

INDUSTRIAL TRAINING REPORT
AT
METRONIC ENGINEERING SDN BHD
BUKIT JELUTONG

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Abstract

The following report describes an overview about the types of works undertaken by the author who has done industrial training as part of the program for Bachelor in Electrical and Electronics Engineering (Hons.) in Universiti Tenaga Nasional (UNITEN).

Briefly, in this report the author has documented what he was done during the 3 months of industrial training at Metronic Engineering Sdn Bhd as a trainee service engineer. This report examines the author involvement in Service and Maintenance department of Metronic Engineering as a trainee service engineer under supervision of Assistant Manager of Service Department, Mr. Sarifulnazwan and site supervisor, Mr. Mohd Nazmi.

During these 3 months of industrial training, the author has been exposed into different kind of work situations and environments which actually give a great experience to the author for the future career development. The details about experiences gained during this industrial training are documented in this report.

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1.0 Introduction to Metronic Global Berhad



Image 1: Metronic Global Berhad

Metronic Engineering Sdn. Bhd (MESB) is a wholly-owned subsidiary of Metronic Global Berhad (MGB). MGB was incorporated in Malaysia under the Companies Act, 1965 on 22nd October 2003. MGB was listed on MESDAQ Market of Bursa Malaysia Securities Berhad on 24th May 2004. MGB is actually an investment holding company. Until this latest date, MGB Groups consists of twelve subsidiaries and three associate companies. Metronic Engineering Sdn. Bhd (MESB) is part of it. The MGB Group is expertise in the system integration of intelligent building management system (IBMS) and integrated security management system (ISMS). MGB Group focuses on building and integrating world-class technology to the market and is committed to continuously improve its quality, service and productivity.

The evolution of the MGB Group can be traced back more than two decades ago when Metronic Engineering Sdn. Bhd. (MESB) was incorporated in August 1984 to provide building automation services specializing in the field of IBMS and ISMS. After that, MESB subsequently expanded its business activities to include e-project management of mechanical and electrical services and supply of engineered system. MESB carried products by principals such as TAC Control Pte Ltd and Honeywell Integrated Security, USA.

In 1995, MISSB was incorporated to complement MESB's existing business activities. The purpose of MISSB is to engage in the procurement of contracts in relation to engineering work specializing in the field of IBMS and ISMS, and sales of engineered system such as from Honeywell.

In the recent years, the MGB Group has made bold steps in adopting new technologies and investing in R&D to realize its vision as an Intelligent City Management System or ICMS provider. So, in order to accelerate its involvement into ICMS, MGB Group established its ICMS division in 2006. In this division, it is consist of six companies which are servicing vertical markets including healthcare, mobile-commerce, data network infrastructure and performance contracting business respectively.

The six companies in this division are Metronic iCares, Metronic Mobile Services, Metronic R&D, Ariantec, Adprima and IPanel Malaysia. The establishment and acquisition of these companies strengthen the MGB Group position in the value chain towards becoming an ICMS provider. In line with MGB Group's plan to migrate as a provider of ICMS, these technologies will significantly enhance application security, manageability, reliability and availability of any application while lowering the cost of operations for its customers.

The plan was not stopped there, for geographical expansion; MGB Group has embarked on a series of acquisition strategies in 2006 and 2007 to complement the local markets. Until today, MGB Group has reached China, India, Australia, Singapore, Saudi Arabia and Middle East countries.

1.1 Mission and Vision

The vision of Metronic Engineering Sdn Bhd is to be an internationally recognized leading engineering and technology total solution provider.

The missions of Metronic Engineering Sdn Bhd are as follow:

- ✓ To apply our unique management style that incorporates our manpower resources, experience, expertise, innovation and creative approach.
- ✓ To continually seek new technologies that meet our clients' requirements.
- ✓ To create workplace that motivates our employees.
- ✓ To develop strategic relationship with partners who have skills that enhance and complement our own.
- ✓ To continually improve the effectiveness of the quality management system.
- ✓ To maximize value of our stakeholders.

1.2 Board of Directors: Metronic Global Berhad

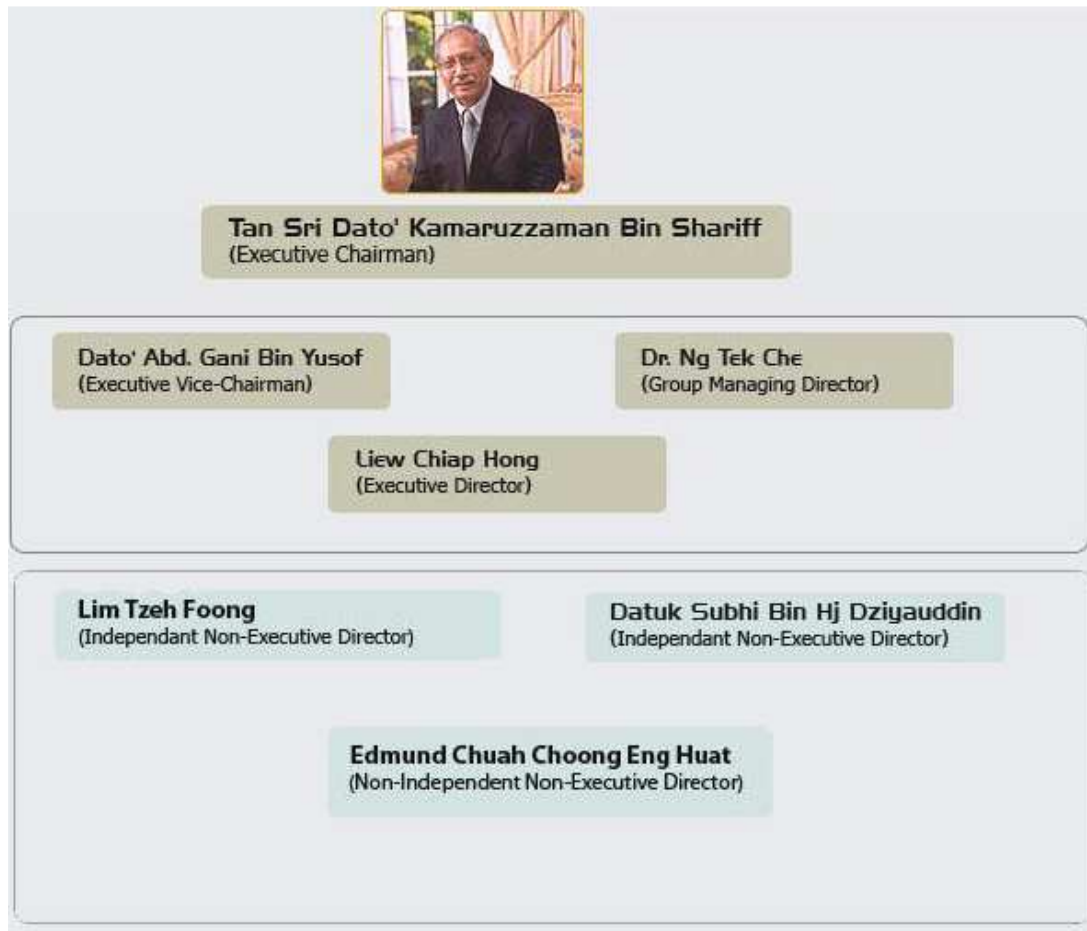


Figure 1: Board of Directors - Metronic Global Berhad

1.3 The Management: Metronic Engineering Sdn Bhd

Designation	Name
General Manager	Chung Chiew Wai
Assistant General Manager	Chan Eng Seng
Head of Department – Service	Au Ying Hau
Head of Department – ELV	Yap Sang Toh (Kenny)
Head of Department – BCS	Liew Chit Chung
Head of Department – T & C	Tan Chee Lin (Michael)
Head of Department – Sales & Marketing	Yap Chee Loong
Group Financial Controller	Cherlene Ong
Senior Manager – Administration & HR	Kek Siew Luan (Shirley)
Head of Department – Administration & HR	Aishah Chai Abdullah
Director – India	Manickavasagam Sambantham
Country Manager - Vietnam	Chia Swee Loong (Lawrence)

2.0 Overview of Industrial Training

The required industrial training was done at Metronic Engineering Sdn Bhd for 3 months and has started from 5th April 2010 until 25th June 2010. The details of the company where this industrial training is done are as below:



Metronic Engineering Sdn Bhd

No. 2, Jalan Astaka U8/83,
Seksyen U8, Bukit Jelutong,
40150 Shah Alam,
Selangor Darul Ehsan, Malaysia.

Telephone: +603 7847 2111

Fax: +603 7847 5111

Website: www.metronic-group.com **Email:** mesb@metronic-group.com

Host supervisor: Sarifulnazwan Abu Bakar (nazwan@metronic-group.com)

Site supervisor: Mohd Nazmi Bin Adam (nazmi@metronic-group.com)

All work and tasks were carried out at sites around Kuala Lumpur with instruction and supervision from site supervisor and host supervisor. The tasks were also carried out at sites in Sri Hartamas, Sentul and Ampang. Usually, the travel time would take around 1 to 1^{1/2} hours to reach some of the sites at the mentioned areas above.

