



CENTRE OF STUDIES FOR BUILDING SURVEYING FACULTY OF  
ARCHITECTURE, PLANNING AND SURVEYING, UNIVERSITI  
TEKNOLOGI MARA CAWANGAN PERAK

**THE BUILDING MAINTENANCE WORKS AND PRACTICE FOR  
CLOSED-CIRCUIT TELEVISION (CCTV) AT IXORA HOTEL, PENANG  
MALAYSIA**

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CENTRE OF STUDIES FOR BUILDING SURVEYING, FACULTY OF  
ARCHITECTURE, PLANNING AND SURVEYING, UNIVERSITI TEKNOLOGI MARA  
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This practical training report is fulfilment of the practical training course.

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# **CHAPTER 1: INTRODUCTION**

## **1.0 INTRODUCTION**

This chapter elaborates the selected case study, which is Ixora Hotel Penang. The discussion begins with the introduction of the study and the aim of this internship. In this chapter, it consists of an overview of following content:

- i) Background of the study
- ii) Aims and Objectives
- iii) Case Study
- iv) Organizational Structural

## **1.1 BACKGROUND OF THE STUDY**

Practical training is a semester-long training programme for students who are nearing the end of their studies. This training serves as an introductory course for the student to become familiar with the workplace. In order to graduate from the University, it is also necessary to complete all of the courses taken. This training could help any student, meaning that the working environment can provide them with an insight of how real-world work is done, which will be useful in the future. Students have no restrictions on where they can train, and they can choose from two departments, which are examples of public or private companies that performed either building control, building works and appraisals, facilities management and maintenance, or development and construction management. Each student in the organisation is supervised by a team of experienced experts who are in charge of training students as well as keeping track of their attendance, discipline, and performance. As a result, this will be documented in the university's student evaluation report. For my practical training, the selected company is Ixora Hotel Penang.



## 1.2 AIMS AND OBJECTIVES

The major goal of this practical training is expose students to real-world work experience while also providing opportunities for hands-on learning through observation and job execution. Students will gain skills in work ethics, communication, management, and other areas as a results of their industrial training. These objectives stated need to know whether the guidelines had been followed and the objectives are successfully achieved. The objectives of the study are as follows:

- i) To allow students to gauge their interest in a certain profession before making long-term commitments.
- ii) To improve your ability to apply theory to real-world circumstances.
- iii) To strengthen pupils' abilities to think creatively and share their thoughts.

## 1.3 CASE STUDY

### 1.3.1 THE OVERVIEW OF IXORA HOTEL



*Figure 1.1: Ixora Hotel*

The Ixora Hotel Penang is a 4-star hotel in Bandar Perai Jaya, Perai (GPS: 5.377909, 100.398314). It is on Jalan Baru, the township's main thoroughfare. The 11-story hotel, which opened in 2010, has 326 rooms, making it Seberang Perai's largest hotel. Superior Rooms, Bedroom Suites, and Deluxe Rooms are available for the guest to stay. Free wi-fi, internet cable, satellite TV, safe deposit box, IDD phone, and bar-refrigerator are all available in the rooms at the Ixora Hotel as per purchase for the room. The lounge and The Straits Cafe are two restaurants of the Ixora Hotel. The hotel includes a spacious ballroom that is perfect for weddings reservations and conventions. It also offers five meeting rooms to accommodate the demands of local businesses.



*Figure 1.2 : Ixora Hotel Official Logo*

The location of the Ixora Hotel is quite strategic and eye-catching as the status as the largest hotel in Seberang Perai. Besides that, the location of Ixora Hotel is right near to Megamall Pinang, thus it has all of the advantages of a shopping mall. It is also flank by numerous stores and eateries, which is more facilitated and more choices for the guest. In Butterworth, Penang, the Ixora Hotel is conveniently located. Because it close to the Penang Bridge, it will make it easy for guests to go to the island quickly. The Penang Bridge is only 5 minutes away, and the Penang International Airport or the town area for leisure is about 20 minutes away. The hotel also close to a number of industrial parks, such the Prai Industrial Estate and the Seberang Jaya Industrial Park, so guest can save time getting to these places. In addition, the famed Penang Bird Park is only an 8-minute drive away, as are local malls such as Megamal Penang and Sunway Carnival Mall.

### **1.3.2 MISSION AND VISION**

#### 1.3.2.1 Mission

“Our mission is to ensure guests experience the extraordinary service with genuine value.”

#### 1.3.2.2 Vision

“Our vision is to have dedicated staff to be the leading hotel in the area.”

**1.3.3 SERVICES AND FACILITIES PROVIDED**

SERVICES PROVIDED AT IXORA HOTEL
24 hour business centre
24 hour concierge service
24 hour in-room dining
24 hour vending machine
Self-service check-in and check-out kiosk
Self-service coin laundry
Full service laundry and dry cleaning
Fitness Centre
Swimming Pool with water slide (water slide is closed for maintenance until further notice)
Children Playground
Reflexology foot trail
Facial and Nail Service
Spa and Massage
Hair Salon
Library Lounge
Gift Shop
Currency Exchange
Limousine and Airport Transfer
Ample Undercover Parking
Free pickup and drop off at KTM Butterworth
Free transportation to Sunway Carnival Mall and Perai Industrial Zone
Free laptop on loan

*Table 1.1: Services and facilities provided*

**1.3.4 PREVIOUS PURCHASE FOR MAINTENANCE WORKS**

<b>PREVIOUS PURCHASE</b>	<b>YEAR</b>	<b>STATUS</b>
New blower fan motor for irony Kory stove	2020	DONE
Ancho Spray paint white	2020	DONE
Alloy corner guard	2020	DONE
2.8hp compressor – THK33P06-U	2020	DONE
Capillary tube 2hp/1.5hp	2020	DONE
Coil Cleaner 6711	2020	DONE
Silver copper rod	2020	DONE
New blower fan motor for irony Kory Stove	2020	DONE
Flushing Cistern fitting WGFT410178XX ftg TF85DF	2020	DONE
1.5hp compressor Matsushita (2PS206D2A F02)	2020	DONE
T8 LED tube, Isolator, Plug Top	2020	DONE
Transformer, Terminal Block	2020	DONE
R22 chlorodifluoromethane liquefied gas	2020	DONE
Omron Relay MKS2P Relat 240/AC + Base	2020	DONE
320 sw sand paper	2020	DONE
Mid steel chafing dish bracket	2020	DONE

