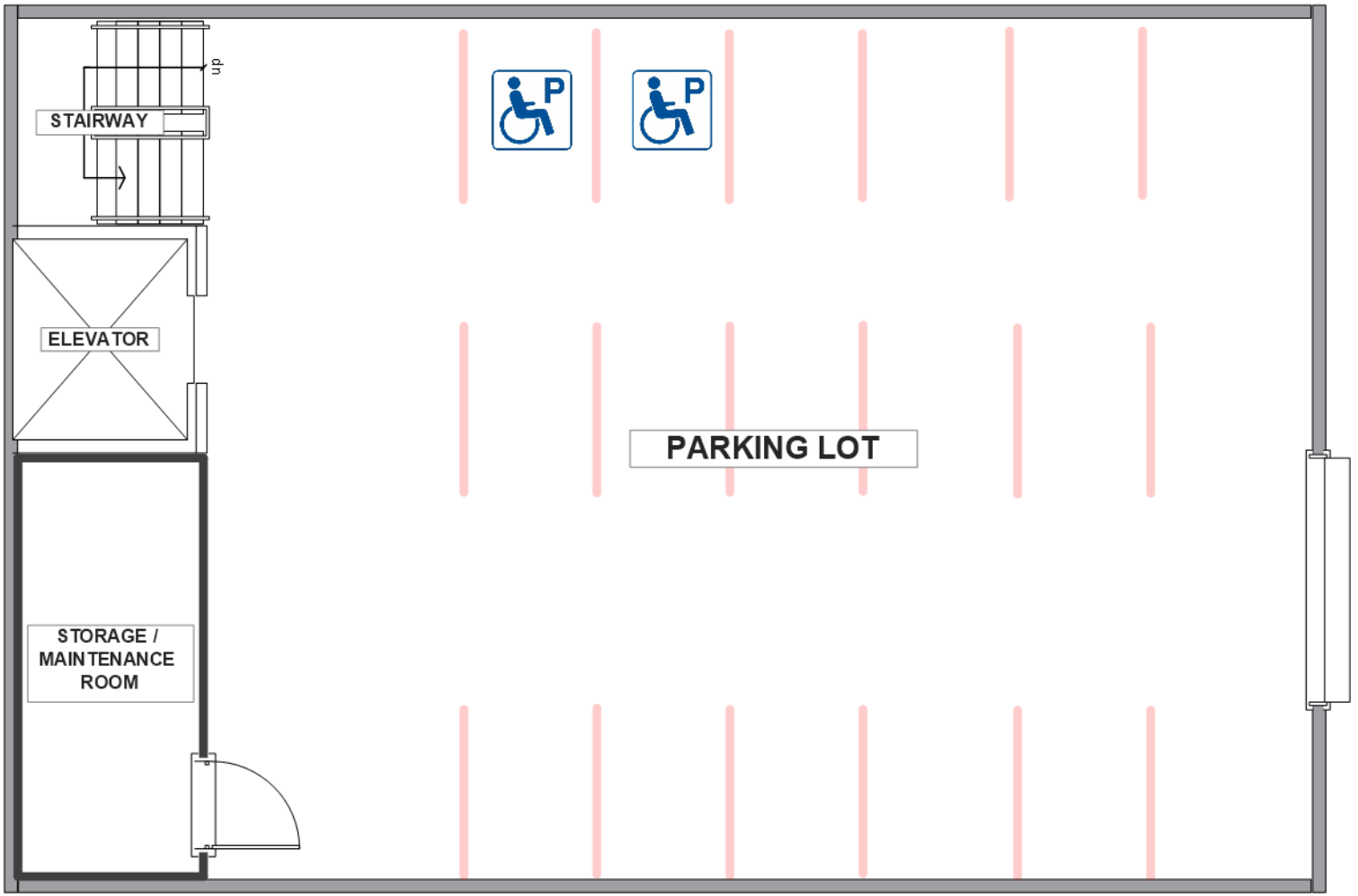
Figure 1.2 Cat 6 Actual Photo

Cat6 Ethernet cable is a forward-looking option for devices with higher power demands, where thicker shielding, broader frequencies, and speed facilitate the data required for smart technologies without heating your cable and resulting in downtime. Administrators often use Cat6 cables to reduce DC resistance and the resultant power loss while maintaining performance.

Cat6 Ethernet cable is a cost-effective option for smart home installations, enterprise networks and electronic labs. It has more stringent performance specifications to enable higher speeds and more robust data transfer yet still keep an eye on price point. Administrators often use Cat6 cables at the network's backbone in conjunction with fiber optic. With the potential for better speeds and less crosstalk.

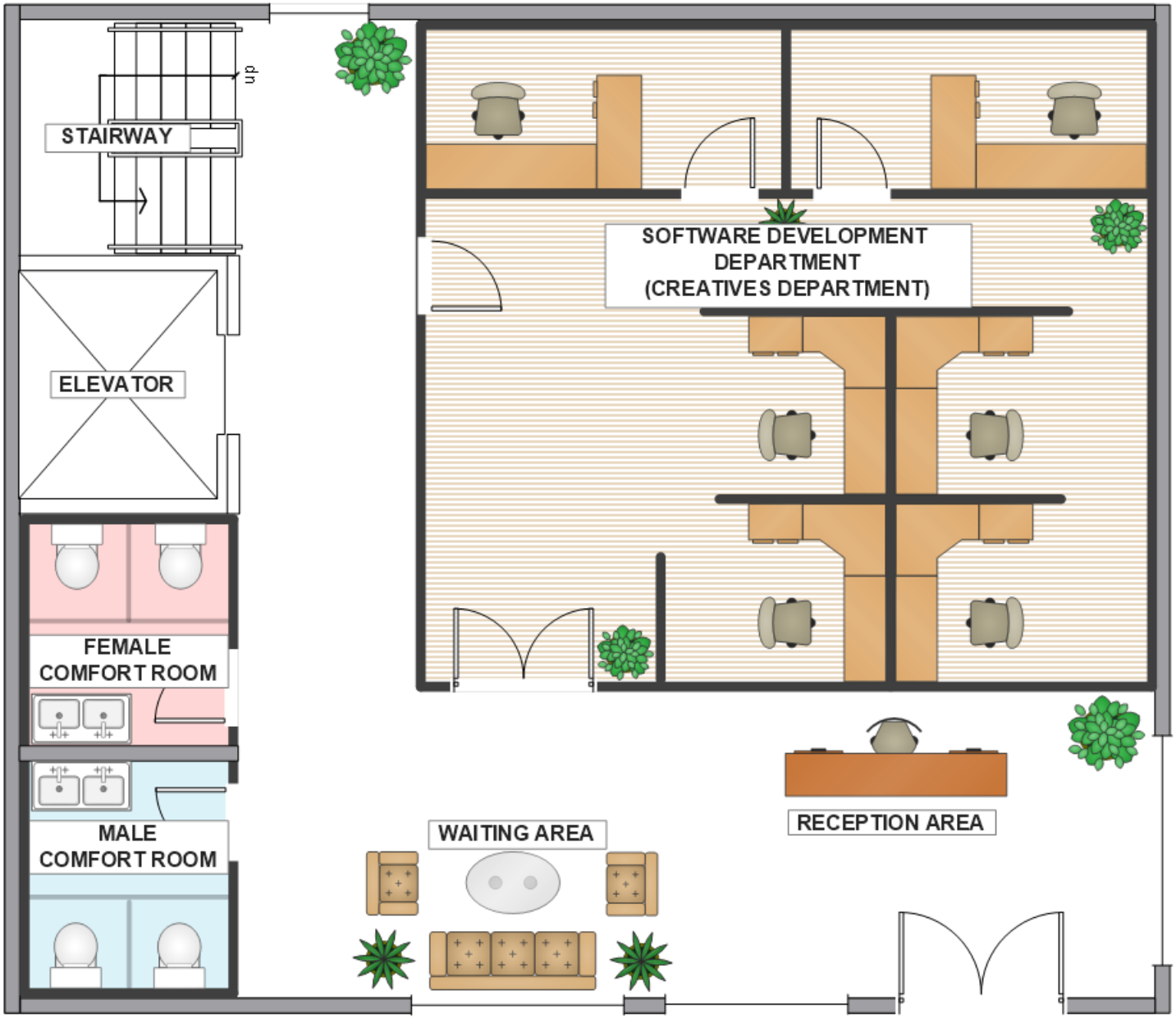
3. **A network wiring plan including:**
   (a) Physical and Logical cabling layout

BASEMENT



LEGEND	
	ENTRANCE GATE
	DOOR
	PWD PARKING
	PARKING LINE MARKING

FLOOR 1



LEGEND	
	ENTRANCE DOOR
	DOOR
	DESK
	OFFICE CHAIR
	SOFA SET
	COFFEE TABLE
	PLANTS

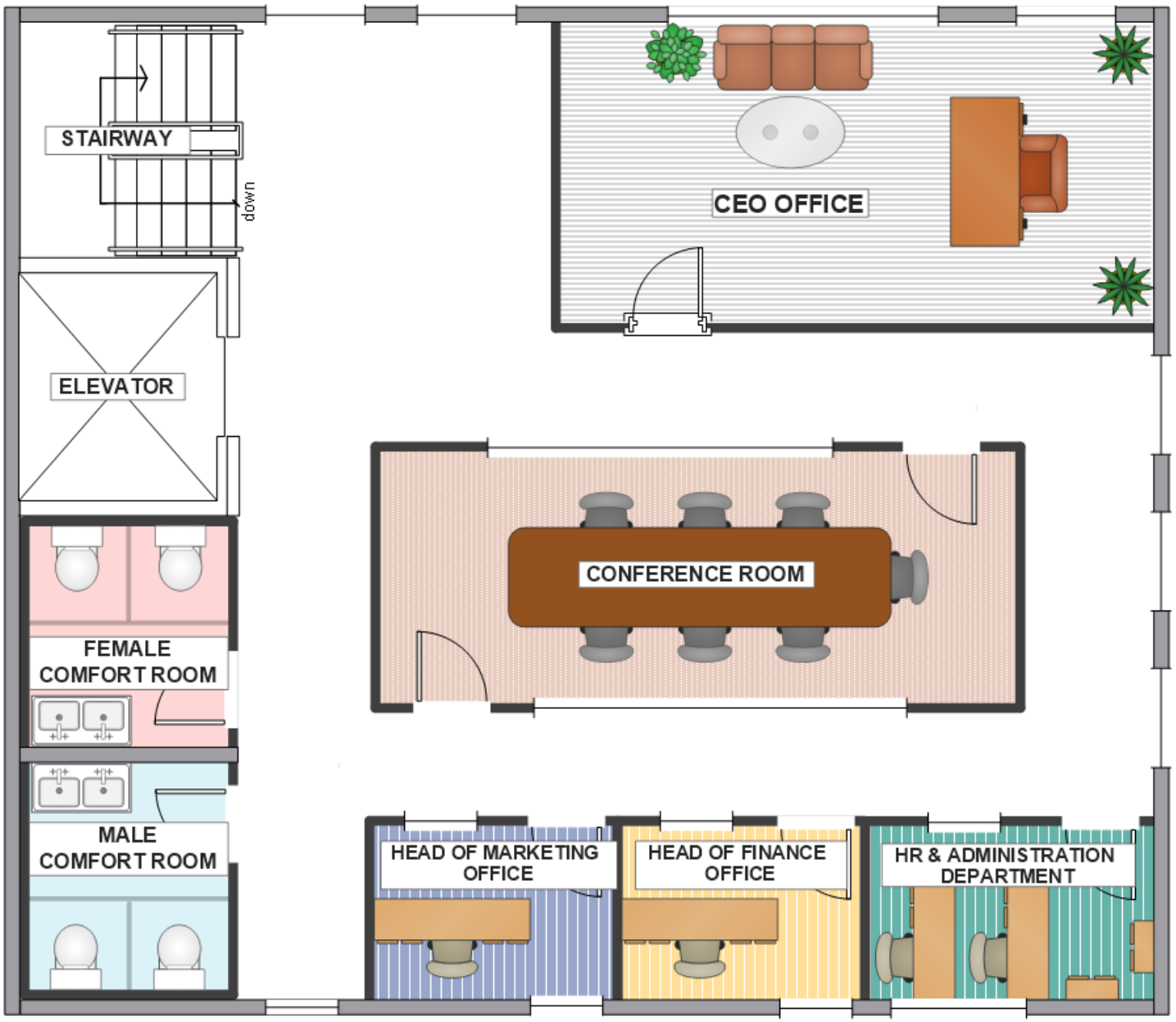
FLOOR 2

LEGEND	
	ENTRANCE DOOR
	DOOR
	DESK
	CHAIR
	SOFA SET
	COFFEE TABLE
	PLANTS

FLOOR 3

LEGEND	
	ENTRANCE DOOR
	DOOR
	DESK
	CHAIR
	PLANTS

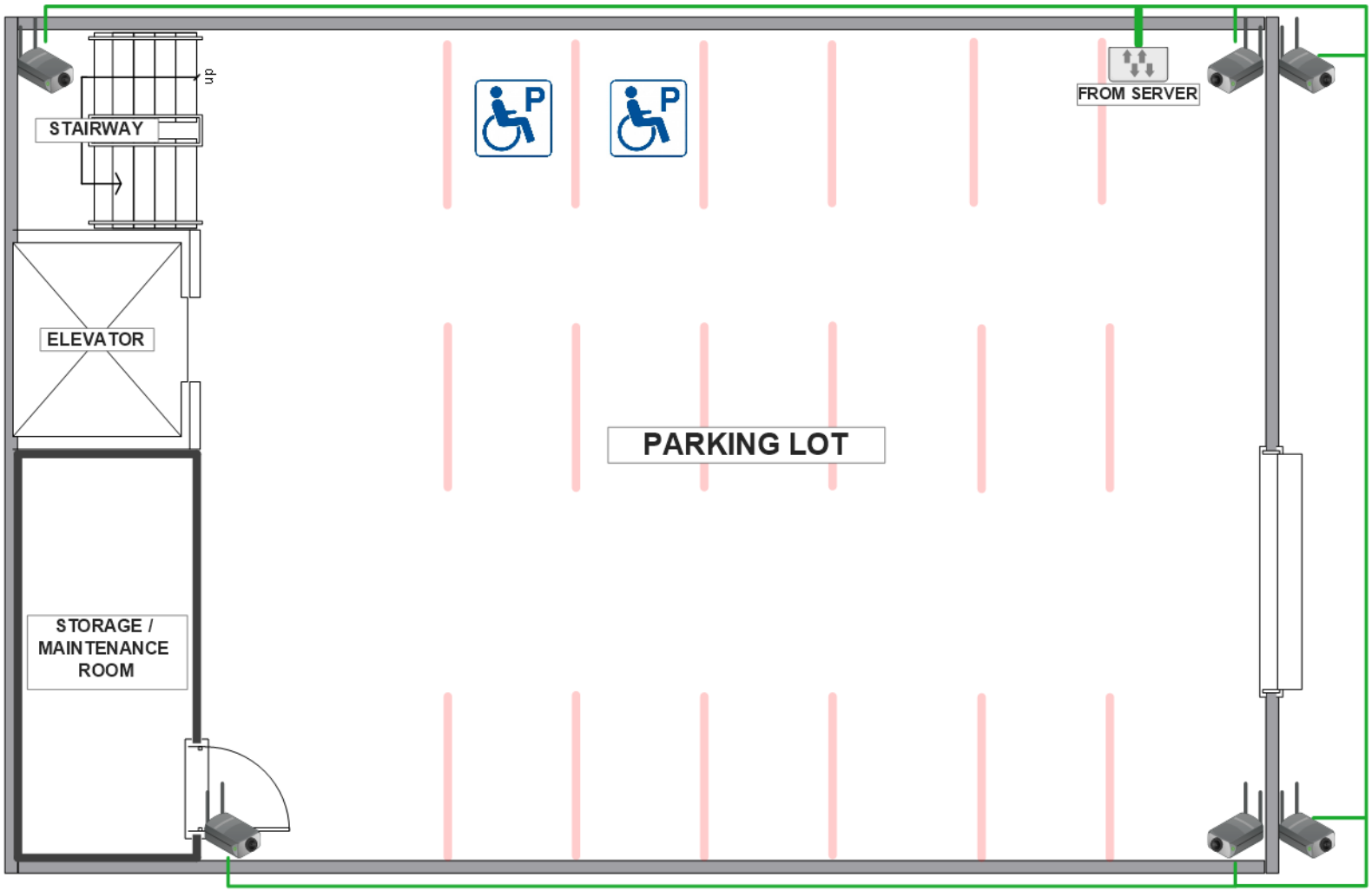
FLOOR 4



LEGEND	
	ENTRANCE DOOR
	DOOR
	WINDOW
	DESK
	MEETING TABLE
	FILE CABINET
	OFFICE CHAIR
	ARM CHAIR
	SOFA SET
	COFFEE TABLE
	PLANTS