Listed below is the list of sites where the tasks were carried out during the industrial training:

- Kuala Lumpur Convention Centre (KLCC)
- Damansara Idaman, Damansara
- Mutiara Upper East, Ampang
- The Saffron at Sentul East, Sentul
- Kiara1888, Sri Hartamas
- Hospital Ampang
- UOP Honeywell, Menara Hap Seng, Kuala Lumpur.
- TR231 Service Suite, Jalan Tun Razak, Kuala Lumpur.
- Menara Maybank.
- The Pavillion, Kuala Lumpur.

During this industrial training period, the author has assigned into Service and Maintenance department of Metronic Engineering Sdn Bhd under supervision by host supervisor, Mr. Sarifulnazwan and site supervisor by Mr. Nazmi. In this department, there are several teams which specific job such as Integrated Building Security System (IBSS) team and Building

Control System (BCS) team. Each team has responsible for their specific job task and Mr. Sarifulnazwan is the team leader for IBSS team which is the author has been assigned to.

As part of IBSS team, the author is responsible for sites which are using IBSS and any part of IBSS such as Building Security System, CCTV system, alarm and smart home system. To ensure all these system working normally at all times, service and maintenance department is responsible to commence monthly or bi-monthly preventive maintenance service at the sites and also attend any breakdown if there is any breakdown happens. In brief, service and maintenance department hold the responsible to:

- Attend any breakdown and system failure, troubleshoot and attempt to solve the problem if possible to fix at that particular time.
- To commence maintenance service based on agreed contract to ensure all systems are running in good condition.

Beside attend any breakdown, do installation and servicing, the author also has to prepare weekly job reports which need to be submitted to host supervisor every week based on what are the activities or jobs that have been done during that particular week.

2.1 Employment Types and Times

During these 3 months of industrial training, the author was employed as a trainee service engineer for both field work as well as office work. However, most of the works are field work which mean, the author need to go to the sites and troubleshoot any system failure if there is any.

The working hour is from 8.30 am until 6.00 pm weekdays and if overtime working hour is required, it usually takes up until 10.00 pm only. The period of employment commenced on 5th April 2010 and concluded on 25th June 2010 consisting of 60 days of working day.

3.0 Details of Industrial Training

During these 3 months, the author has been assigned into IBSS service team and in this chapter, the author will explain in details what are the experiences and knowledge obtained during this industrial training period.

3.1 Introduction to Integrated Building Security System

Integrated Building Security System (IBSS) is one of the systems under Intelligent Building Management System (IBMS). IBMS consists of several systems such as Building Automation System, Access Control System, Closed Circuit Television (CCTV) System and Addressable Fire Alarm System and it is an integration of these systems into a single intelligent system by using software to allow remote control and real-time monitoring.

For Metronic Engineering, IBSS usually installed with products from ASIS Technologies, a member of Kuok Group of companies and the Head Office of the Savvy Group of companies. ASIS Technologies is an industry leading designer and manufacturer of totally integrated long and short range RFID based electronic access control system, contactless smart cards, tags, retail loyalty, facilities management, cashless application and systems, including CIMS (Card Issuing Management System) and VMS (Visitor Management System). Other from ASIS Technologies, Metronic Engineering also uses products from Honeywell, Bosch, GE Security and X-cam.



Image 2: One of card access reader by ASIS Technologies

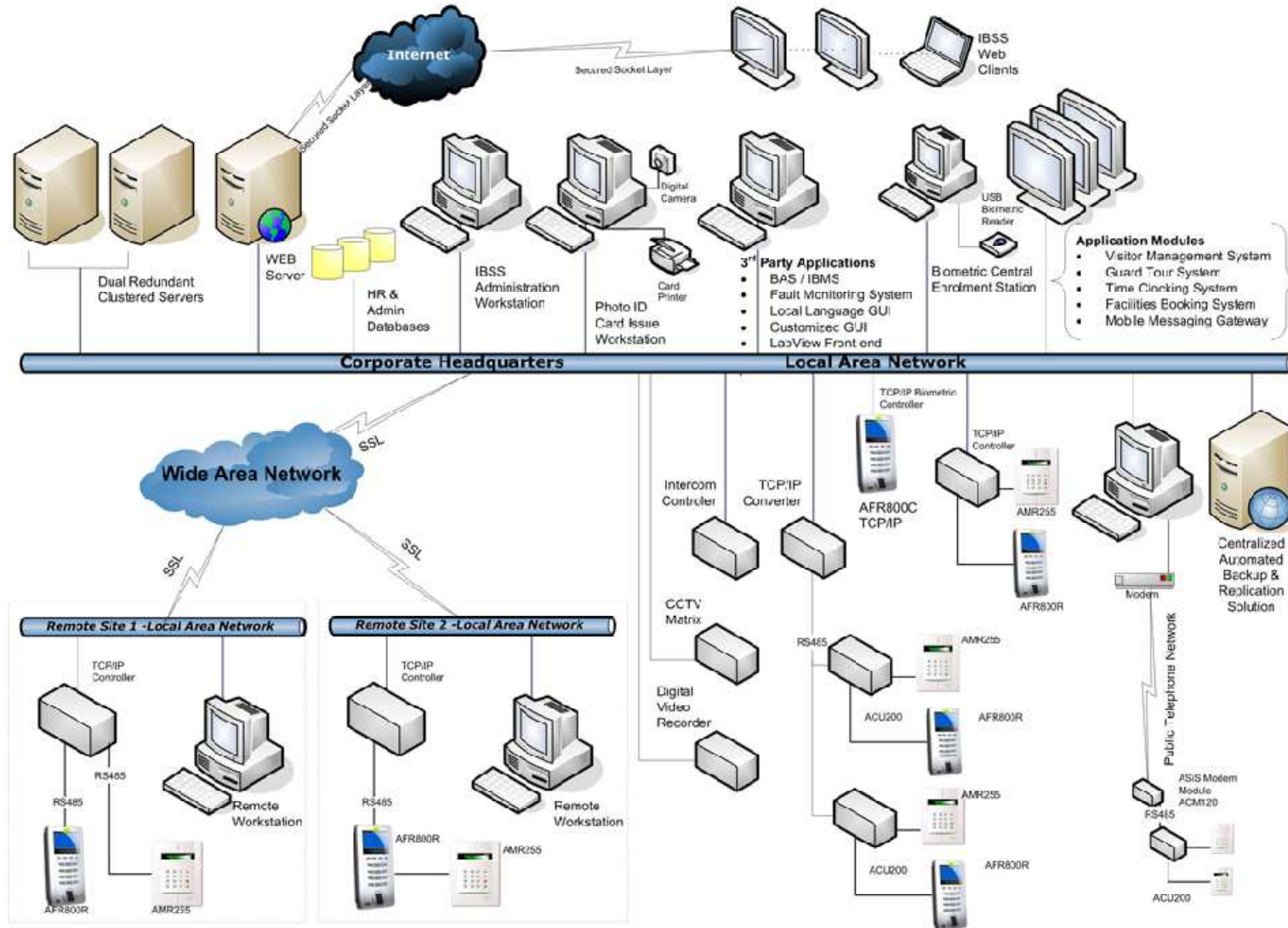
IBSS consists of several important hardware and software such as Access Control Unit (ACU) which role as a brain for IBSS, the access card readers, workstation server and last but not least, the IBSS software itself which is also called as Integrated Building Security System. This software is use to monitor transaction and log every transaction has been made in the system such as access time, invalid access and et cetera. However, the IBSS still can run without workstation server and IBSS software installed because the Access Control Unit is able to run independently, but all configurations need to be downloaded first into the ACU to ensure IBSS is working and running perfectly. The disadvantage of this method is user cannot monitor real-time transaction and log about what is going on in the system and the advantage of this system to the customer is reducing the cost of the system. If in any case the user need to access transaction log on the ACU, a computer with IBSS software installed is needed to access this transaction log. From here, the user then can do anything to the ACU configuration from do backup, adding new database value, add access permission and et cetera.

The diagram on the next page shows the system architecture diagram for IBSS system with networked workstation server and clients. Even the diagram looks a bit complicated, the important components in an IBSS are:

- Access Controller Unit.
- Access Card/Biometric Readers.

- A workstation server with IBSS software installed.
- Correctly wired wire connection to the entire component of IBSS.

SYSTEM ARCHITECTURE DIAGRAM



3.2 Industrial Training Experiences

In this subchapter, the details about industrial training experiences will be explained on weekly basis started from the first week until the final week, week 12.

3.2.1 Week 1

The first day of the first week was started at Metronic Engineering's HQ in Bukit Jelutong. After had welcoming briefing from Puan Sharifah, a HR officer, the author then assigned to service and maintenance department under Mr. Sarifulnazwan. For the first day, Mr. Sarifulnazwan has given briefing regarding what Metronic Engineering does and what are the responsibility of service and maintenance department. During the briefing, the author was explained about the Intelligent Building Management System (IBMS) and Integrated Building Security System (IBMS).

Mr. Sarifulnazwan also explained about the service report that needs to be prepared after every servicing and maintenance job is done. The service report usually consists of:

- Symptoms of the problem.
- Actions that have been taken to solve the problem.
- Result from what have been done to solve the problem.