*Table 1.2: Previous purchase*

### 1.3.5 LOCATION OF THE CASE STUDY

#### 1.3.5.1 Key Plan

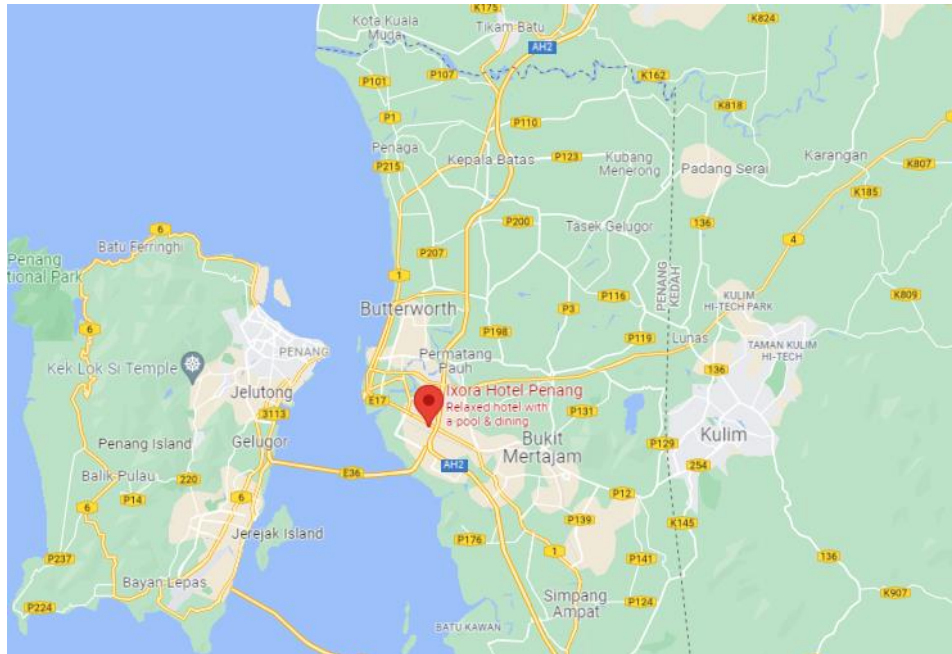


Figure 1.3 : Key plan of Ixora Hotel

#### 1.3.5.2 Site Plan

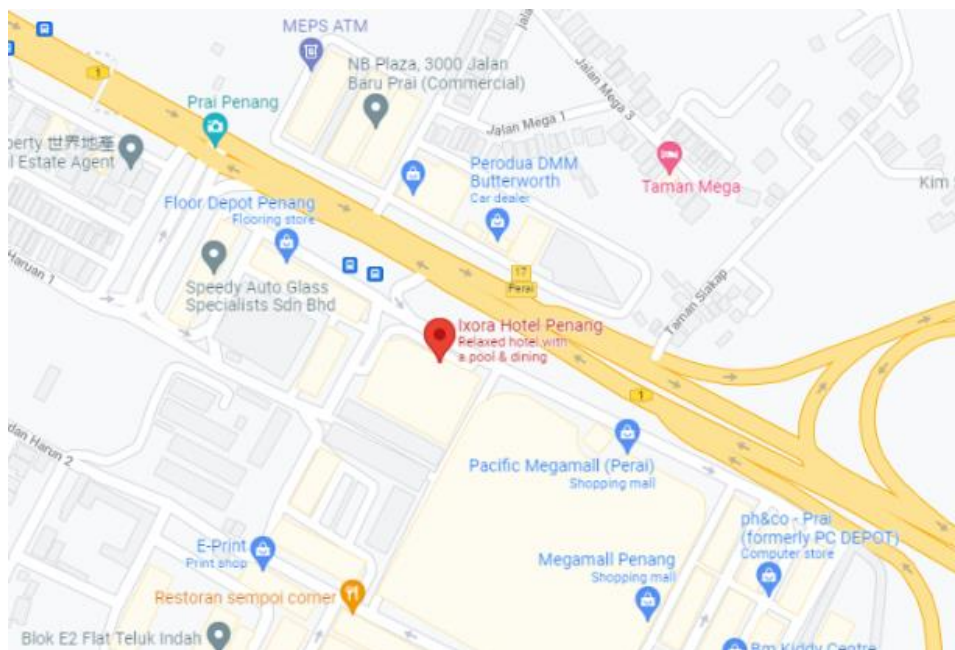


Figure 1.4. : The site plan of Ixora Hotel

### 1.3.5.3 Location Plan



*Figure 1.5: The location plan for Ixora Hotel*

### 1.3.5.4 Overview of Ixora Hotel



*Figure 1.6 : Ixora Hotel view*



*Figure 1.7 : Ixora Hotel view*



*Figure 1.8 : Ixora Hotel view*

## 1.4 ORGANIZATIONAL STRUCTURE

### 1.4.1 BOARD OF DIRECTORS

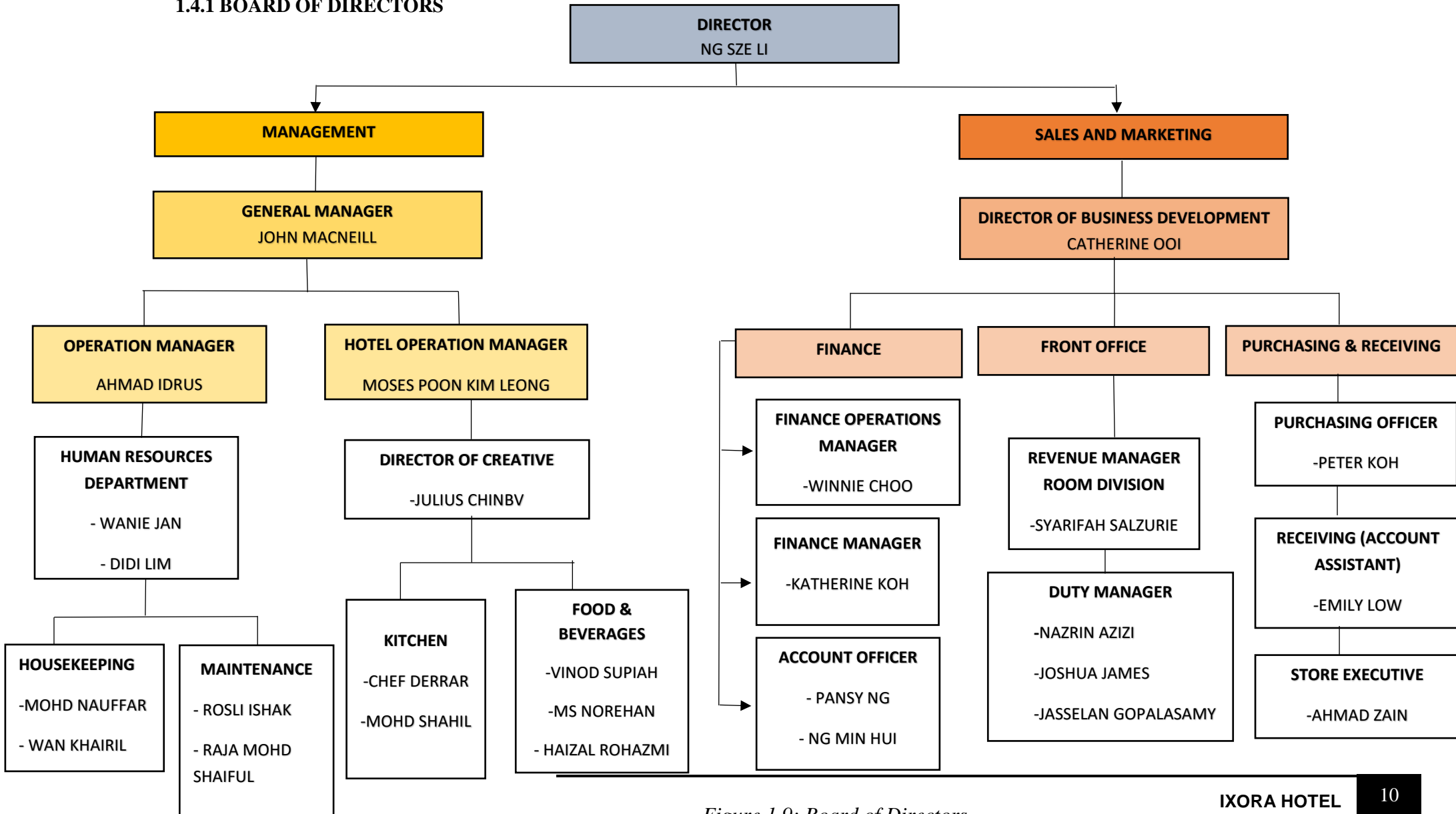


Figure 1.9: Board of Directors



The board of directors at Ixora Hotel Penang is depicted in the graph above. These people ran the hotel and made sure that the guests were safe and comfortable during their stay. Every department is critical to maintaining a high level of performance and spreading a great feel across the hotel. It is because, in order to achieve their objectives, every department head must ensure that their employees perform the following tasks.

As shows in graph above, the director of this hotel is Mr Ng Sze Li. He is the founder of Ixora Hotel along with his son, since it was first established on March 13, 1990. The hotel is managed by two main system in the hotel, management system and sales and marketing system. The head of management system is Mr John McNeil, as the general manager of the hotel. Mr John is responsible in planning, implementing and manage the overall hotel daily operations to make sure it will run smoothly. He also responsible in promoting and marketing the hotel to expand the hotel business for a better future of the hotel.

Next is the operation manager. This position is second most important in management system as the operation manager will make sure all the works given by the general manager are done properly as instructed. The operation manager of the hotel is Mr Ahmad Idrus. He managed the work operation of every department, especially the human resources, maintenance and housekeeping department and will ensure the work procedures is done accordingly to hotel organizations. He also work to observe the work quality of the workers in order to improve their productivity. As for the hotel operation manager, managed by Mr Moses Poon about 8 years already. The scope of works as same as operation manager, but it more to the events or any reservations made for the hotel. That is why the position is only in charge if there are any events or celebrations at the hotel. He mainly focused on kitchen, food and beverages department.

Next is for the sales and marketing department. This department is important, as it will manage the contacts to all the client and guest. Their main objective is to gain more sales and increase the hotel profit by attracting more clients to invest for the company's profit. The director of business development of this hotel is Mrs Catherine Ooi. She the head of three more department under her services, which are finance, front office and purchasing and receiving. The finance department will manage all the financial statement of this hotel, meanwhile the front office will manage the room division and handling guest's complains. The purchasing and receiving department will manage the spare parts or every department stuffs outside and inside the hotel.