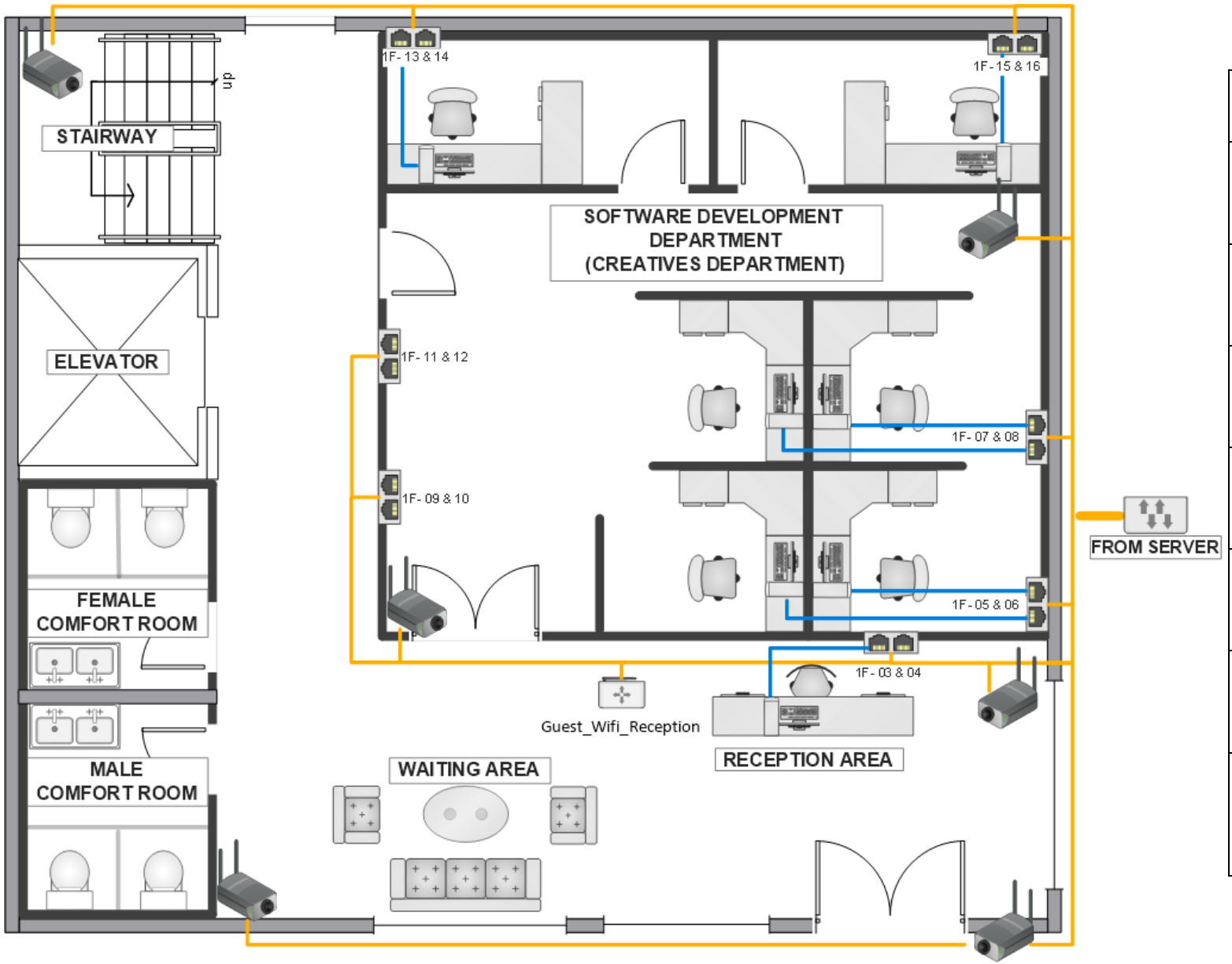
Network Cabling Schema

BASEMENT



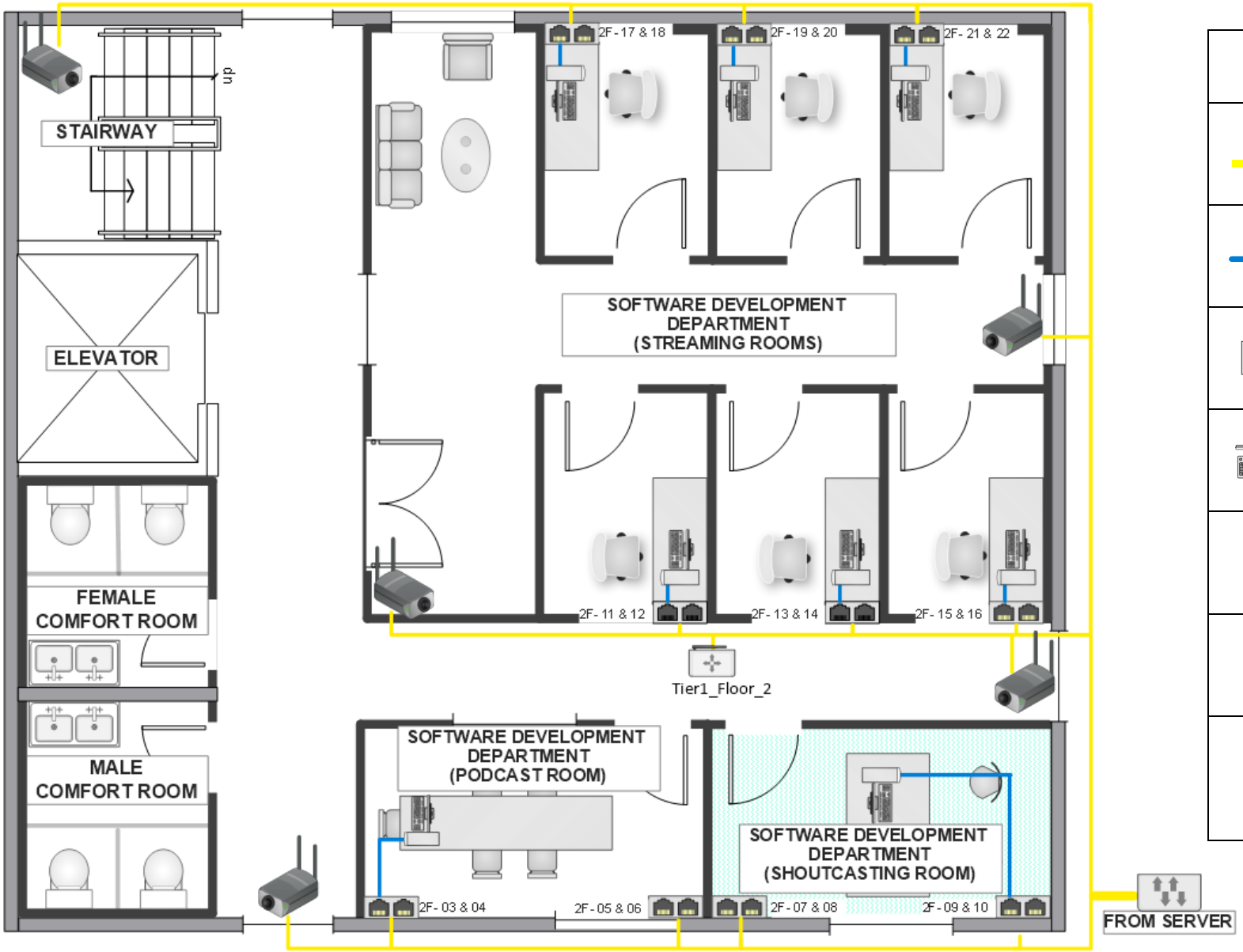
LEGEND	
	CAT6 (Backbone)
	SWITCH
	SECURITY CAMERA

FLOOR 1



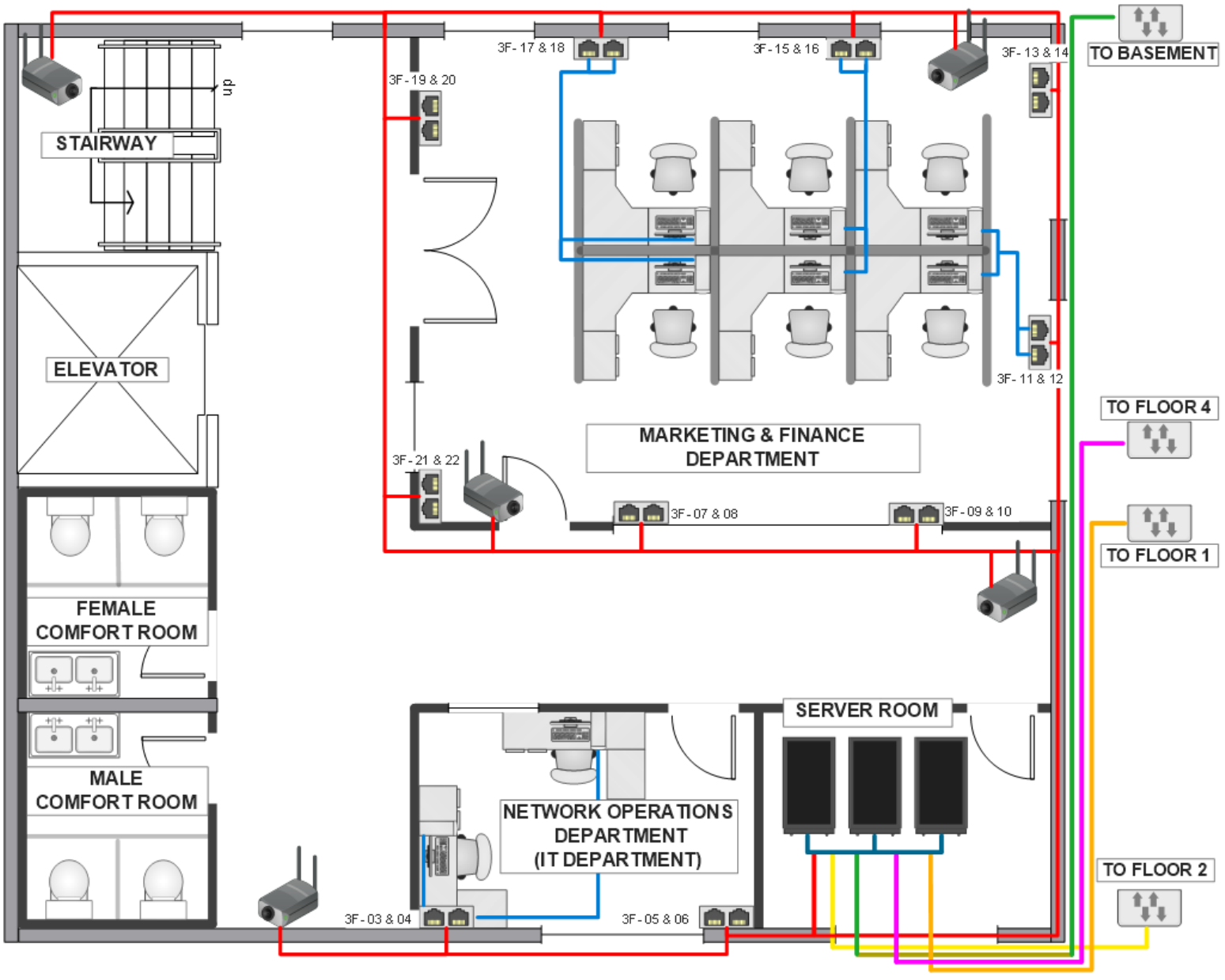
LEGEND	
	CAT6 (Backbone)
	CAT6
	DOUBLE JACK COUPLER RJ45
	COMPUTER
	WIFI ROUTER
	SWITCH
	SECURITY CAMERA

FLOOR 2



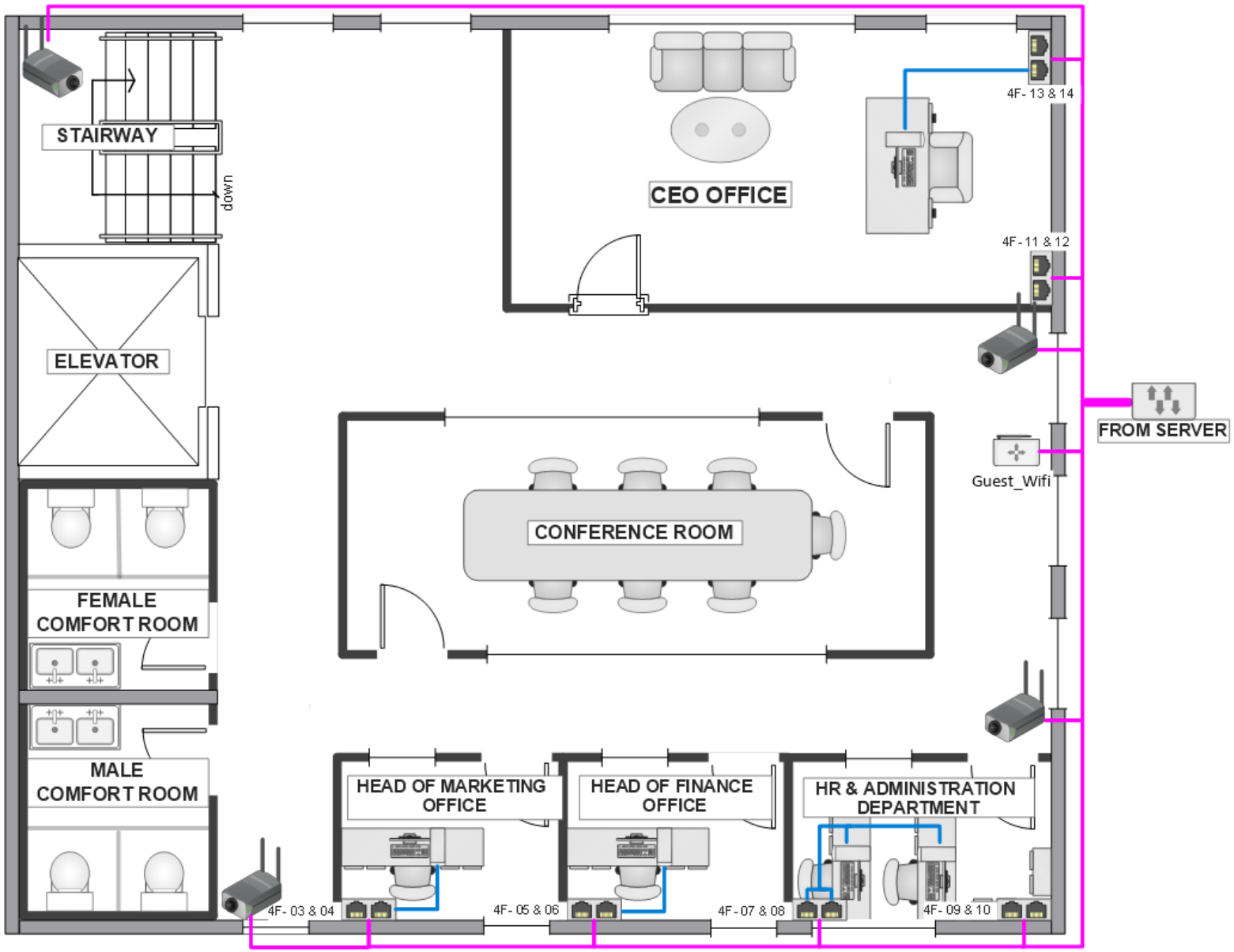
LEGEND	
	CAT6 (Backbone)
	CAT6
	DOUBLE JACK COUPLER RJ45
	COMPUTER
	SWITCH
	WIFI ROUTER
	SECURITY CAMERA

FLOOR 3



LEGEND	
	CAT6 (Backbone)
	CAT6 (Backbone to Basement)
	CAT6 (Backbone to Floor 1)
	CAT6 (Backbone to Floor 2)
	CAT6 (Backbone to Floor 4)
	CAT6
	DOUBLE JACK COUPLER RJ45
	SERVER RACK
	COMPUTER
	SWITCH
	SECURITY CAMERA

FLOOR 4



LEGEND	
	CAT6 (Backbone)
	CAT6
	DOUBLE JACK COUPLER RJ45
	COMPUTER
	WIFI ROUTER
	SWITCH
	SECURITY CAMERA

Network Port Addressing

FLOOR 1					
Department	**Occupied Port**		**Available Port**		**Reserve Port**
Reception Area	1F - 03		1F - 04		1F - 01
Software Development Dept. (Creative Department)	1F - 05	1F - 06	1F - 09	1F - 10	1F - 02
	1F - 07	1F - 08	1F - 11	1F - 12	
	1F - 13	1F -15	1F - 14	1F - 16	

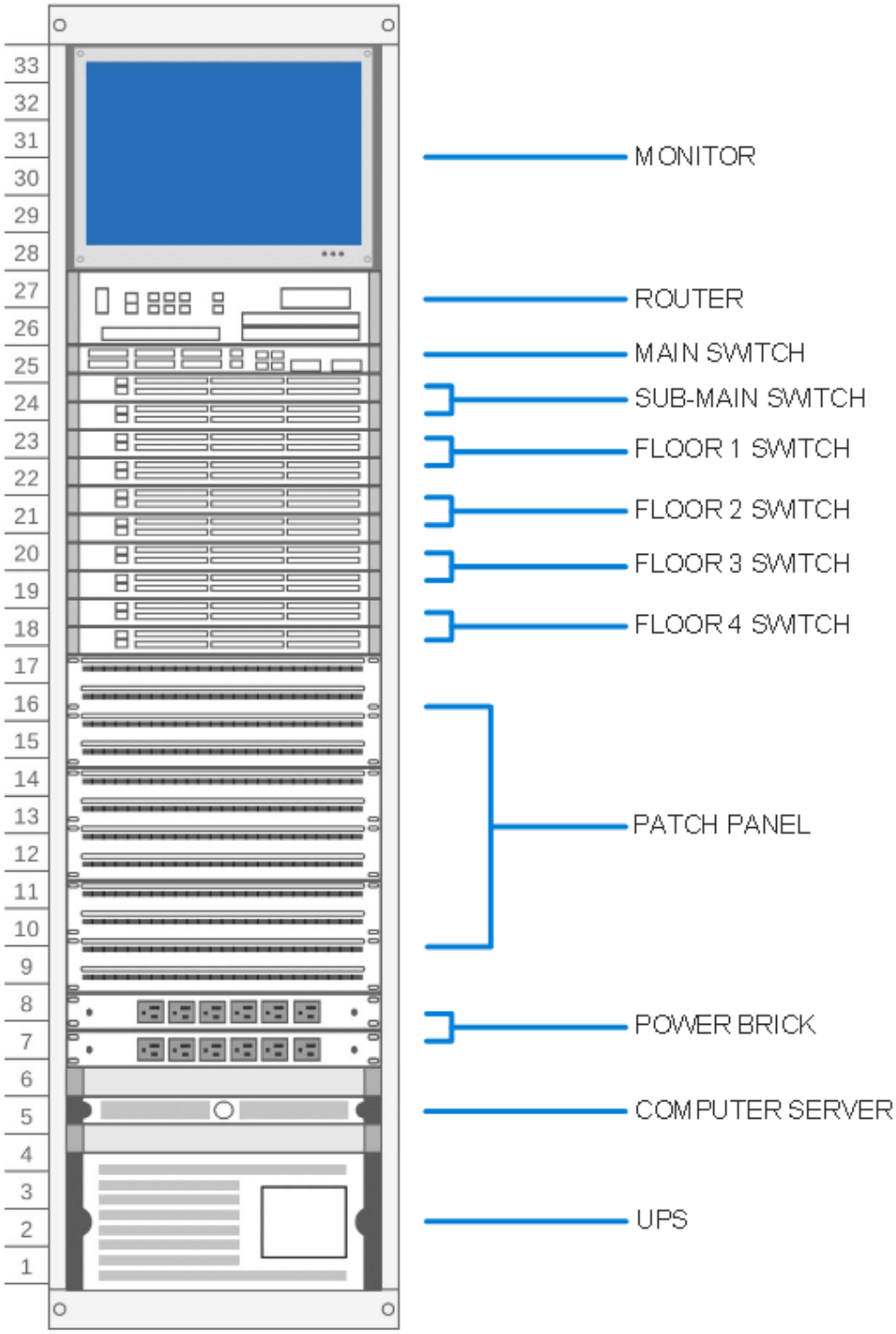
FLOOR 2				
Department	**Occupied Port**	**Available Port**		**Reserve Port**
Software Development Department (Podcast Room)	2F - 03	2F - 04		2F - 01
		2F - 05	2F - 06	2F - 02
Software Development Dept. (Shoutcasting Room)	2F - 09	2F - 07	2F - 08	
		2F - 10		
Software Development Dept. (Streaming Room)	2F - 11	2F - 12		
	2F - 13	2F - 14		
	2F - 15	2F - 16		
	2F - 17	2F - 18		
	2F - 19	2F - 20		
	2F - 21	2F - 22		