The second day, the author was assigned to Mr. Mohd Nazmi as site supervisor. Mr. Mohd Nazmi is the one who monitor the author for on-site training and supervision. The author was brought to Jaya 33 in Petaling Jaya to solve the problem regarding lift access system. The author has been introduced with IBSS software which is used to monitor and do configuration for access control unit.

Since most of access control unit used by Metronic Engineering is from ASIS Technologies, the code use for this control unit is as below:

ACU 1000 S2

“ACU” means for Access Control Unit. The number after the word ACU means the model of the controller. In this case, it is a 1000 model. There are others model as well such as 200 model. Each model has different capability and limitation, for example the ACU200 can support only up to 2 doors whereas for ACU1000, this access control unit can support up to 8

doors. Last but not least, the “S2” means the capability in supporting 2 motherboards for one access control unit.

During this first site visits too, the author has introduced to another component of IBSS, which is CAC. CAC means Card Access Controller. This component is used to give access to any valid card access. Its purpose is quite the same as ACU, but more simple. However, each CAC used need to be paired with Relay Control Unit (RCU) which purpose to send signal to other component when the access is permitted. For example, in the lift with card access system is used, whenever the card is patched to card reader, the CAC will check for access permission for that particular card, after it check the access permission, the RCU then will send the signal to lift control panel which lift buttons can be accessed for that card. The user then will be able to press the given permitted buttons. The ACU also has the capability to do the same thing as what the CAC does, but it would be more complicated and does not require RCU to work like what CAC is required. Usually, for lift access system, the CAC will be used for easy maintenance and servicing.

The next day, the author went to The Saffron at Sentul East, a condominium with SMATV system and IBSS. Both of these systems are under service and maintenance of Metronic Engineering. The author has been taught about the how to check and install new CCTV camera for one of the malfunction CCTV camera located at the guard house. The procedures of this process are as below:

1. Check supply voltage to CCTV camera. The supply voltage should be around 12V, if otherwise, check for cabling to get enough supply voltage.
2. If supply voltage to CCTV is around 12V, connect the supply cable to CCTV and check the CCTV status LED whether it is green or otherwise.
3. If everything is fine, the CCTV camera should be working fine now. Adjust the lens focusing and zooming for preferred view by using the screw type adjustable toggle located at CCTV's lens.
4. After everything has done, check the lens focusing and zooming via monitoring monitor and do other adjustment if it is required.

During this site visits too, the author also learnt about how to set up new card access using IBSS software and download updated access configuration to access control unit. The procedures of this process are as below:

1. Open IBSS software.
2. Click on Express Configuration.
3. Click on Card Holder ID.
4. Click on Add to add new card access data.
5. A pop-up window will come up. Fill in any data required.
6. After all data have been filled, click Save and Download to download the new card access data into access control unit.

Other than that, the author has taught about how to use Tellman Digital Satellite Meter to meter ASTRO signal strength via SMATV system. This satellite meter will be connected to amplifier output which located as specific area at each level of condominium to check the signal strength. Via the satellite meter, there are 2 value can be obtained for signal strength, S and Q value. Recommended value for S is around 85~90 dB whereas for Q, the value should be around 11~13 dB.

For the next day, the author went to UOP Honeywell at Menara Hap Seng in Kuala Lumpur to do preventive maintenance service consisting of replacing malfunction CCTV adaptors. The procedures are the same as installing new CCTV camera, checking the supply voltage and check the status of the CCTV camera after the new adaptor has been installed.

After replacing malfunction adaptors, preventive maintenance service also consist of checking card readers and electromagnetic lock (EML) for all access doors. Done with all the checking, the next procedure is to do database backup for IBSS system. Since at UOP Honeywell is using different IBSS software, the procedure is little bit different.

The week 1 was concluded with site visits to TR231 Service Suite at Jalan Tun Razak. During this site visit, the author was taught about how to, install new ACU to replace malfunction ACU, download data to ACU and test the communication from workstation server to ACU using IBSS software.

All in all, everything that was learnt during this first week is totally all new to the author. However, the site supervisor, Mr. Mohd Nazmi was really kind to answer and explain everything that I do not understand and know. As conclusion, ready to accept new knowledge is the most important thing that the author has learnt on this first week.

3.2.2 Week 2

Second week has started with site visits to Kiara1888 in Sri Hartamas to troubleshoot several malfunction items and CCTV. The procedures of checking these malfunction CCTVs are the same as what have been done before for replacing and installing new CCTV.

The next day, the author with one more service engineer, went to Hospital Ampang for monthly preventive maintenance service. The maintenance service has been done like the one was done at UOP Honeywell. The different is the procedures during the maintenance works because the maintenance team does this maintenance service under supervision of Radicare, which is another company responsible for maintaining the hospital.

On 15th April 2010, another visit to TR231 is made to install new surge protectors for ACU at ground level. This time, the author was given the responsible and opportunity to install it by himself after explanation from site supervisor, Mr. Mohd Nazmi on how the to do that. The process of preparing and installing the surge protectors was running smooth as planned and the ACU is running fine after the installation of surge protectors. To test for functionality of ACU, a communication test has been done from ACU to workstation server via IBSS software.

During this visit too, barrier gates for both entrance and exit for visitor is malfunction. The problem is caused by malfunction barrier gate board for both of these barrier gates. However after replacing new barrier gate board, one of limit switch of the barrier gate did not working. Hence, to overcome this, a pair of modified door contact has been used as a temporary limit switch. The purpose of limit switch is to control the barrier gate arm.

The next day was continued with preventive maintenance service at Hospital Ampang. Since there are several more levels need to be checked, hence the maintenance service has been done for the rest of the levels which is yet checked.

Second week exposed the author more on communicate with the client; try to listen, satisfy the client needs as possible and et cetera. This second week also taught the author on working independently without supervision and how to carry the responsible given to the author.

3.2.3 Week 3

The third week has exposed the author on some office work which is also one of job scope of service engineer in Metronic Engineering. The author was taught about the procedures of preparing the quotation to client by Mr. Amirul. Mr. Amirul is also a service engineer, but he is in charge of Building Automation System (BAS). During this time, Mr. Amirul has taught the author on how to get quotation number from master quotation file and what should be done after the quotation has been printed. Done with quotation procedures, Mr. Amirul has taught me and another trainee, Luqman on how to download data table from Direct Digital Controller (DDC), which is one of components in Building Control System (BCS). Even I have never get into this system before, but actually I get the rough idea about what is the system is all about. The process of downloading the data table from DDC is made through software called ITG WorkTech. This software is capable of downloading and uploading data table to DDC and it is easy to understand and navigate software.

Done with that, since my site supervisor did not have any plan for me for this day, Mr. Amirul was asked me to help Luqman with maintenance service at Menara PKNS in Petaling Jaya. At Menara PKNS, I was explained briefly about the BCS from one of the technician on-site, Mr. Azmer. He then explained how the BCS is working and controlled from dedicated software. Since during this time a database backup was in progress, nothing much can he show from the software. However, his explanation is enough to get the brief idea about what BCS is all about. This system is a centralized system which control several systems inside a building such as ventilation system, air conditioning and et cetera. Maintenance service of BCS consists of cleaning up DDC from dust and ensures all DDC is working in good condition.

For the next day, nothing much new thing was learnt. The author went to The Saffron at Sentul East to troubleshoot several malfunction CCTV and SMATV problem. A similar procedures which have been done before was done during this troubleshooting.

On the same day, the author need to send back malfunction intercom from Dato' Gani's office in Wangsa Maju for repair. The problem is caused by faulty intercom push button and need to be replaced with new working push button. The author has sent the intercom for repair to Mr. Maniam, the one who responsible on repairing any faulty items from the sites. Since this is an urgent case, Mr. Maniam need to repair the intercom as soon as possible,

hence the author has helped him on repairing the faulty button as well as trying to learn from him. The repaired intercom then installed back to Dato' Gani's office in the next day.

The next day, after done with installation of repaired intercom, the author went to Kuala Lumpur Convention Centre for the first time to troubleshoot problem regarding biometric access reader in control room. After did troubleshooting and testing, the problem is caused by faulty finger print reader and need to send for repair. A backup biometric reader is installed for temporary used.

The next day the author went to Quill9 in Petaling Jaya. There were several problems reported including malfunction CCTV and EML. Troubleshooting procedures have been done for testing and solve the reported problem. On the same day, at Kiara1888, the author did the checking on BNC cable which connected to Digital Video Recorder (DVR). The procedures taken during this process are as below:

1. Check BNC cable to monitor.
2. Exchange cable with another cable and observe the effect on monitor.
3. Test with new cable and observe the effect on monitor.

For CCTV problem, troubleshooting procedures have been done as usual including voltage supply checking. If there is no supply voltage to the system, further checking by electrician need to be done because it is not part of job scope by Metronic Engineering.

The next day, the author went to new site which is Damansara Idaman to replace several malfunction 4 gang switches. The author also was introduced with new system which smart home system developed by Metronic Engineering. This smart home system is used to control electronic switch inside the house as well as the lighting in the house. This system also occupied with alarm trigger notification which whenever alarm is triggered, it will send notification by calling the guard house or personal mobile phones, depending on the setting made inside the system.