1.4.2 MAINTENANCE DEPARTMENT

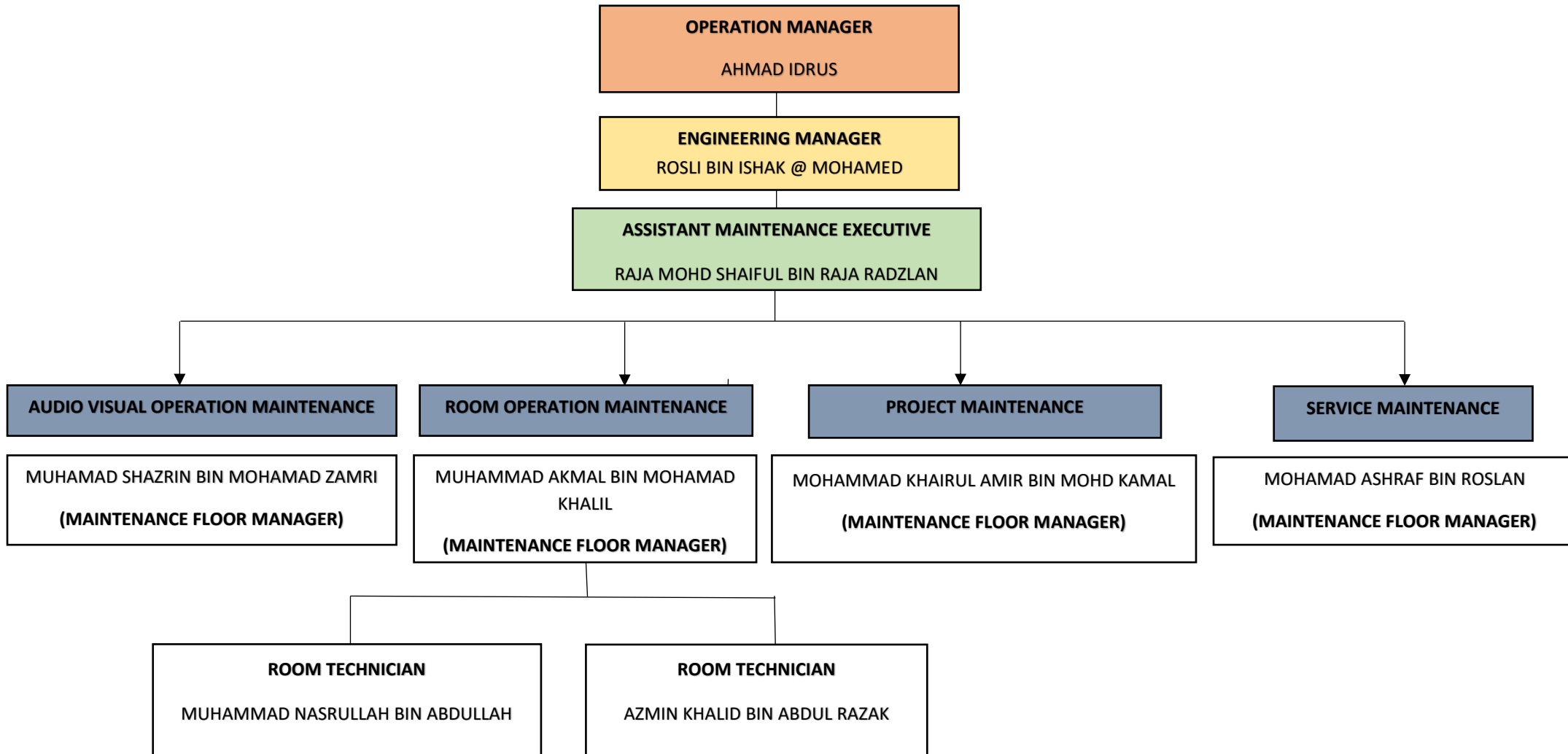


Figure 1.10: Maintenance Department

# **CHAPTER 2: LITERATURE REVIEW**

## 2.0 INTRODUCTION

This chapter will manage to explain how the hotel management works, the scope of works of the maintenance department and how the building security system secure a whole building. The content of this report is to explain how closed-circuit television (CCTV) system works, the types of CCTV, and the main functions of CCTV installations inside the building. This type of security installations are important, according to (Cletus Okechukwu, 2019), the use of a triplicate checking system for product sales and detection of fraudulent activities, CCTV and security staff for monitoring, and segregation of duties for the prevention of fraudulent acts are all acceptable tactics utilised for internal control of hotel facilities.

This chapter will explained the main content of the report, which tell how the CCTV system become one of the important security applications and being able to take care the building safety.

## 2.1 MAINTENANCE MANAGEMENT

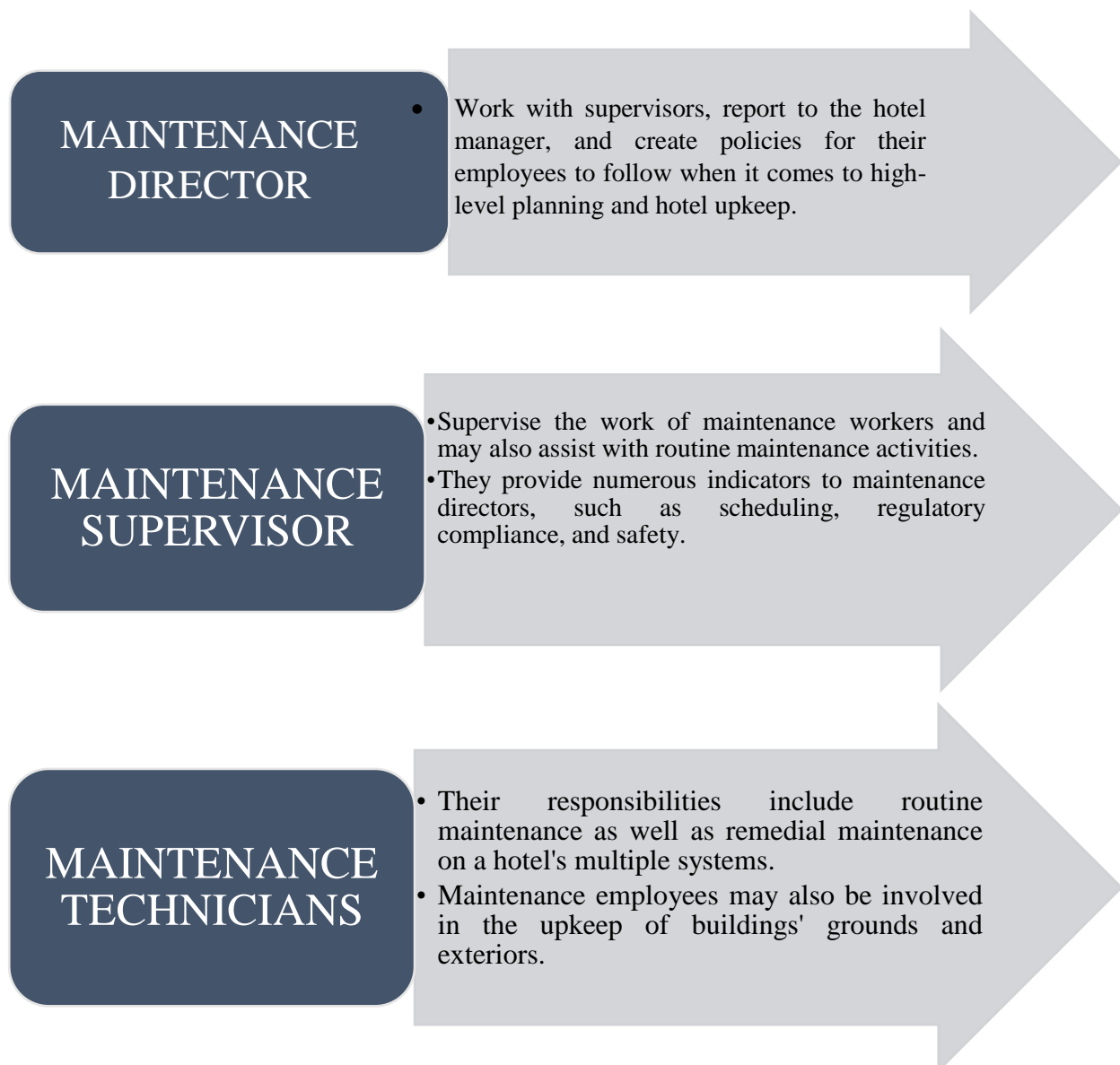
### 2.1.1 Hotel Maintenance

The management of hotel upkeep is critical for hotels as companies. It can be difficult to keep track of both the actual hotel and the systems that run it. The care of the numerous systems and components utilised in the hospitality business is known as hotel maintenance. These systems cover general building operations like HVAC, electrical, and plumbing, as well as a variety of hotel-specific requirements. These requirements are diverse, and their breadth is determine by the size of the hotel and the services it provides.

Organizations utilise several sorts of maintenance to maximise the uptime of their assets and the utility of their facilities. One or more maintenance types are used depending on an organization's budget, resources, combined experience, and maintenance goals. Cleaning and housekeeping employees, in addition to maintenance professionals, play an important role in spotting problems. Maintenance and housekeeping should communicate openly enough to allow for the quick settlement of minor issues as they arise. Work orders are often submitted to the hotel's maintenance staff for this type of communication. Both the maintenance and housekeeping departments provided excellent service to this motel. Communication between these two departments is critical to ensuring that problems with guests are resolved in a timely manner.