FLOOR 3					
Department	**Occupied Port**		**Available Port**		**Reserve Port**
Network Operations Dept. (IT Department)	3F - 03	3F - 04	3F - 05	3F - 06	3F - 01
					3F - 02
Marketing & Finance Department	3F - 11	3F - 12	3F - 07	3F - 08	
	3F - 15	3F - 16	3F - 09	3F - 10	
	3F - 17	3F - 18	3F - 13	3F - 14	
			3F - 19	3F - 20	
			3F - 21	3F - 22	

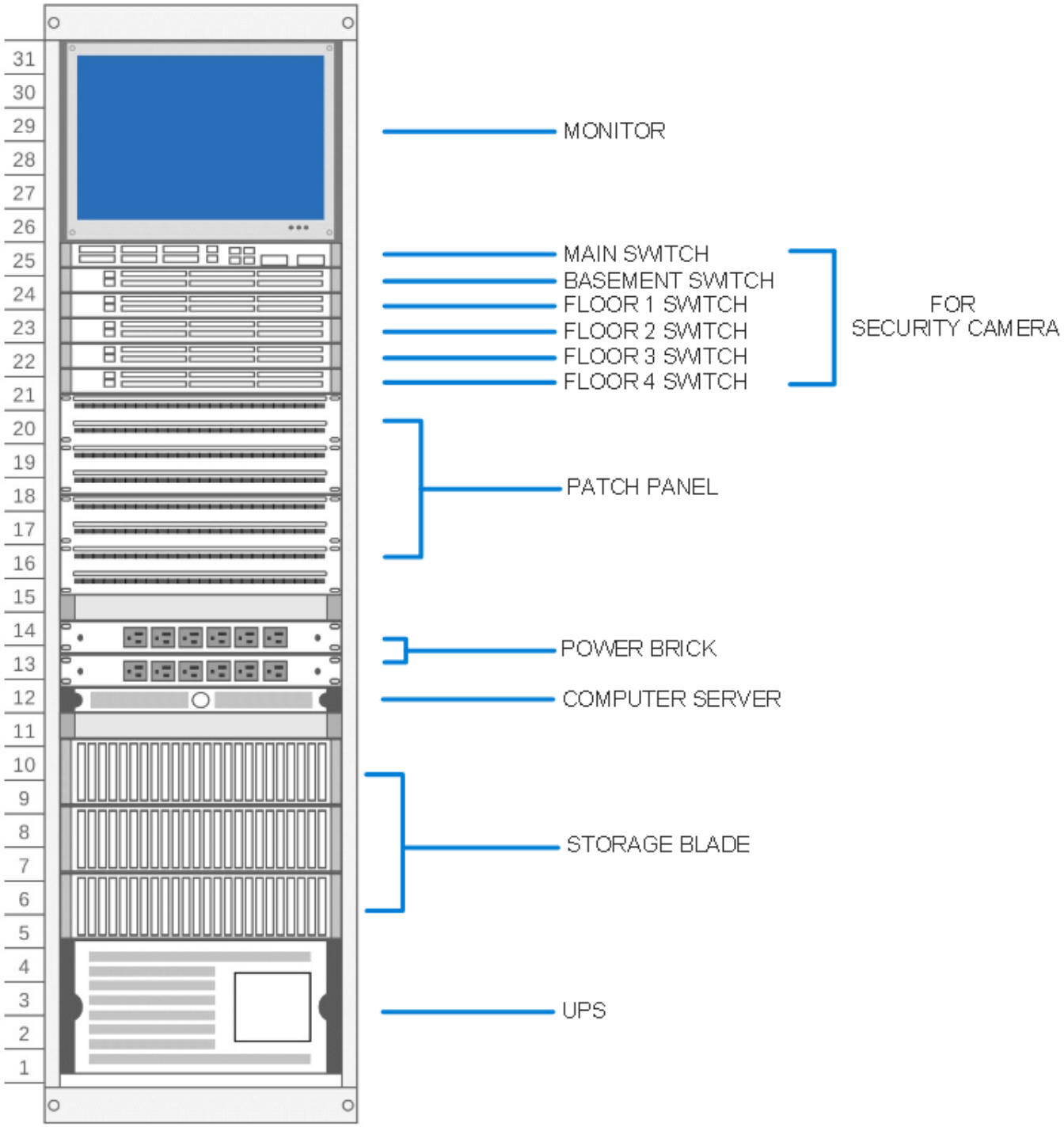
FLOOR 4					
Department	**Occupied Port**		**Available Port**		**Reserve Port**
CEO Office	4F - 14		4F - 11	4F - 12	4F - 01
			4F - 13		4F - 02
Head of Marketing Office	4F - 04		4F - 03		
Head of Finance Office	4F - 06		4F - 05		
HR & Administration Dept.	4F - 07	4F - 08	4F - 09	4F - 10	

(b) cabling plan for the server room

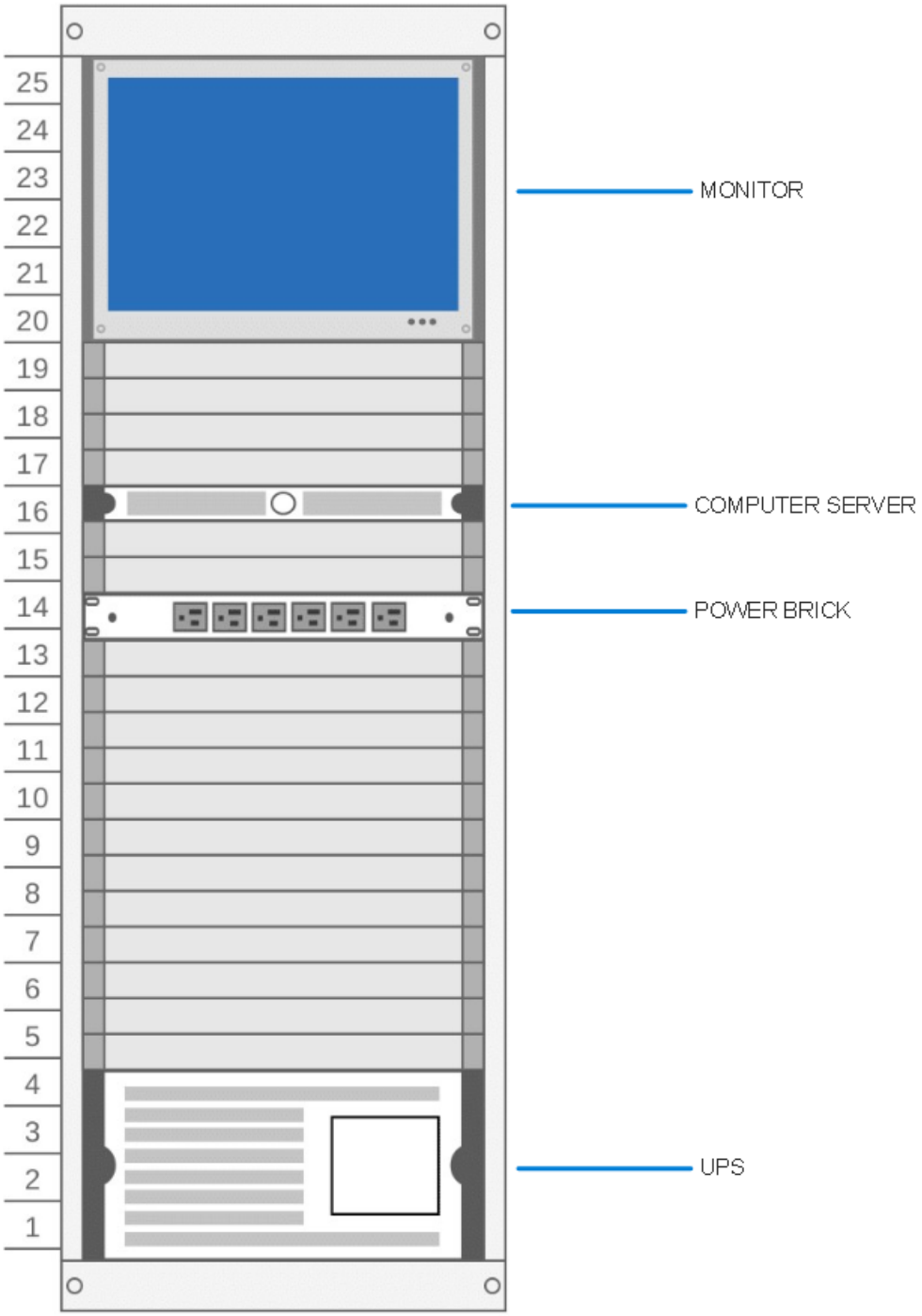
Web Network Server



Database Server



Mail Server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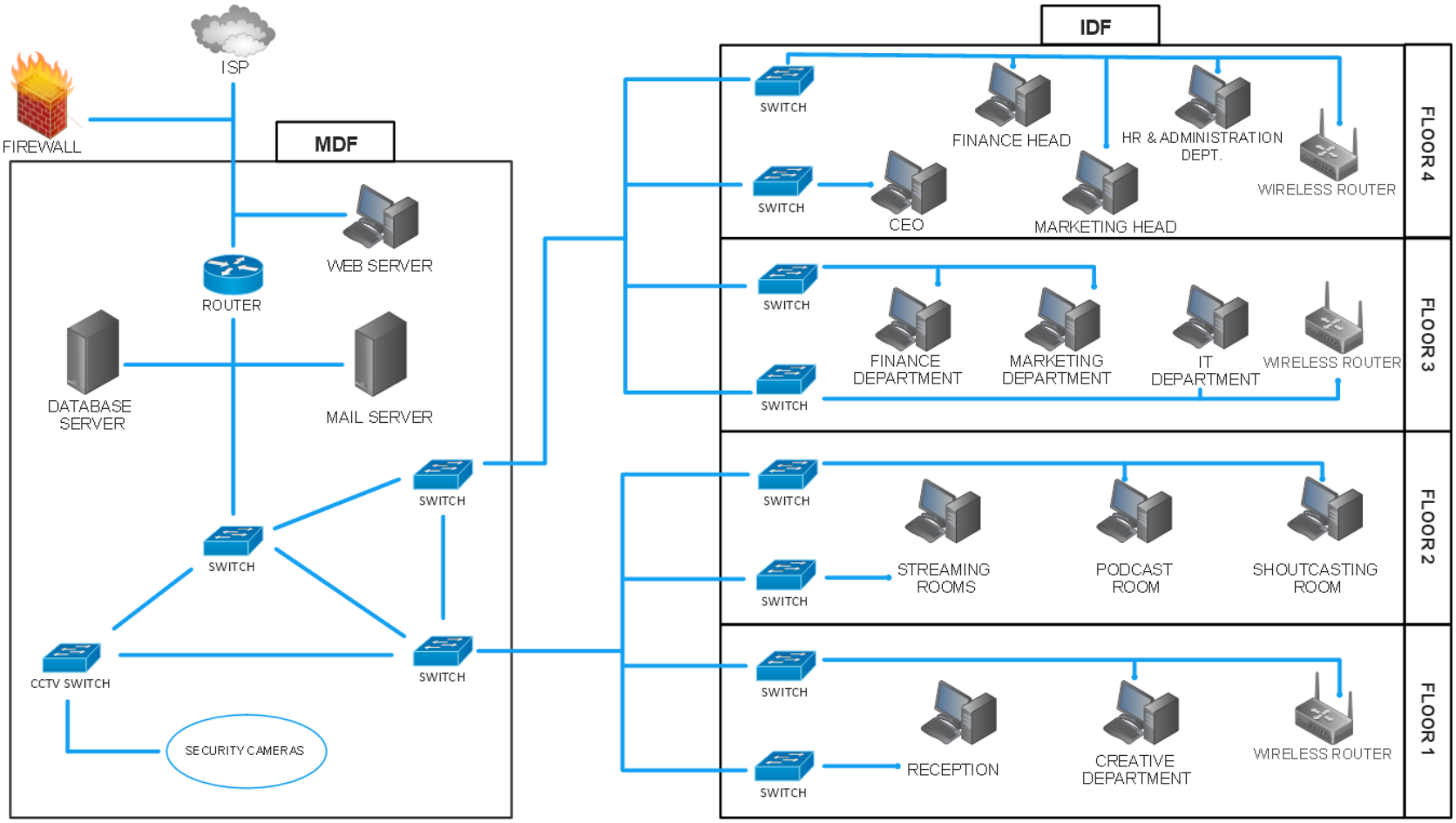
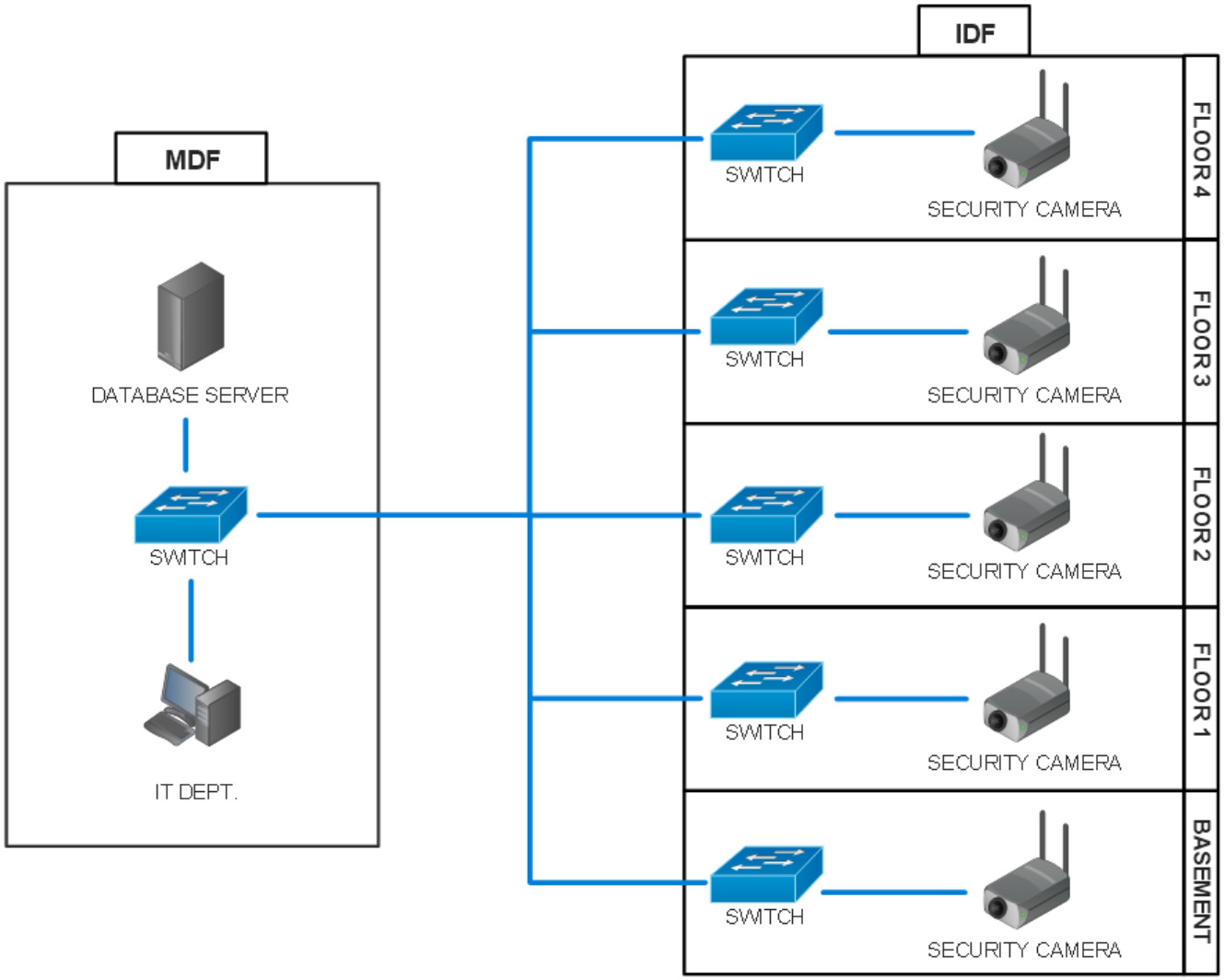
MONITOR
COMPUTER SERVER
POWER BRICK
UPS

(c) Layouts of all MDFs and IDFs

Network MDF and IDF Layout



Security Camera MDF and IDF Layout



4. An IP addressing scheme for all devices on the network

Computer Device

PC - Floor 1

Device Name	IP Address	Subnet Mask	Default Gateway	Reserved IP Address
PC1	130.30.30.2	255.255.0.0	130.30.30.1	Reception – 150.30.30.1 to 150.30.30.100 Creatives Department – 150.40.30.1 to 150.40.30.100
PC2	130.30.30.3	255.255.0.0	130.30.30.1	
PC3	130.30.30.4	255.255.0.0	130.30.30.1	
PC4	130.30.30.5	255.255.0.0	130.30.30.1	
PC5	130.30.30.6	255.255.0.0	130.30.30.1	
PC6	130.30.30.7	255.255.0.0	130.30.30.1	
PC7	130.30.30.8	255.255.0.0	130.30.30.1	
PC8	130.30.30.9	255.255.0.0	130.30.30.1	

Floor 2

Device Name	IP Address	Subnet Mask	Default Gateway	Reserved IP Address
PC9	130.30.30.10	255.255.0.0	130.30.30.1	Streaming Room – 150.50.30.1 to 150.50.30.100 Entertainment Room (podcast) – 150.60.30.1 to 150.60.30.100 Shout Casting Room – 150.70.30.1 to 150.70.30.100
PC10	130.30.30.11	255.255.0.0	130.30.30.1	
PC11	130.30.30.12	255.255.0.0	130.30.30.1	
PC12	130.30.30.13	255.255.0.0	130.30.30.1	
PC13	130.30.30.14	255.255.0.0	130.30.30.1	
PC14	130.30.30.15	255.255.0.0	130.30.30.1	
PC15	130.30.30.16	255.255.0.0	130.30.30.1	

Floor 3

Device Name	IP Address	Subnet Mask	Default Gateway	Reserved IP Address
PC19	130.30.30.20	255.255.0.0	130.30.30.1	Finance Dept. – 150.80.30.1 to 150.80.30.100 Marketing Dept. – 150.90.30.1 to 150.90.30.100 Server Room – 150.100.30.1 to 150.100.30.100 Network Op. Dept. – 150.110.30.1 to 150.110.30.100
PC20	130.30.30.21	255.255.0.0	130.30.30.1	
PC21	130.30.30.22	255.255.0.0	130.30.30.1	
PC22	130.30.30.23	255.255.0.0	130.30.30.1	
PC23	130.30.30.24	255.255.0.0	130.30.30.1	
PC24	130.30.30.25	255.255.0.0	130.30.30.1	
PC25	130.30.30.26	255.255.0.0	130.30.30.1	
PC26	130.30.30.27	255.255.0.0	130.30.30.1	

