Near East University

Yakın Doğu Üniversitesi, Lefkoşa KKTC

Near East University

Department of Computer Engineering

Department of Engineering

Summer Training I

COM200

Summer Practice Report

(2015-2016) SUMMER

Submitted To:

Dr. Ramiz SALAMA

Submitted By:

Mohammad El-Musleh 20144708

Submission Day:

25/11/2016

Nicosia, November 2016

Name and Surname of Student

Mohammad El-Musleh

Year and Number

$3^{rd} year$, 20144708

Practice (COM200)

Name and Address of Firm or Organization

Lebanon - SAIDA - TAKKAYDDINE EL-SOLEH Street - AL-MKASSED building $8^{th} floor$

Start date and End date of Practice

2/8/2016 – 29/8/2016

Submission Date of Report

25/11/2016

Report Graded by

Eng. Yousef Shana

Total Working Days:

30 days

Table of Contents

List of Figure

1. INTRODUCTION

The summer practice in the working field has many purposes and it was so much beneficial for me and carried out a lot of new information and I was able there to translate what I learned in the university courses in working field, combining this knowledge in the field makes the student realize that numbers and field are correlated.

My training was about 20 working days in GIS Company working and helping and I gain experience in networking connection and servers, also in web development field.

Most of the work I did summarized by office part 30% and site work part 70%, about office part I worked in web design and developing and formatting computer and fix issues(errors) and a general information about hardware devices and repair damage. While in site work part I learn how to connect 3M wires and make local network connection and add/fix patch panel and add CISCO rand and servers and I learn how to add wireless connection between two building and fix fiber cable. These 2 types of work give me a partial experience I can develop it.

This work show me how the working will be in future and what I need to learn, also let me select which field I like to study and work with it in future. I am grateful to Near East University and GIS Company that give me this opportunity to tanning before graduate.

In this report, I'll talk about all the works that I have done in the 20 days during internship summer practice.

2. GLOBAL INTEGRATED SOLUTIONS CO. LTD

2.1. COMPANY OVERVIEW

Through its partnerships with international leading industry leader vendors such as HP, Toshiba, Microsoft, Nod32, Kaspersky, Invo. Networks, these partnerships make GIS a leader in providing the latest IT turnkey solutions.

2.2. MISSION

To provide state of the art IT solutions and fulfill today's largest enterprise needs in security and Quality of Service IT Infrastructures.

2.3. LOCATION AND FACILITIES

Global Integrated Solutions office is located in Saida, Al Makased Bld., 8th Floor.

2.4. BUSINESS SOLUTIONS AND STRATEGY

GIS has incorporated the following four business strategies:

- Design, setup, manage and maintain wired, wireless and Broadband over power IP networks
- Provide turnkey bandwidth management and Quality of Service solutions to local and wide area networks
- Setup, manage and maintain IT security solutions for local and wide area networks as well as provide risk and vulnerability assessment
- Design and implement IP wireless and BoPL (Broadband over power lan) networks

2.5. ACCOMPLISHED PROJECTS

Here some of GIS finished and delivered projects:

Networking Projects:

- 6 UNRWA Schools project: Network infrastructure (Cables installation, Termination, Testing, Labeling) including fiber optic backbone, CISCO Voice over IP Call Manager Express using PoE Technology.
- UNRWA North Health Center Project: Network infrastructure (Cables installation, Termination, Testing, Labeling) including fiber optic backbone.
- Jieh Hospital: Network infrastructure (Cables installation, Termination, Testing, Labeling), Server and Domain Controller setup and installation.
- Lebanese German University (Tyre): Network infrastructure (Cables installation, Termination, Testing, Labeling), Server and Domain Controller setup and installation.
- Warba Inc. (Beirut, Downtown): Two Servers setup and installation including Active Directory, DNS, DHCP with VPN Connection to Iraq Branch.

- Palestine Today TV Station: Servers, Active Directory, DNS, DHCP, Staff Training, CISCO Firewall System.

Software and Systems:

- National Evangelical Institute for Girls and Boys School: School Management System.
- Daher Mall: Stock Management System.
- Unite Lebanon Youth Project (ULYP): Student Scholarship Management System.
- Palestinian Embassy (PESSMS): Student Scholarship Management System.
- Afal Aluminum Systems Co. Ltd. (KSA): Accounting and Stock Management System.

Figure (1): Logo of GIS Company

2.6. COMPETITIVE ADVANTAGES

GIS's principal competitive strengths are:

- Integration: Strong ability to integrate different solutions from various manufacturers in order to provide a customized state of the art turnkey IT solution.
- Advanced technology: Partnerships with multinational IT leading companies that allow the team to be always up to date with the latest technologies.
- Flexibility: The ability and flexibility to develop any customized non-existing solution in order to fulfill the needs of any existing project.
- Strong company culture: GIS has a strong and vibrant service-oriented company culture which is built around its five key-values: team work, integrity, fun, passion and employee rewarding.
- Expert Management team: GIS management team will be composed of individuals that have significant professional experience in their relevant fields.

***Contact Info**:*

Tel: +961 07 755 649

Mob: +961 03 533 957 / +961 70 79 42 45

BODY

3. FIRST DAY

The first day, the leader of technical department in GIS (Yousef CHANAA) and his assistance we go to **South Lebanon – TYRE - El-Buss Palestinian Refugee Camp, El Buss Health Center (X-Ray Center) for UNRWA**. We went there to add a network cable connection to the secretary room for X-Ray Center taken from same building of UNRWA Health Center building (Main Patch Panel Box).

Figure (2): Building for X-Ray Center for UNRWA

Our mission is to add network cable in point B for secretary room in X-Ray Center using 3M network cable pass throw the roof the main point A in the network switch rack to Cisco Switches in patch panel Box (Running cables for power over Ethernet).

Figure (3): patch panel Box and area connection

First, we check the distance from point A to the roof and as same as in point B and the roof, used by CAT6 3M network cable covered by flexible corrugated tubing cable in the roof to cover it from rain and other situation may damage the cable.

Figure (4): Flexible and 3M cable box

We used the long plastic wire (called: Scale) we push it inside the flexible cable until it cover the distance wanted then cut the rest of flexible tube then we catch the Scale with 3M cable in the head of it by electrical tape wire, then pull the opposite side to cover wanted area, this will let 3M cable pass faster than push the 3M cable without scale.

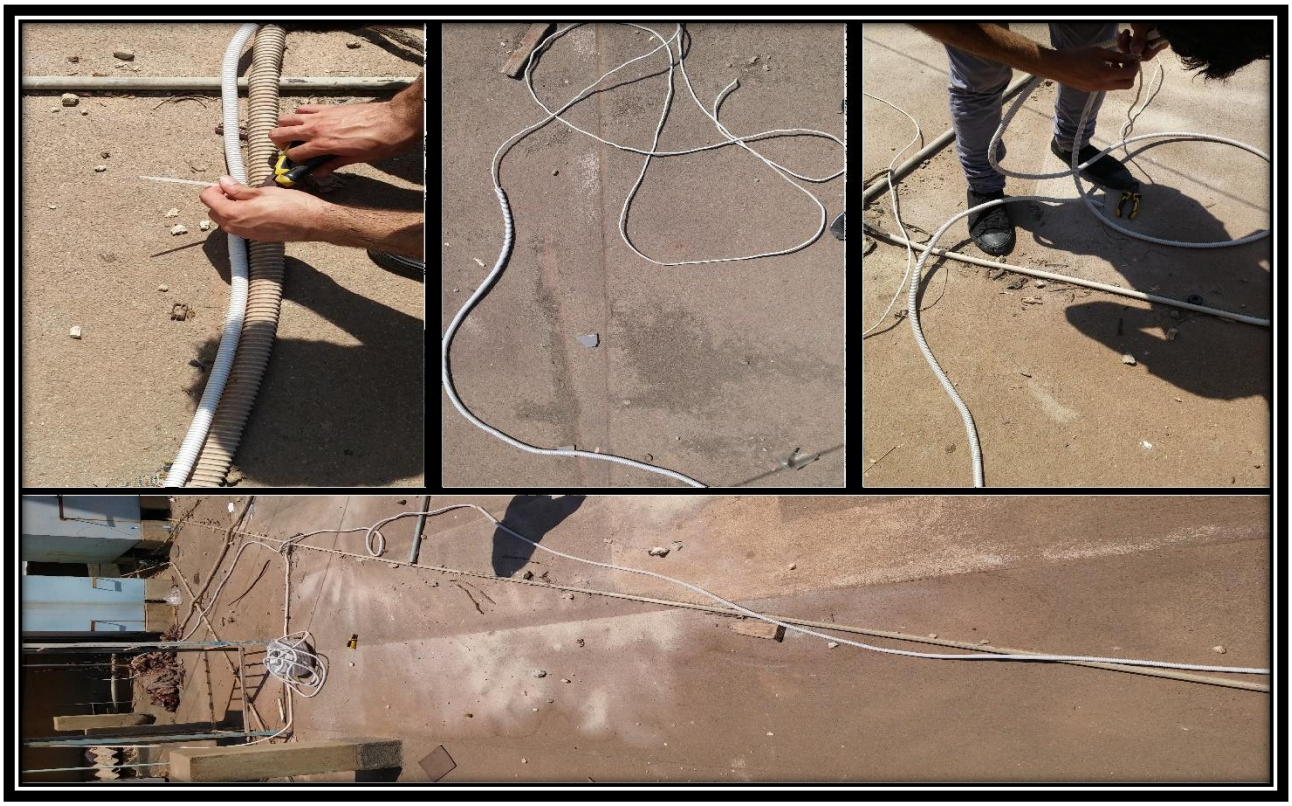

Figure (5): Rood work connecting 3M cable inside flexible

After the flexible tube completely entered in 3M cable we remove the scale and each 1 miter we used the hammer drill (head-5) to make hole in the ground to add nylon winged wall plugs to catch the flexible tube with cable ties.

Figure (6): Tools to connect the flexible in ground

Smart Tips: The technical leader teach me a smart tips, if we don't have a scale we can push directly the 3M wire in flexible tube but we need to cover the head of 3M wire by tape wire to

avoid lagging and when the wire stop inside the flexible tube we imagine it location and cut a small hole in outside of flexible tube if the wire before the created hole we close it by cable ties and then cut flexible tube in to 2 part and bring out the 3M wire then continue as if we start again, we keep doing this process until the end the join each two part with tape wire to make one flexible tube inside the 3M wire.

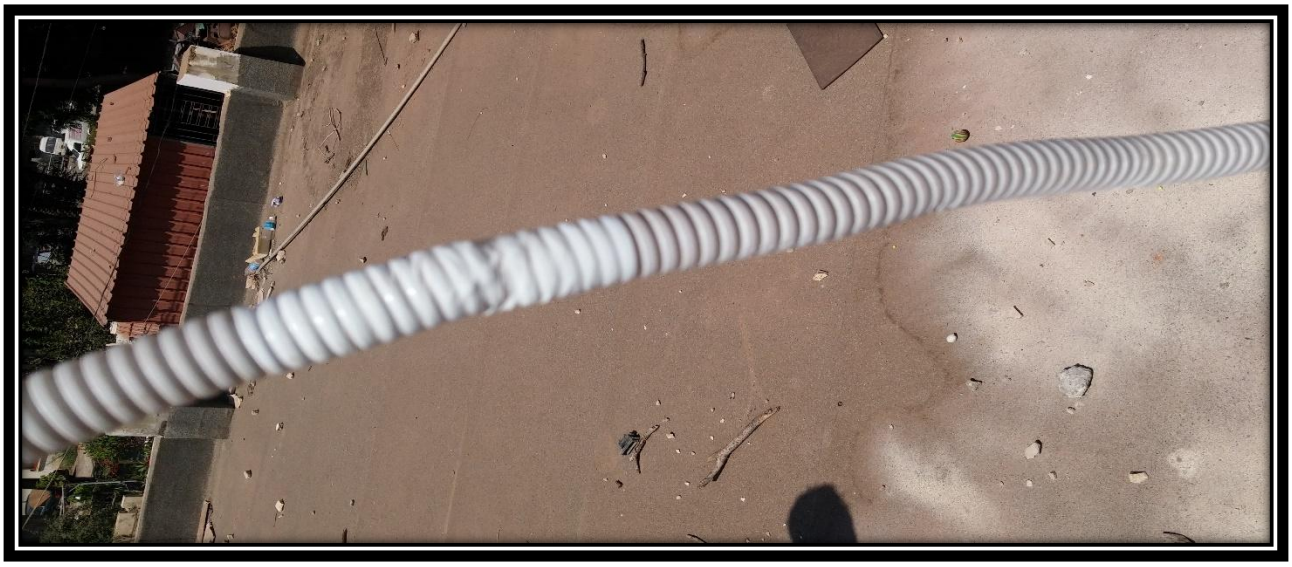

Figure (7): Ties cable covet the 2 parts of flexible tube

Now, after finish from roof we want to secretary room in X-Ray Center to add the network point for local internet connection in the building. In the end of 3M wire we use socket which is suitable for network RJ45 jack (8 pins) 1 Ports, with colored wire type-B (T-568B Standard) and cover the 3M wire with cache cable 16x25" 2 meter.

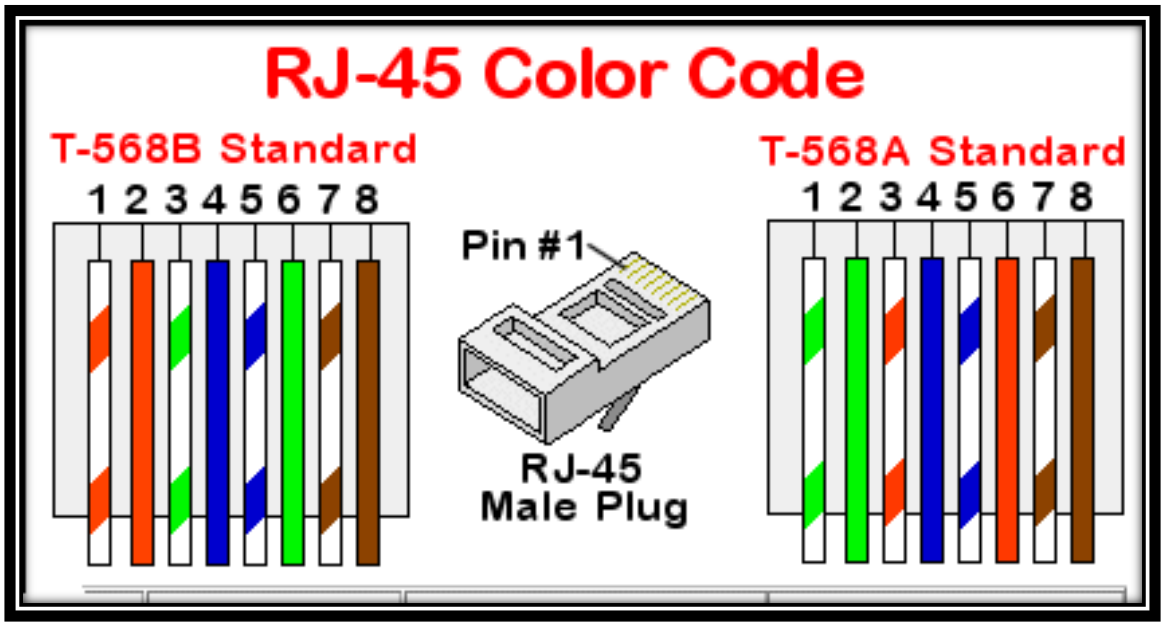

Figure (8): RJ45 color code type A and B

Figure (9): Network socket for secretary room

Smart Tips: At putting the cache cable we want to move it little for best look and at take it off the wall paint removed with cache cable so it lose it elasticity then the new skill gained is to put cache cable as we want and make 2 holes by drill (one at top and one at bottom) then insert in the eyelets the plastic fisher wall plugs with expand nails (screws with the Pozidriv head) and push it inside by cordless drill driver. This tip will make the work act as professional and the cache cable strong and hard to move.