### 2.1.2 Scope of Works

The maintenance department at the hotels divided into three main scope of work; maintenance director, maintenance supervisor and maintenance technician. This scope of work is to ensure the work division according to the qualifications and position of the workers. This automatically will make the maintenance works run smoothly in the hotel. These are the scope of works of the three main position in the maintenance department:



*Figure 2.1 : Maintenance scope of works*

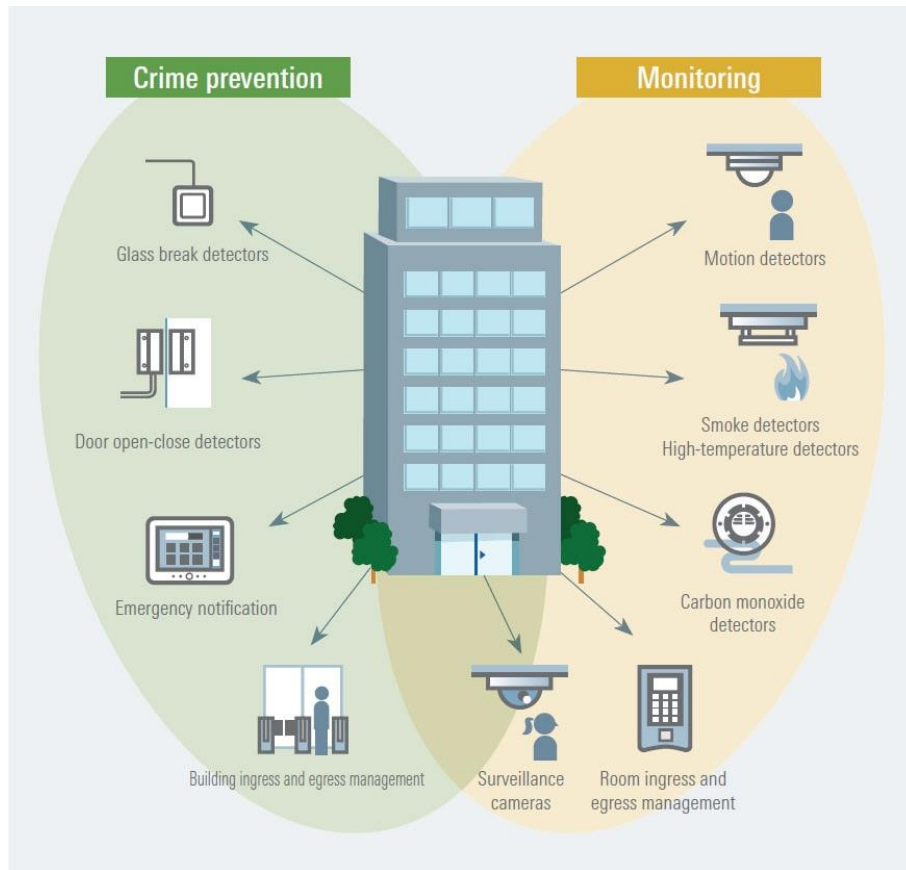
## 2.2 BUILDING SECURITY MANAGEMENT SYSTEM

The building security system in every building used to create comfort and peace of mind to the occupants of the building. It consists of two elements, which is monitoring system that monitors what is happening in and around the building by using cameras and sensors of various types. Examples are the use of CCTV, security guard and so on.

The second element is the crime prevention system, which performs the management and control of the entry and exit of information from the monitoring system, which is a control room. The signage at the security installations are important, to ensure the safety of the management itself. Many of the signage, for example, were not "clearly visible and intelligible to members of the public," lacked acceptable data controller specifications, and did not explain the scheme's objective (Data Protection Act 2000: 8-9), according to (Clive Norris, 2003).

For example, this hotel is also providing building security system to secure from the harmful such as a thief, robbery and so on. There are about 50 or more unit of CCTV in this hotel as well as surveillance system. Security card system called master card for room entrance or thumb print system for staffs also provided to further increase the level of security in this building in case any trespassers want to enter the hotel. The hotel door entry systems also keep detailed records of who enters and exits the building. Using an RFID hotel card access system also helps hotel employees manage rooms and room occupancy by facilitating and speeding up entry to guest rooms. This will make the process of building security be a lot easier.

The devices that managed to secure the building need to be functioning well for a smooth management. As for the security cameras with digital technology, an intelligent access central system, a software interface with CCTV for matching unwanted visitors and criminals, as well as metal detectors, spy cameras, and the use of biometric readers such as hand key readers or face recognition systems, are all available options. That is why trained security guards working 24-hours every day to provide the best in safety and security for the guests.



*Figure 2.2: Building security management*

As shown in diagram 2.1, the building security management system is divided into two main management areas: crime prevention and monitoring. The crime prevention system includes glass break detectors, door open-close detectors, emergency notifications, building ingress and egress management, and surveillance cameras. The monitoring system includes motion detectors, smoke detectors or high-temperature detectors, carbon monoxide detectors, room ingress and egress management, and surveillance cameras.

Sensors such as door open-close detectors and glass break detectors are used in crime prevention systems to identify emergencies, as well as ingress and egress management services to enforce entrance and exit regulations, and keep track of who enters and exits. They use information from the monitoring systems to control the entrance and exit of people into and out of the building. As stated by (Norbik, 2008), the installation of a surveillance system as part of a broader set of security recommendations aimed at preventing or detecting crime. In terms of security, CCTV can be very useful. Security inquiries and investigations can benefit from video evidence, as well as criminal convictions.

Motion sensors for entrance monitoring and fire detectors, carbon monoxide detectors, and other emergency monitoring systems are examples of monitoring systems. The monitored data is provided to a supervisor across the network in the form of emergency signals and visuals. If necessary, this data can also be saved and handled on a secure data server.

## **2.3 CLASSIFICATION OF CLOSED-CIRCUIT TELEVISION (CCTV)**

Closed-circuit television, or video surveillance, is the abbreviation for closed-circuit television. In contrast to "normal" television, which is broadcast to the general public, "closed-circuit" television is broadcast to a small (closed) number of monitors. As stated by (A. Kurdi and Kurdi, 2018), closed circuit television (CCTV) refers to the use of video cameras to transmit signals to a specific place with a set of monitors. Nowadays CCTV plays a significant role in protecting the public and implementing security. CCTV networks are widely employed to identify and discourage criminal activity and to record traffic violations, but they can also be used for other purposes.

### **2.3.1 The Applications of CCTV**

Indoor and outdoor CCTV applications are primarily for recording and storing data that cannot be seen over a period of time. The use of video cameras to relay a signal to a specified location, on a limited set of monitors, is known as video surveillance. The transmission is not openly broadcasted, unlike broadcast television, and it may use point-to-point (P2P), point-to-multipoint (P2MP), or mesh wired or wireless lines. These are reason of the application of CCTV:

#### **a) Crime management**

Potential offenders may be deterred by CCTV surveillance. When a crime occurs, video footage can aid law enforcement in their investigation and eventually serve as evidence in a court of law. Audio, thermal, and other types of sensors, when used in conjunction with CCTV, can notify officials to unusual events, such as a fire or gunshots at a location. CCTV cameras in businesses can detect and track in-house illegal activity. Video surveillance may be used in prisons to prevent drones from carrying narcotics and other contraband to inmates. Security cameras can monitor regions that are difficult to access, such as rooftops.



b) Disaster management

Emergency services and rescue workers can analyse and monitor occurrences in real time using CCTV cameras, and then convey a "situation" to disaster management teams via video, such as from within a burning building, a cave, or a helicopter flying over a scene.

c) City and community street monitoring

People are being monitored by cameras at traffic lights and other locations across cities in order to collect traffic statistics as well as evidence of speeding. Security cameras are among the sensory nodes that assess the images they capture but do not broadcast or store them in order to safeguard people's privacy. In most cases, just a small number are kept for senior academics to use in order to "create computer vision software." Privacy advocates have raised concerns about the project.

d) Medical monitoring and diagnosis

Patients, such as youngsters or the elderly can also be monitored by CCTV cameras to detect impending medical catastrophes, such as a stroke or an epileptic or asthma attack.

e) Retail intelligence

Market knowledge gleaned from customer video monitoring is being used to study purchasing trends and improve planning. Heat maps can assist shops determine peak buying times, preferred promotion kinds, and staffing requirements during peak shopping periods by displaying the highs and lows of shopper activity at specific spots in the store.

f) Behavioural research

According to CCTV footage used in suicide study, 83 percent of persons attempting to jump in front of a train displayed distinct tendencies. These were evaluated subsequently using CCTV footage and are now utilised to notify monitor watchers to probable suicides. Researchers also employ surveillance networks to track crowd activity in public spaces and prevent anti-social conduct. Schools, for example, have utilised cameras for security and to record bullying and playground occurrences on tape.

### 2.3.2 CCTV Work Operational

All CCTV systems have a group of cameras that watch and record images from certain regions. Analogue or digital cameras can be utilised. Analogue cameras, on the other hand, have low resolution, limited storage, and trouble sifting through acquired photos. Based on the recording method, there are two types of CCTV cameras: non-automatic recording and automatic recording. The difference is that non-automatic recording cameras lack smart detectors to determine whether there is something worth recording or not, necessitating the use of a trained observer to monitor the videos.