All in all, for the third week, the author has learnt several new things such as BCS and smart home system. Even the author did not have opportunity to learnt the system in details, but know about the rough idea of the system is enough to understand how the system works.

3.2 (i) Weekly Job Reports

For the next few weeks' reports, most of the jobs and activities are quiet similar from the previous weeks, hence the author will put it into weekly job report format which is the same report need to be submitted to host supervisor, Mr. Sarifulnazwan.

3.2.4 Week 4

WEEKLY JOB REPORT

Name: Muhamad Izzat Bin Ruslan

Position: Trainee

Period : 26 April – 2 May 2010

Day	Job Site	Work Description	Total Hours	Remarks
Monday	KLCC	<ul style="list-style-type: none"> Replaced and tested supply power for ACU at Concourse parking Replaced faulty diode for power supply at level 2. Check reader at level 4 due to cannot access problem. 	8	
Tuesday	Metronic	<ul style="list-style-type: none"> Sent malfunction power supply to Nazmi 	2	
	Tamarind	<ul style="list-style-type: none"> Sent quotation for new additional cards to Mr. Ariffin 	1	
	Saffron	<ul style="list-style-type: none"> Monthly maintenance service Check and tested readers at level 1, 2, 3 and 3A for block A, B, C and D. Check and tested EMLs for all doors at level 1, 2, 3 and 3A for block A, B, C and D. Check and tested push button at level 1, 2, 3 and 3A for block A, B, C and D. Check and tested boomgate for functionality. 	5	
Wednesday	Saffron	<ul style="list-style-type: none"> Monthly maintenance service. Check and tested CCTVs' angle and focusing at all lift lobbies for block A, B, C and D. 	4	
	Metronic	<ul style="list-style-type: none"> Attended training by ASiS Technologies 	4	
Thursday	Idaman	<ul style="list-style-type: none"> Check problem with no LCD display. 	3	Problem due to faulty power adapter for LCD.

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	Menara Maybank	<ul style="list-style-type: none"> • Maintenance service. • Check number of ACUs for level 13-22. • Check and tested card readers functionality for level 13-22. • Check and tested push button functionality for level 13-22. • Check number of ACUs for level 32-45. • Check and tested card readers functionality for level 32-45. • Check and tested push button functionality for level 32-45. 	5	
Friday	Quill9	<ul style="list-style-type: none"> • Check and attempt to solve the problem regarding failed communication to CAC. • Check and reconnect BNC cables to all DVRs. • Replaced and tested 2 power adapters for CCTVs at B1 and B2 parking. • Check and fixed distortion problem for CCTVs at level 8. • Check CCTV problem at guard house entrance. 	8	<p>CAC problem did not solve.</p> <p>CCTVs with new power adapters were tested okay.</p> <p>Problem is caused by malfunction CCTV.</p>
Saturday / Sunday				

3.2.5 Week 5

WEEKLY JOB REPORT

Name: Muhamad Izzat Bin Ruslan

Position: Trainee

Period : 3 - 9 May 2010

Day	Job Site	Work Description	Total Hours	Remarks
Monday	Office	<ul style="list-style-type: none"> Sent malfunction CCTV for repair from Quill9. 	2	
	Idaman	<ul style="list-style-type: none"> Site visit to lot 131 with Amirul and Syed Faiz. Assist owner's contractor on wiring and smart home system. 	3	
	Quill9	<ul style="list-style-type: none"> Replaced and tested faulty CCTV at guard house entrance, parking at level 1A and 5A. Tested and did focusing calibration for CCTV at guard house entrance. 	3	
Tuesday	Office	<ul style="list-style-type: none"> Sent malfunction items from Quill9 to Syed Faiz. 	2	
	Idaman	<ul style="list-style-type: none"> Install and tested AA32E board. Replaced and tested malfunction expansion board. Do checking and testing on alarm and panic buttons. Setup and tested CMS. Replaced and tested malfunction 24-zones and 32-zones keypad. Replaced and tested 3 malfunction dimmer switches. Help owner's electrician on removing zone 6 to new zone (office). 	6	
Wednesday	KLCC	<ul style="list-style-type: none"> Help Syed Faiz on rewrite previous service reports for KLCC. 	5	

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		<ul style="list-style-type: none"> • Learnt about the procedures of working at KLCC. • Discuss with security officer regarding quotation to supply card access readers as backup. 		
	Office	<ul style="list-style-type: none"> • Learnt about the procedures of staff claim from Syed Faiz. 	3	
Thursday	Office	<ul style="list-style-type: none"> • Sent faulty items from Idaman for repair to Syed Faiz. 	2	Communication to CAC is not stable, but better compared to previously
	Quill9	<ul style="list-style-type: none"> • Taken out faulty CCTV camera at guard house exit for repair. • Taken out previously installed 10kΩ resistors from CACs. • Tested communication to CACs. • Attempt to install temporary card access reader for level 7 at cafeteria in and out, and lift lobby in and out. 	6	
Friday	Office	<ul style="list-style-type: none"> • Sent faulty items from Quill9 for repair to Syed Faiz. 	2	Problem is caused by short circuit and need further checking by electrician.
	Idaman	<ul style="list-style-type: none"> • Install and tested AA32E board. • Do checking and testing on alarm and panic buttons. • Setup and tested CMS. • Demonstrate to owner on how to use smart home system. • Do checking and attempt to fix malfunction dimmer switch. 	6	
Saturday / Sunday				

3.2.6 Week 6

WEEKLY JOB REPORT

Name: Muhamad Izzat Bin Ruslan

Position: Trainee

Period : 10-16 May 2010

Day	Job Site	Work Description	Total Hours	Remarks
Monday	Office	<ul style="list-style-type: none"> • Sent malfunction items for repair from Idaman. • Help Syed Faiz on preparing updated report for Quill9. 	4	
	SYABAS	<ul style="list-style-type: none"> • Install and tested repaired DVR for M&E department. • Configure IP for new DVR. • Configure software for DVR remote access for PC at M&E department. • Configure software for DVR at control room. 	4	
Tuesday	TR231	<ul style="list-style-type: none"> • Site walk with project department and TR231 management. • Identify outstanding defect for TR231. • Install EML's bracket at gymnasium, level 6. 	3	
	Office	<ul style="list-style-type: none"> • Sent back loan DVR from SYABAS. • Sent back unused transformers for Pavillion Mall. • Collect backup monitor for TR231. • Collect 2 ACU1000 boards for TR231 from project department. • Submit claim form for April 2010. 	5	
Wednesday	TR231	<ul style="list-style-type: none"> • Install backup monitor at control room. • Install and tested ACU1k board at level 3A. • Download configuration to new ACU1k board. 	8	

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		<ul style="list-style-type: none"> • Tested EMLs for all doors at level 3 and 3A. • Tested card access readers at level 3 and 3A. • Check and fixed malfunction EMLs at level 6. • Check and fixed malfunction EMLs at level 9. • Did configuration for new intercom for unit number 1909. • Install and tested new intercom for unit number 1909. 		
Thursday	KLCC	<ul style="list-style-type: none"> • Install and tested 2 loan unit AFR800 readers at Box Office's in and out doors. • Download reader configuration for AFR800. • Check and clean up PTZ camera no.134. • Check and reset power for PTZ camera no.172. • Install and tested new PTZ camera no.257 in Plenary Hall. • Check and reset power fixed CCTV in lift LP9. • Install and tested new fixed CCTV camera in lift LP2. 	8	
Friday	KLCC	<ul style="list-style-type: none"> • Learnt on how to use Genie lift. • Check and troubleshoot malfunction PTZ camera no.174. • Install and tested new PTZ camera no.246 in Conference Hall 2. • Install and tested new PTZ camera no.137 at driveway hall 3. • Check and troubleshoot malfunction PTZ camera no.159 in exhibition hall 1. • Install and tested new fixed CCTV camera no.244 and no.234. • Check and troubleshoot fixed CCTV camera in 	12	<p>Power supply problem.</p> <p>No supply power to PTZ camera.</p> <p>Cable and power adapter</p>

		lift LP14.		problem.
Saturday				
/ Sunday				

3.2.7 Week 7

WEEKLY JOB REPORT

Name: Muhamad Izzat Bin Ruslan
Period : 17-23 May 2010

Position: Trainee

Day	Job Site	Work Description	Total Hours	Remarks
Monday	Pantai Hillpark	<ul style="list-style-type: none"> • Site visit with Nazmi. • Check card access system. • Attempt to fix communication problem with controller. • Suggest solutions to client. 	4	
	Office	<ul style="list-style-type: none"> • Collect items for Idaman 	2	
	Idaman	<ul style="list-style-type: none"> • Sent items for Idaman 	2	
Tuesday	Office	<ul style="list-style-type: none"> • Service and Maintenance's team meeting. 	3	
	Idaman	<ul style="list-style-type: none"> • Modified lamp wiring at dining room for lot 16. • Separate switch for lamp at dining room from 1 switch to 2 switches. • Install and tested 2 new switches for dining room. • Check problem regarding no display with LCD for smart home system at lot 126. • Did wiring for CMS. 	5	Problem is caused by malfunction power adapter.
Wednesday	Office	<ul style="list-style-type: none"> • Collect items for Kiara1888 – Mitraland. 	2	