Figure (10): Screws with the Pozidriv head

After done from secretary room we want to the patch panel box to connect the 3M wire to network switch rack which is patching into WIFI router for local internet connect. In the 2nd part of 3M wire we sort the (8 wires) in according to corresponding colors on the switch and insertion the network wire by using (Krone) punch down tool to connect them.

Figure (11): Using (Krone) punch down tool to connect network wires

Then we use tester to check if the connection is working fine as same code of color for type-B. So we connect one in switch and one in added point so we can see if the screen show the orders of number up and down same this mine the wire in connected good and ready to use. At the end we connect the port we are working on it with WIFI router.

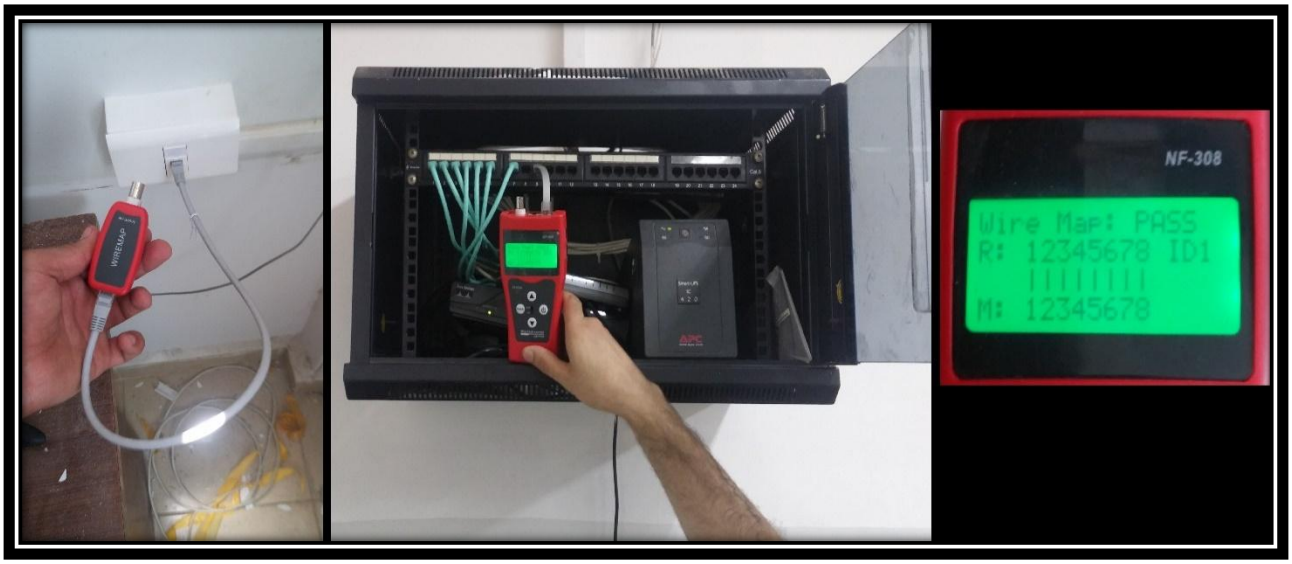

Figure (12): Make test by tester

I realized that networking it's not hard as I think, and everything on it have its own tools so we can't dispense any tools.

Figure (13): 3 main tools to fix terminal of network cable

4. SECOND DAY

The next location was in **South Lebanon – TYRE - BOURJ-EL SHAMAYLEH Palestinian Refugee Camp – JABALIA Primary Girls School for UNRWA** we want there by the leader of technical department in GIS (Yousef CHANAA) and his assistance to fix the "RouterBOARD SXT Lite 5 devices" between 2 building part of school instead of cable across the distance.

Figure (14): JABALIA Primary Girls School for UNRWA

This primary school divided into two part between them space garden, before we came they use cable between the two building but many times attempted to cut and destroyed so we want to fix/add by “Winbox SXT Lite 5” this work by using bridge wireless mode on one side and station-bridge wireless mode on the other side. This Two RouterBOARD SXT devices can be used to establish transparent wireless point-to-point network link.

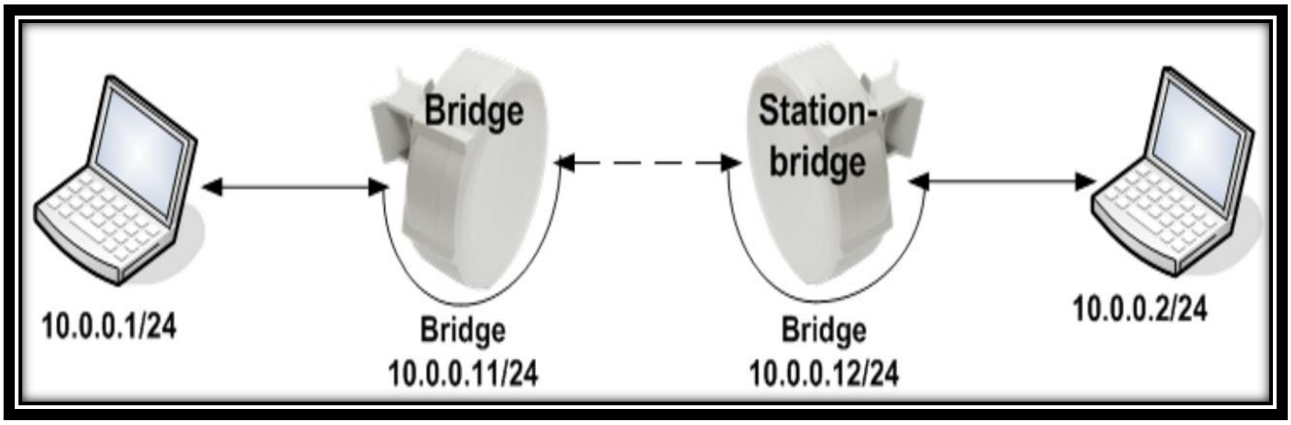

Figure (15): Mechanism of Winbox SXT Lite 5

This two RouterBOARD SXT devices has been configured before by the technical leader, also this two are connected to Patch Panels by 3M wire each to let the internet reach the second part of school.

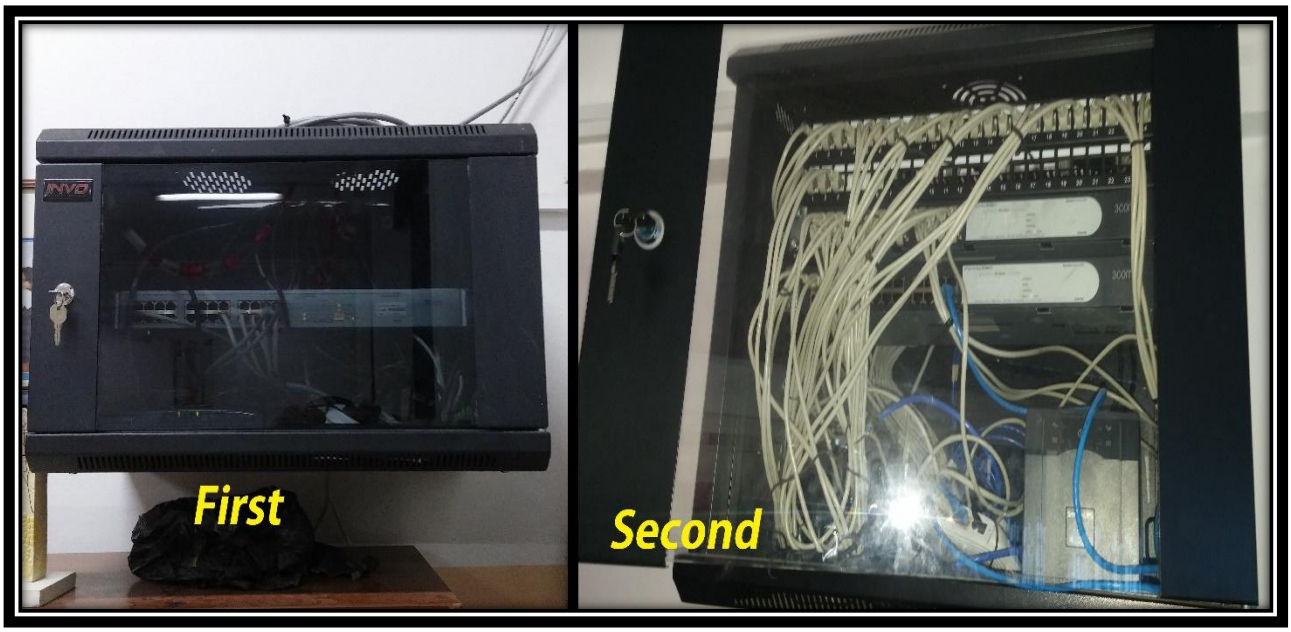

Figure (16): Patch Panels in 2 schools

First, we want to roof for first building to put iron stand to catch the RouterBOARD SXT device, we choose the best location to meet the next point in the second roof, so we start by making four eyelets to catch the iron stand then we put “concrete sleeve anchor”. Then we attached the RouterBOARD SXT device on the top of the iron stand.

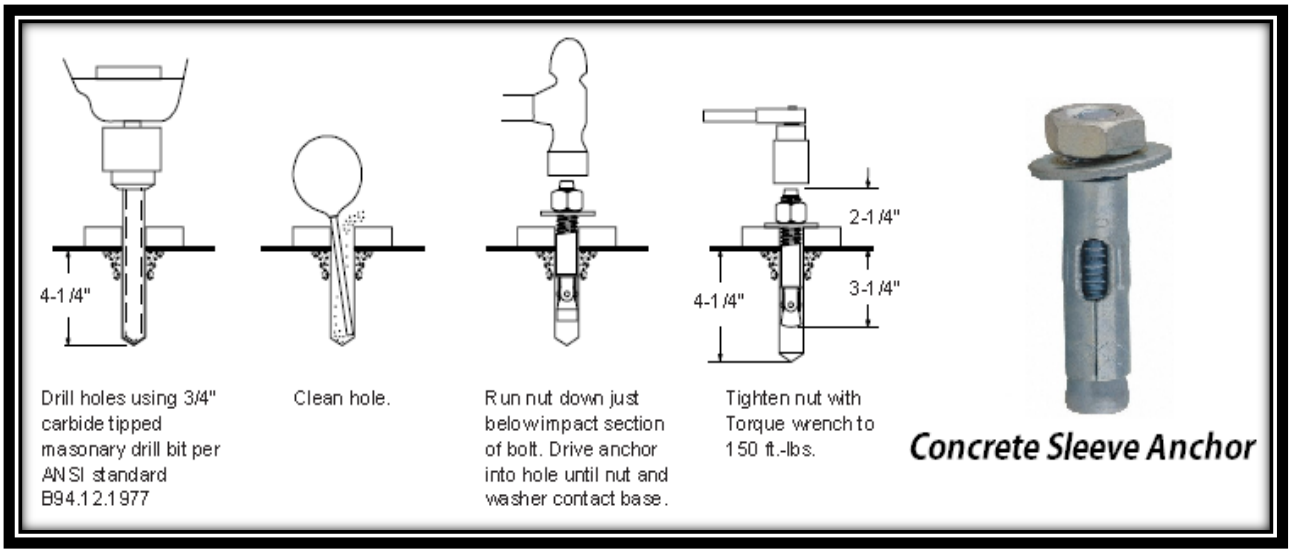

Figure (17): Info. about concrete sleeve anchor

This RouterBOARD SXT device connected by patch panels throw 3M wire, so we insert the 3M wire in Flexible tube, then add RJ45 on its end and connected to RouterBOARD SXT device, then we pass the wire from roof to ground flower to first patch panels.

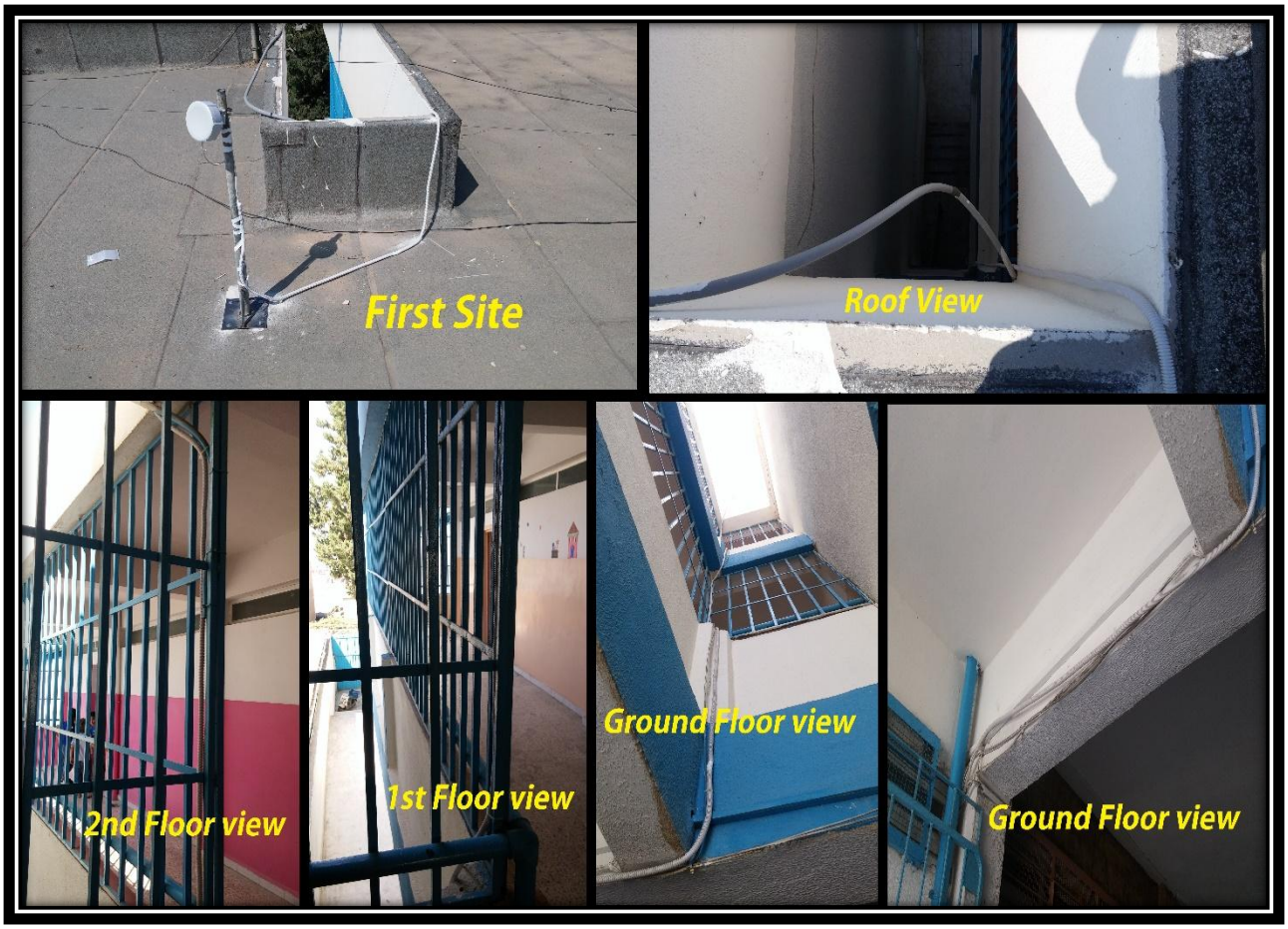

Figure (18): Flexible cable distance covered

Then we connect the 3M wire connected from the RouterBOARD SXT device to its extension which consist of an electric source (Power) and network cable (Data) connected to patch panels.