Figure 2.3: The workflow in a traffic control CCTV system

Some modern CCTV systems come with accessories, such as extra lighting for recording in dark or difficult areas, and video-motion automatic detectors, which can be programmed to detect motion in a specific direction or objects of a specific size or speed. A conventional CCTV system consists of the following components:

- i. One or more cameras (analogue or digital), each having an image sensor-equipped lens
- ii. A recorder — for analogue systems, a basic video tape recorder; for digital systems, a Direct Video Recorder (DVR) or Network Video Recorder (NVR).
- iii. RJ45 for digital and coaxial for analogue cables
- iv. a monitor or many monitors to which the photos are sent



*Figure 2.4: How CCTV working*

1. Image sensors in a camera capture images as they pass through the lens.
2. These images (and, in some cases, audio) are wirelessly or via cable delivered to the recorder or cassette. Analytical software and other smart technologies may be used by recorders to scan the data and provide automated alerts to humans or other systems and devices. Video feeds are recorded, stored, and analysed using this Video Management Software (VMS). The software is frequently self-learning, employing machine learning (ML) algorithms to perform tasks like as motion detection, facial recognition, and people counting.
3. Monitors can be monitored passively (through software) or actively (by personnel). CCTV networks may and should be monitored in and of themselves.

### 2.3.3 The Type of CCTV

According to (Aviva, 2020), in order for a CCTV system to be efficient in security, it must be activated by some type of alarm detector, which then commences the live transmission of images to an inhabited monitoring station, such as a security lodge/gatehouse or a Remote Video Response Centre (RVRC). The camera must be the starting point for any CCTV system. The picture that will be relayed to the control position is created by the camera. CCTV cameras, with the exception of special designs, are not equipped with a lens. This section presents the key components that can be used to build various types of CCTV systems.

#### i. Analog CCTV



*Figure 2.5: Analog CCTV*

To transmit continuous video signals, use Bayonet Neill-Concelman (BNC) connectors on coaxial cables. They have a low resolution yet are inexpensive and effective. In an analogue system, there are more peripherals, for example, typical coaxial connections do not normally transmit audio. Analog signals can be converted to digital, making digital conversion more cost-effective even with older equipment. The photos can be saved on a PC or tape recorder and require a video capture card. Analog HD is a step up from previous systems, allowing for higher resolution (1080 pixels) while remaining backwards compatible with analogue cameras and BNC.

ii. Digital CCTV



*Figure 2.6: Digital CCTV*

At the camera level, digitalize signals. These systems do not require a video capture card because images are saved directly to a computer, but they do necessitate a (relatively) big quantity of storage space for recordings, thus they are typically extensively compressed.

iii. Network or IP



*Figure 2.7: Network or IP CCTV*

These systems use a video server to stream footage over the internet and can be used with analogue or digital cameras. The benefits include WiFi and audio capabilities, Distributed Artificial Intelligence (DAI) for image analysis, remote access, Power over Ethernet (POE), and higher resolution. Furthermore, IP cameras have the capacity to combine many cameras into a single unit, allowing them to cover a wider area than multiple cameras or camera systems could.

Network CCTV pros and cons:

**Pros** – Allow for remote monitoring, do not require network cabling, are very mobile, and allow for surveillance process automation.

**Cons** – Can be costly to purchase out of the box, has a steeper learning curve, and is vulnerable to hackers.

# **CHAPTER 3: CCTV MANAGEMENT AT IXORA HOTEL, PENANG**

### 3.0 INTRODUCTION

The purpose of this chapter is to identify how the management of closed-circuit television (CCTV) in this hotel. This chapter will elaborate more about how Ixora Hotel manage to secure the hotel just under the control of CCTV and Security Department. This chapter has numerous subtopics, including the following:

- i) Ixora Hotel CCTV Information
- ii) CCTV management system at Ixora Hotel
- iii) Control Room
- iv) Other building security management system

### 3.1 IXORA HOTEL CCTV INFORMATION

At Ixora Hotel, the building security system used to create comfort and peace of mind to the occupants of the hotel, which come to rest and enjoy their time with their loved ones. It consists of two elements, which is monitoring system that monitors what is happening in and around the building by using cameras and sensors of various types. Examples are the use of CCTV, security guard and so on. The second element is the crime prevention system, which performs the management and control of the entry and exit of information from the monitoring system, which is a control room.

This building is also providing building security system to secure from the harmful such as a thief, robbery and so on. There are 128 units of CCTV in this building as well as surveillance system. The location of the CCTV are very accurate and convenient for the guards to keep their eyes on if anything happens. Security card system or thumb print system also provided to further increase the level of security in this building. The security card system including Master Key 1, and Master Key 2, which a card that can access any room freely but only for maintenance works only. The staffs need to write their name, the key or card name, the time taken and the reasons why. As for the thumb-print, which only valid for the staffs before starting their works and before going home. This will make the human resources department managed to know what time they access and exit the building, and how many hours did the workers working for that day.



Figure 3.1: CCTV in Level 1



Figure 3.2: CCTV in Grand Ballroom hall

These are the example of the CCTV installations in the hotel. Based on the figures above, the type of CCTV used in the hotel is Analog CCTV, which more preferable and convenient for this building. As the building that provides hospitality, services and facilities, it is valid for this building to provide a safe environment within the building. This will ensure the safety of the guests and staffs that occupied the building. There are 128 units CCTV that had been installed in the building. The brand of the CCTV used for this hotel is HIK Vision, which one of the best brand for closed-circuit television (CCTV). The selected model for the CCTV is HIK Vision Turbo HD, which convenient to carry out monitoring work inside and outside the hotel as well as its surroundings. Figures below shows the brand and model used by the hotel for CCTV management system:



Figure 3.3: HIK Vision DVR



Figure 3.4: HIK Vision DS-7900

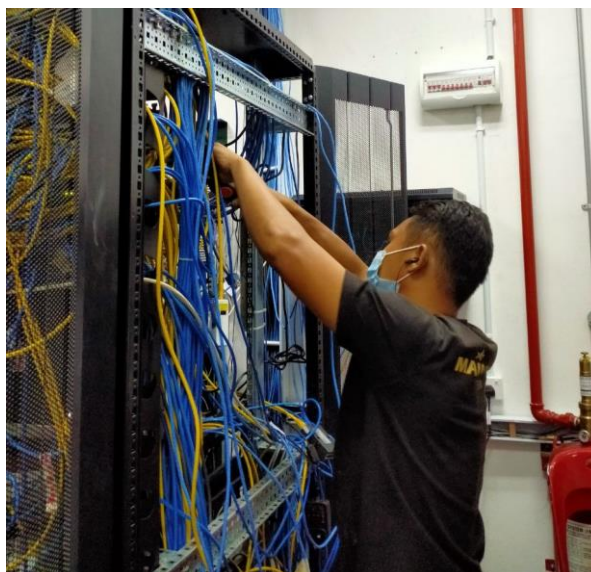


### 3.2 CCTV MANAGEMENT SYSTEM AT IXORA HOTEL

The CCTV management has been handled by the Security Department. During the access and exit activities of the building, all the data are recorded by CCTV and a logbook that all the staffs are required to fill the information needed when entering and exiting the hotel. The CCTV in this hotel do not have any outside contractor, which is why the maintenance staffs have to take part in managing the CCTV management system. This will automatically become one of maintenance monthly survey work, to ensure the flow of CCTV run smoothly.



*Figure 3.5: Monthly survey by maintenance staffs*



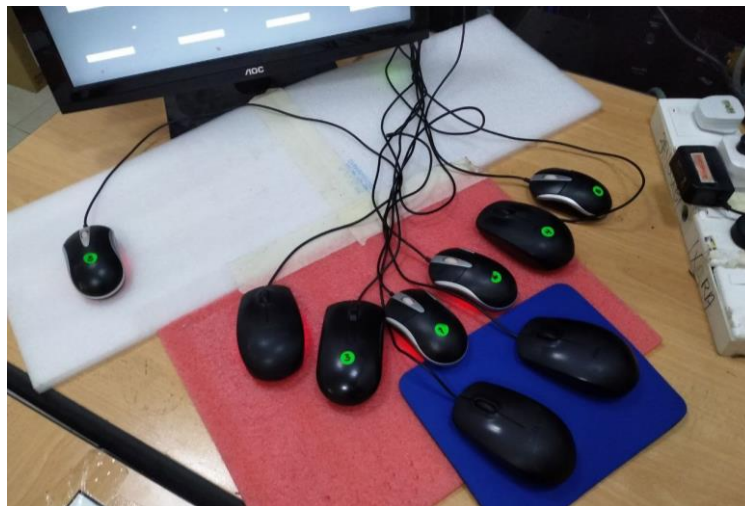
*Figure 3.6: Monthly survey by maintenance staffs*

### 3.2.1 The CCTV Control

At Ixora Hotel, there are about 128 units of CCTV that had been installed from Basement 2 to the upper level of the hotel, Level 11. The security department's control room, which is located on the ground level, was in charge of the CCTV. The CCTV recording was displayed by only eight (8) televisions (TV) screens with six (6) cameras each and eight (8) mouse to control the TV screen. This will make the system to connect with the TV screen will be more lot easier to manage.