Floor 4

Device Name	IP Address	Subnet Mask	Default Gateway	Reserved IP Address
PC29	130.30.30.31	255.255.0.0	130.30.30.1	CEO – 150.120.30.1 to 150.120.30.100 HR and Administration Dept. – 150.130.30.1 to 150.130.30.100 Finance and Marketing Head – 150.140.30.1 to 150.140.30.100
PC30	130.30.30.30	255.255.0.0	130.30.30.1	
PC16	130.30.30.34	255.255.0.0	130.30.30.1	
PC17	130.30.30.33	255.255.0.0	130.30.30.1	
PC18	130.30.30.32	255.255.0.0	130.30.30.1	

WiFi

Device Name	Hostname	Wifi Password	Floor
Wireless Router	Guest_Wifi_Reception	E3Etier1	Floor 1
Wireless Router	Guest_Wifi	E5Etier1	Floor 4
Wireless Router	Guest_Wifi2	E6Etier1	Floor2

CCTV

Basement

Device Name	IP Address	Subnet Mask	Server Address	Reserved IP Address
WebcamIoT0/CCTV1	192.30.30.2	255.255.255.0	192.30.30.1	Basement-195.40.30.1 to 195.40.30.100
WebcamIoT1/CCTV2	192.30.30.3	255.255.255.0	192.30.30.1	
WebcamIoT2/CCTV3	192.30.30.4	255.255.255.0	192.30.30.1	
WebcamIoT3/CCTV4	192.30.30.5	255.255.255.0	192.30.30.1	
WebcamIoT4/CCTV5	192.30.30.6	255.255.255.0	192.30.30.1	
WebcamIoT5/CCTV6	192.30.30.7	255.255.255.0	192.30.30.1	

Floor 1

Device Name	IP Address	Subnet Mask	Server Address	Reserved IP Address
WebcamIoT11/CCTV7	192.30.30.8	255.255.255.0	192.30.30.1	Floor 1 - 195.50.30.1 to 195.50.30.100
WebcamIoT10/CCTV8	192.30.30.9	255.255.255.0	192.30.30.1	
WebcamIoT9/CCTV9	192.30.30.10	255.255.255.0	192.30.30.1	
WebcamIoT8/CCTV10	192.30.30.11	255.255.255.0	192.30.30.1	
WebcamIoT7/CCTV11	192.30.30.12	255.255.255.0	192.30.30.1	
WebcamIoT6/CCTV12	192.30.30.13	255.255.255.0	192.30.30.1	

Floor 2

Device Name	IP Address	Subnet Mask	Server Address	Reserved IP Address
WebcamIoT12/CCTV13	192.30.30.14	255.255.255.0	192.30.30.1	Floor 2 - 195.60.30.1 to 195.60.30.100
WebcamIoT13/CCTV14	192.30.30.15	255.255.255.0	192.30.30.1	
WebcamIoT14/CCTV15	192.30.30.16	255.255.255.0	192.30.30.1	
WebcamIoT15/CCTV16	192.30.30.17	255.255.255.0	192.30.30.1	
WebcamIoT16/CCTV17	192.30.30.18	255.255.255.0	192.30.30.1	

Floor 3

Device Name	IP Address	Subnet Mask	Server Address	Reserved IP Address
WebcamIoT17/CCTV18	192.30.30.19	255.255.255.0	192.30.30.1	Floor 3 - 195.70.30.1 to 195.70.30.100
WebcamIoT18/CCTV19	192.30.30.20	255.255.255.0	192.30.30.1	
WebcamIoT19/CCTV20	192.30.30.21	255.255.255.0	192.30.30.1	
WebcamIoT20/CCTV21	192.30.30.22	255.255.255.0	192.30.30.1	
WebcamIoT21/CCTV22	192.30.30.23	255.255.255.0	192.30.30.1	

Floor 4

Device Name	IP Address	Subnet Mask	Server Address	Reserved IP Address
WebcamIoT22/CCTV23	192.30.30.24	255.255.255.0	192.30.30.1	Floor 4 - 195.80.30.1 to 195.80.30.100
WebcamIoT23/CCTV24	192.30.30.25	255.255.255.0	192.30.30.1	
WebcamIoT24/CCTV25	192.30.30.26	255.255.255.0	192.30.30.1	
WebcamIoT25/CCTV26	192.30.30.27	255.255.255.0	192.30.30.1	

Server

Floor 3

Device Name	IP Address	Subnet Mask	Reserved IP Address
Server0/Database Server	192.30.30.1	255.255.255.0	Servers -

Server1/Mail Server	140.10.10.3	255.255.0.0	195.90.30.1 to 195.90.30.100
PC0/Web Server	140.10.10.2	255.255.0.0	

5. **A cost projection for the implementation of the network, including:**
   (a) Equipment purchase costs

Equipment Purchase Costs			
Product	**Price**	**Quantity**	**Total**
Acer Aspire M5711 (Reception Area)	34,000 php	1	34,000 php
Corsair One a200 (Department Team)	220,483.49 php	6	1,322,900.99 php
Corsair Vengeance i7200 (Streaming Room) 2nd Floor	145,268.89 php	6	871,613.34 php
HP Omen 15 (Entertainment Room (Podcast)	56,100 php	1	56,100 php
HP Omen 15 (Shout casting Room)	56,100 php	1	56,100 php
Dell Opti plex 7070 (Finance Department)	53,500 php	3	160,500 php
Dell Opti plex 7070 (Marketing Department)	53,500 php	3	160,500 php
Dell Opti plex 7070 (IT Department)	53,500 php	2	107,000 php
Cisco UCS C220 M5 Rack Server (Server Room) (Database Server)	154,000 php	1	154,000 php
HPE ProLiant DL20 Gen10 (Web Server)	79,200 php	1	79,200 php
HPE ProLiant DL20 Gen10 (Mail Server)	79,200 php	1	79,200 php
MSI Trident 3 9th A great performer (CEO) 4th Floor	250,220 php	1	250,220 php

Dell SE2719HR (HR and Administration Department)	70,380 php	2	140,760 php
Dell SE2719HR (Finance and Marketing Head)	70,380 php	2	140,760 php
Cisco 2621XM Router	5,850 php	1	5,850 php
Switch Cisco Catalyst 2960-24TT	3,800 php	17	64,600 php
ASUS RT-AC88U (Wi-Fi Router)	11,477 php	2	22,954 php
RS PRO Analogue Indoor, Outdoor IR CCTV Camera	18,241.84 php	26	474,287.84 php
POWEREDGE FD332 Storage Block	250,000 php	2	500,000 php
TOTAL:			**4,680,546.17 php**

(b) Cabling and testing costs

Equipment	Cost	Quantity	Price
Cable (100m Twisted Pair) CAT 6	3,506 php	4	14,024 php
Equipment for test	5,000 php	1	5,000 php
Cisco 2621XM Router	5,850 php	1	5,850 php
Switch Cisco Catalyst 2960-24TT	3,800 php	4	15,200 php
Patch Panel	2,445 php	1	2,445 php
Server Rack/Cabinet	32,800 php	2	65,600 php
B021-000-19-HD2 Monitor	52,668.86 php	1	52,668.86 php
15A Horizontal Rackmount Power Strip	4,500 php	5	22,500 php

APC SRT6KRMXLT 4U	39,000 php	3	117,000 php
Tester	1,000 php	3	3,000 php
TOTAL:			**303,287.86 php**

(c) Equipment installation costs

Network Component	Price
Ethernet Wall Jack (54 pieces)	13,500 php
Cable (100m Twisted Pair) CAT 6	14,024 php
Installation	
Network Hub	3,500 php
Cable Management System	3,500 php
Patch Panel	3,500 php
Total:	**38,024 php**

(d)Training and support costs

	Cost	Price
Manager	750 per day (10-day Train)	8,000 php
Electrical and Internet Bills	2000 per day (10- day)	20,000 php
White Board with Marker and Eraser	5,000 php	5,000 php
Video Projector (BenQ Home Theater Short Throw (TH671ST)	73,539 php	73,539 php
Projection Screen VIVO 100" Portable Indoor Outdoor Projector Screen, 100 Inch Diagonal Projection	4,352 php	4,352 php
Coffee Machine or Water Dispenser	7,000 php	7,000 php
Total:		**117,891 php**

Overall Expenses

Equipment Purchase Cost	**4,680,546.17 php**
Cabling and Testing Cost	**303,287.86 php**
Equipment Installation Cost	**38,024 php**
Training and Support Cost	**117,891 php**
Total expenses:	**5,139,749.03 php**

1.3 Objectives

Specific Objectives

- To design the physical and logical layouts for network infrastructure of the new Tier One Entertainment bldg.
- To construct a simulation facility to represent Tier One Entertainment.
- To deploy the proposed structured cabling design.
- To design and implement cabling facility.
- Acquisition of Devices & Applications.
- To identify and acquire the necessary Network Devices & Equipment.
    - Budget
    - Device
    - Application

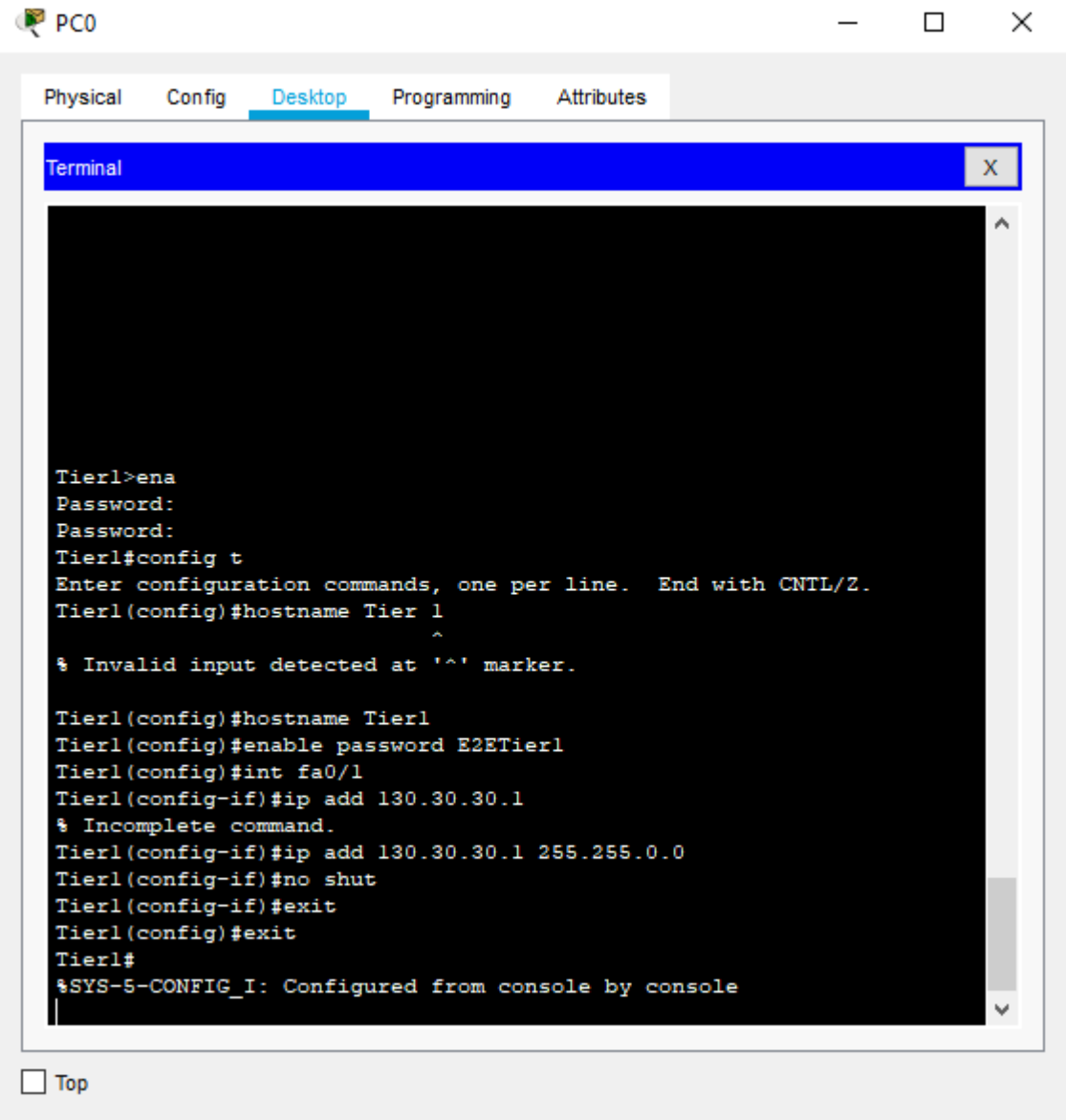
1.4 Logical Configuration of proposed network