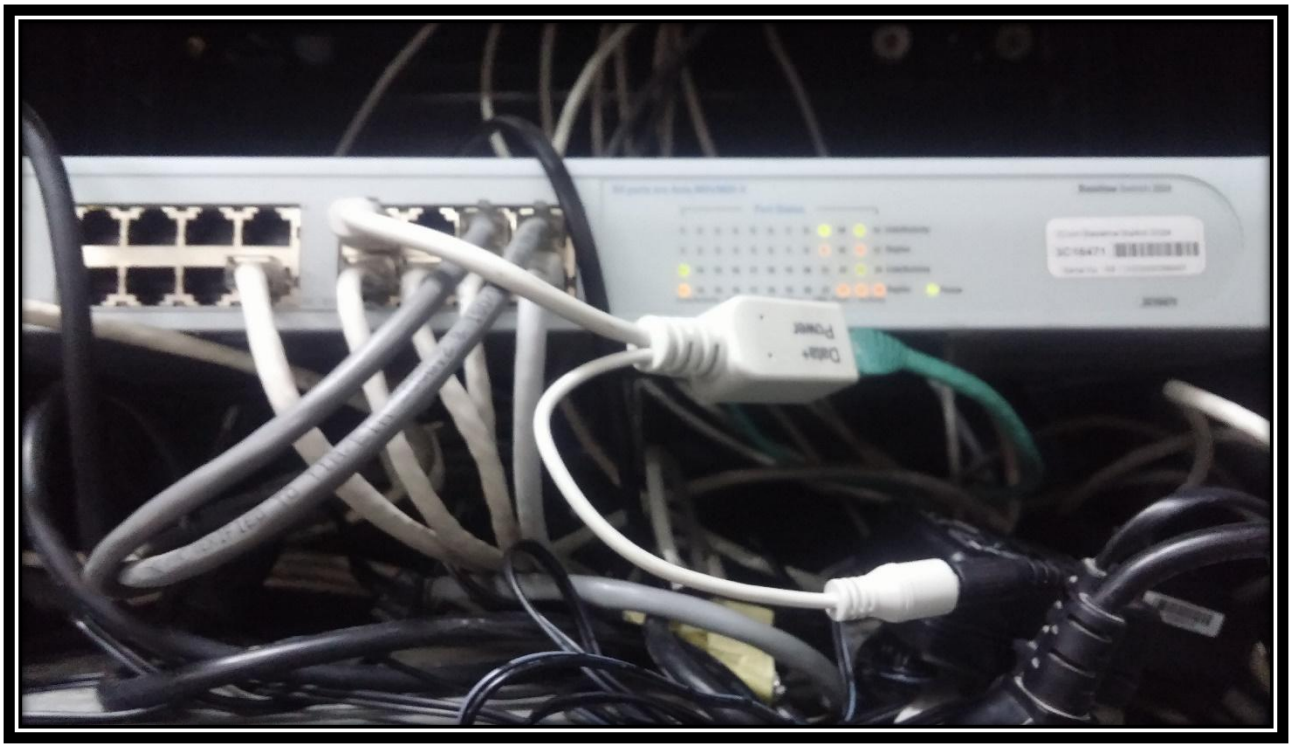

Figure (19): Extension of RouterBOARD SXT in 1st site

After finish first site to want to the roof of second site and find best location to add 2nd RouterBOARD SXT device which viewed to 1st one to give high signal.

Figure (20): Second site view to first site

After find best location (we repeat the same procedure in first site) so we should to connect the RouterBOARD SXT device to patch panels throw 3M wire, we start first by making four eyelets by drill to catch the iron stand then after insert “concrete sleeve anchor” and then we attached the RouterBOARD SXT device on the top of the iron stand.

Figure (21): Make best base for RouterBOARD SXT device

This RouterBOARD SXT device connected by patch panels throw 3M wire, so we insert the 3M wire in Flexible tube, then add RJ45 on its end and connected to RouterBOARD SXT device, then we pass the wire from roof to 1st flower to second patch panels.

Figure (22): Connection of RouterBOARD SXT device in 2nd site

Then we connect the 3M wire connected from the RouterBOARD SXT device to its extension which consist of an electric source (Power) and network cable (Data) connected to Cisco Switches which running local internet connection by Ethernet to patch panels.

Figure (23): Extension of RouterBOARD SXT in 2nd site

We end the day after finishing from second site we make test by tester to check if connection is connected as well between the two devices and we get very high signal around 90%.

Figure (24): Add RJ45 to terminal wire in 2nd site

Smart Tips: The technical leader teach me a smart tips, to add the RJ45 plugin at the end of the 3M wire is by taking from the end of wire 5cm long, then use "Cable Stripper" and rotate 1 full cycle only (more than 1 cycle will lead to cut the internal wire) then the cable show as four wire each consist of two pairs rotated around each other so we push the pair of wires from bottom to end we keep pushing until the wire become strata wires we keep this procedure to the rest of the pair wires at the end the long 8 strata wires will cut their head to keep 500mm long only. Then we insert the wires according to type color code in RJ45 plugin carefully after we check it fit on it we use compression crimping tool to compression the copper wire and 3M wires so we have a RJ45 plugin on 3M wire ready to use.

5. THIRD DAY

The next location was in **South Lebanon – TYRE - EL-BURJ SHAMALI Palestinian Refugee Camp – EL-BURJ SHAMALI Health Center for UNRWA.** We want there by the leader of technical department in GIS (Yousef CHANAA) and his assistance to make test for the network in the building because we informed not all of network work.

Figure (25): EL-BURJ SHAMALI Health Center for UNRWA

As soon as we reach the building we went to the main patch panel box to check if cable is disconnected but all of them are connected and fine. So we then check the RJ45 Jack for each network socket using tester.

Figure (26): Main patch panel box in building

After we use the tester in network socket and CISCO network ranked, and we but the tester one in network socket and another one in CISCO network ranked so if the correct cable selected by the tester I will ringing so we can figure out which cable to fix and we can know that the cable in good situation.

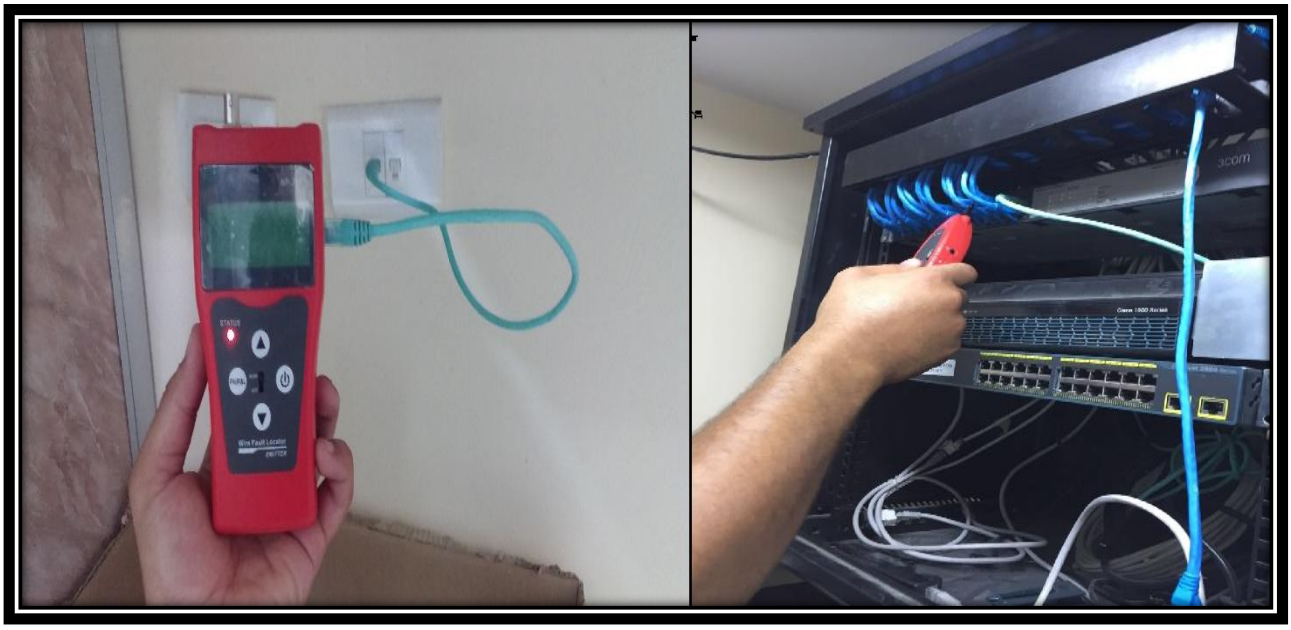

Figure (27): Make test by tester

So, after we make test to all network socket (RJ45 Jack) we discover that the switch CISCO is damage and need change because all the network cable in the two floor from same switch are not working.

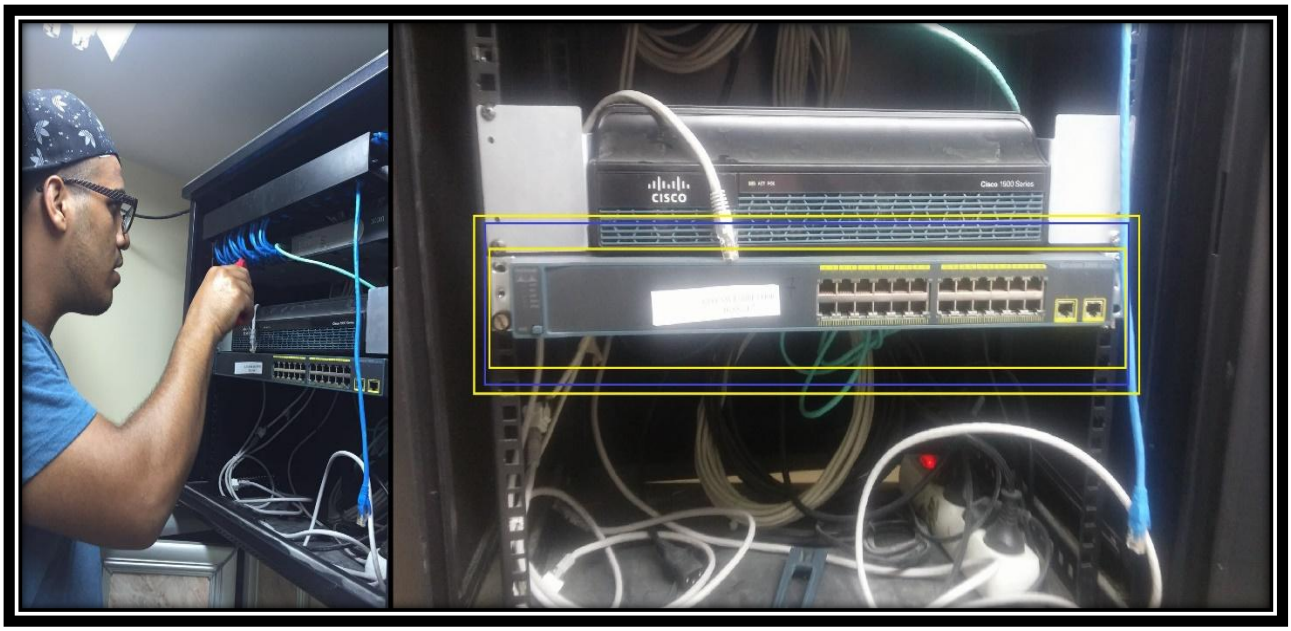

Figure (28): CISC switch rank

After figure, it out, we order a new one to replace it after. Because we can't offer it (Not prepare to face like this situation) because it expensive specially for CISCO Company.

6. FOURTH DAY

The next location was in **South Lebanon – TYRE - EL-BUSS Palestinian Refugee Camp, EL BUSS Health Center for UNRWA** we went there by the leader of technical department in GIS (Yousef CHANAA) and his assistance to add a five-network cable connection for five different room taken from same building of UNRWA Health Center building (Main Patch Panel Box).

Figure (29): Inside Buss Health Center for UNRWA

Our mission is to add 4 network point in 4 different room (3 in ground floor and 1 in first floor), so we went to patch panel box and check each room and find a way to add the network point.

Before we start checking the patch panel box to see if their an empty place in the network switch rack and we found place for 4 network 3M cable, then we imagen the way to connect the cable and calculate the distance between them, according to the situation we decide to connect the 1 inside the building and 3 other outside.

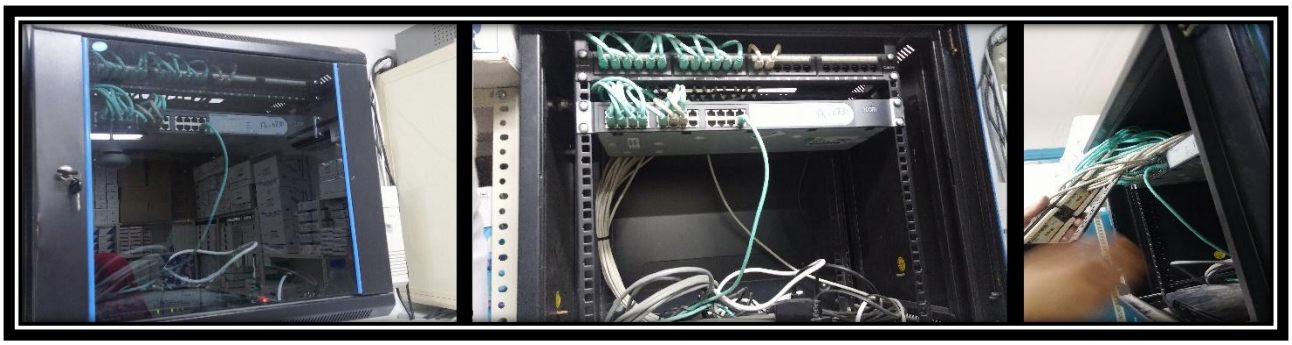

Figure (16): Checking main patch panel box in building

The main tools we use 3M network cable, cache cable 16x25" 2 meter, tester, compression crimping tools, cable ties, diagonal cutting pliers, cable ties, RJ45 plugin, RJ45 Jack (8 pins) 1 Ports, cable stripper (the both plugin and jack of RJ45 are with colored wire type-B (T-568B Standard), cover socket, drill and (Krone) punch down tool.