*Figure 3.7: TV screens displayed the CCTV's data*



*Figure 3.8: Mouse for screen one (1) to screen eight (8)*

As shown in Figure 3.7 above, the screen had displayed the data that had been captured by the CCTV from Basement 2 until Level 11. However, some of the cameras had been shut down

because of some technical problems that had occur during Movement Control Order (MCO) period since the number of guest decreased. These screens managed to help the security guards to notice anything suspicious or might be dangerous to the hotel occupants. That is why the guard in-charge needs to stay alert of whatever caught by the CCTV tape. Figure 3.8 shows the mouse that use to handle the TV screens. The mouse was labelled with green sticker with 1 for screen one, 2 for screen two, 3 for screen three, 4 for screen four, 5 for screen five, 6 for screen six, 7 for screen seven, and 8 for screen eight.

### 3.2.2 CCTV Screen Label

These figures below shows the CCTV screen from screen 1 to screen 8 that displayed the CCTV recorded data of 128 units CCTV at Ixora Hotel.

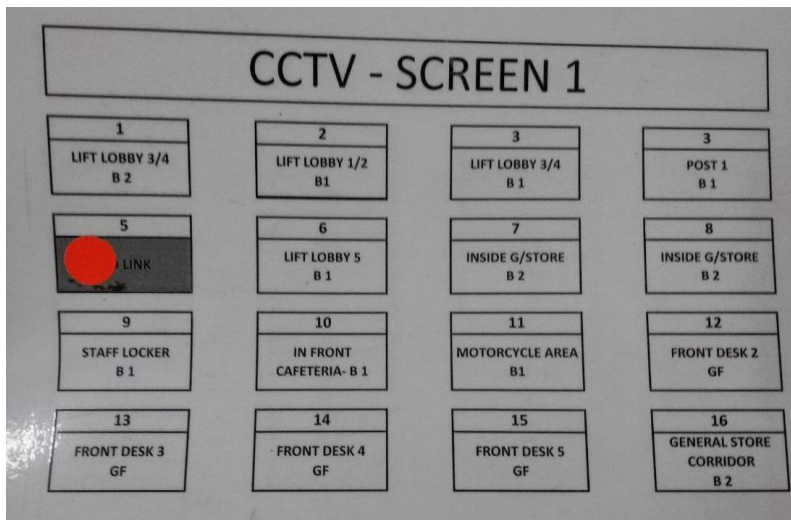


Figure 3.9: Screen 1

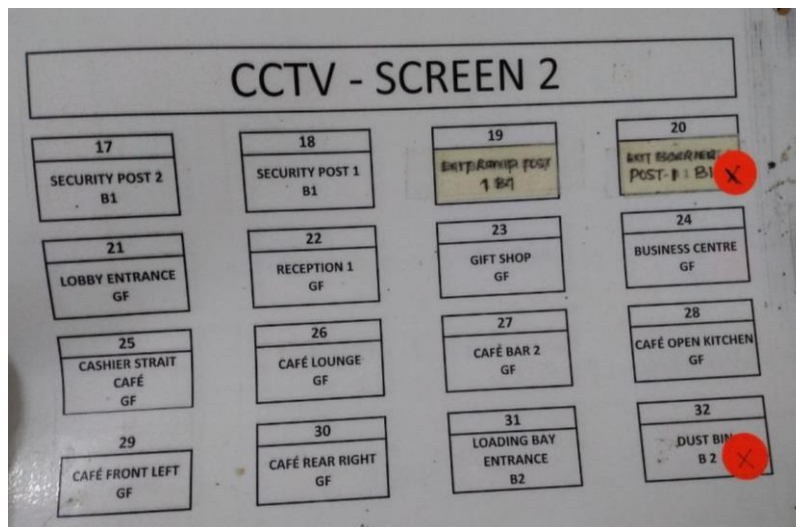


Figure 3.10: Screen 2

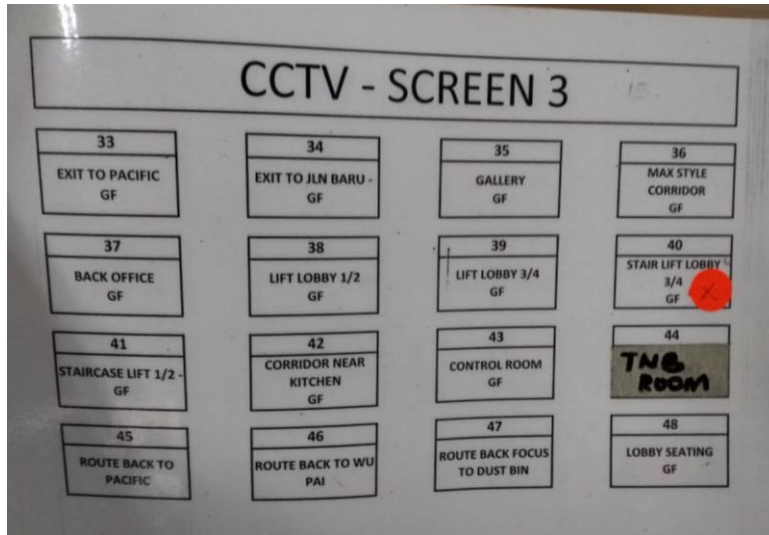


Figure 3.11: Screen 3

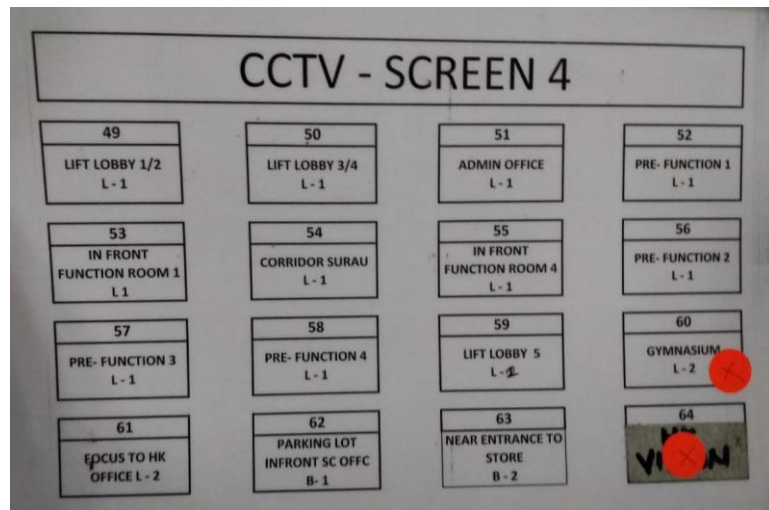


Figure 3.12: Screen 4

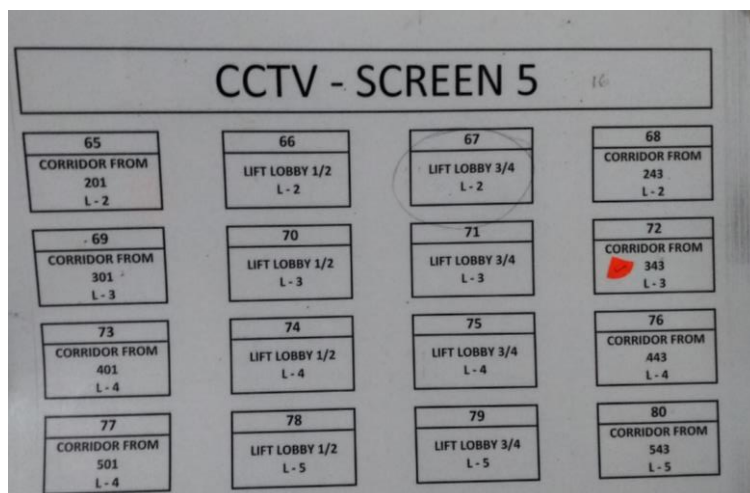


Figure 3.12: Screen 5

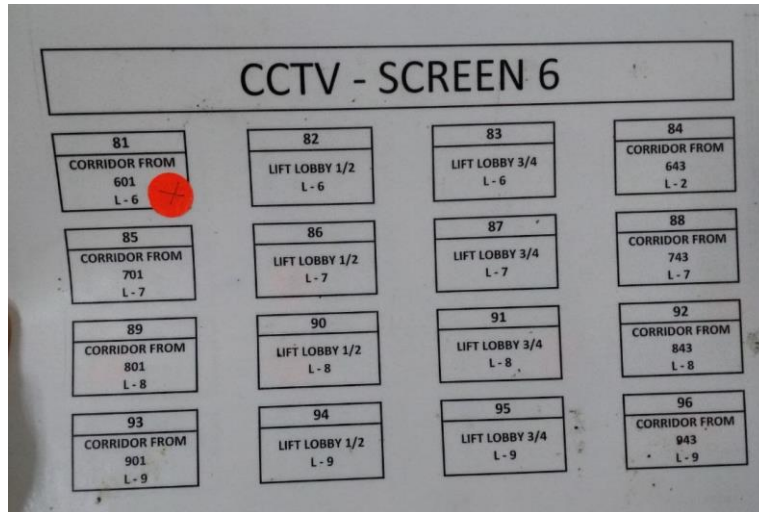


Figure 3.13: Screen 6

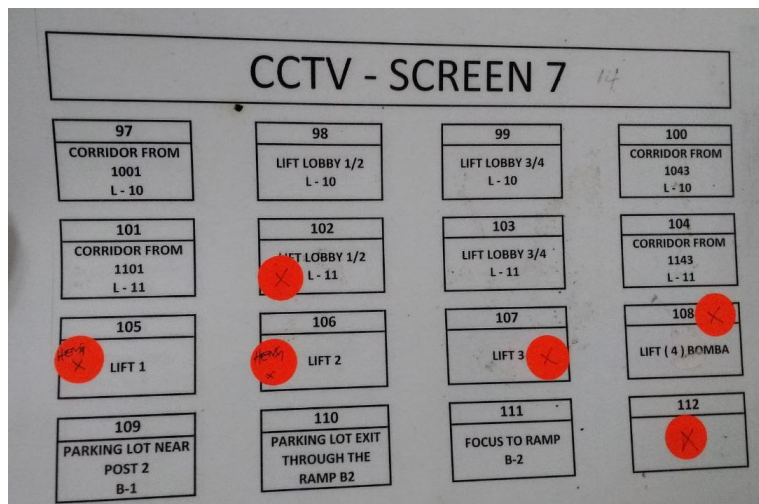


Figure 3.14: Screen 7

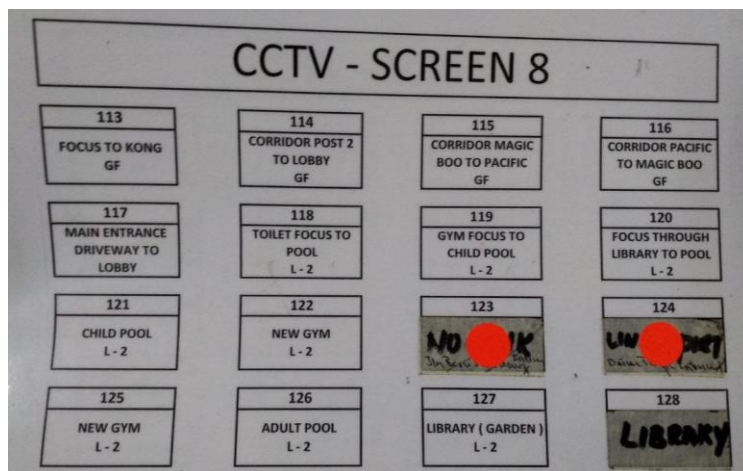
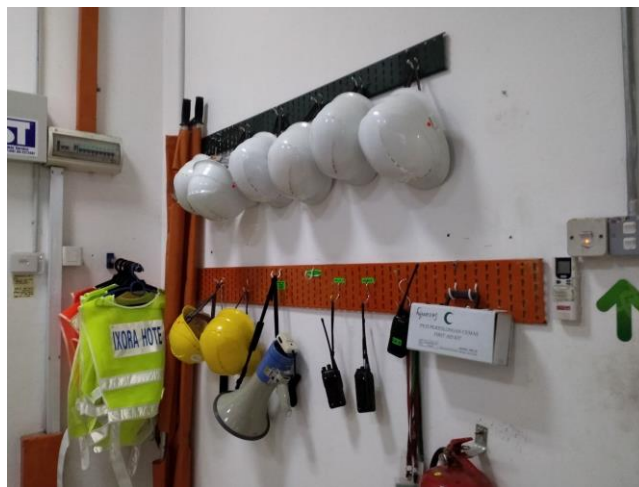


Figure 3.15: Screen 8

### 3.3 CONTROL ROOM

The control room is the room where the CCTV system works. The room was located at Ground level, near the kitchen area and close to General Manager office, which more convenient for him to survey the security cameras.

The control room consists of TV screens for CCTV display, PC computers, mouse control, CCTV tape player, safety-first equipment like safety vests, safety hats, walkie-talkie, fire extinguishers, speaker and first aid kit. The sections also consists of fire safety escape plans, smoke detector alarm and sprinkler system. This control room also an important area at the hotel, as it consists important system of hotel management that manage the whole hotel system.



*Figure 3.16: Safety-first area*



*Figure 3.17: Fire alarms detectors and escape plan*

The CCTV tape player also inside the control room, as it is the device that manage the CCTV to connect with the internet. As the internet range at the hotel not quite fast and a little bit slow in paced, which is why the maintenance staffs are required to do the monthly check-up to ensure the internet connections are strong and no buffering issues. The maintenance staffs usually check the connection of the internet with network toner and probe kit, as shown below in Figure 3.18 used to trace wires or cables by sending a signal from one end of a wire along its entire length. In Figure 3.19 shown the maintenance staff is tracing the signal inside the wire within the selected length. This work usually done to trace the location of a cut or missing door, window, or other alarm wire.



*Figure 3.18: Network tower and probe kit*



*Figure 3.19: Maintenance staff do the monthly check-up for internet connections*

### 3.4 OTHER BUILDING SECURITY MANAGEMENT SYSTEM

Besides closed-circuit television (CCTV), the security management system at Ixora Hotel also managed the thumb print devices and access card for extra safety. The thumb print is only for the staffs and the staffs are required to scan their thumb print first thing they arrived at the hotel. The main thumb print device is a security guard post, which the staffs are obligated to scan their thumb print first before starting work.