- Codes per router

Server Router

Hostname: Tier1

Password: E2ETier1

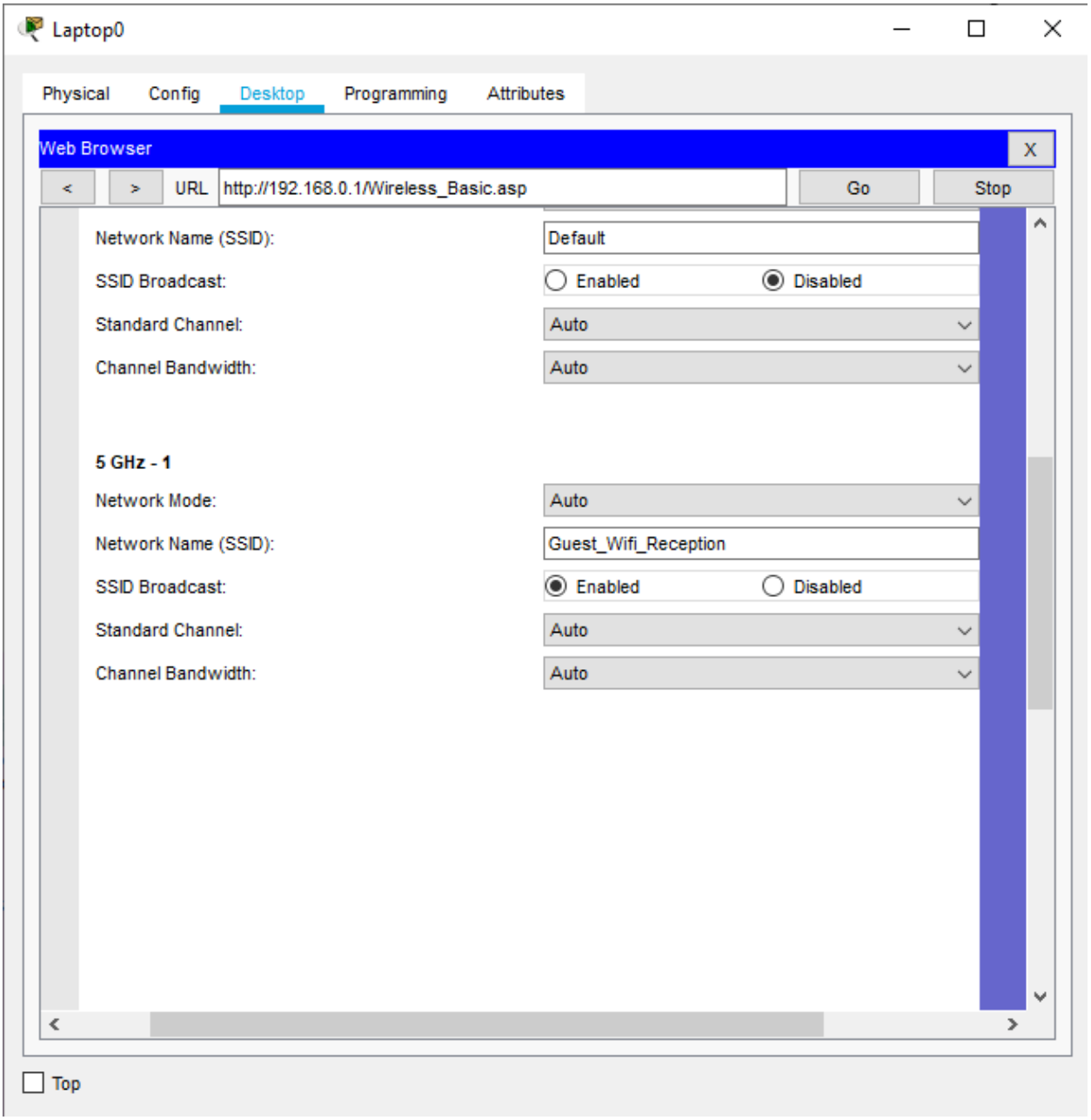


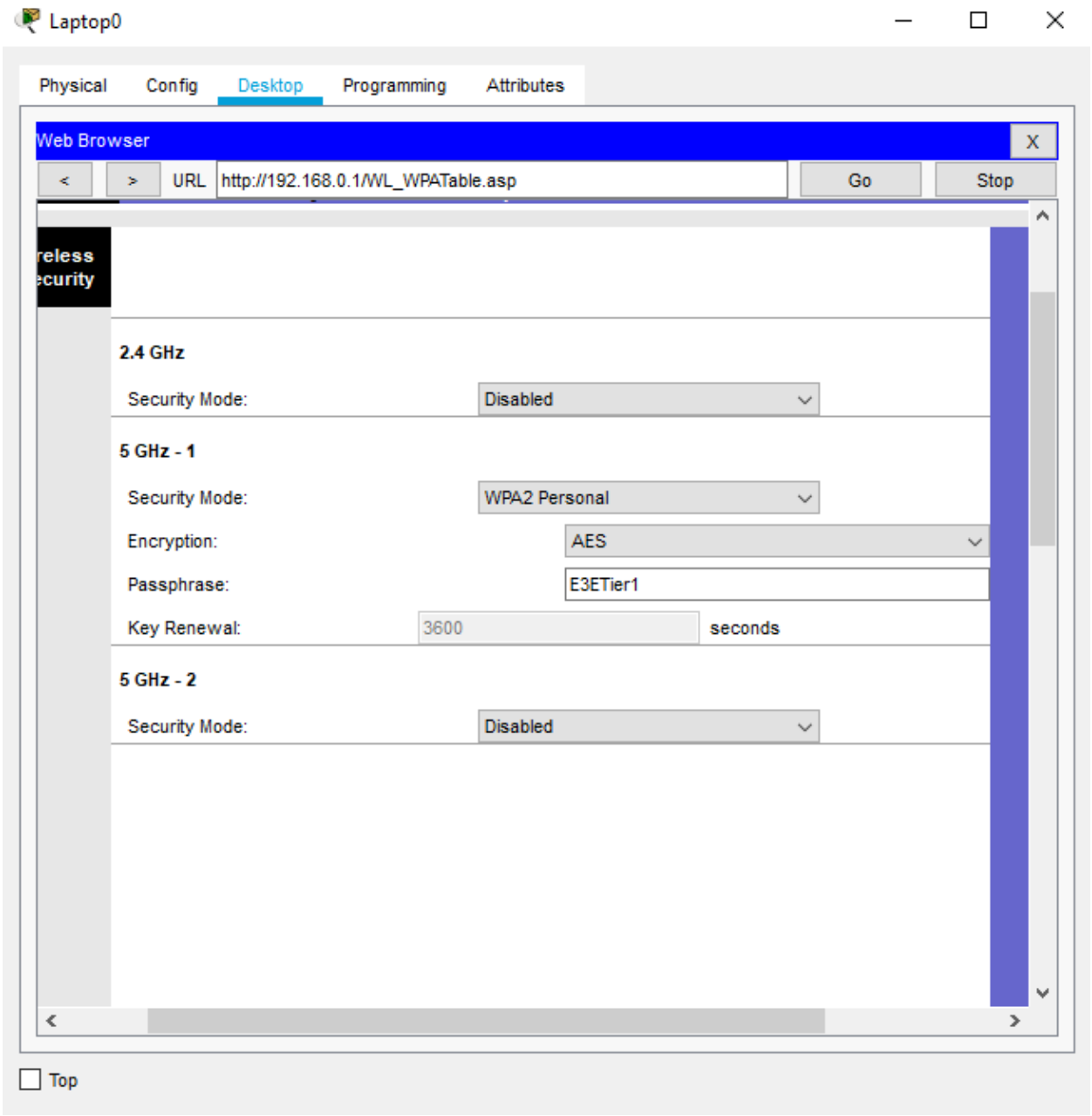
Wi-Fi Router

SSID:Guest_Wifi_Reception

Password: E5ETier1

Location: Floor 1

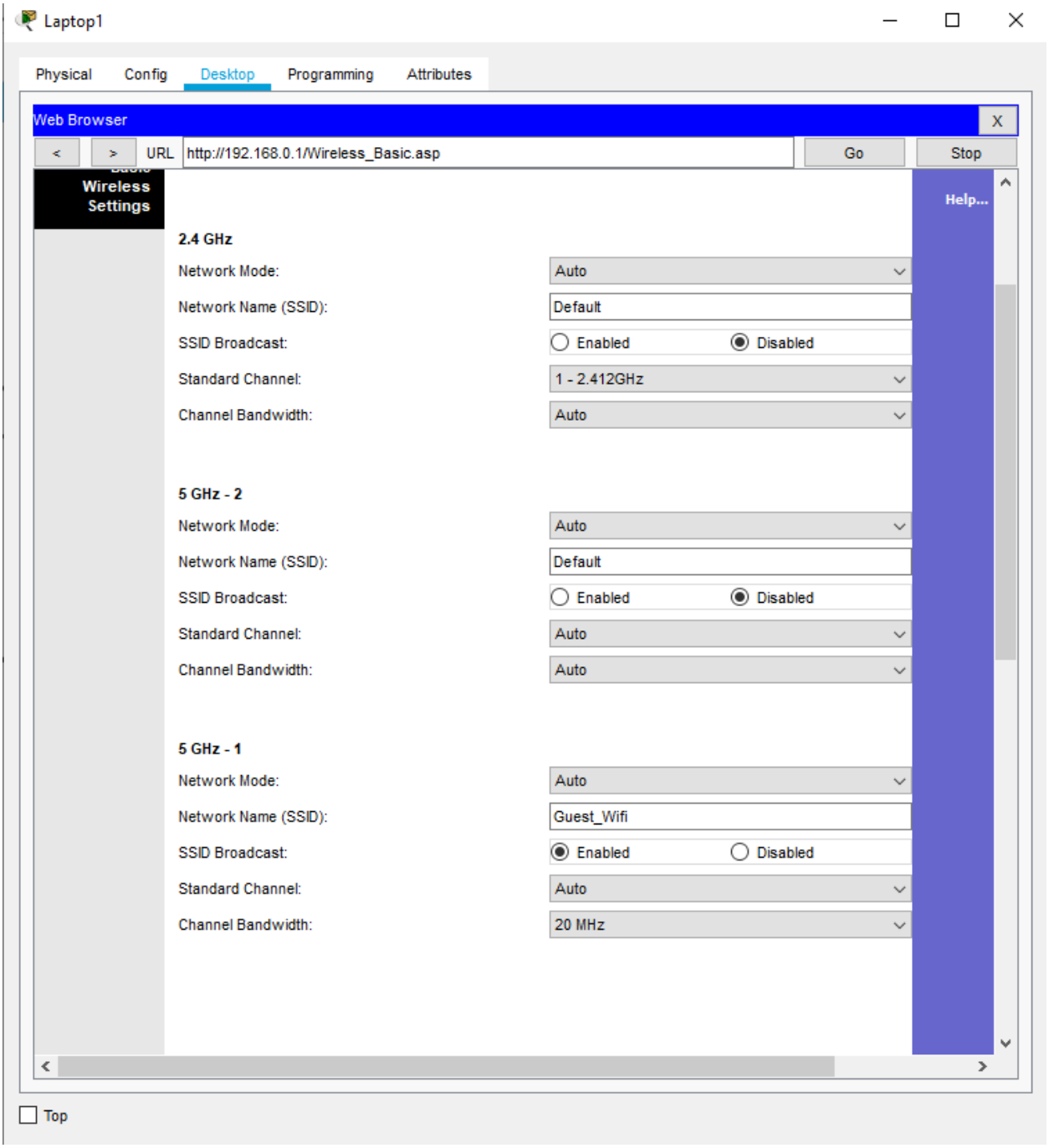


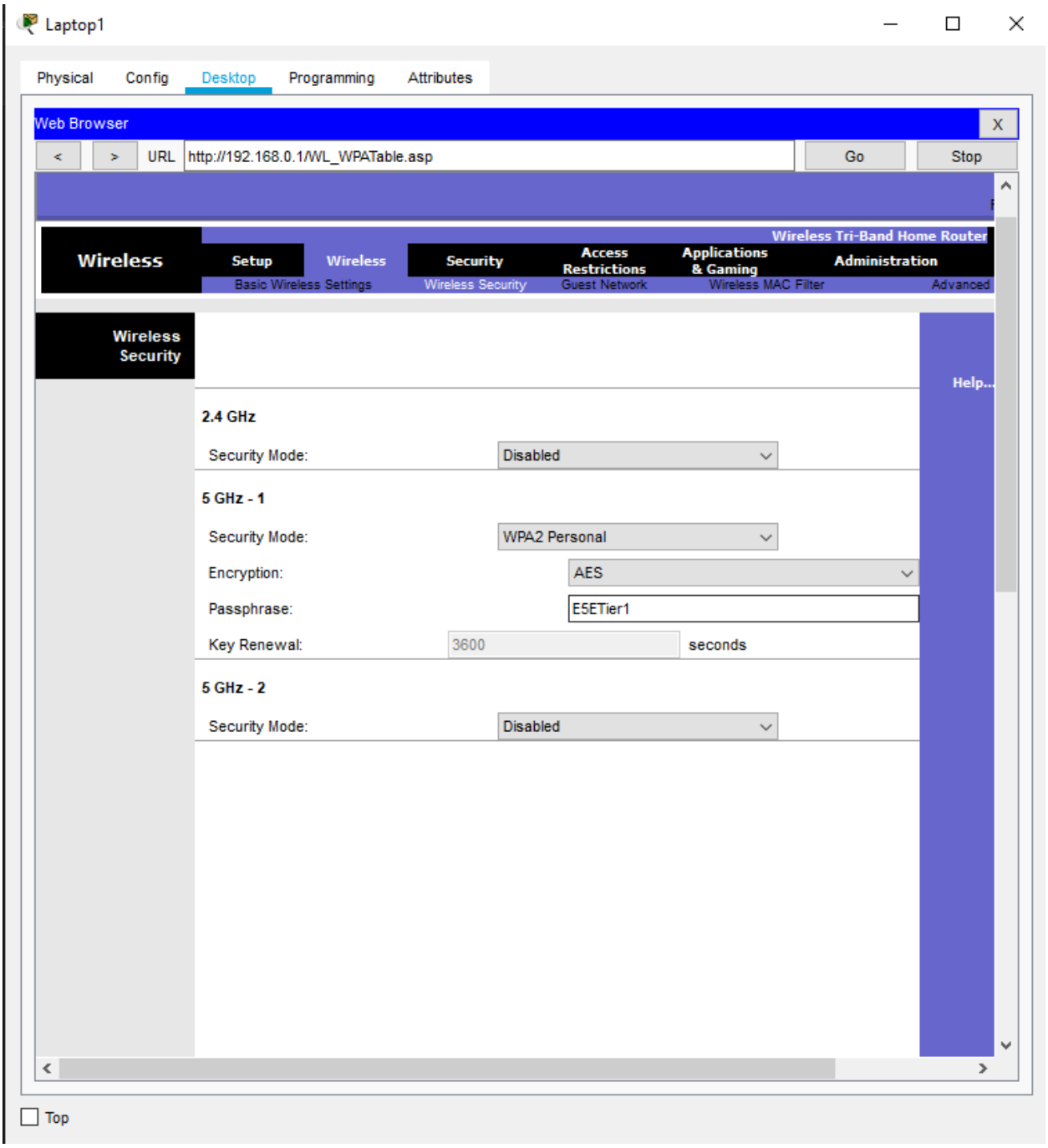

Laptop0
Physical
Config
Desktop
Programming
Attributes
Web Browser
X
<
>
URL
http://192.168.0.1/WL_WPATable.asp
Go
Stop
reless
ecurity
2.4 GHz
Security Mode:
Disabled
5 GHz - 1
Security Mode:
WPA2 Personal
Encryption:
AES
Passphrase:
E3ETier1
Key Renewal:
3600
seconds
5 GHz - 2
Security Mode:
Disabled
Top

SSID: Guest_Wifi

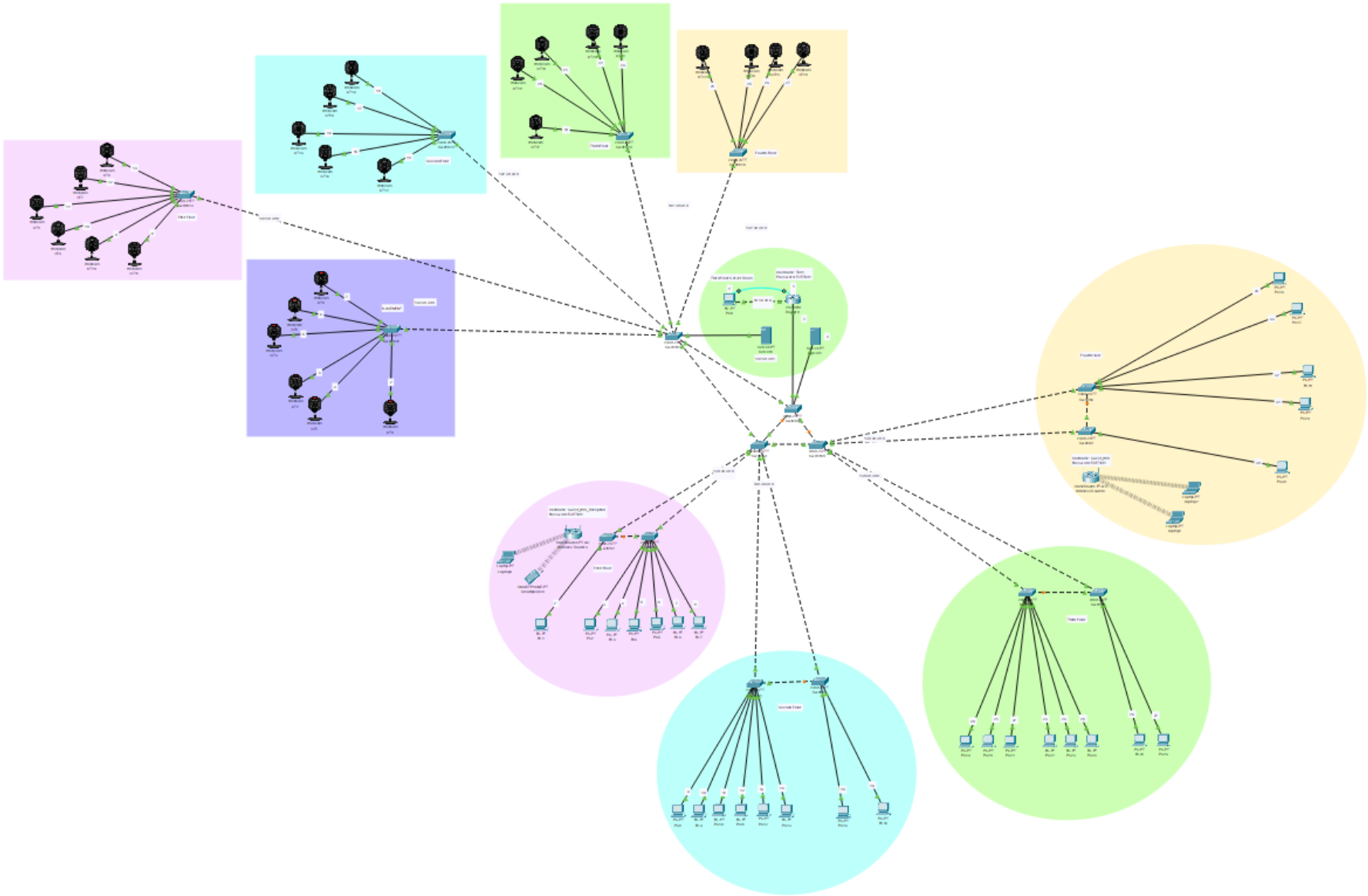
Password: E5ETier1

Location: Floor 4

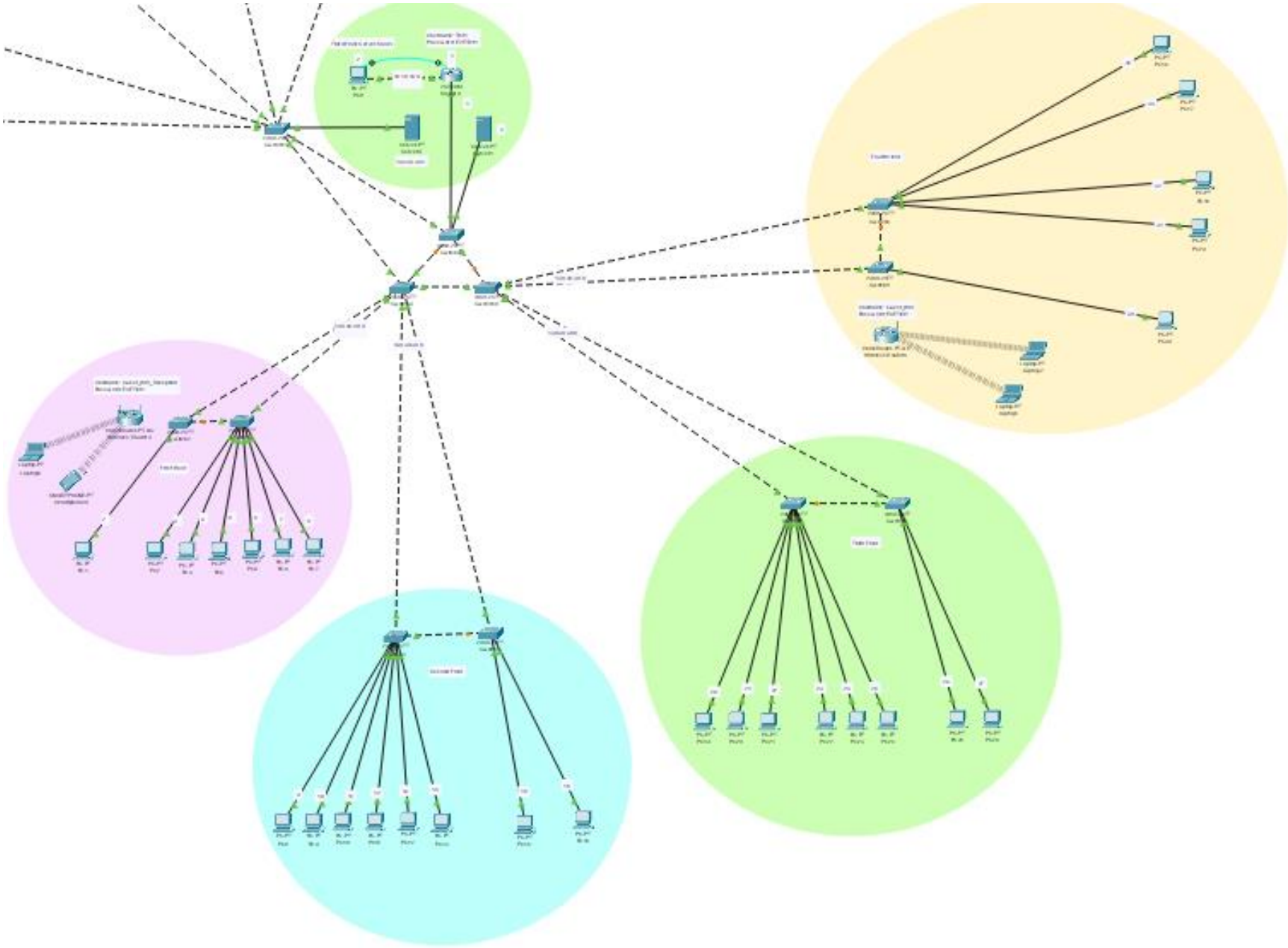



Laptop1
Physical
Config
Desktop
Programming
Attributes
Web Browser
X
<
>
URL
http://192.168.0.1/WL_WPATable.asp
Go
Stop
Wireless Tri-Band Home Router
Wireless
Setup
Wireless
Security
Access Restrictions
Applications & Gaming
Administration
Basic Wireless Settings
Wireless Security
Guest Network
Wireless MAC Filter
Advanced
Wireless Security
Help...
2.4 GHz
Security Mode:
Disabled
5 GHz - 1
Security Mode:
WPA2 Personal
Encryption:
AES
Passphrase:
E5ETier1
Key Renewal:
3600
seconds
5 GHz - 2
Security Mode:
Disabled
Top