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	Mitraland	<ul style="list-style-type: none"> • Adjust limit switch for resident entrance's barrier gate to fix overshoot problem with barrier arm. • Install and tested new barrier arm for resident exit's barrier gate. • Install and tested loan unit dome CCTV camera at L3A-08/ST. • Identify ACUs with communication problem and its locations. 	6	
Thursday	Office	<ul style="list-style-type: none"> • Return items from Mitraland. • Collect items for Quill9. 	2	
	Quill9	<ul style="list-style-type: none"> • Bring up CACs for lift P1, P2, P3 and B1 from car top to lift motor room. • Rewiring wire from RCUs at car top to CACs at lift motor room. • Testing communication with CACs at lift motor room. • Testing card access for lift P1, P2, P3 and B1. • Monitor transactions from CACs for lift P1, P2, P3 and B1 via IBSS. • Testing VMS. 	6	
Friday	Office	<ul style="list-style-type: none"> • Service and Maintenance's department meeting 	4	
	Quill9	<ul style="list-style-type: none"> • Return repaired CCD cameras to building maintenance. • Fixed problem with offline dome CCTV camera at LIFT2-LB-L1A. • Install and tested repaired CCD camera at guard house exit. • Monitor transactions from CAC for lift P1, P2, P3 and B1. 	4	

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		<ul style="list-style-type: none"> • Testing communication with CAC for lift P1, P2, P3 and B1 via IBSS. 		
Saturday				
/ Sunday				

3.2.8 Week 8

WEEKLY JOB REPORT

Name: Muhamad Izzat Bin Ruslan

Position: Trainee

Period : 24-30 May 2010

Day	Job Site	Work Description	Total Hours	Remarks
Monday	TR231	<ul style="list-style-type: none"> • Rectified problem with malfunction boomgate board. • Rectified problem with card access readers for boomgate. 	4	
	Mitraland	<ul style="list-style-type: none"> • Did checking on all offline ACUs and CAC. • Reset power for all offline ACUs. • Replace new communication chip for offline CAC. • Test communication with all ACUs and CAC. • Replace faulty power adaptor for offline cctv. 	4	
Tuesday	Saffron	<ul style="list-style-type: none"> • Monthly maintenance service. • Check and tested card readers for block A, B, C and D for functionality. • Check and tested EMLs for all doors to lift lobby at block A, B, C and D for functionality. • Rectified 2 offline cctv cameras. 	8	

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Wednesday	UOP Honeywell	<ul style="list-style-type: none"> • Sent invoices for previous maintenance services. 	1	
	Saffron	<ul style="list-style-type: none"> • Monthly maintenance service. • Check and calibrate cctv's angle and focus at block A, B, C and D. • Clean up cctv's lenses at block A, B, C and D. • Check boomgate for functionality. 	5	
	Quill9	<ul style="list-style-type: none"> • Did termination for CACs with new wiring for lift P1, P2, P3 and B1. • Install CACs to new panel. • Check and test communication with CACs. • Monitor transaction from CAC to IBSS. • Test VMS. 	2	Help Faiz
Thursday	TR231	<ul style="list-style-type: none"> • Did termination for resident's boomgate access including barrier gate boards and loop detectors. • Did termination for intercom at resident's boomgate access – in and out. • Did termination for card access readers at resident's boomgate access – in and out. • Did testing on intercom at resident's boomgate access – in and out. • Did testing on card access readers at resident's boomgate access – in and out. • Did testing on boomgate functionality with card access. 	8	
Friday		<ul style="list-style-type: none"> • Public Holiday – Wesak Day 		
Saturday / Sunday				

3.2.9 Week 9

WEEKLY JOB REPORT

Name: Muhamad Izzat Bin Ruslan

Position: Trainee

Period : 31 May-6 June 2010

Day	Job Site	Work Description	Total Hours	Remarks
Monday	KLCC	<ul style="list-style-type: none"> • Rectify fixed CCTV and PTZ camera. • Replace new adaptors for fixed cameras at LP4 & LP14. • Replace new fixed CCTV at LP25 and LP26. • Terminate power supply cable for fixed CCTV no. 56. • Install new PTZ base, terminate new BNC cable and power cable for PTZ no. 178. • Replace new fixed CCTV no.198 and clamp new BNC cable. • Did testing on all new installed cameras. 	8	
Tuesday	Saffron	<ul style="list-style-type: none"> • Assist and monitor Ah Fatt on relocating fixed CCTV at level 1, block D to new location. • Did testing on relocated fixed CCTV and adjust camera's angle and viewing. • Calibrate SMATV amplifier signal strength for level 12, block B. (Reported unit: B-12-6) 	6	Owner not at home for testing after calibration.
	Jalan Pasar	<ul style="list-style-type: none"> • Buy RG-59 BNC cable connectors. 	2	With Faiz
Wednesday	Quill9	<ul style="list-style-type: none"> • Replace offline CCTV at front entrance with new CCTV camera. • Install new CCTV for Perimeter 1, 3 and 4. 	6	

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		<ul style="list-style-type: none"> • Replace new adaptor for CCTV at Carpark-P6-1-C2. • Adjust focus for CCTV at Carpark-P2A-C1. • Attempt to replace new power adaptor for CCTV at LIFT2-LB-L6 and adjust camera angle. • Did testing on communication with CACs. 		
	Office	<ul style="list-style-type: none"> • Collect items for Quill9. 	2	
Thursday	UOP Honeywell	<ul style="list-style-type: none"> • Preventive maintenance service. • Check card access readers and EMLs for level 3 and 4. • Check CCTV cameras for functionality. • Did full database backup. • Adjust main doors close speed. 	8	1 CCTV needs power adaptor replacement.
Friday	Office	<ul style="list-style-type: none"> • Maintenance's team meeting. • Collect items for Idaman. • Collect CCTVs to be installed at Mr. Chung's friend's house. • Return malfunction power adaptors. • Return malfunction CCD camera from Quill9 for repair. • Return unused CCTV and CCD cameras from Quill9. • Return unused dome CCTV from Mitraland (Loan unit). 	4	
	Mr. Chung's friend's house (near Idaman)	<ul style="list-style-type: none"> • Install and tested new 2 CCTV cameras at car porch and living room. • Adjust new installed CCTV cameras angles and viewing. • Attempt to setup alarm system. 	4	Failed due to alarm board

				malfunction.
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3.2.10 Week 10

WEEKLY JOB REPORT

Name: Muhamad Izzat Bin Ruslan
Period : 7-13 June 2010

Position: Trainee

Day	Job Site	Work Description	Total Hours	Remarks
Monday	Saffron	<ul style="list-style-type: none"> Install and tested new barrier arm for LIFE boomgate at visitor entrance. Calibrated and troubleshoot SMATV problem at block D level 10. 	4	
	TR231	<ul style="list-style-type: none"> Site visit for new relocated boomgates. Take measurement for damaged barrier arm for visitor out boomgate. 	4	
Tuesday	Office	<ul style="list-style-type: none"> Submit claim form. Collect items for Idaman. Collect items for Pavillion. 	3	
	Tegas	<ul style="list-style-type: none"> Collect repaired boomgate barrier board. 	1	With Faiz
	Mitraland	<ul style="list-style-type: none"> Install and tested repaired boomgate barrier board. Troubleshoot problem with offline CAC at B3 Lobby. 	4	
Wednesday	Office	<ul style="list-style-type: none"> Collect delivery order for Pavillion. 	2	
	Saffron	<ul style="list-style-type: none"> Cut out boomgate barrier arm due to too long of length. 	2	
	Pavillion	<ul style="list-style-type: none"> Install and tested new UPS in riser. 	4	

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		<ul style="list-style-type: none"> • Troubleshoot offline CCTV at Seventh Heaven, level 7. 		
Thursday	Office	<ul style="list-style-type: none"> • Did correction for claim form. • Collect items for Idaman. • Lecturer visit. 	3	
	Idaman	<ul style="list-style-type: none"> • Troubleshoot malfunction alarm system. • Learnt on how to test 32-zones keypad. • Learnt on how to setting zone description. • Install and tested new 2 gang dimmer switch. • Setting CMS to send notification to owner mobile phone. • Testing new CMS setting. • Collect unused item from Idaman. 	5	
Friday	Office	<ul style="list-style-type: none"> • Return all unused items from Idaman to warehouse. • Collect invoices for Saffron. • Testing repaired CAC for Mitraland. 	4	
	Mitraland	<ul style="list-style-type: none"> • Install and tested repaired CAC at B3 Lobby. • Test communication with repaired CAC. • Download configurations and card holder ID to repaired CAC. 	4	
Saturday / Sunday				