First we start with network point inside the building so the calculated distance covered is 22 meter of 3M network, we leave 5 meter long from patch panel box to next room, we use drill to make hole between the two rooms and cover it with cache cable then 11 meter in corridor to next room passing throw the top corner covered by cache cable (shortest distance) then we make 2nd hole is wall between the corridor and the room needed to add network point which take 6 meter long to RJ45 Jack in cover socket and cover the 3M cable with cache cable.

Figure (30): patch panel box to 1st socket with distance covered

Second, we went outside the building to calculate the distance from patch panel box to each room we want to add network point on it. So, after calculating the distance cover for each room (Meter Magnetic Tape Measure) we reach to the 3M cables should be 22, 23 and 35 meter to each room 2nd, 3rd in ground floor and 4th in first floor respectively according to the location (we use marker to remember them).

Figure (31): Connecting wires together with tape wire

So the ***smart tips*** we use in 3M cable since 3 different distance and path, in outside we pull and cut the three different meter alone, then we calculate the distance from patch panel box to outside, then collect them with tape wire and push them inside an old hole directly to patch panel box (we left them uncovered with cache cable and didn't punch down the cable on the switch until the end of work to replace in case of damaging the cables) and we use tape wire at the end of 22 meter with the rest cable and the end of 23 meter with the long cable, then we use flexible tubing cable along the outside distance (protect it from weather changes) and push 3M cables inside and use cable ties to attach it with nylon winged wall plugs along the wall, then pass the 3M cables from outside to inside after make an hole by drill, then we reach 2nd room (22 meter) and we add there a network point we use socket which is suitable for network RJ45 jack and cover the 3M wire with cache cable.

Figure (32): Distance covered to 2nd socket

Then went again from 2nd room to outside in hole created by drill and then we use the flexible tubing cable and cable ties to attach it with nylon winged wall plugs as same as purpose before, also after it we repeat same work by make hole by drill to wanted room from outside then add a network point use socket which is suitable for network RJ45 jack and cover the 3M wire with cache cable to 3rd and 4th rooms.

At the end, we connect the 3M cable to patch panel switch and make test.

Figure (33): Distance covered to 3rd socket from outside

7. FIFTH DAY

The last location was in **South Lebanon – TYRE – RASHIDIEH Palestinian Refugee Camp, RASHIDIEH Healthy Center for UNRWA,** we went there by the leader of technical department in GIS (Yousef CHANAA) and his assistance to fix the 3 problem in healthy center face in network.

Figure (34): Building of RASHIDIEH Healthy Center for UNRWA

Our mission is to add two network point by adding them in network socket have only one, and connect them to patch panel box. And create and cover to 3M cable which connect directly from window. Also, to fix the network RJ45 Jack because it not reaches local network. This is not my first time doing this work, since the first day I watch and learn every step the technical leader did, we finish them early.

So, before we start checking the patch panel box to see if their empty place in the network switch rack and we found place for needed point.

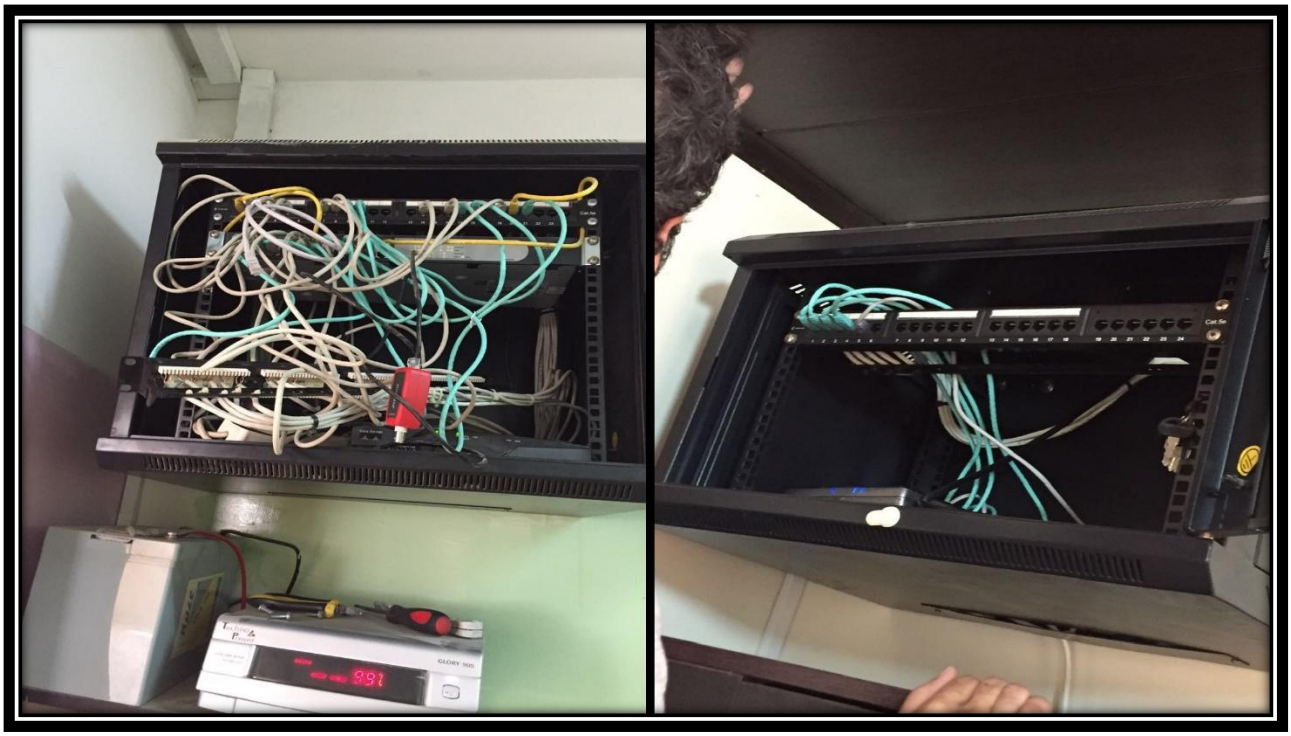

Figure (35): Main patch panel box

So, we start with covering the 3M cable by add a RJ45 Jack covered by special socket, and the 3M cable covered by cache cable [16x25" 2 meter], and all of them pass from hole in wall by drill instead of pass throw window.

Figure (36): Checking network socket

Then we start with second one is to check the local network point of RJ45 Jack, so we use tester to check it and we realize a damage in RJ45 Jack (2 from 8 pins).

Figure (37): Fail result shown in tester

Then we cut the RJ45 Jack and fix it by using compression crimping tools after we order the in-color type-B, we fix it and again we use tester to check and its fine.

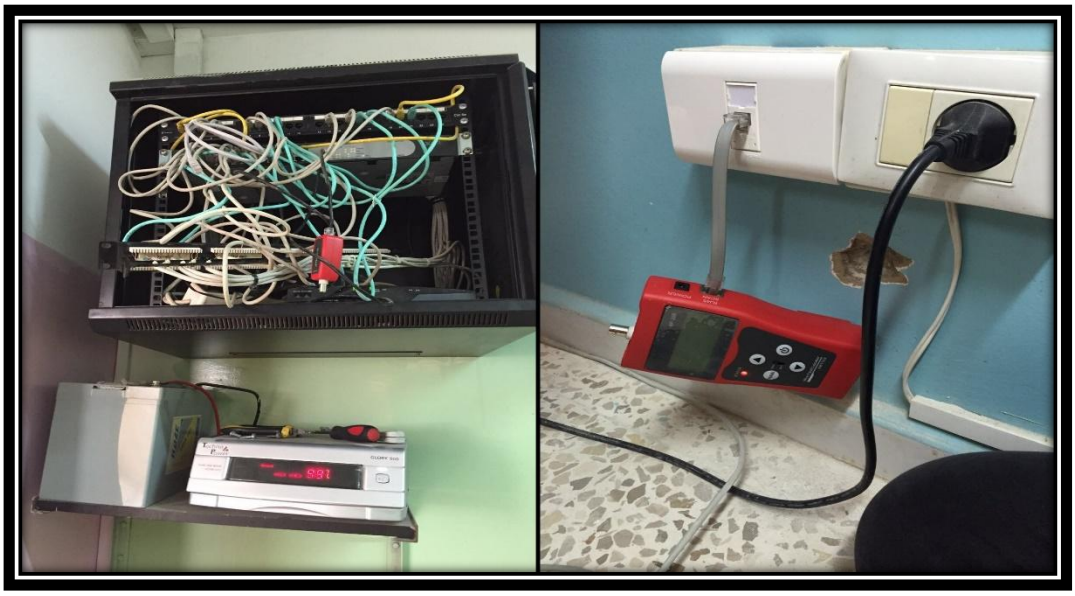
Figure (38): Checking by tester

Then we did the last one by add 2 3M network cable to old socket, so we begin by calculating the distance in wanted place from socket to Patch Pane, so we connected them with cable in old socket and patch panel specially in CISCO network ranked. We pass the 2-new cable behind the old one which covered by cache cable [16x25" 2 meter] and we use (Krone) punch down tool to connect the 3M cable and switch.

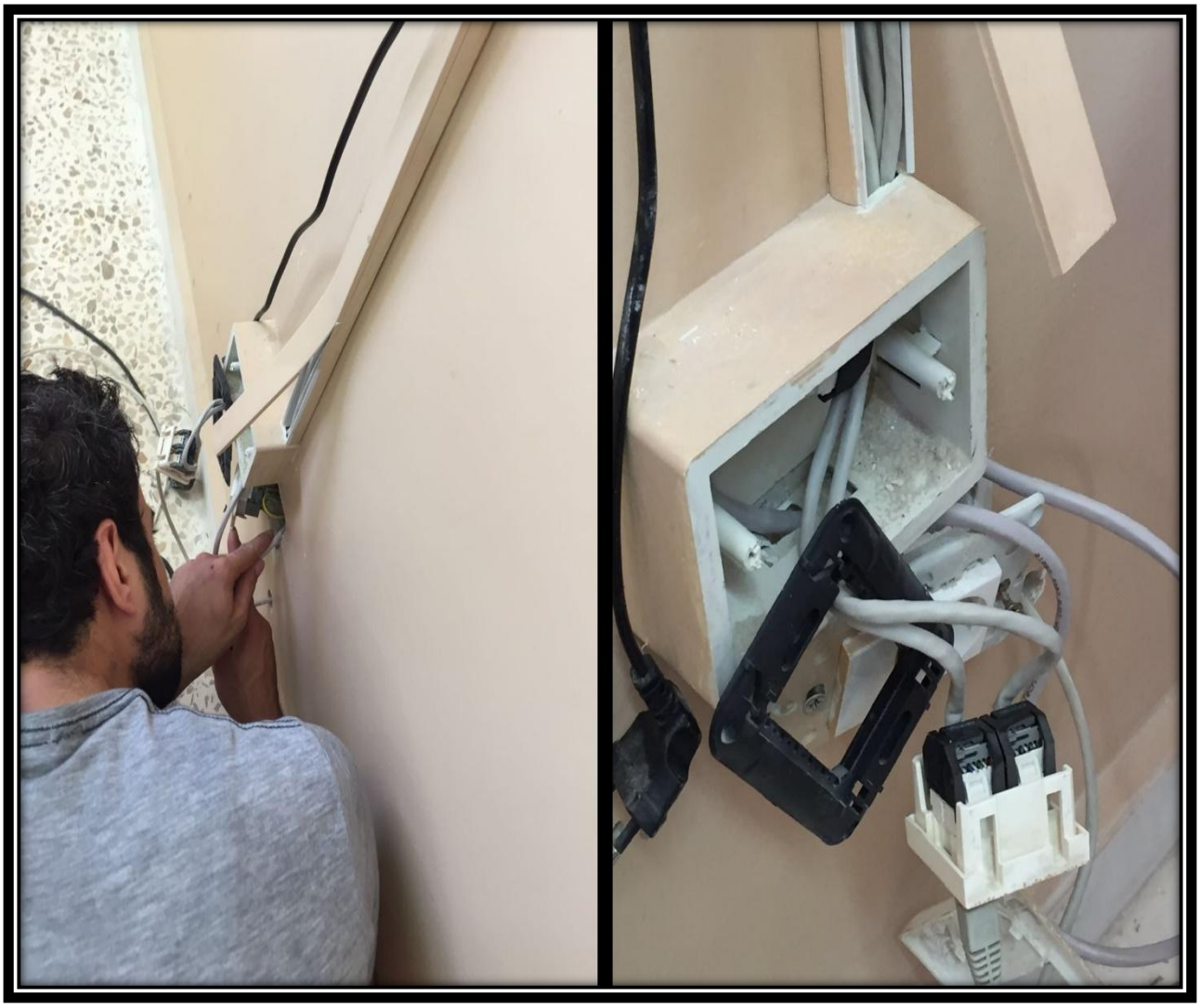

Figure (39): Add new RJ45 jack to old socket

Then we use tester to check if the connection of 3 cables is working fine as same code of color for type-B. So, we connect one of tester tools in switch and one in added point, so we can see if the screen show the orders of number up and down same, this mine the wire in connected good and ready to use and we repeat this process for the rest cable. At the end, we connect the port we are working on it with Cisco Switch.

8. DAY SIX

The seventh day was working in main office, the Global Integrated Solutions office is located in ***Saida, Al Makased Bld., 8th Floor,*** and we spend the 5 hours doing format and installing recommended program after format.

Figure (40): GIS office

At the moment I reach the company the development department in GIS "Mustafa Al-Assadi" to format 3 laptop to windows 10, so he teaches me how to extract any OS on DVD and U.S.B, and we change one of the laptop its hard disk from HDD to SSD and I was amazed by the performance of SSD (it take 3 seconds to start windows) more than faster from HDD, also he teaches me how to add/change any hardware to the laptop and where to learn how to take off the cover.