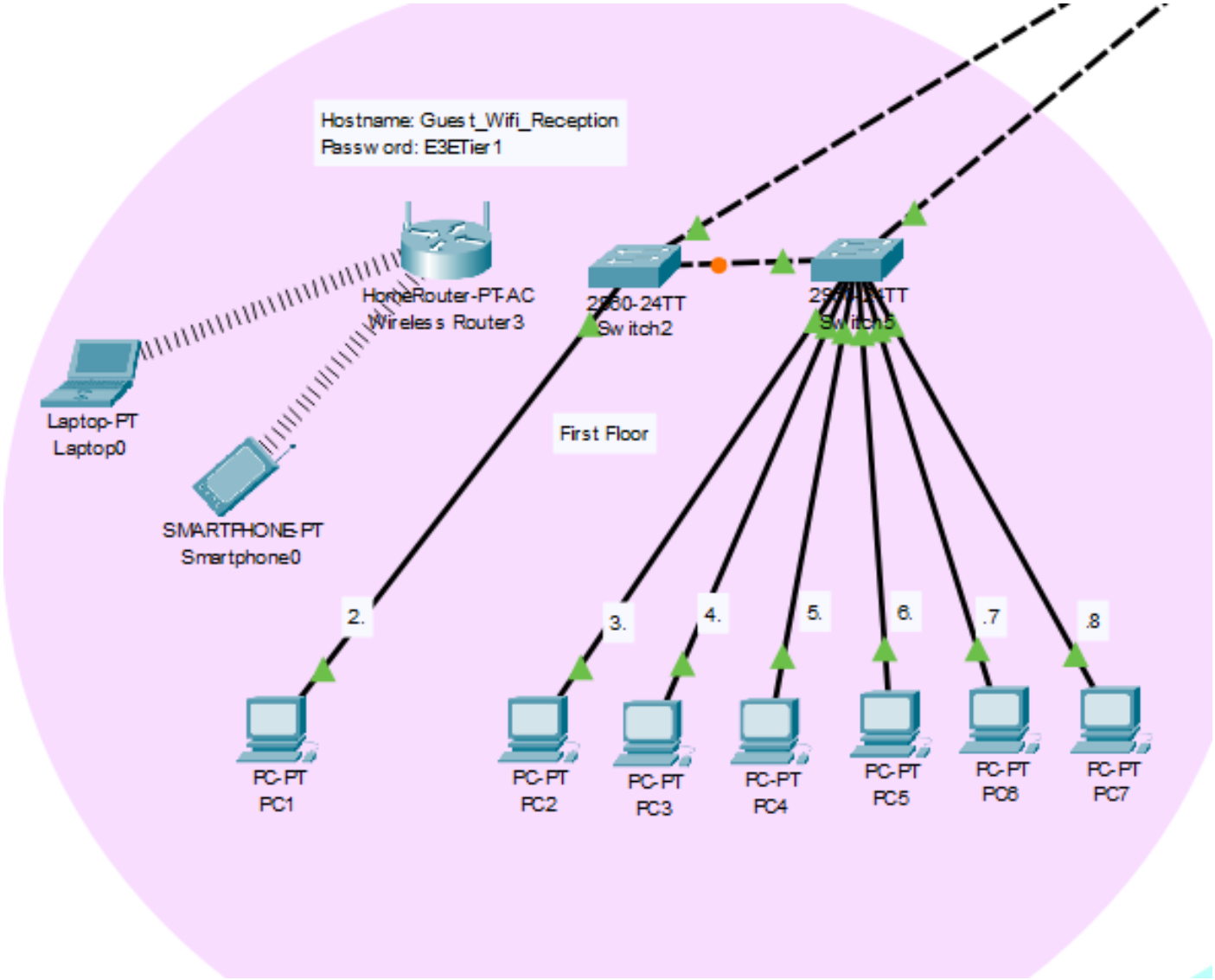
Full Infrastructure



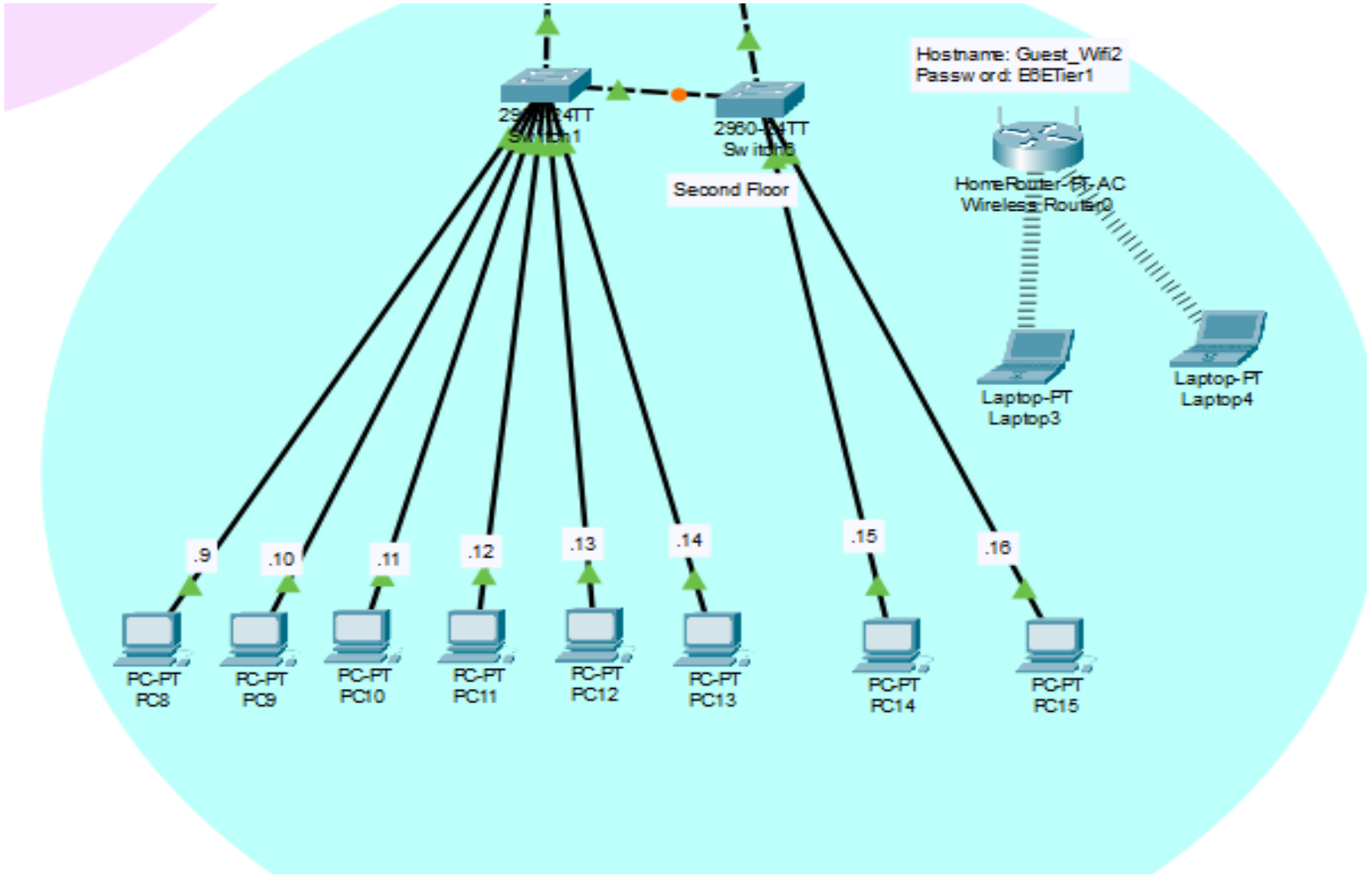
Network Infrastructure



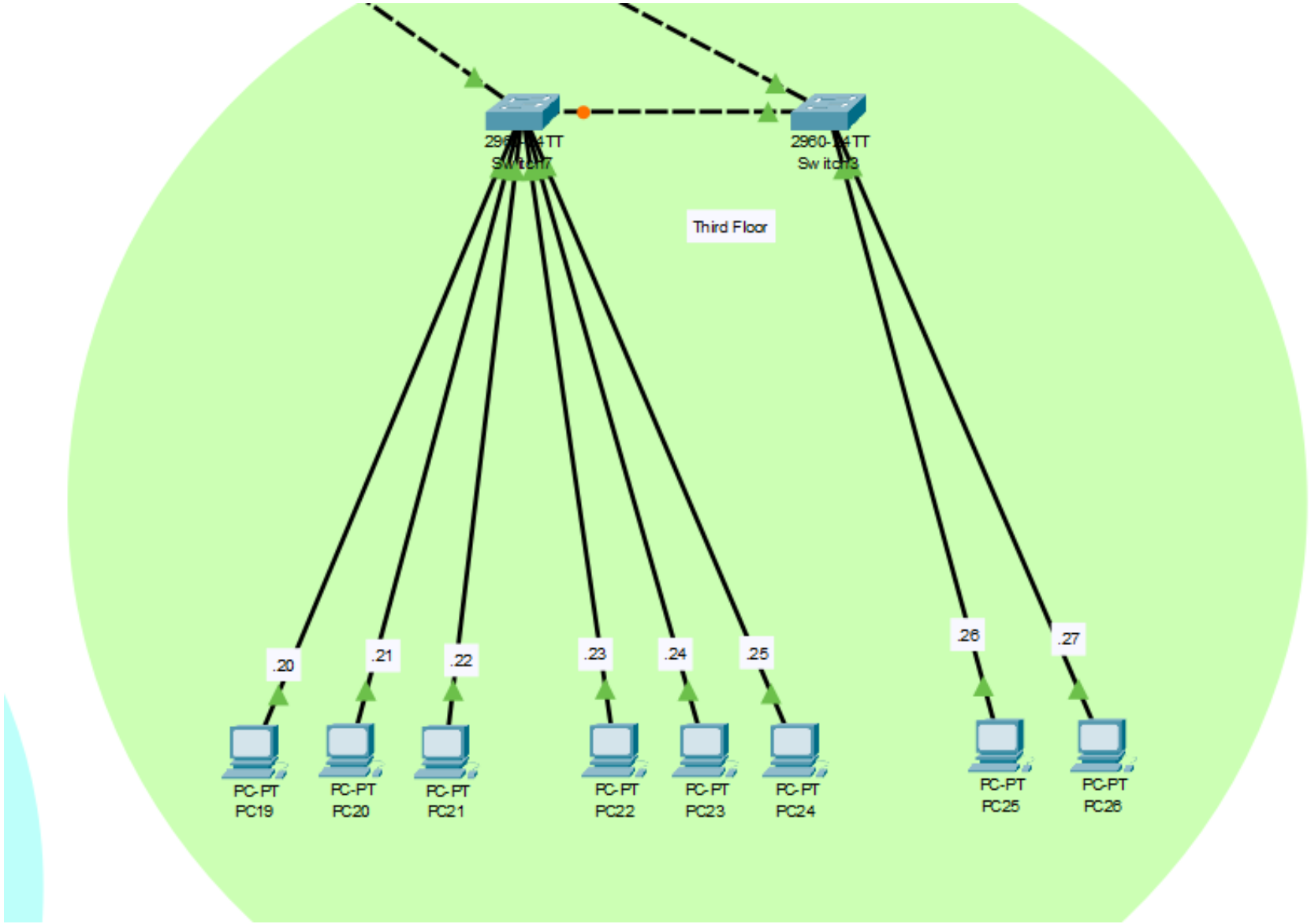
Floor 1


Hostname: Guest_Wifi_Reception
Password: E3ETier1
HomeRouter-PT-AC
Wireless Router3
2960-24TT
Switch2
2960-24TT
Switch5
Laptop-PT
Laptop0
SMARTPHONE-PT
Smartphone0
First Floor
2.
3.
4.
5.
6.
.7
.8
PC-PT
PC1
PC-PT
PC2
PC-PT
PC3
PC-PT
PC4
PC-PT
PC5
PC-PT
PC6
PC-PT
PC7

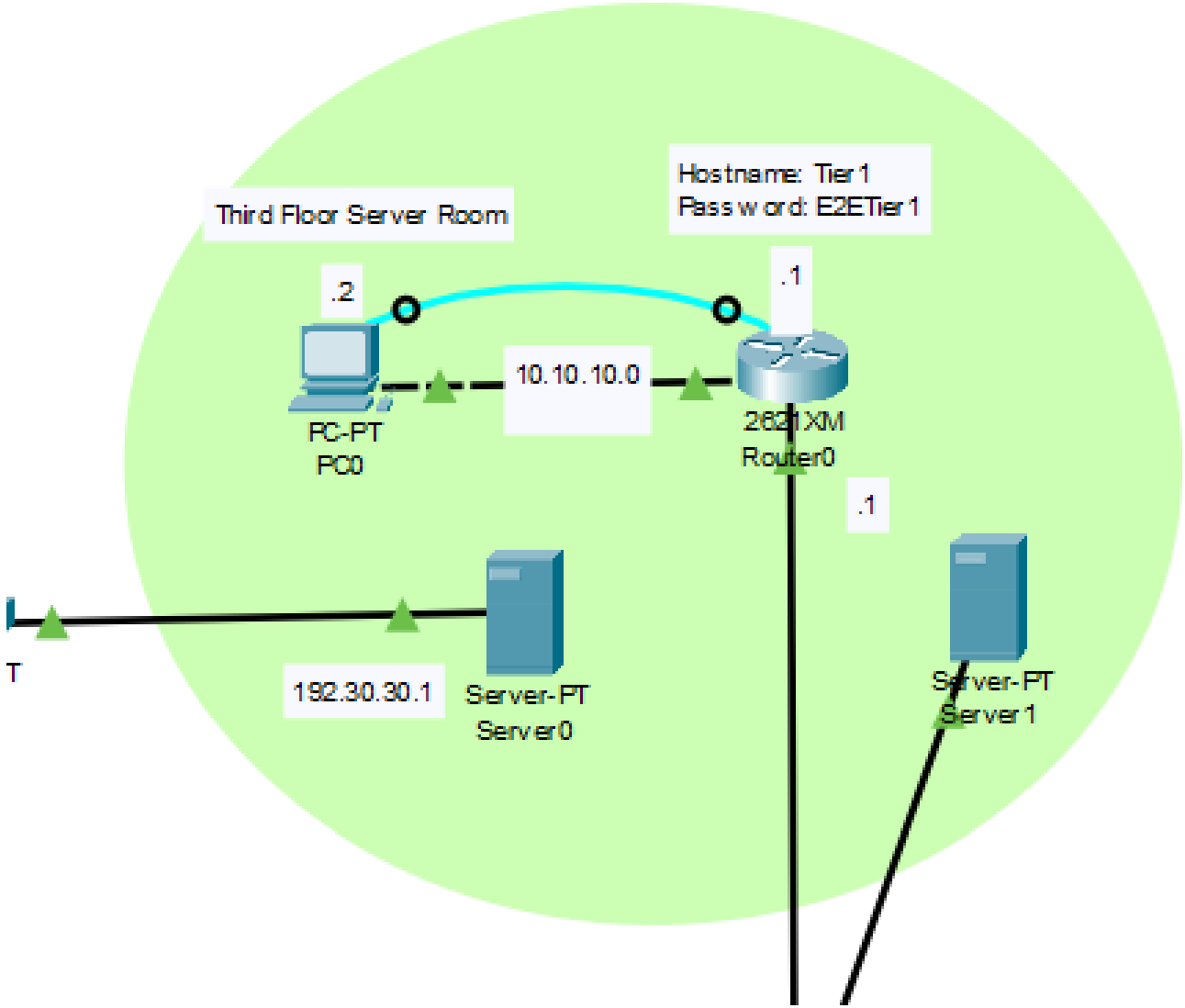
Floor 2


Hostname: Guest_Wifi2
Password: E6ETier1
Second Floor
HomeRouter-PT-AC
Wireless Router0
Laptop-PT
Laptop3
Laptop-PT
Laptop4
.9
.10
.11
.12
.13
.14
.15
.16
PC-PT
PC8
PC-PT
PC9
PC-PT
PC10
PC-PT
PC11
PC-PT
PC12
PC-PT
PC13
PC-PT
PC14
PC-PT
PC15

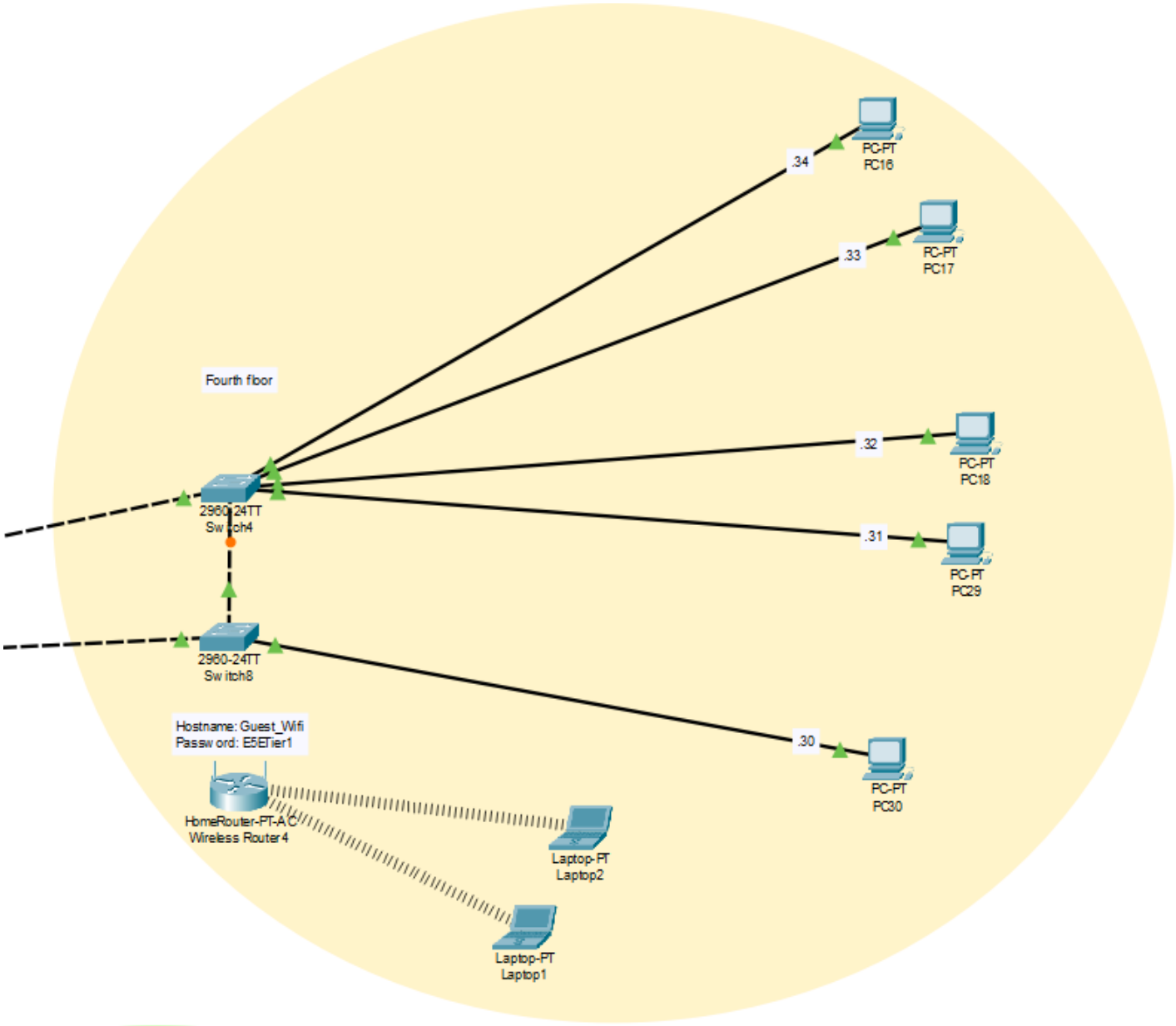
Floor 3


Switch7
Switch3
Third Floor
.20
.21
.22
.23
.24
.25
.26
.27
PC-PT PC19
PC-PT PC20
PC-PT PC21
PC-PT PC22
PC-PT PC23
PC-PT PC24
PC-PT PC25
PC-PT PC26