3.2.11 Week 11

WEEKLY JOB REPORT

Name: Muhamad Izzat Bin Ruslan

Position: Trainee

Period : 14-20 June 2010

Day	Job Site	Work Description	Total Hours	Remarks
Monday	Office	<ul style="list-style-type: none"> • Sent offline CAC for repair to Maniam. • Test repaired CAC. 	3	
	Mitraland	<ul style="list-style-type: none"> • Explain to project manager regarding the problem with the lift can access all floors when the user cancel lift's floor button. • Suggest solution to project manager regarding lift problem. • Test repaired CAC. • Test communication between CAC and PC Server. • Download data into repaired CAC. • Taken out CAC and RCU for repair 	5	CAC is online but unstable. Can't identify valid card access.
Tuesday	Office	<ul style="list-style-type: none"> • Sent CAC and RCU for repair to Maniam. • Test CAC and RCU with card reader. 	2	
	Mitraland	<ul style="list-style-type: none"> • Troubleshoot malfunction boomgate for visitor out. • Did adjustment on boomgate limit switch. • Did several testing after adjustment and boomgate is working fine. 	2	
	UOP Honeywell	<ul style="list-style-type: none"> • Assist Ms. Siew Peng on generating report using ProWatch software. • Learnt on how to generate report using ProWatch software. 	2	

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	TR231	<ul style="list-style-type: none"> • Check reported malfunction boomgate for resident entrance and exit. 	2	All boomgates are tested okay.
Wednesday	KLCC	<ul style="list-style-type: none"> • Troubleshoot malfunction DVR-5 in control room. • Install backup DVR for malfunction DVR-5 and did testing. Backup DVR is working fine and recording. • Rectify fix CCTV no. 181 and 150. • Troubleshoot malfunction CCTV in LP4 and CCTV no.79 centre entrance. • Replace and tested malfunction PTZ camera no. 256. • Attempt to install card reader AFR877 in control room. 	8	Failed due to incompatible issue.
Thursday	Mitraland	<ul style="list-style-type: none"> • Assist lift contractor on doing new setting for lift control panel. • Did card access configuration and testing for lift B1 and B4. • Did testing on repaired CAC and RCU. • Problem still exist, unable to download data configuration into CAC completely. • Taken out CAC for replacement. 	8	
Friday	Office	<ul style="list-style-type: none"> • Help Syed Faiz and Nazmi with office works. 	4	
	KLCC	<ul style="list-style-type: none"> • ASEAN M&E 2010 	4	

3.2.12 Week 12

WEEKLY JOB REPORT**Name: Muhamad Izzat Bin Ruslan****Position: Trainee****Period : 21-25 June 2010**

Day	Job Site	Work Description	Total Hours	Remarks
Monday	TR231	<ul style="list-style-type: none"> Meeting with client. Check pending unsolved problem. 	4	
	Pavillion	<ul style="list-style-type: none"> Meeting with client. Identify CCTVs which need to be relocated and new CCTV installation's location. 	4	
Tuesday	Office	<ul style="list-style-type: none"> Help Mr. Amirul with some office works 	1	
	Hampshire	<ul style="list-style-type: none"> Identify pending unsolved problem with smart home system. Discuss with sub-contractor for maintenance to solve the pending problems 	4	
	Sara Lee	<ul style="list-style-type: none"> Preventive maintenance service. Check card access readers and EMLs for functionality. Did database backup for ACU200 and update database data with new access card. 	2	
	Office	<ul style="list-style-type: none"> Collect invoice for Sara Lee 	1	
Wednesday	Saffron	<ul style="list-style-type: none"> Troubleshoot problem with SMATV problem. Assist tenant electrician for relocating SMATV port and troubleshoot the problem with no signal to ASTRO decoder. 	4	
	Mitraland	<ul style="list-style-type: none"> Troubleshoot problem with offline CAC for all lifts. 	4	

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		<ul style="list-style-type: none"> • Assist project manager and lift contractor on resetting the current control panel setting to default setting. • Testing new card access configuration for Mr. Osama. 		
Thursday	KLCC	<ul style="list-style-type: none"> • Rectify malfunction CCTV and PTZ camera. • Troubleshoot biometric reader AFR800 with no display problem. • Check malfunction EML for some reported doors. 	8	
Friday	KLCC	<ul style="list-style-type: none"> • Rectify malfunction CCTV and PTZ camera. • Did cleaning on CCTV and PTZ camera cases. 	4	
	Office	<ul style="list-style-type: none"> • Metronic Engineering's staff meeting 	4	
Saturday / Sunday				

4.0 Discussion and Conclusion

From these 3 months of industrial training at Metronic Engineering, the author has been exposed into different kind of working experiences, environments, people and situations which give a great value for the author's future career development. From these 3 months of industrial training too, the author realized about the strength and weaknesses of himself, which one need to be improved, which one need to be maintained and et cetera.

The experiences gained from this training period really exposed the author about the work environment that the author needs to face in the future. That is why, the company, Metronic Engineering Sdn Bhd is not focus on field work only, but as well as office and management work which is some of engineers out there do not realized about this responsible. That is why in service and maintenance department where the author was assigned to, the author required to prepare weekly job report and submit it to host supervisor for review. Even this may looks easy for some people, but still not all of engineers are able to prepare and submit the report in time. This is where the time management is important for an engineer.

During this training, the author needs to manage time effectively. This indirectly trains the author for good time management ability. For example, the author needs to travel to go to site and have an appointment with client at certain time; here is where the author needs to plan the time carefully. At what time the author needs to go out from house, which route should the author take and et cetera. The author finds that the time management ability is really important during this training period and one of the most important skills needed for an engineer.

The ability to think critically is what the most important aspect of an engineer, especially for service engineer. During these 3 months, the author has faced different kind of situations where the ability to think critically and creatively to solve the problem is really crucial for engineer. For some sites where the security issue is really important such as Kuala Lumpur Convention Centre, the ability to think the solution for the problem quickly is really important to ensure client satisfaction.

If the problem cannot be rectified, engineer should be ready with something for backup. This can be anything from providing temporary hardware to be used in the time the faulty hardware is taken out for repair or simply an explanation why the problem cannot be solved.

This indirectly require an engineer to have good communication skills to explain what is the problem, why it is happen, why the problem cannot be solved, what are the options available and et cetera. Some of the clients do not have engineering background; hence it is also important for engineers to find a great effective way to explain to them about the problem and situation of the problem, so that they can understand it. This is part of communication skills required for an engineer. During the author's training period, the author had faced different kind of people, some of them even do not know about the system installed in their house. For example at Damansara Idaman, where smart home system is installed in each of the bungalow build there. Some of the residents do not know how to operate their home smart home system, hence it will be part of engineer responsibility to explain and demonstrate to them how to operate the system. This is important because if the user or resident does not know how to operate the system properly, it may cause system malfunction and this will cost more to the client in term of repairing the system.

Besides the ability to communicate effectively, an engineer also need to be ready to work independently without any supervision and help. During this industrial training, the author had been given responsible to attend breakdown alone without site supervisor's supervision. Even the author feels a bit awkward at first, but the author takes the challenge and able to troubleshoot the problem, fix it and ensure it is working in good condition. At the end, this indirectly builds the level of confidence of the author to work alone and independently. The author thinks it is a great experience to have this kind of opportunity to improve the level of confidence and the ability to make decision on your own.

Last but not least are technical skills. During this training period, most of the things are new things to the author. If the author wants to relate what the author had learnt during the training period with the one learnt in the lectures, it is not much. However, what it is learnt in lectures is really give a good help during this training. The basic knowledge about electronics devices, how to measure voltage, wire continuity and et cetera is something that need to be all in head for an engineer, especially electrical and electronics engineer. However, technical skills can be obtained via experiences and practices and what makes engineer is different with others engineer is the ability to apply what he have learnt on theoretically during the lectures into the real world environment, where every aspect is taking into count; cost, time and et cetera.

All in all, these 3 months of industrial training really give a great experience to the author to improve himself for future career development. In this 3 months of training, the author has been taught about proper time management skills, how to communicate effectively, how to work independently, how to think critically and creatively. Lastly, this training has exposed the author about the real working environment, has improved the author confidence level, knowledge, technical skills and social skills.

5.0 References

1. Metronic Global Berhad official website – <http://www.metronic-group.com>
2. ASIS Technologies website - <http://www.asis-technologies.com>
3. IBSS by ASIS brochure
4. CAC by ASIS brochure
5. ACU by ASIS brochure

6.0 Appendices



Image 3: Workstation server for IBSS (left); CCTV monitoring server (right)