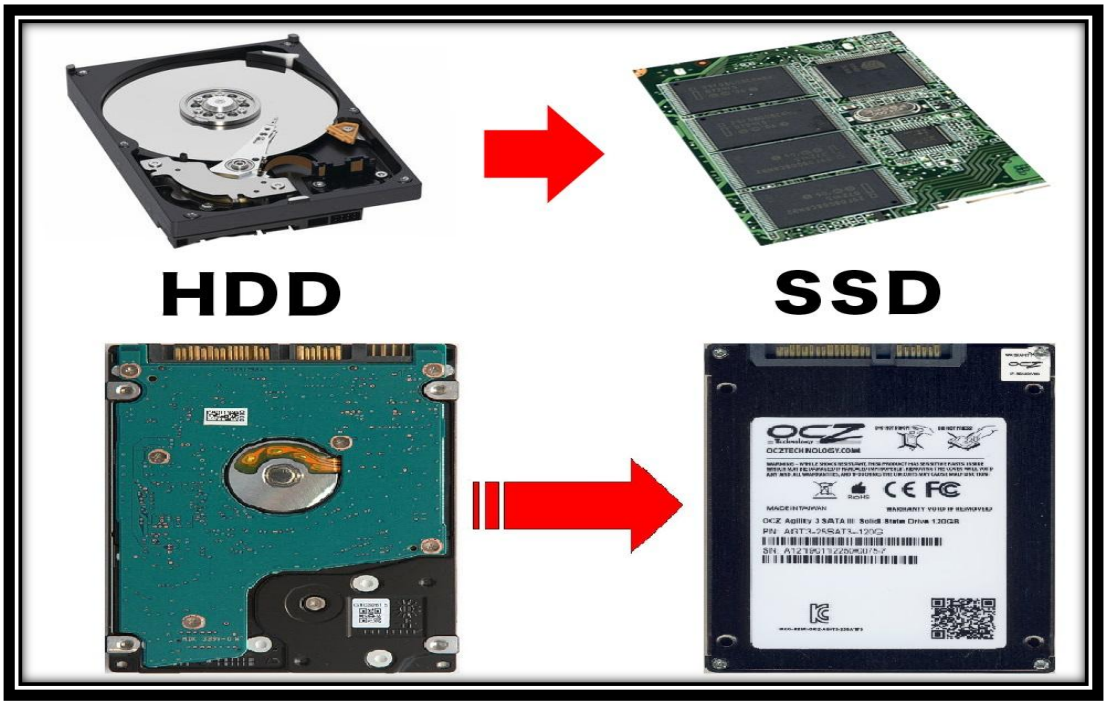

Figure (41): The physical shape between HDD and SSD

The 3 laptops for civil engineer student, so we install main program for them after we done from update and installing the essential drivers. The formatting operation was so easier than I though and now I think I can format and change any OS in minutes.

Figure (42): Windows 8.1 DVD bootup

We used to install the drivers a program called “Drive Pack Solution” since after format all the driver gone and sometimes we need offline version (9GB) to install driver belong to internet before using the online version. After we done from installing the drivers for each laptop we install all the update required to reach “up to date”.

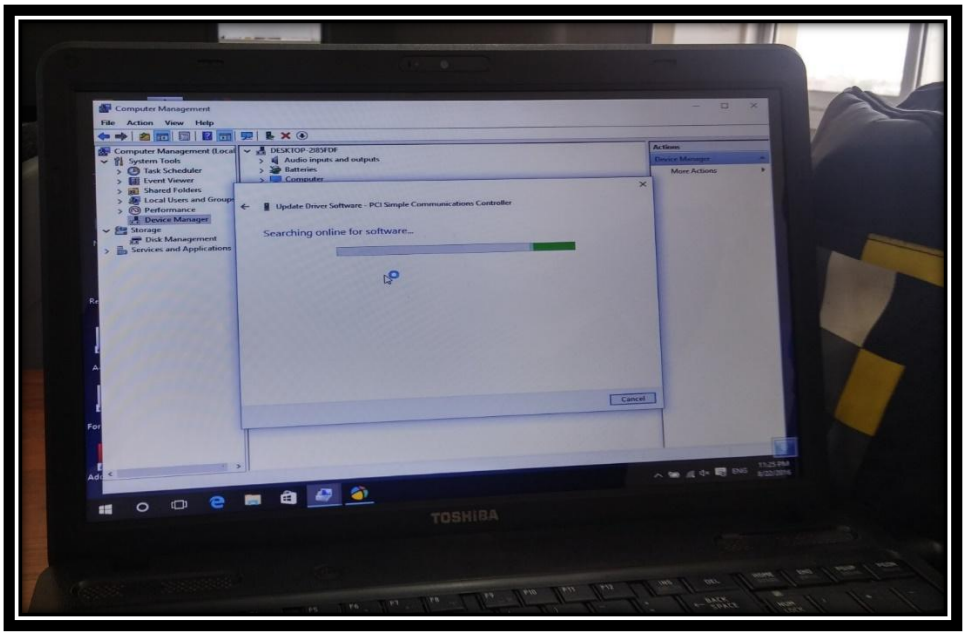

Figure (43): Installing essential drivers

Smart Tips: The problem we face at installing the drivers is not all drivers supported to work in OS "windows 10", this old laptop are only supported to OS "windows 7" which mean the "Drive Pack Solution" can't install the missing driver, so they teach me how to install the driver without the auto-drive program, by ***Right Click*** on ***"My Computer"*** select ***"Manage"*** it will open Computer Management then select ***Device Manager*** then all the driver appears and the driver need to install appears together in ***"Other Devices"*** as name ***"Unknown Devices"*** so we need to take its name to check it in google to install it from its main company like intel software, then ***select and right click*** on the unknown one and go to ***"Properties"*** then ***"Details"*** then chose from "***Property" > "Hardware Ids"*** after we ***copy*** **the first one in "*Value"*** (try to check other in case not defined) and then past it in google to get its name like intel PCI\VEN_8086 belong to INTEL company, after get the name of the company we went to ***"Driver Identifier" to install the software as ZIP file*** (other way can't install we try**)** after the download complete we went again to ***Manage*** (there is many way to reach Manager) and select ***"Update Driver Software"*** then select ***"Browse my computer for driver software"*** then ***add the location*** for driver software after selectin ***"Browse.."*** select ***"Next"***, so the driver show that ***"Windows has determined the driver software for your device is up to date".*** Another way is by taking the ***code name of laptop*** under of it and go to ***laptop brand*** and select ***DRIVERS & SOFTWARE*** add the laptop code name and all the software belong to the laptop should appears and free to install.

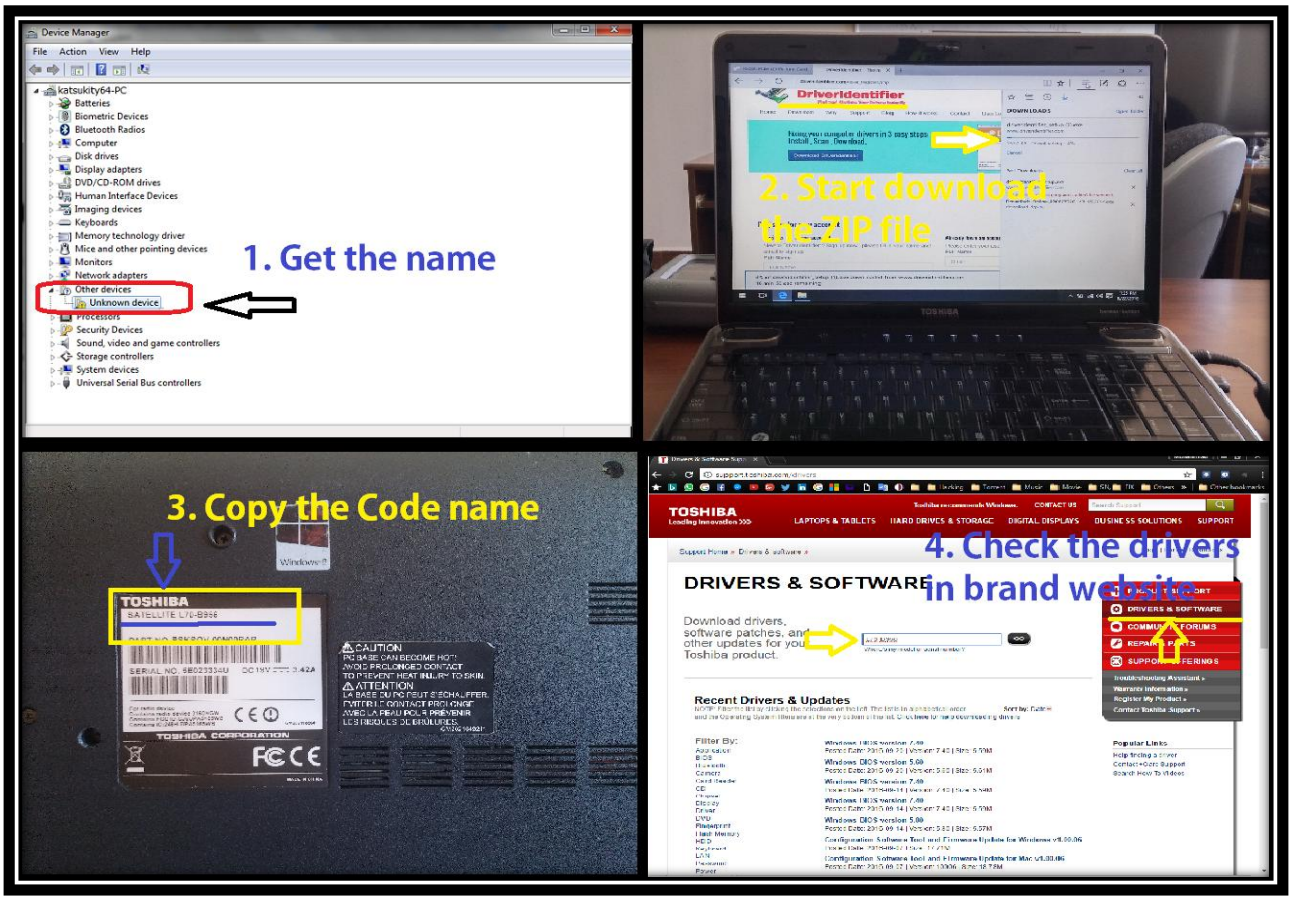

Figure (44): Find and download missing drivers

Then we end with install civil engineer software like AutoCAD Collection, Microsoft Office, PDF reader, IDM, Anti-Virus, Internet Browser…etc... (Other software installed with program like DirectX and .Net software).

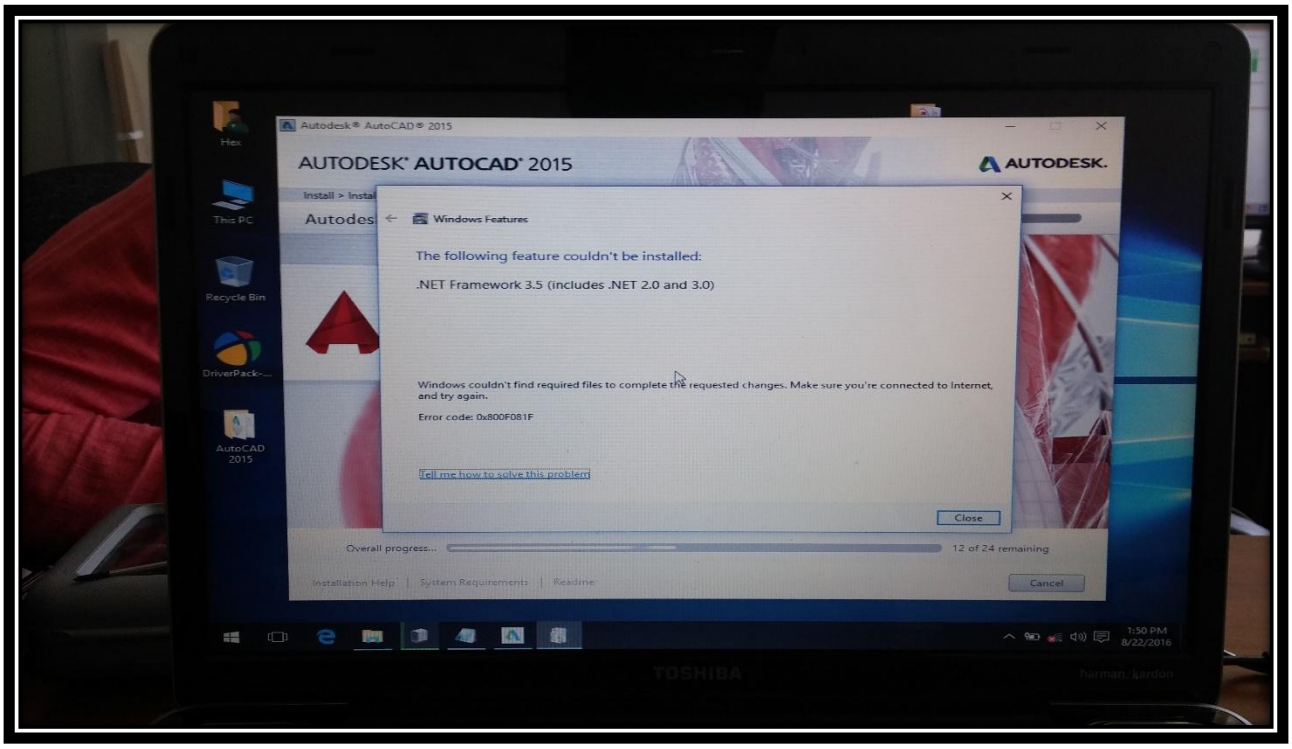

Figure (45): .Net framework software missing driver

Smart Tips: The new tips is during the installing new windows process and show as any kind of error then the problem is in the DVD/USB drive we use, so if we change the driver we use it 100% will work fine.

9. DAY SEVEN

At 8:00 morning I went to the main office of the Global Integrated Solutions which is located in ***SAIDA, AL MAKASED Bld., 8th Floor,*** I informed in previous night that the leader of technical department in GIS (Yousef CHANAA) will teach us on how to fix fiber optic cable and why we use it, almost everything and he let us do it after him.

I gained a lot of information and it was great opportunity to touch and work with Fibers (the future of network).