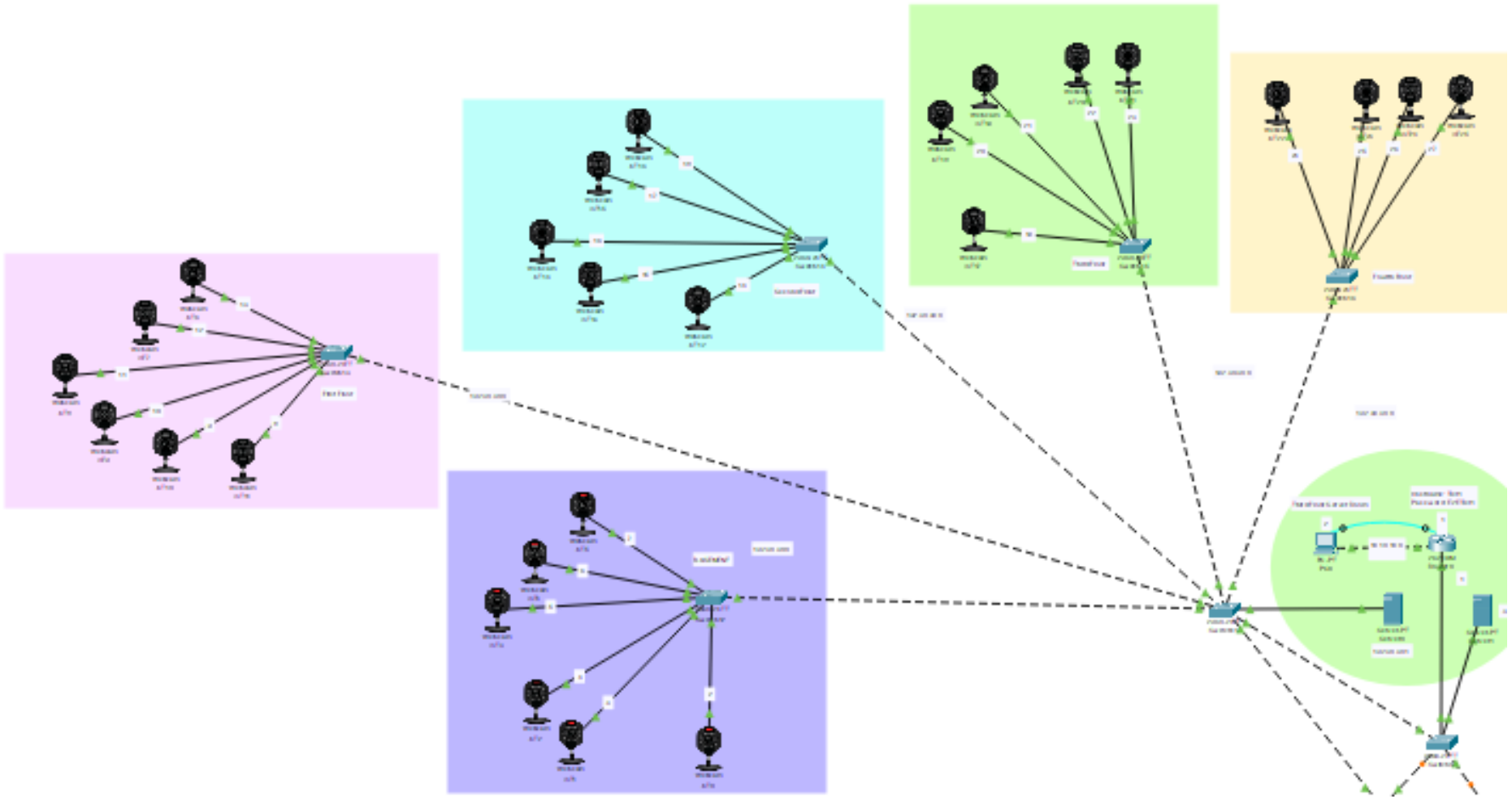
Floor 3 (Server Room)



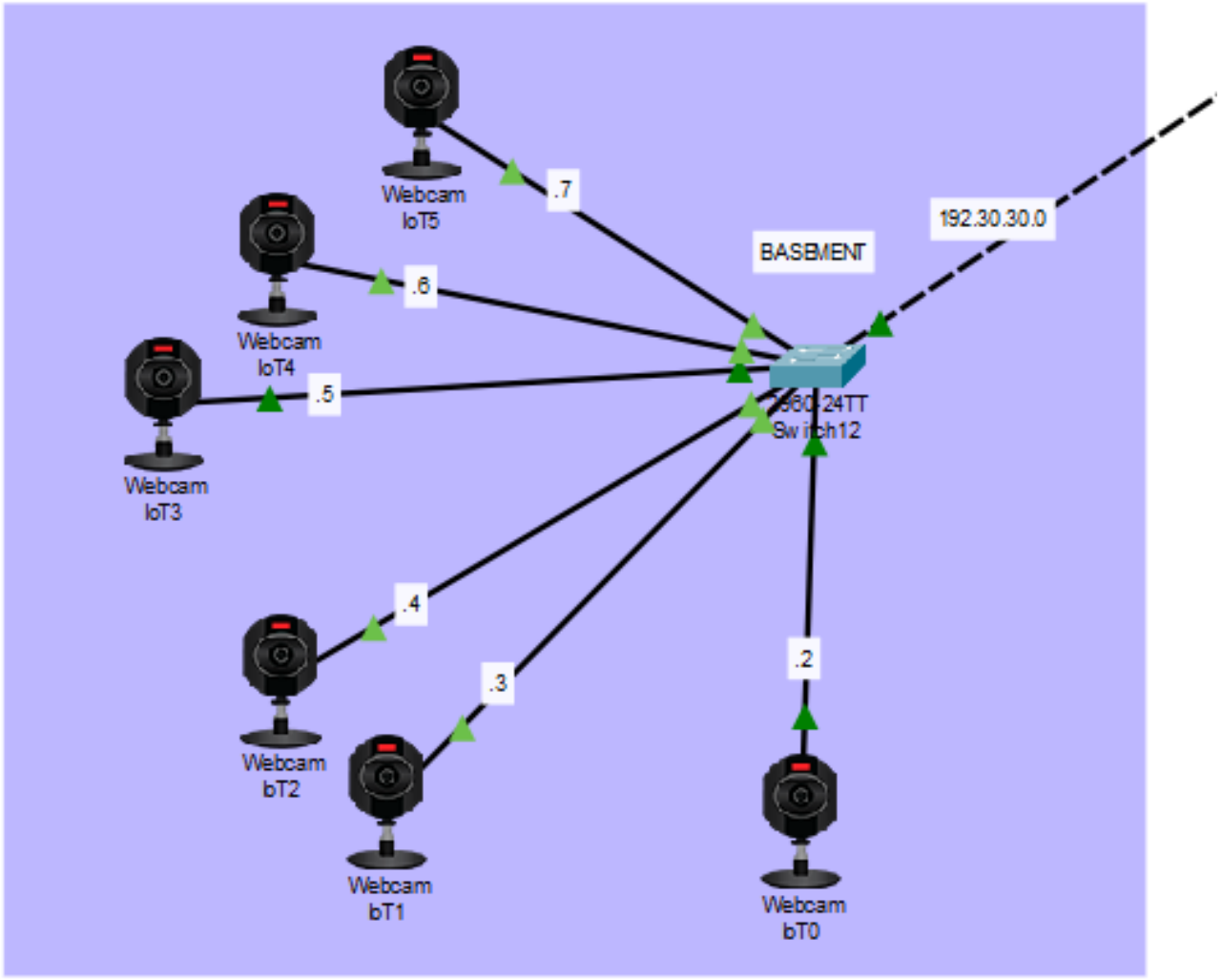
Floor 4


Fourth floor
PC-PT
PC16
.34
PC-PT
PC17
.33
.32
PC-PT
PC18
.31
PC-PT
PC29
2960-24TT
Switch4
2960-24TT
Switch8
.30
PC-PT
PC30
Hostname: Guest_Wifi
Password: E5ETier1
HomeRouter-PT-AC
Wireless Router4
Laptop-PT
Laptop2
Laptop-PT
Laptop1

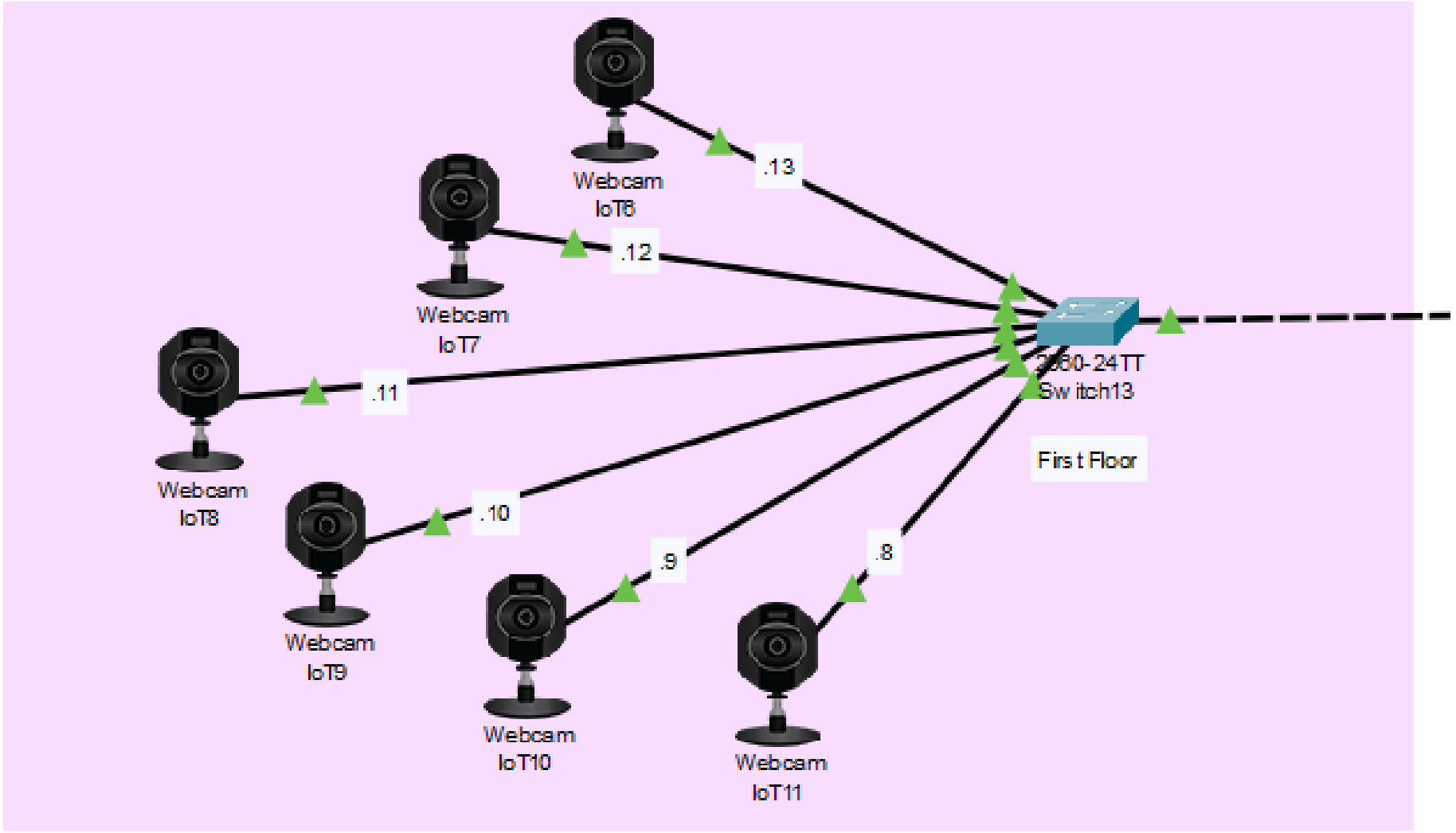
Security Camera Infrastructure



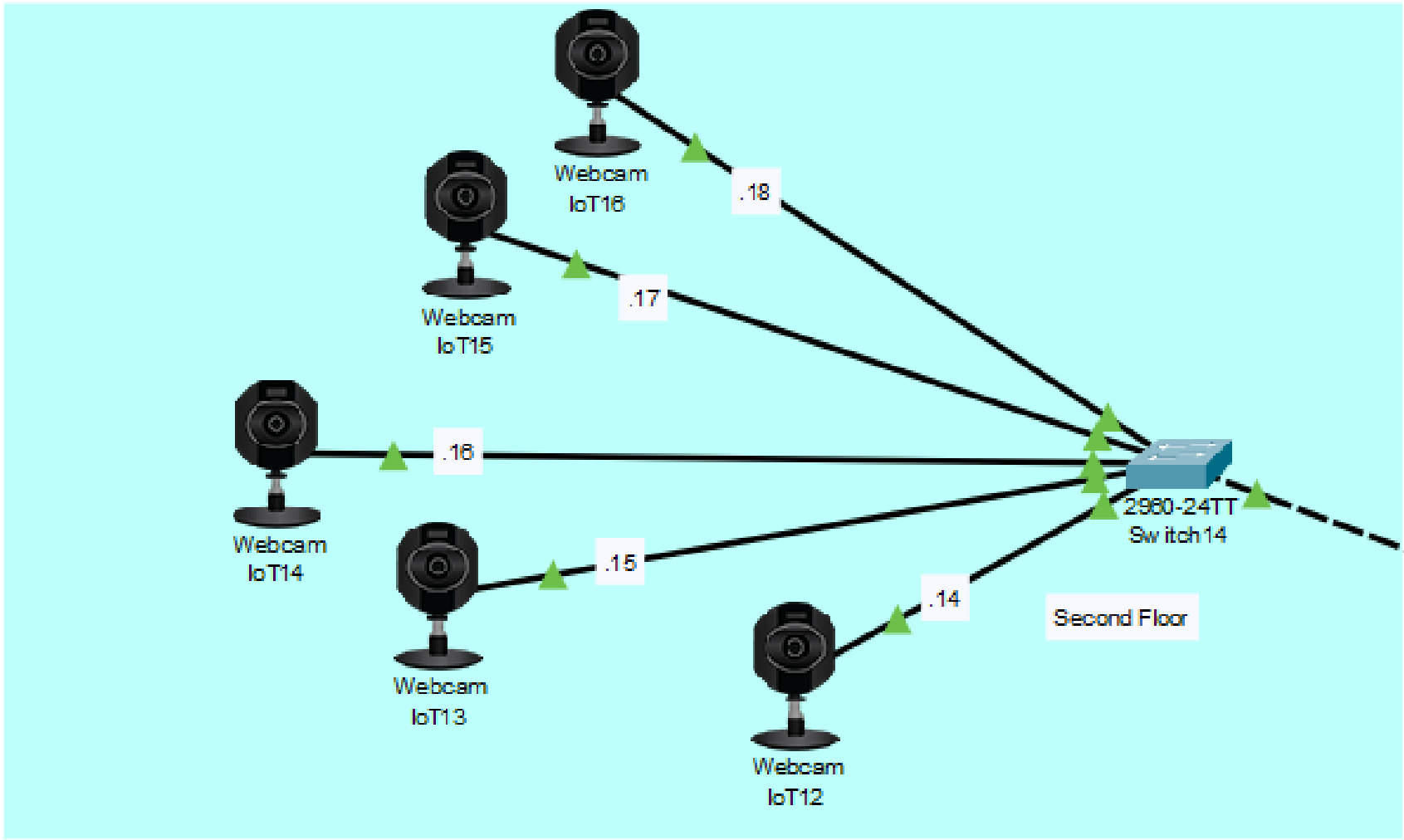
Basement


Webcam
IoT5
.7
192.30.30.0
BASEMENT
.6
Webcam
IoT4
.5
Webcam
IoT3
.4
.3
.2
Webcam
bT2
Webcam
bT1
Webcam
bT0

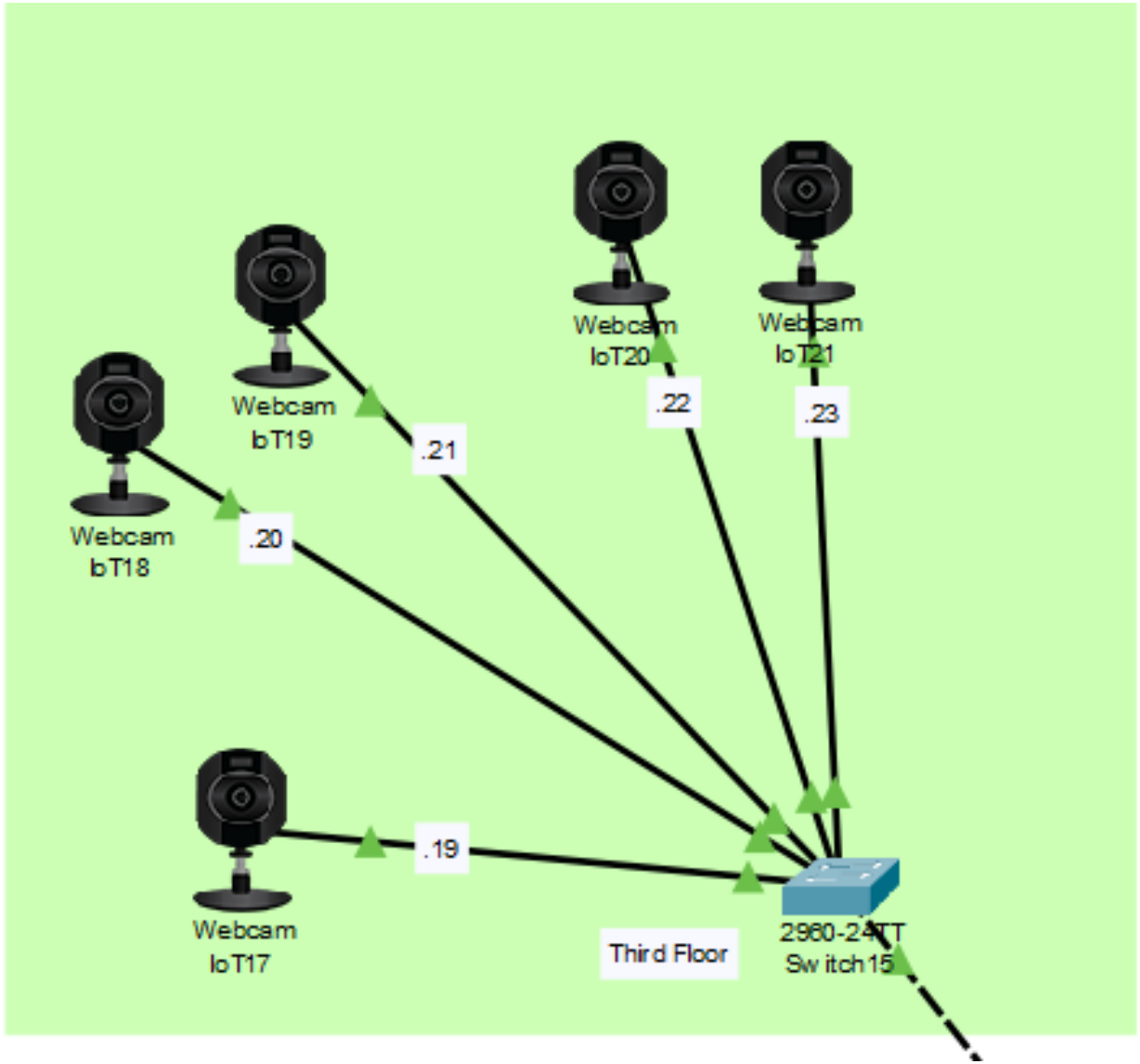
Floor 1


Webcam
IoT6
.13
.12
Webcam
IoT7
.11
Webcam
IoT8
.10
Webcam
IoT9
.9
Webcam
IoT10
.8
Webcam
IoT11
2960-24TT
Switch13
First Floor