*Figure 3.20: Thumb print scanner*

The second thumb print will be in the staffs workplace, for human resources data as what time the staffs starts their work and what time they finished their works. Next, the access card also known as, Master Key. There are two cards provided to the maintenance department for them to access the room for those who do not have their own floor manager card. This card will make the staffs can free to access the room runner. Although, before take the card they need to fill the information in a logbook to avoid misunderstanding and confusion if anything happens to the card, like missing.



*Figure 3.21: The access card called Master Key*



# **CHAPTER 4: THE ISSUES OF CCTV AT IXORA HOTEL**

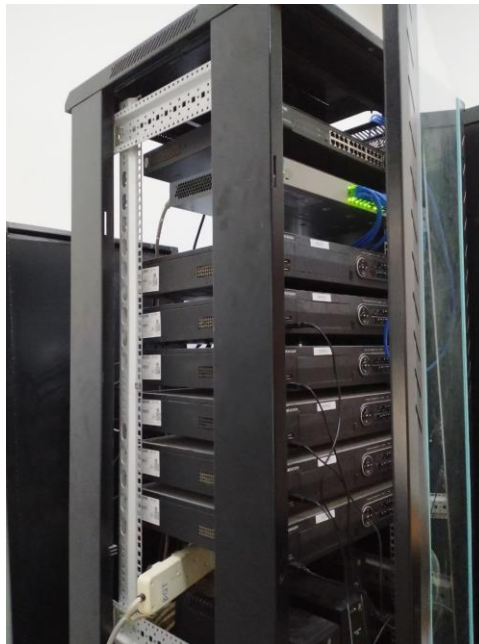
## 4.0 INTRODUCTION

The purpose of this chapter is to identify what the issues of closed-circuit television (CCTV) in this hotel. The issues of CCTV not very familiar as the maintenance staffs usually do the monthly survey to check the internet connection with CCTV system. However, some issues might be undetectable. This chapter also will elaborate how to fix the problems related to CCTV. This chapter has two subtopics, including the following:

- i) Identification of CCTV issues at Ixora Hotel
- ii) Issues management by Ixora Hotel

### 4.1 Identification CCTV issues at Ixora Hotel

There are concerns with closed-circuit television (CCTV) at the hotel, but they are not widespread because the maintenance department sends two of its employees to do a monthly assessment and examine some internet connections with CCTV. This is due to the fact that the CCTV decoder's internet connections were always short-circuited.



*Figure 4.1: CCTV decoder*

Some problems have been identified as frequent problems that can occur at any moment, such as short circuits. This is happening because missing wires or poor connection of the internet.

- i) Examine the camera's power and connection.

A problem could be anything as easy as a disconnected lead, or it could be that the network is temporarily down. LED indicators are commonly seen on Internet protocol (IP) cameras for transferring data across the network. However, LED indicators may be buried inside the camera.

- ii) Forgot or wrong password

When the maintenance staffs starts to ping the camera, they are occasionally unable to connect. This is probably wrong login password or forgot the old password which can make the cameras kind of late to operate.

- iii) Poor image quality

If the worst happens, it is critical that the hotel's CCTV system captures photos that are as bright and clear as possible. Poor lighting conditions and incorrect settings frequently result in useless CCTV footage. If the maintenance staffs requires the photographs for legal reasons, this is a huge issue since the footage is not quite clear and sharp.

- iv) Faulty hard drives and recorders

Connectivity troubles, software errors, USB stick corruption, and memory concerns are all common problems that maintenance staffs encounter.

- v) Cabling problems

The data cabling is usually checked for frays, kinks, poor terminations, and shorts by the maintenance staffs. A cable tester will be used to look for crossed wires and loose connectors. A high percentage of connection troubles can be traced back to cabling issues.

## 4.2 Issues Management by Ixora Hotel

These issues are can be easily managed by the maintenance team as the issues are only technical problems which required technician that professional in handling this kind of issues. As there are about four expertise or technicians in maintenance teams, it will be managed in a good way.