In GIS Company, they have a plastic box (Fusion Splicer Kit) inside it a fix and repair Fiber Optic machine with tester and with its tools and extension, this fiber optic repair box is very expensive the leader told us it cost more than 1,750$. (We were 4 guys, 2 guys practice like me and the leader of technical department in GIS)

Figure (46): Fibers all tools Kit

So, first thing the leader of technical department teach us is how many part in the box with their name, and how it works and use. For splicing process, we will need the items below: (Necessary Items)

(1) Fiber Fusion Splice [FSM-60S]
(2) Fiber Cleaver [CT-30] - For cleaving fibers
(3) Coating Stripper [CFS-2 0.25mm] - For stripping 250um fibers
(4) Fiber Protection Sleeves - For protecting splice joint
(5) Clipped Duplex Patch-cord
(6) Visual Fault Locator
(7) Cleaning Tools

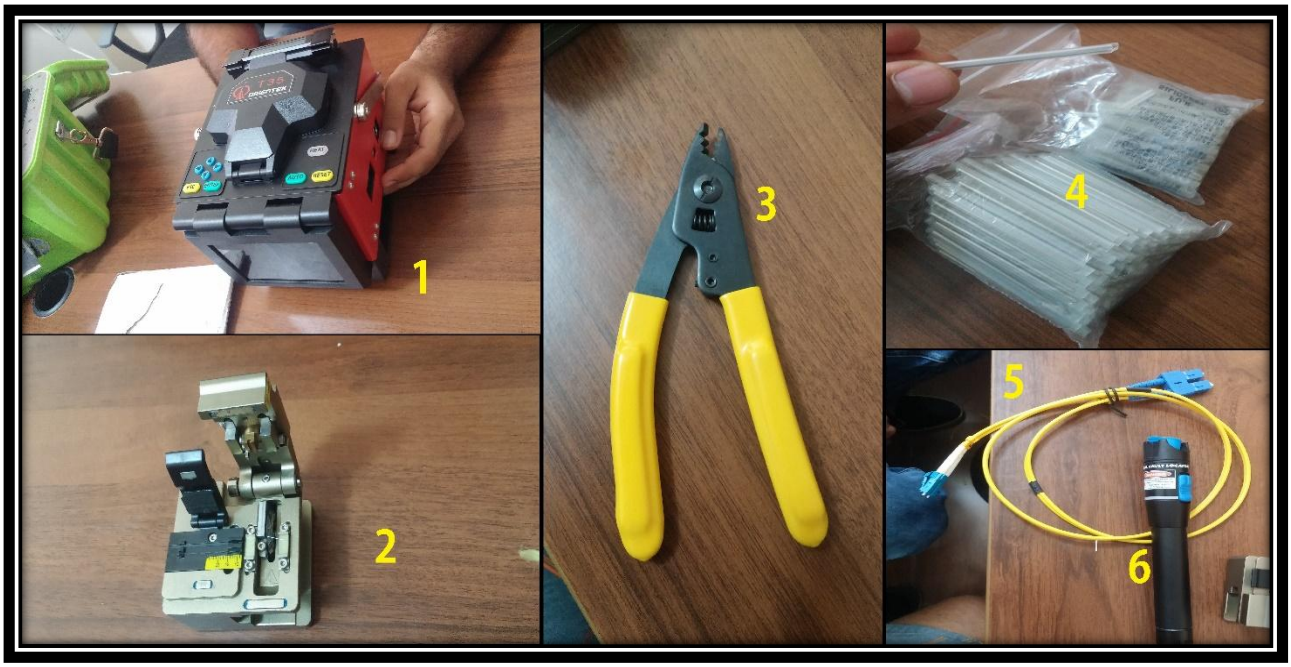

Figure (47): All tools needed to fix fiber cable

So first we turning splicer "ON" by press ON/OFF key and hold it until the green LED turns on. Then we adjust the monitor angle "LCD SCREEN" and then adjust the monitor brightness and we select appropriate splicing mode and heating mode "60mm".

Then we cleaned optical fiber, so we cleaned the fibers with gauze or lint-free tissue with alcohol approximately 100mm from the tip, we use a high-quality alcohol, greater than 99% pure.

Then we slide the protection sleeve over the fiber ends (we will use it after to protect the fiber)


Figure (48): The protection sleeve

Then we stripped and clean the fiber, so we use primary coat stripper to strip outer coating 30 to 40mm from its tip. Then we clean the fiber with gauze or lint-free tissue moistened with alcohol.

Then we Cleaving Fiber to join them together, in Fiber Cleaver tool we open the clamp then set the stripped optical fiber into the cleaver (10mm) then we closed the clamp and sweep left the cutting lever after we did same process to both terminal.

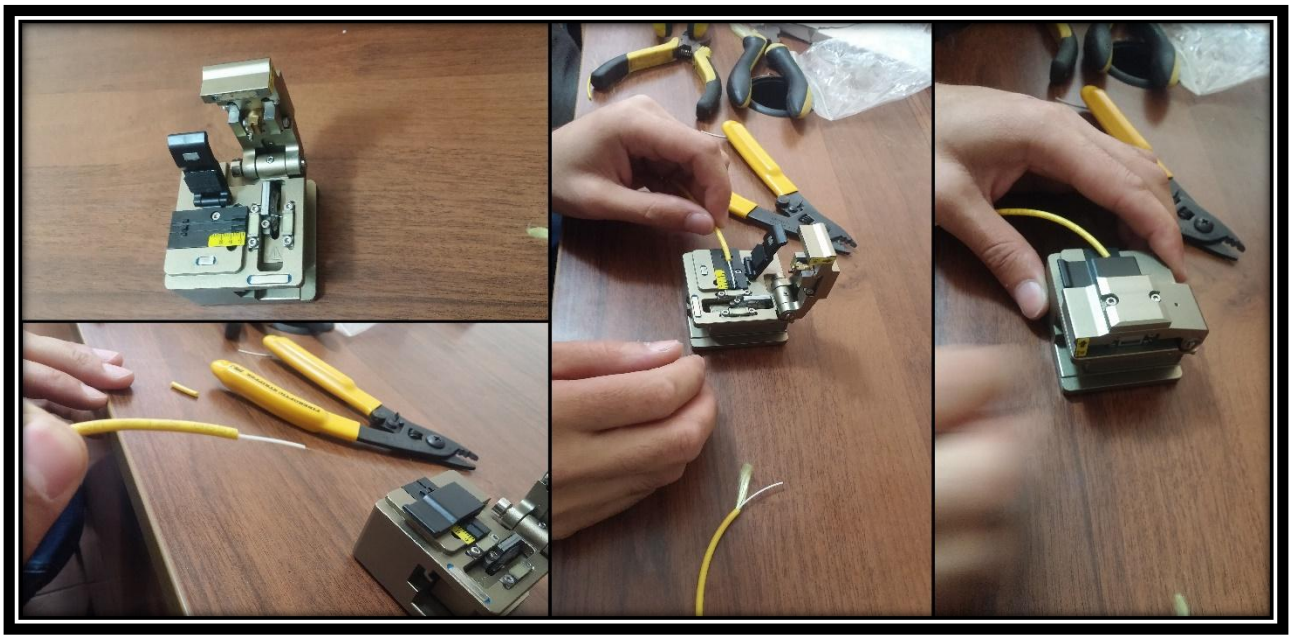

Figure (49): Fiber Cleaver tool

Then we use Loading Fiber to Splicer to join the two cable together, so we open wind protector and sheath clamps of Arc Fusion Splicer, then we place the prepared fibers into v-grooves (we need to maintain fiber end-face quality) we ensure that the fiber tips are located between the v-groove edge and tip of electrode (we reload the fibers when it not placed properly), then we close the sheath clamps, after we did this process on both terminal to fiber, we close the wind protector to start splicing (we can replacing sheath clamp with fiber holder).

Then we reach to important step at splicing where we can see if we did the privies steps correctly, so after close the wind protector to start splicing (AUTO start), on LCD screen both terminal look in good situation and the process done automatically and aligning (x and y dimension of fiber) then it combine them together after flash in LCD screen then the both terminal of fiber become one with loss=0.00dB that mean it perfect (Estimated splice loss is displayed after completion), The leader said "AUTO mode is recommended for splicing SM,DS, NZDS and MM fibers".

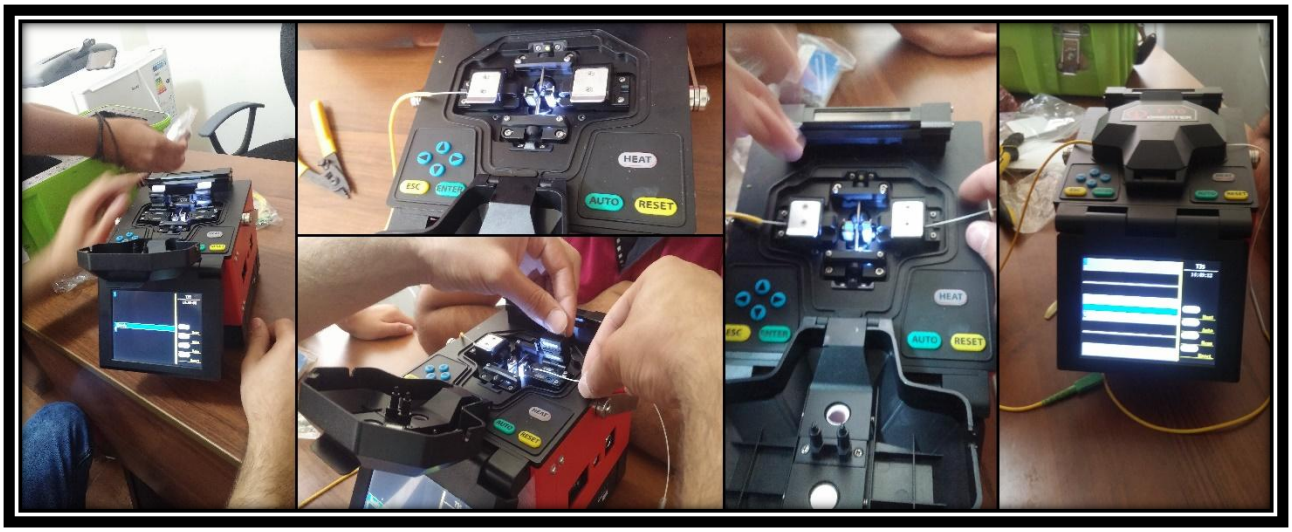

Figure (50): Start splicing machine

After the Splicing work fine we reach to the last step which is "Heating" to cover them, so we take the fiber then slide the protection sleeve to the center of the splice point and then we open tube heater lid, then we transfer the fiber with protection sleeve from the splicer to the tube heater, so we keep on holding fiber until fiber is completely transferred to tube heater and set the fiber with strength member in the protection sleeve downwards (We make sure the splice point is located in the center of the protection sleeve), the heat shrink cycle starts automatically when closing the lid, when the orange LED turns off and the buzzer beeps, the process is completed, after it completed we open the lid of tube hater and remove protected fiber from the tuber heater. The protection sleeves fit perfectly on the fiber.

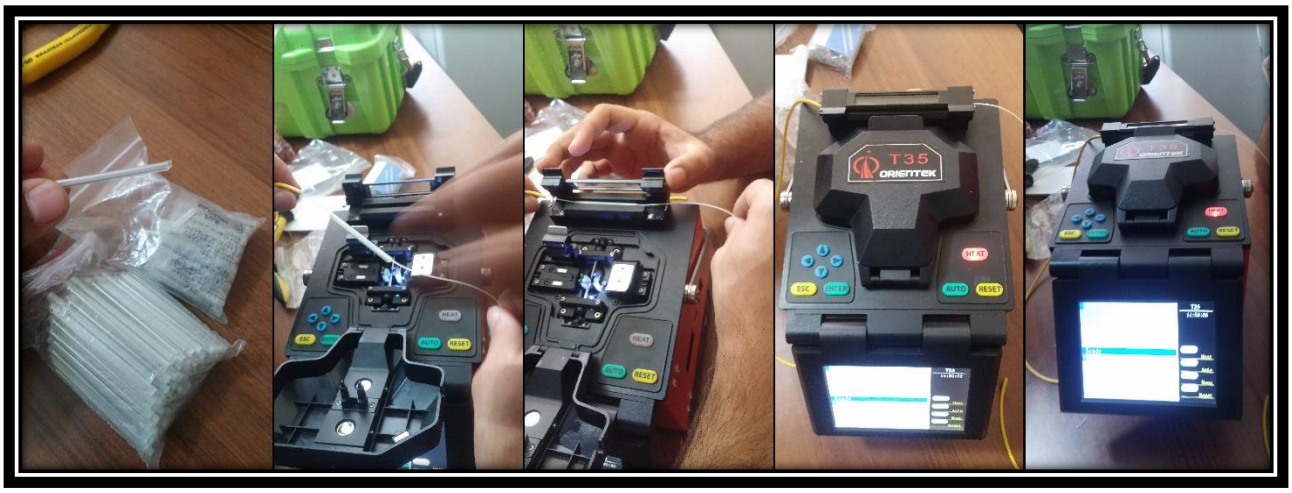

Figure (51): Heating the joint of two cables

At the end, we need to make test to make sure it works fine, we make test by put the visual fault locator (laser) on one side (we make the light normal not SOS or other option) and the light come in the second terminal of fiber (no light escaping) we use phone camera to see the light to avoid heart the eye.

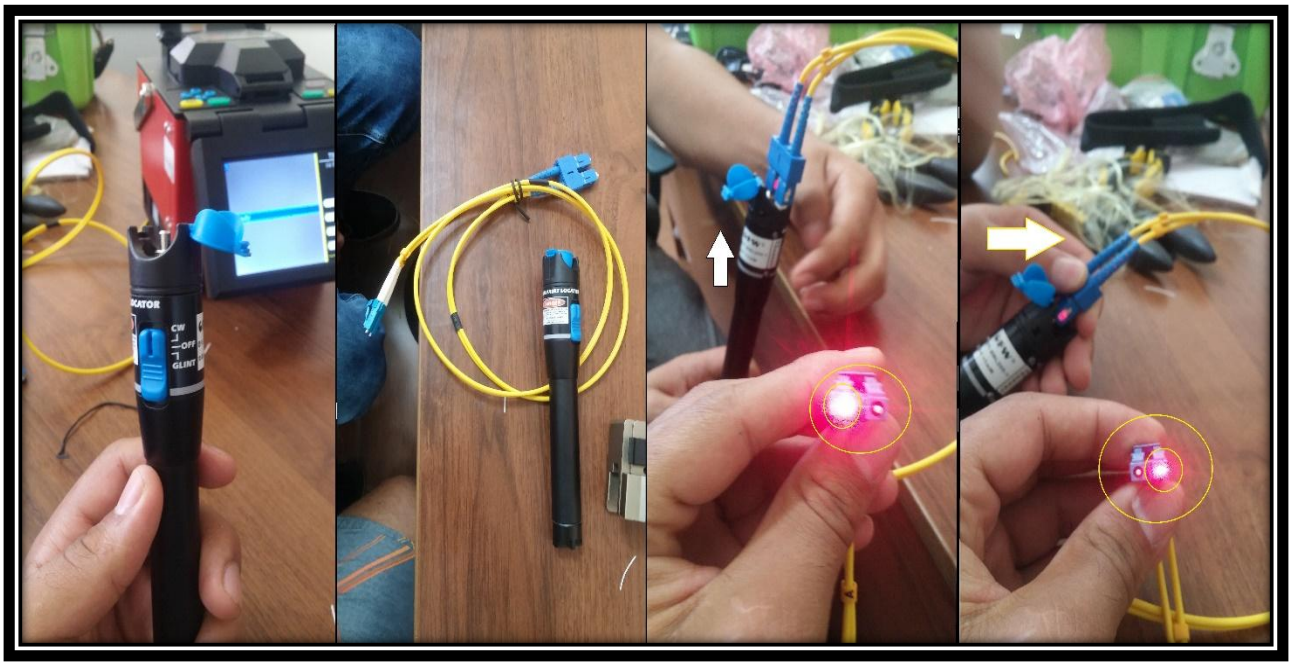

Figure (52): Make test by laser

After each one of us repeat the same process and before we leave the leader of technical department in GIS show us from google some cable and the difference and he share his experience of connecting fiber, and he bring CISCO ranked network switch have fiber jack.

Figure (53): CISCO switch have fiber jack

10.DAY EIGHT AND DAY NINE

At the morning I went with leader of development department in GIS (Dr. Mustafa) to in ***South Lebanon, SAIDA, East Boulevard, Al Ahmad Building, Ground Floor,*** I was informed to go there in previous day**,** we spend 2 days cleaning and fixing and format to windows 7 and check printer connection and we make test to configure which computer need fix or add missing tools.