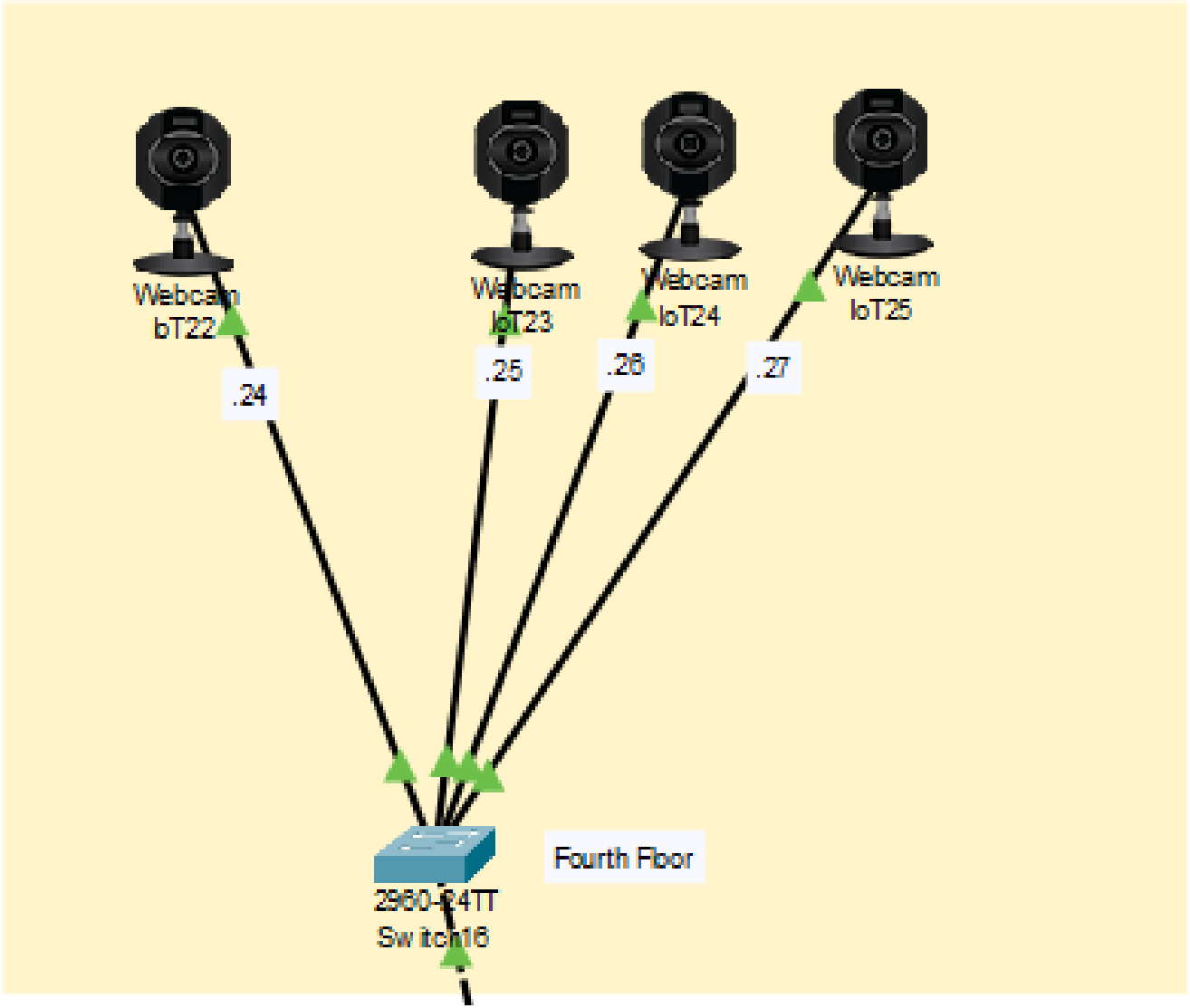
Floor 2


Webcam
IoT16
.18
Webcam
IoT15
.17
.16
Webcam
IoT14
.15
Webcam
IoT13
.14
Webcam
IoT12
2960-24TT
Switch14
Second Floor

Floor 3


Webcam
IoT20
Webcam
IoT21
Webcam
bT19
Webcam
bT18
.22
.23
.21
.20
.19
Webcam
IoT17
Third Floor
2960-24TT
Switch15

Floor 4


Webcam
IoT22
Webcam
IoT23
Webcam
IoT24
Webcam
IoT25
.24
.25
.26
.27
Fourth Floor
2960-24TT
Switch16

1.5 Recommendations and Summary

Summary:

The establishment is composed of three floors. A small property that holds multiple departments and utility rooms. Each of the floors contain a mid to high-end computer, with cost ranging from 50,000 Php to 200,000 Php. All of which are interconnected to devices on other floors through an organized and divided network, with the cost reaching the minimum of 200,000 Php.

Logical configuration of the network is divided by floor. Each floor has its own local area that is connected to a switch. The switch is then connected to the server room on the second floor. It is a basic design that allows data transfer on all floors.

Recommendation:

On future developments or expansions, it is advised that the network is to be divided by departments. And as for internet connection, it would be recommended to have backups, as the internet is essential to a streaming company. And lastly, future renovations should include a cafeteria and other devices such as a printer. It is essential that frequently used areas or equipment is present in the establishment to maximize efficiency.

We would like to recommend this project that has proven that a standard network system can be designed with high cost. Although we used the actual devices in designing the network, the security of this network turned out to be very strong. This is because the firewall and back up devices used in their network are of good quality.

All network needs many servers for doing their work. For this research, we did no use all servers because of cost, but we used some important server such as MDF and IDF. These servers help the network to perform their functions in smooth way.

The emergence of different platform for digital entertainment (esports and gaming) recently gave us an idea to offer a simple and cost-effective Tier One Entertainment network. We made it easy for everyone to apply/use the system.

1.6 Curriculum Vitae

SOFIA RICHE P. BARRIOS

4038 J Luna Street South Cembo
Contact No: 09511331967

CAREER OBJECTIVE:

I am seeking a role in a company where I can contribute my ideas and be mentored towards a successful career.

PERSONAL DATA:

Gender	:	Female
Date of Birth	:	March 16, 2001
Place of Birth	:	Sta. Mesa
Height	:	5'5
Weight	:	56 kgs.
Civil Status	:	Single
Citezenship	:	Filipino
Religion	:	Catholic
Father's Name	:	Rodel S. Barrios
Mother's Name	:	Rowena P. Barrios
Languages	:	Tagalog, English

EDUCATIONAL BACKGROUND:

Tertiary: STI College Global City
Bachelor of Science in Information Technology (BSIT)
Taguig City
2019 – Up to present

Secondary: Mabini College
Gas (General Academic Strand)
Camarines Norte
2017-2019

Chung Hua High School
Camarines Norte
2013-2017

Primary: Chung Hua High School
Camarines Norte
2007-2013

CHARACTER REFERENCES:

Rowena Barrios
09331557904
Camarines Norte

I hereby affirm that the above information is true and correct to the best of my knowledge and belief.

SOFIA RICHE BARRIOS
Applicant

RENELYN V. BURAC

Blk.20 Lot14 EP Housing Phase 2
Pinagsama Taguig City
Contact No: 09662519232

CAREER OBJECTIVE:

To pursue highly rewarding career, seeking for a job in challenging and healthy work environment where I can utilize my skills and knowledge efficiently for organization growth.

PERSONAL DATA:

Gender	:	Female
Date of Birth	:	August 13, 1998
Place of Birth	:	Villahermosa Rapu-Rapu Albay
Height	:	5'1
Weight	:	43 kgs.
Civil Status	:	Single
Citizenship	:	Filipino
Religion	:	Roman Catholic
Father's Name	:	Rene B. Burac
Mother's Name	:	Nilda V. Burac
Languages	:	English, Tagalog, Bikol

EDUCATIONAL BACKGROUND:

Tertiary	:	STI College Global City Bachelor of Science in Information Technology (BSIT) Taguig City 2019 – Up to present
	:	City University of Pasay (CUP) Bachelor of Secondary Education (BSE) Pasay City 2015-2016
Secondary	:	Villahermosa National High School Villahermosa Rapu-Rapu Albay 2011-2015
Primary	:	Villahermosa Central School Villahermosa Rapu-Rapu Albay 2006-2011

WORK EXPERINCE:

AZUNIM ENTERPRISES

Saleslady	December 20, 2015 – August 2016
Cashier	August 2016 – Up to present
AZU INTERNET CAFÉ	March 2018

CHARACTER REFERENCES:

Ruzaly Bisco
+639097986234
Taguig City

Ernie Valenzuela
+63273885189
Quezon City

I hereby affirm that the above information is true and correct to the best of my knowledge and belief.

RENELYN V. BURAC
Applicant

CABARIOS, LOUIE JAY E.

#38 Pajo Street North Signal Village Taguig City
Contact No: 09993432948

CAREER OBJECTIVE:

To secure a challenging position in a reputable organization to expand my learnings, knowledge, and skills.

PERSONAL DATA:

Gender	:	Male
Date of Birth	:	July 15, 2001
Place of Birth	:	Taguig City
Height	:	5'7
Weight	:	80 kgs.
Civil Status	:	Single
Citizenship	:	Filipino
Religion	:	Catholic
Father's Name	:	Emmanuel F. Cabarios
Mother's Name	:	Melanie E. Cabarios
Languages	:	English, Tagalog

EDUCATIONAL BACKGROUND:

Tertiary	:	STI College Global City Bachelor of Science in Information Technology (BSIT) Taguig City 2019 – Up to present
Secondary	:	STI Global City IT in Mobile App & Website Development (ITMAWE) Taguig City 2017-2019
	:	Center Ville High School North Signal, Taguig City 2013-2017
Primary	:	Children Integrated Learning System Elementary North Signal, Taguig City 2007-2013

CHARACTER REFERENCES:

Melanie Cabarios
09458027847
Makati City

I hereby affirm that the above information is true and correct to the best of my knowledge and belief.

LOUIE JAY E. CABARIOS
Applicant

REDENTOR B. CORTEZ

1071 Del Pilar Street South Cembo Makati City
Contact No: 09566616780

CAREER OBJECTIVE:

To be a part of company that indulges professional growth which provides challenging and rewarding career while allowing me utilizes my knowledge and skills and the opportunity to work with a team.

PERSONAL DATA:

Gender	:	Male
Date of Birth	:	September 14 2000
Place of Birth	:	Urdaneta Pangasinan
Height	:	5’5
Weight	:	82.9kg
Civil Status	:	Single
Citizenship	:	Filipino
Religion	:	Roman Catholic
Father’s Name	:	Narciso D. Cortez
Mother’s Name	:	Maria Fe B. Cortez
Languages	:	English, Tagalog, Ilocano

EDUCATIONAL BACKGROUND:

Tertiary :
STI College Global City
Bachelor of Science in Information Technology (BSIT)
Taguig City
2019 – Up to present

:
University Of Makati (UMAK)
Higher School of UMAK (HSU)
TechVoc Animation
Makati City
2017-2019

Secondary :
Pitogo High School
Negros St. Brngy. Pitogo Makati City
2013-2017

Primary :
South Cembo Elementary School
Luna St. South Cembo Makati City
2007-2013

WORK EXPERINCE:

Shoppee Express

Rider/Courier	April 20 2020 – October 15 2020
Pasabuy Rider	January 1 2019 – Up to present

CHARACTER REFERENCES:

Lady Ann Claud Sarmiento
09260919080
Makati City

Leonardo Rabarra
09391525242
Makati City

I hereby affirm that the above information is true and correct to the best of my knowledge and belief.

REDENTOR CORTEZ
Applicant

JOSHUA EUNIK F. LARIDA

146 – B, 10th Avenue,
East Rembo, Makati City
Contact No: 09204919717

CAREER OBJECTIVE:

Looking for a challenging role in a reputable organization to utilize my technical, database, and management skills for the growth of the organization as well as to enhance my knowledge about new and emerging trends in the IT sector.

PERSONAL DATA:

Gender	:	Male
Date of Birth	:	May 12, 2000
Place of Birth	:	Makati City
Height	:	5'7
Weight	:	35 kgs.
Civil Status	:	Single
Citizenship	:	Filipino
Religion	:	Roman Catholic
Languages	:	English, Tagalog

EDUCATIONAL BACKGROUND:

Tertiary	:	STI College Global City Bachelor of Science in Information Technology (BSIT) Taguig City 2019 – Up to present
Secondary	:	STI Global City IT in Mobile App & Website Development (ITMAWE) Taguig City 2017-2019
	:	Tibagan High School East Rembo, Makati City 2013-2017
Primary	:	Tibagan Elementary School East Rembo, Makati City 2007-2013

I hereby affirm that the above information is true and correct to the best of my knowledge and belief.

JOSHUA EUNIK F. LARIDA
Applicant

RICO JOHN V. MACATE

Block 35 Lot 11 AFP-EP Village Phase 1
Brgy. Pinagsama, Taguig City, 1630 Philippines
Contact No: +639301612868
E-mail: rico.john.ils@gmail.com

CAREER OBJECTIVE:

Seeking a comfortable yet hustle environment where I can learn, grow, attain skills and serve your company at the same time. Establish my future career in the IT industry.

PERSONAL DATA:

Gender	:	Male
Date of Birth	:	February 08, 2000
Place of Birth	:	Iloilo City
Height	:	5'7
Weight	:	64 kgs.
Civil Status	:	Single
Citizenship	:	Filipino
Religion	:	Christian
Languages	:	English and Tagalog

EDUCATIONAL BACKGROUND:

- 2019– Present — STI College – Global City
  College
  Bachelor of Science in Information Technology

- 2016 – 2018 — STI College – Global City
  Senior High School
  IT in Mobile App & Web Development

- 2012 – 2016 — Western Bicutan National High School
  Junior High School

- 2010 – 2012 — Tenement Elementary School
  Elementary School

- 2006 – 2010 — Go and Shine Learning School
  Elementary School

I hereby affirm that the above information is true and correct to the best of my knowledge and belief.

RICO JOHN V. MACATE
Applicant

JEFFERSON G. MAPUA

BLG. 1 Unit 1 GK Zonta Phase 1
Pinagsama Village Taguig City
Contact No: 09284454259

CAREER OBJECTIVE:

I am a student of life, willing to learn and explore. Loves to seek and try new things. I am passionate on doing the things I love.

PERSONAL DATA:

Gender	:	Male
Date of Birth	:	September 16, 2000
Place of Birth	:	Makati City
Height	:	5'4
Weight	:	65 kgs.
Civil Status	:	Single
Citizenship	:	Filipino
Religion	:	Catholic
Father's Name	:	Jose Martin D. Mapua
Mother's Name	:	Mary Anne A. Galolo
Languages	:	English, Tagalog

EDUCATIONAL BACKGROUND:

Tertiary	:	STI College Global City Bachelor of Science in Information Technology (BSIT) Taguig City 2019 – Up to present
Secondary	:	STI Global City IT in Mobile App & Website Development (ITMAWE) Taguig City 2017-2019
	:	Fort Bonifacio High School West Rembo, Makati City 2013-2017
Primary	:	Fort Bonifacio Elementary School West Rembo, Makati City 2007-2013

CHARACTER REFERENCES:

Ana Pleno
09567923134
Makati City

I hereby affirm that the above information is true and correct to the best of my knowledge and belief.

JEFFERSON G. MAPUA
Applicant

ROMEL SEGUNDERA

Minipark Zone 7 Fort Bonifacio Taguig City
Contact No: 09566452153

CAREER OBJECTIVE:

To pursue highly rewarding career, seeking for a job in challenging and healthy work environment where I can utilize my skills and knowledge efficiently for organization growth.

PERSONAL DATA:

Gender	:	Male
Date of Birth	:	March 17, 2001
Place of Birth	:	Taguig City
Height	:	5'3
Weight	:	75kg
Civil Status	:	Single
Citizenship	:	Filipino
Religion	:	Roman Catholic
Father's Name	:	Romeo N. Segundera
Mother's Name	:	Maribel L. Segundera
Languages	:	English, Tagalog

EDUCATIONAL BACKGROUND:

Tertiary	:	STI College Global City Bachelor of Science in Information Technology (BSIT) Taguig City 2019 – Up to present
	:	University Of Makati (UMAK) Higher School of UMAK (HSU) TechVoc Animation Makati City 2017-2019
Secondary	:	Tibagan High School 7th Ave., East Rembo Makati City 2013-2017
Primary	:	Pembo Elementary School Escarlata Street Pembo Makati City 2007-2013

WORK EXPERINCE

Pasabuy Rider March 10, 2019 – Up to present

CHARACTER REFERENCES:

Jester Duenas
09914052057
Makati City

Adrian Holgado
09666575054
Taguig City

I hereby affirm that the above information is true and correct to the best of my knowledge and belief.

ROMEL SEGUNDRERA
Applicant