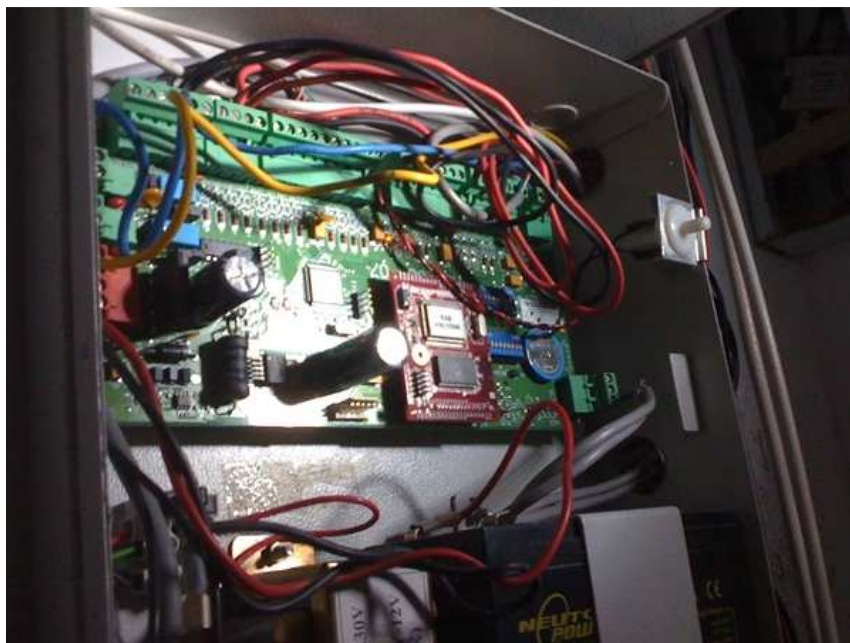


Image 4: Access Control Unit (ACU) - ACU200 model

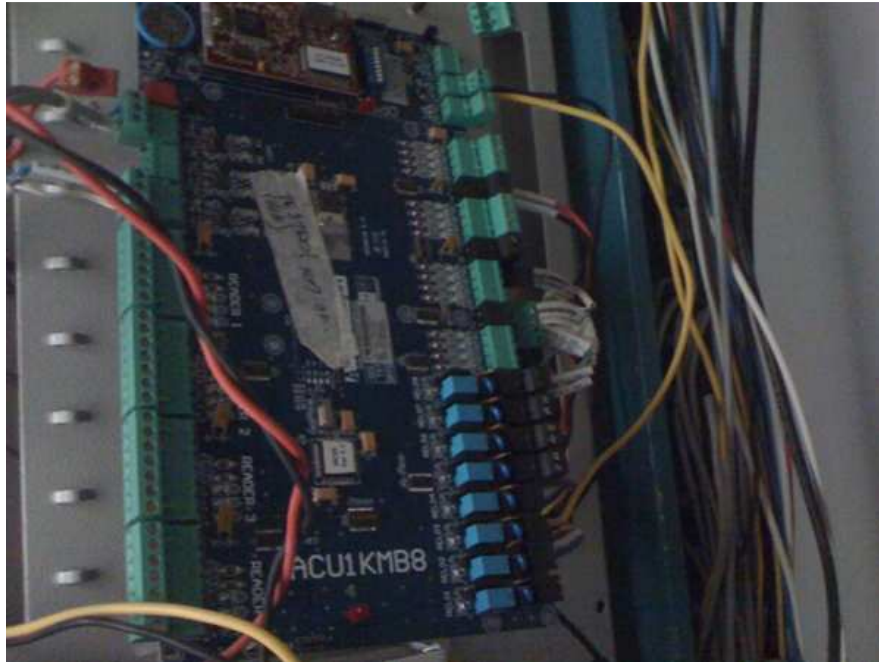


Image 5: ACU1000 model by ASIS

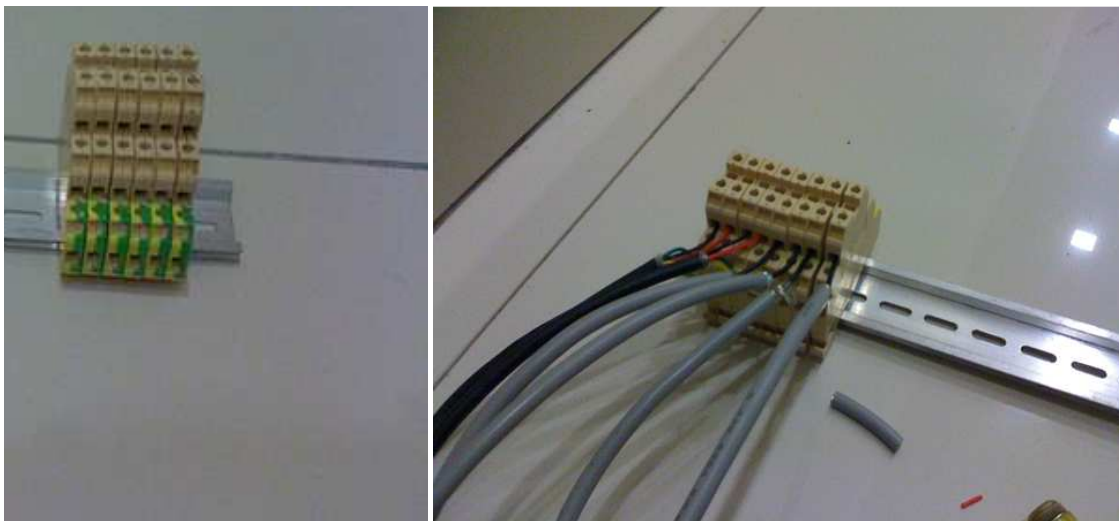


Image 6: Surge Protectors for ACU



Image 7: Control room for IBSS (KLCC)



Image 8: Doing troubleshooting on malfunction monitor



Image 9: Touch panel display for smart home system



Image 10: Troubleshooting touch panel display for smart home system



Image 11: Smart home system for Damansara Idaman. Developed by Metronic

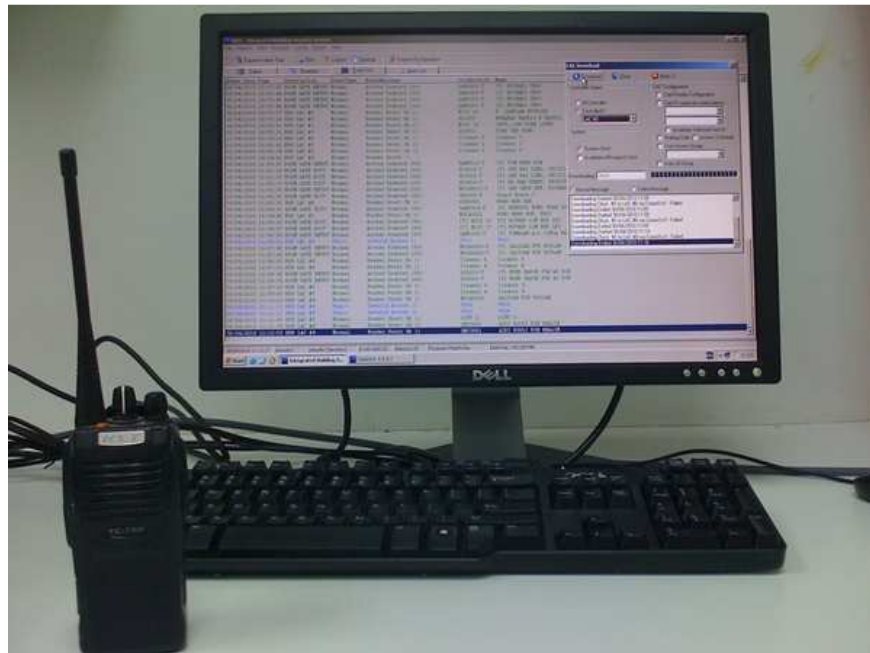


Image 12: IBSS software with transaction view (Quill9)