*Figure 4.2: Maintenance staffs do monthly survey at control room*

- i) Examine the camera's power and connection.

The camera will be tested to see if it is powered externally or hooked into the wall internally by maintenance technicians. Because the CCTV should be powered by electricity rather than batteries, the experts will verify that the camera is receiving the proper wattage, as a complicated camera like a pan-tilt-zoom will require more watts than a standard socket can provide.

- ii) Forgot or wrong password

It is not uncommon for technicians to be unable to connect because security guards or those in charge entered in the incorrect username or password. The technician may advise you to consult the CCTV manual, as it contains all of the necessary instructions. For security concerns, the technician may first check the default passwords before changing to a new one.

## iii) Poor image quality

The cameras' resolutions will be set by a technician. It's possible that a 720p or 960H camera won't capture clear photographs or movies. A 4-megapixel (1440p super HD) security camera was required by the hotel's administration. As a result, technicians must ensure that the video stream's resolution is adjusted to 25601440 or at least 19201080. Because the Ixora Hotel uses a monitor to view the footage, the technician must ensure that it meets the required resolutions for the CCTV cameras.

## iv) Faulty hard drives and recorders

When the DVR is powered down, technicians will remove the cover from the DVR. Next, inside the DVR there will be two main components. One is the motherboard, the other is the SATA hard drive. They will turn at the back of the SATA hard drive and they will remove two connectors. Both of connectors are from the back of the hard drive. They will reboot the DVR again and the decoder might working again.

## v) Cabling problems

The maintenance staffs use the cables to be tighten firmly and straight to avoid further problems to happen if wiring and cabling are knots or loose cables. That is why the cabling need to be firm to avoid cabling problems.

# **CHAPTER 5: CONCLUSIONS**

## CONCLUSION

A study was conducted to investigate the study of closed circuit television (CCTV) management of this hotel and a conclusion has been drawn based on the outcome of the analyses from the chapter 4. It is a system in which the circuit is closed and all of the elements are directly connected, as the name implies. This is in contrast to broadcast television, where any properly tuned receiver may pick up the signal from the airways. Systems interconnected by microwave, infrared beams, and other means are considered directly connected in this context. This section presents the key components that can be used to build various types of CCTV systems.

CCTV system is important in order to make sure the safety of the building, inside and outside, had been secured. The use of CCTV as a management and security tool is quite beneficial. The installation of a CCTV system as part of a set of security measures aimed at preventing or detecting crime in general. In terms of security, CCTV can be very useful. Security inquiries and investigations can benefit from video evidence, as well as criminal convictions. Visual recording of incidents for evidential or investigative purposes has numerous advantages, and it is no longer prohibitively expensive in today's competitive customer-driven market.

In a nutshell, this internship has been a great learning opportunity. I can conclude that my time at the Ixora Hotel taught me a great deal. Needless to say, the technical components of the work I've done aren't perfect, and with enough time, they could be. As someone who had no prior experience with hotel management or maintenance tight schedules, I believe the time I spent researching and learning about it was well worth it and led to me finding an acceptable solution to increase my self-confidence and gain more experiences. Time management and self-motivation are two of the most important things I have learnt from this internship.

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APPENDICES





**Civil and Structural Works**

No.	Description	Frequency						
		D	W	M	3M	6M	Y	2Y
1.	<b>Flat Roof</b>							
	1.4 Waterproofing a) Check the condition of the waterproofing for any damage/cracks.					/		
	1.5 Drainage System a) Check the drainage system					/		
	1.6 Parapet Wall a) Check the parapet wall for any damage					/		
2.	<b>Wall</b>							
	2.1 Condition of the Wall a) Check the condition of the wall for any damage/cracks						/	
	2.2 Dampness on the Wall a) Check for any sign of dampness, algae, peeling of paint, mouldy etc.				/			
	2.3 Paint Condition a) Check the condition of the paint							/
	2.4 Curtain wall, Window and Glazing f) Check for cracks and defective glass panel a) Check for leakage on window b) Check accessories and fixtures c) Check for corrosion and repair d) Check and repair or replace curtains				/			
	2.5 Internal Partition a) Check integrity of members b) Check accessories, fixture and finishes				/			

3.	<p><b>Ceiling</b></p> <p>3.1 Condition of Ceiling Finishes</p> <p>a) Inspect for condition of ceiling finishes</p> <p>b) Inspect ceiling boards</p>			/				
4.	<p><b>Beam</b></p> <p>4.1 Condition of the Beam</p> <p>a) Check the condition of the beam for any of sign of damage or cracks.</p>					/		
5.	<p><b>Column</b></p> <p>5.1 Condition of the Beam</p> <p>a) Check the condition of the column for any sign of damage of cracks.</p>					/		
6.	<p><b>Floor</b></p> <p>6.1 Condition of the floor</p> <p>a) Check condition of the floor for any sign of damage or cracks.</p> <p>b) Check for leakage</p>					/	/	
	<p>6.2 Condition of floor finishes</p> <p>a) Check the condition of floor finishes i.e. carpet</p> <p>b) Check for defective finishes</p>			/		/		
7.	<p><b>Painting</b></p> <p>a) Inspect painted surfaces such as wall, ceiling, floor, doors, fencing, gates, etc. at all areas case of stains, corrosion and defects and perform necessary painting. to match existing if required.</p>						/	
	<p>b) Repaint road lines, curb, parking lines and road numbers.</p>						/	

8.	<b>Built-in Furniture</b>							
	a) Inspect integrity, accessories, and fixtures				/			
	b) Maintain accessories, fixtures, and finishes							
	c) Inspect for termite attack			/				
	d) Inspect for borers, beetles attack							
	e) Inspect for fungus attack				/			
					/			
					/			
9.	<b>Carpet</b>							
	a) Inspect for surfaces for defect						/	

*Maintenance Schedule on Civil and Structural Work*

**Building Services and Facilities Work**

No.	Description	Frequency						
		D	W	M	3M	6M	Y	2Y
10	Drainage and Sewerage							
	10.1 Check for any crack							
	a) Check the drainage for any cracks and damage						/	
	b) Check sewer networks for the collection of wastewater, pipes, conduits, and ancillary works from its point of origin to treatment works prior to discharge back into the environment.						/	
11.	Water supply							
	11.1 Check water system from corrosion							
	a) Check the water cistern for any damage or corrosion						/	
	11.2 Check the water pump.							
	a) Check the water pump for any damage and functionality			/				
	11.3 Check the integrity of the tank.							
	a) Check the integrity of the water tank			/				

12.	Security System 12.1 Check the CCTV components a) Check the CCTV are operating correctly b) Check the thumb print		/					
13.	Plumbing and Sanitary Fittings a) Check domestic water pump, panel, and its related components, adjust, repair, and replace if necessary.		/					
	b) Check sump pumps, panel, and its related components, adjust, repair, and replace if necessary		/					
	c) Insert toilet fittings such as taps, WC, flushing system, ball valve, washbasin and repair or replace when necessary.		/					
	d) Check piping for leakage and repair.		/					
	e) Check all internal/external floor traps for blockage and maintain.		/					
	f) Check and service all related valves such as check valve, etc.		/					
	g) Inspect float sensors for correct indication. Adjust, repair, or replace to function and serviceable.		/					

*Maintenance Schedule on Building Services and Facilities*

**Mechanical Work**

No.	Description	Frequency						
		D	W	M	3M	6M	Y	2Y
14.	Lift a) Check the lift components.				/			

15.	Air Conditioning system a) Check all of component air conditioning system.			/				
16.	Fire fighting a) Check components of each firefighting system that available in the office.					/		

*Maintenance Schedule on Mechanical Work*

**Electrical Work**

No.	Description	Frequency						
		D	W	M	3M	6M	Y	2Y
17.	Electrical System 17.1 Check component in electrical system					/		
	a) Switch room including riser room							
	b) Fuse switches					/		
	c) Distribution board					/		
	d) Luminaries					/		
	e) Switches and switch sockets outlets					/		
	f) Motor, protection equipment and water pump					/		
	g) Outdoor lighting – compound and street lighting, and building floodlighting					/		
18.	Generator Set System (Stan-by Mode)							
	a) Timely removing of worn-out parts or upgrading the components	/						
	b) Check for fluids levels	/						
	c) Inspect for battery and cleaning of connections	/						
	d) Load bank testing	/						
	e) Verifying control panel reading and indicators	/						
	f) Changing fuel and air filters	/						

19.	Substation System							
	19.1 Check for the substation equipment							
	a) Circuit breakers	/						
	b) Power transformers and reactors	/						
	c) Instrument transformers -CT & CVT	/						
	d) Disconnectors /earthing switches	/						
	e) Surge arresters	/						
	f) Capacitor banks	/						
	g) Earth grid and earth pits	/						
	h) Wave traps and PLCC	/						
	i) Battery and battery charges	/						
	j) Relays and meters	/						
	k) ACDB, DCDB AND DG sets	/						
	l) Busbar /clamps/droppers/BPI	/						

*Maintenance Schedule on Electrical Work*







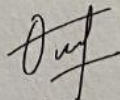
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