Figure (54): Youth for development building

Youth for Development (YFD) and non-profit organization has emerged as a necessity to respond basically to the urgent needs of the Palestinian young children refugees in Lebanon who have been suffering for long from many psychosocial disturbances, physical deformations, psychological disorders, and social problems. The main website link for YFD is: http://www.yford.org/

When we arrive we found the computers in a bad situation and the cable like maze, and the computer cases many of them not working. So our mission is to prepare the room to next week because lecture will start.

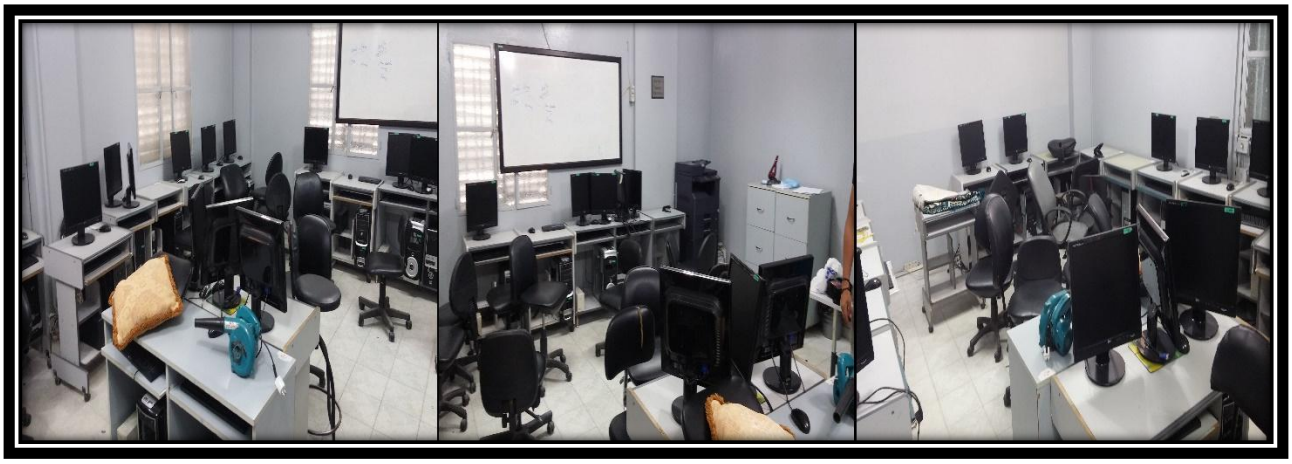

Figure (55): Computer Lab in YFD

So, we start by takeoff the chears to next room so we can move and work faster, then we move forward the computer tables few meters from the walls so we can check the cable and connect them with best way (we use cable ties to attach the cable) then we clean the computer cases by Portable-Blower-HD1202 it clean the case from dust. (If we clean the funs it will increase the performance).

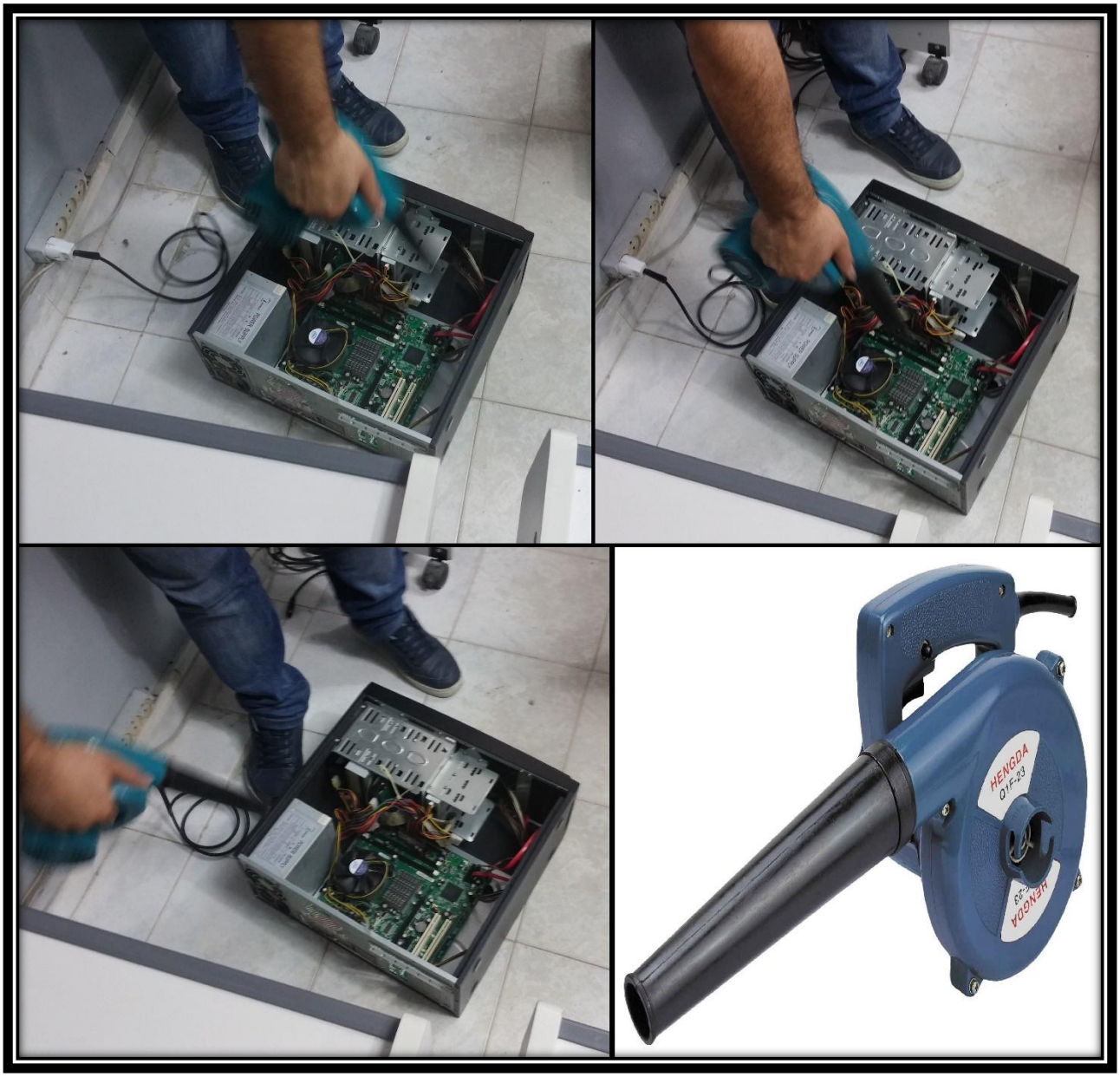

Figure (56): Cleaning case by Portable-Blower-HD1202

After we clean the computer cases and connect the cable we start mark on a paper which computer work or not and try to add or fix it, so some computer need UPS and other need mouse or keyboard, so we add the missing, In-addition after start some computer cases at starting the fan makes a lot of noise and the desktop doesn't start up (black screen, no messages on the

screen, not even the bios). So the leader want me to each computer sound same noise to takeoff RAM and replace it again in computer case after cleaning it again with Portable Blower, so I did it and the computer case work fine and normal (it happened because it not clean as well some dust still stuck). Then we cover all the computer cases because they are not cover when we reach the location.

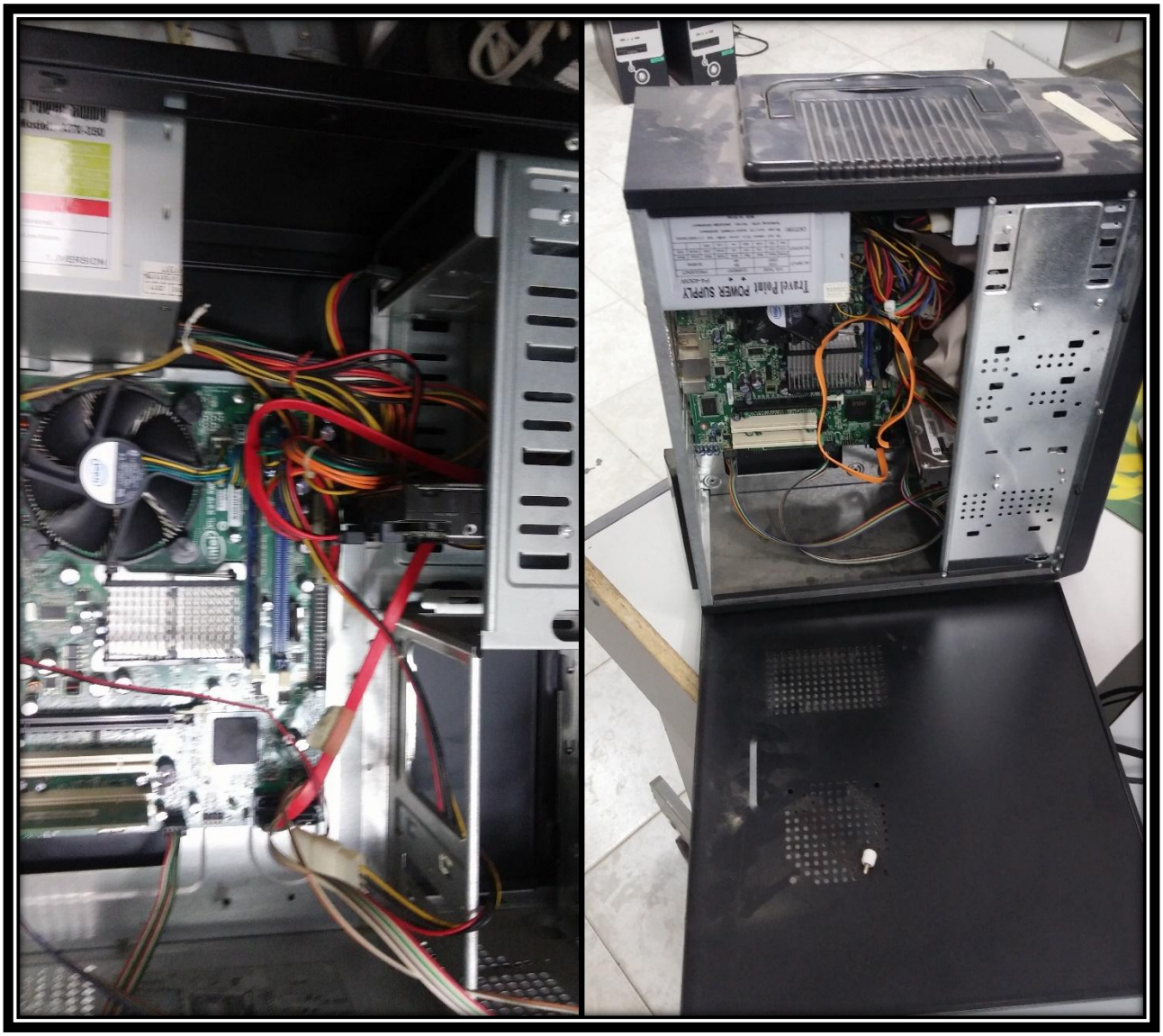

Figure (57): Covering the cases

After the all computer start windows normally no more hardware problem we start the software work by fix windows activation key for 4 computers were the windows license is expired, then we check the drivers to install missing and update them, then we install Anti-Virus “Malware Anti-byte” to scan and clean all of them computer because some of them have virus make USB as shortcut, also we install Microsoft Office 2007 and 2 program for typing in “Arabic and English”.

Figure (58): Install Anti-Malware to all computers

At the end of first day, we bring one computer case to the GIS Company to make format and install windows 7 with all software and driver and bring it back next day. We did this because we run out of time since they stop working at 5 pm.

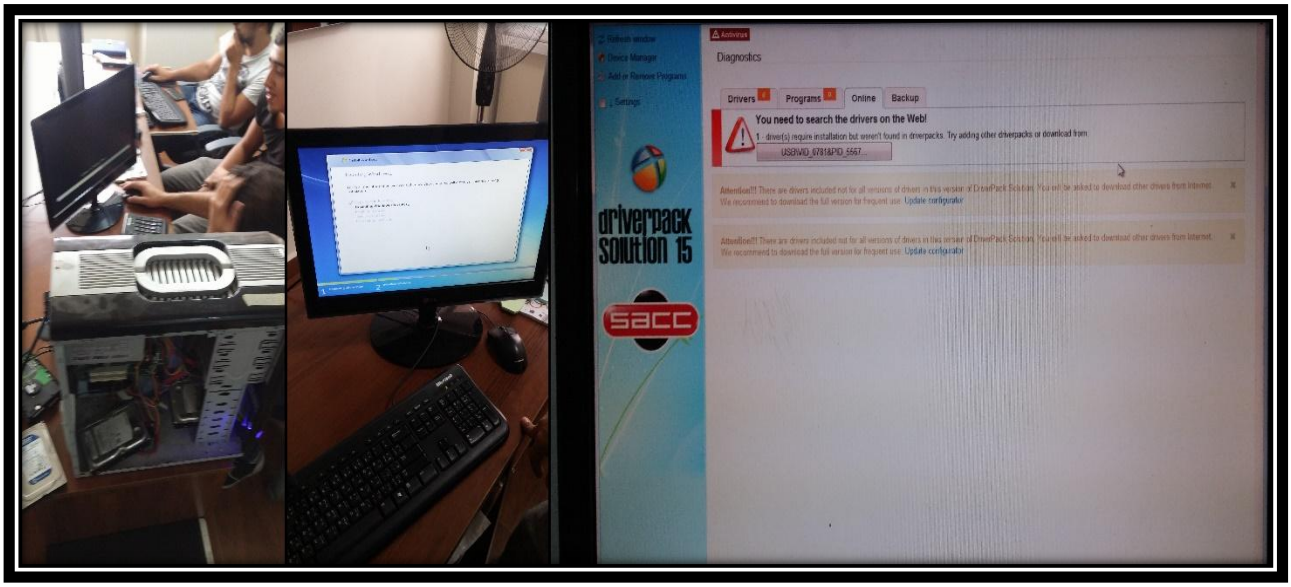

Figure (59): Installing missing drivers

In the company the leader teach me how to check the performance and hardware information, also told me what makes computer or laptop expensive and tips before buy the best laptop and with best price.