Image 13: CCTV for testing



Image 14: Card Access Controller (CAC) by ASIS Technologies

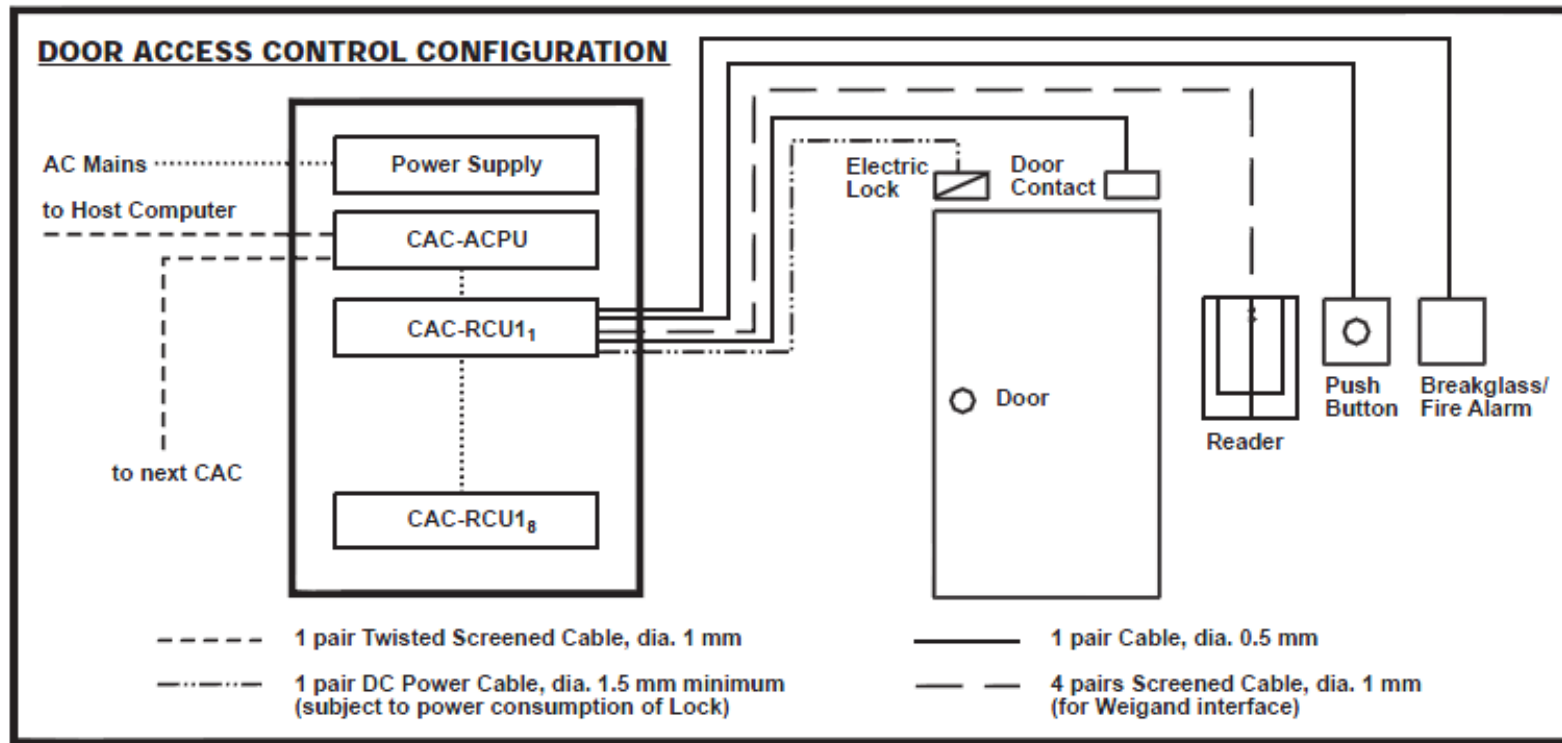


Figure 2: Door access control configuration for CAC

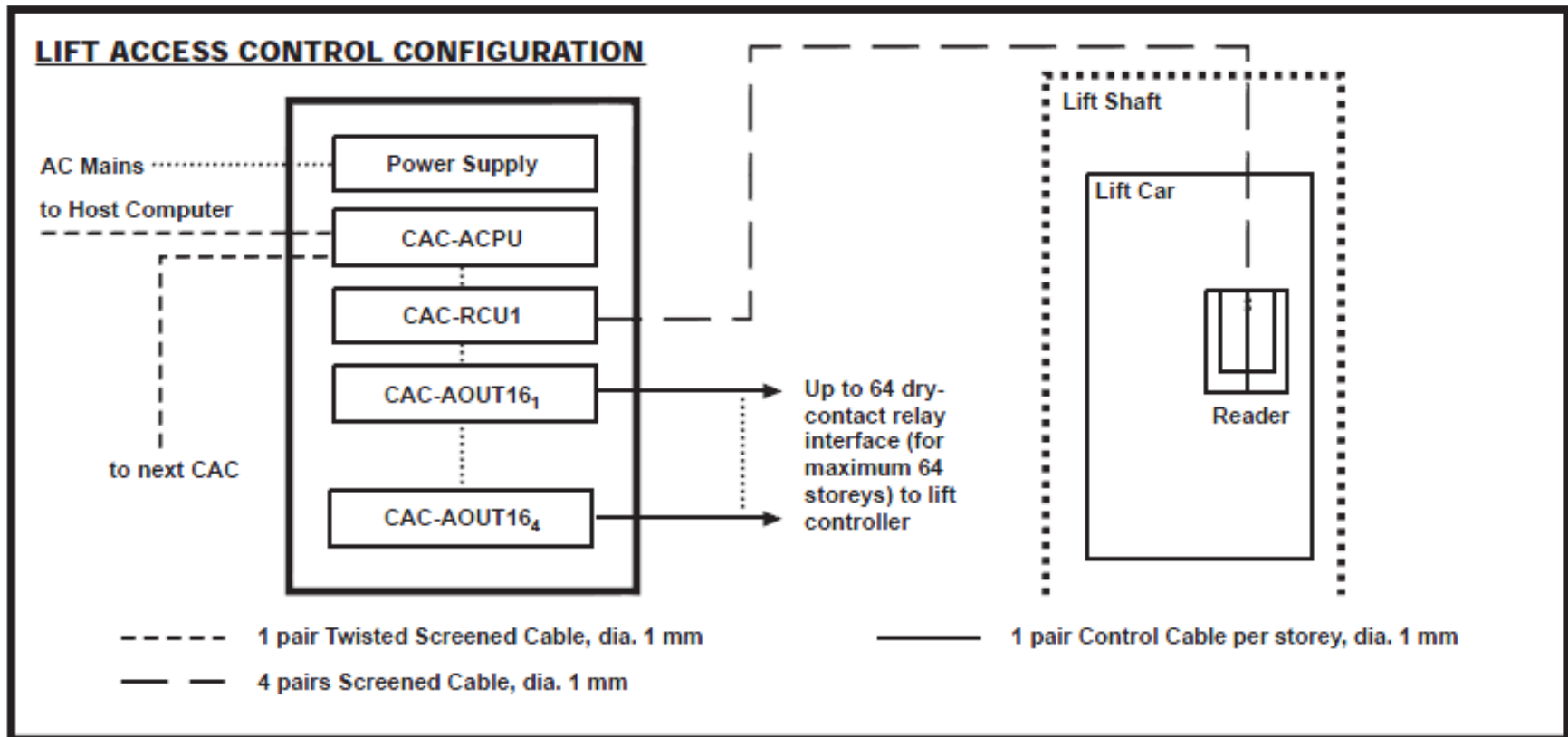


Figure 3: Lift access control configuration for CAC

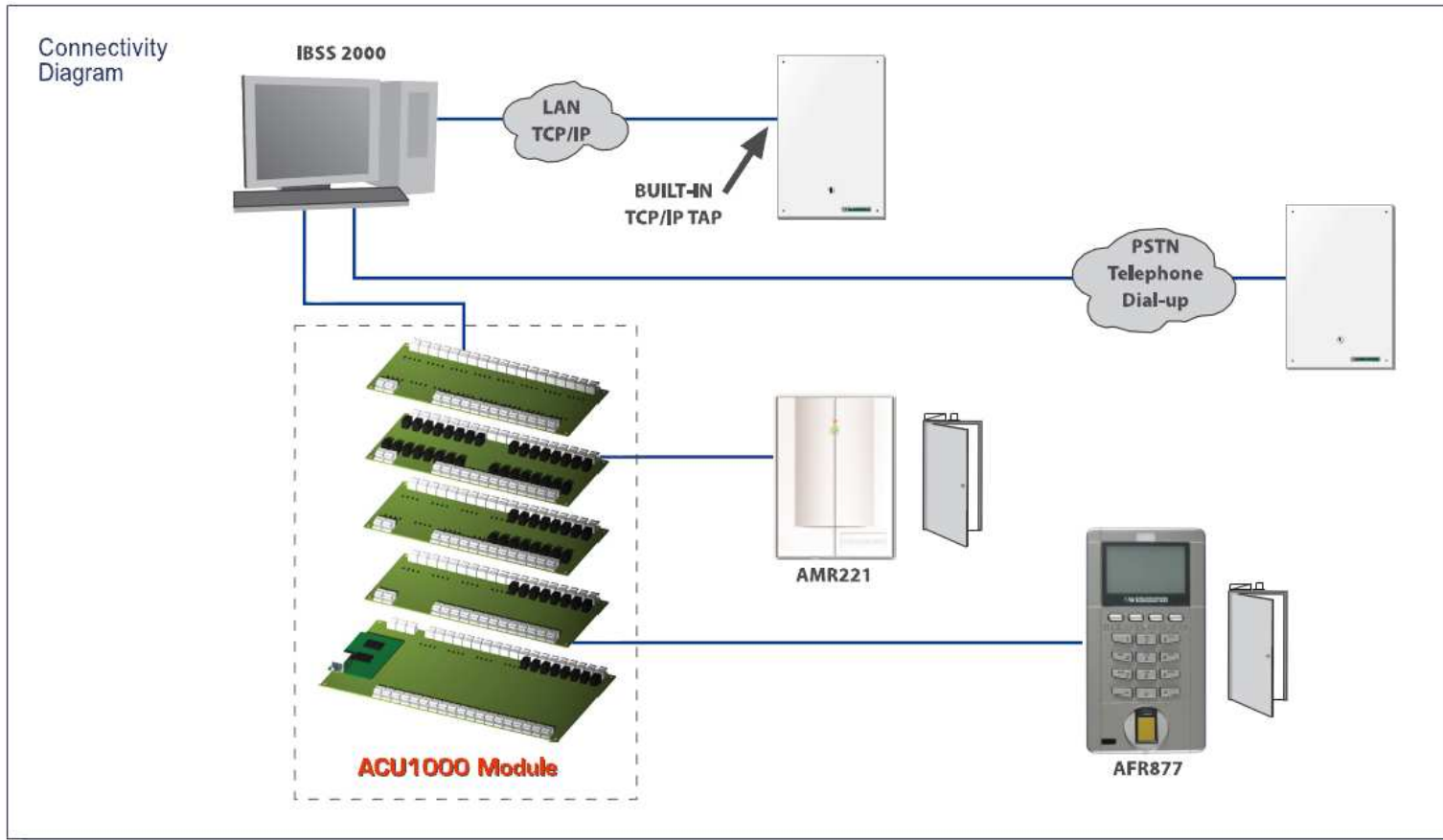


Figure 4: Access Control Unit (ACU) connectivity diagram