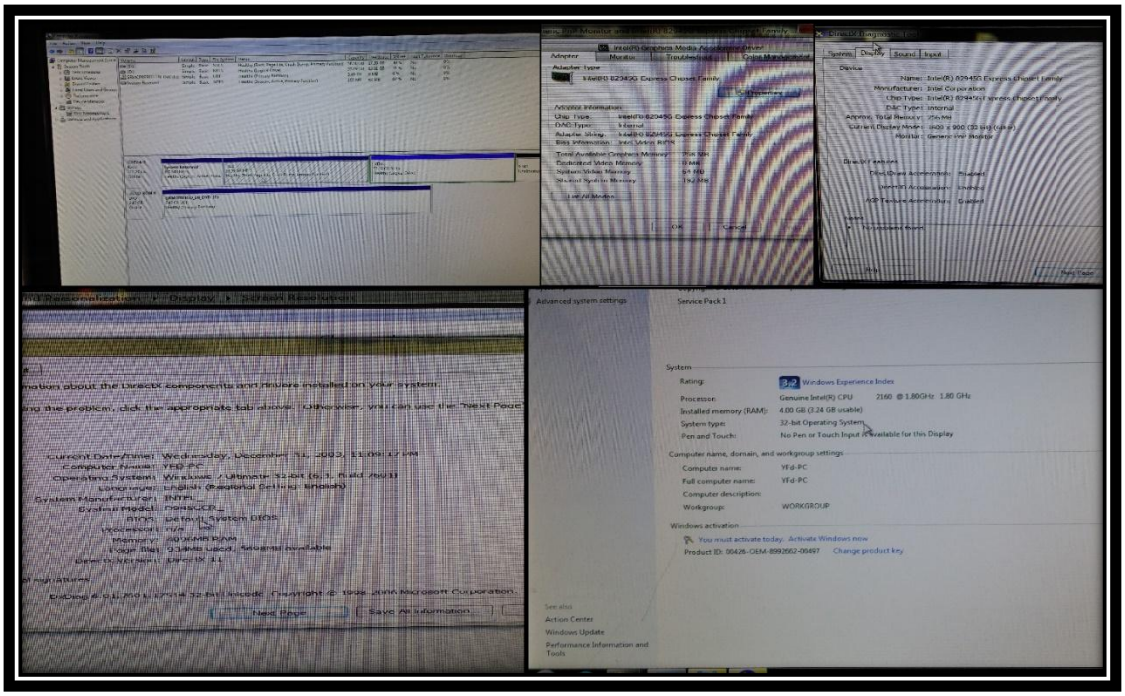

Figure (60): Checking computer status

The leader of development department let me make format and install OS windows 7 with all driver (include printer) and programs like other computer, but I face problem at the beginning of format an error at installing 0% (Error code: 0x80070017) followed by text “Windows cannot install required files. The file may be corrupt or missing. Make sure all the files required for installation are available, and restart the installation.”, so directly I unformed the leader and he fix it my clean well the DVD and DVD-reader, then I try it and it work fine and I install the rest.

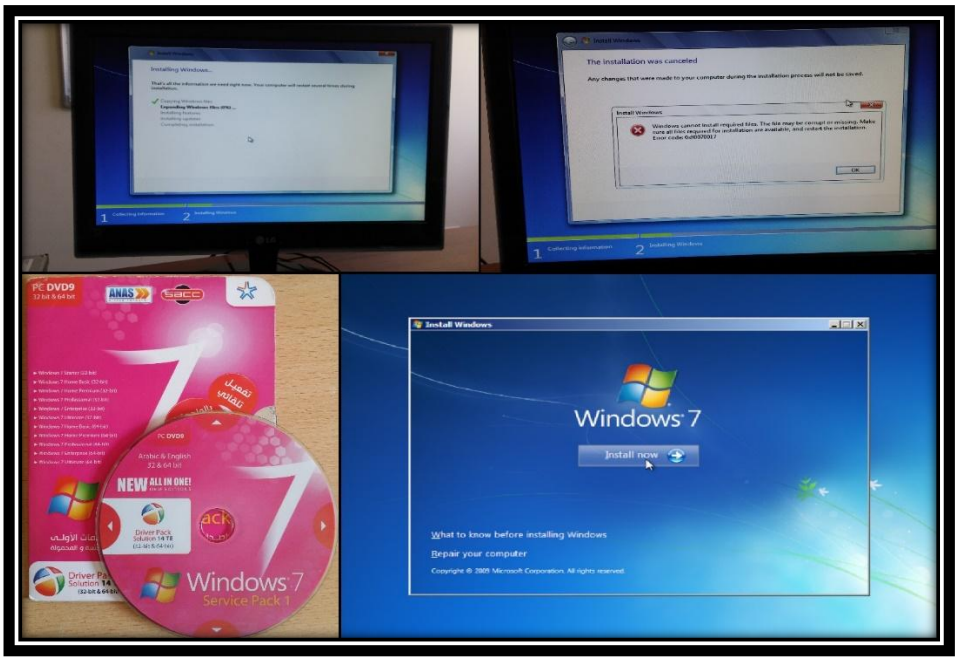

Figure (61): Installing windows 7

In the second day, after finishing installing the software program we make 3 Account appears in startup windows one for student and one for administrator and one for specific lecturer.

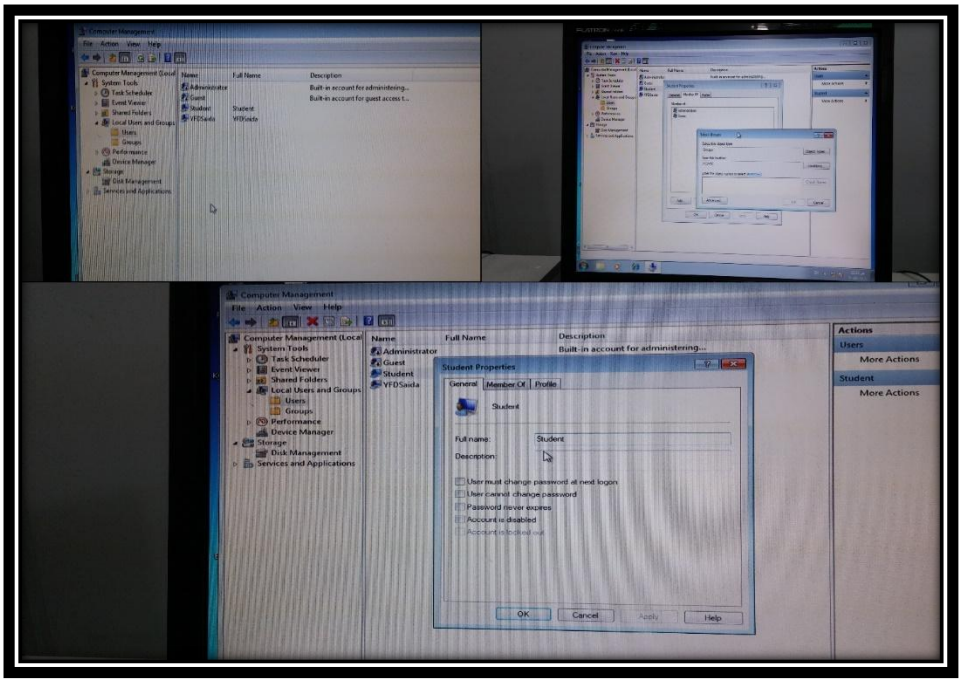

Figure (62): Creating new user

Then we install the printer drivel on each computer and make it by default to print from main printer and print out a test paper to be sure it work fine on each one.

Figure (63): Configure printer in all computer

We end the day working on WIFI modem and router, were we face a problem with no internet connection so we re-sat and reconfigure both of them (We need to rest them because they forget the username and password) and connect all computer to the local network connection.

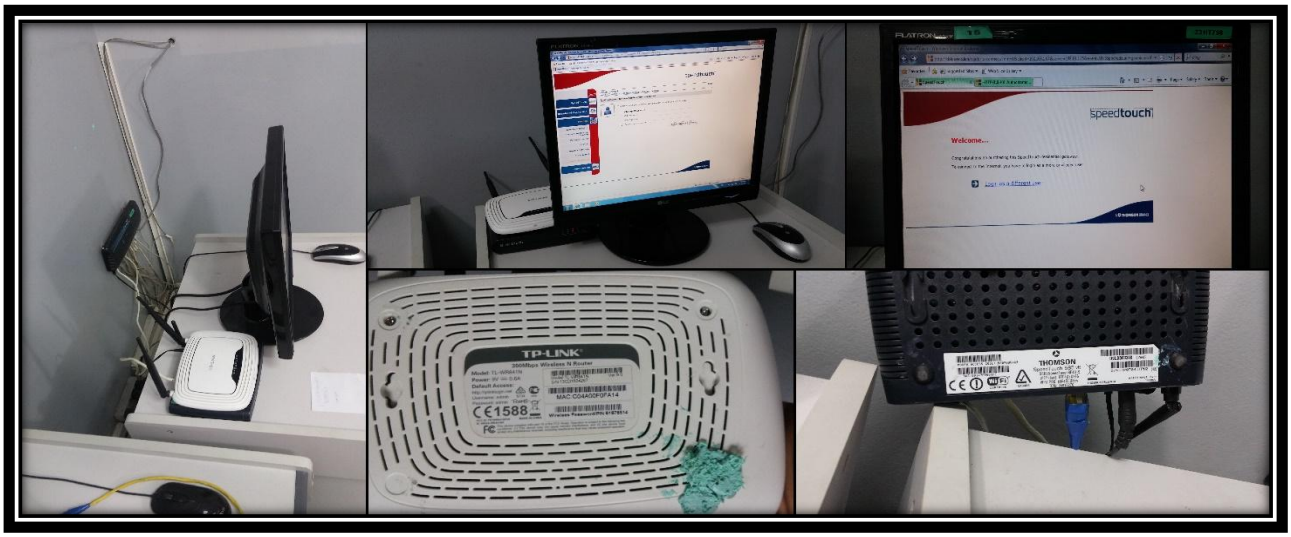

Figure (64): Configuring WIFI router

11.DAY TEN

I went to the office of the Global Integrated Solutions office is located in ***Saida, Al Makased Bld., 8th Floor,*** at the morning as every day, and there they inform me that no work today just few checking.

First we check the all port of DVR "Digital Video Recorder" if they work fine by use a camera connected to power supply and DVR and we connect the DVR to LCD monitor by VGA cable, the screen show four squares (4 port in DVR) and it work fine and appears in monitor in each port we try.

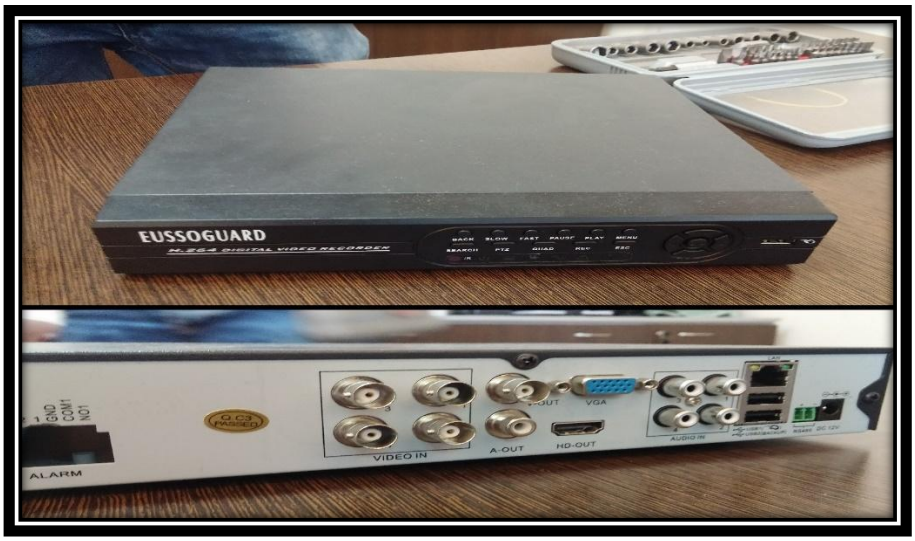

Figure (65): DVR with 4 port

Then we check the storage in the same DVR and it 1TB (1000GB) HDD, so we reset the DVR and prepare it to use it next time.

Figure (66): change Hard Disk 1TB for DVR

Second, we check the WIFI router "FAST" with security type open, so we try to change the security type and check it range, we discover that after reading from internet about the product that it can't be change it just increase the range of WIFI router in the room. What I learn is how to get the IP of any router and how to reset then configure and what many stuff can be made with WIFI router and the important of reading about any product before and after purchase.

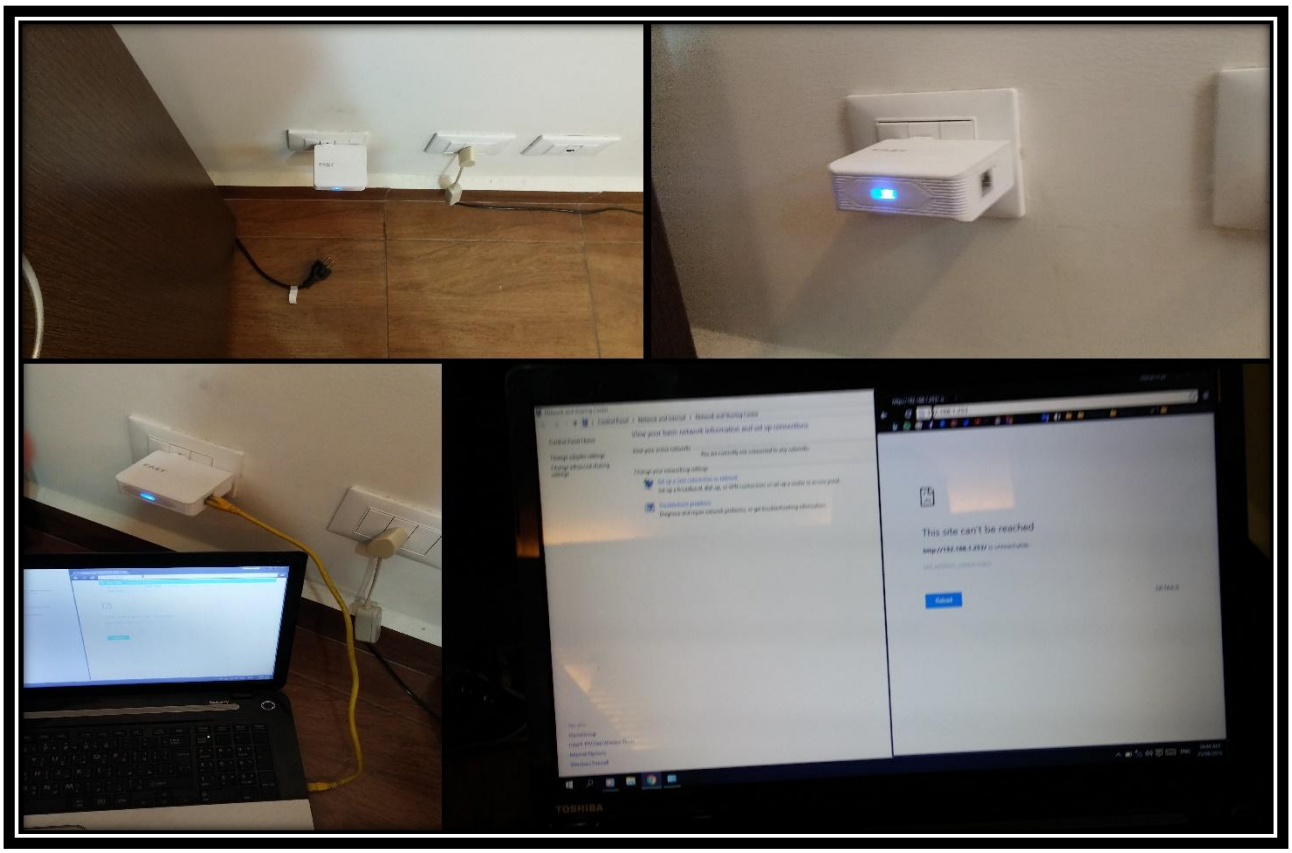

Figure (67): Trying to configure router

Third we use TeamViewer to fix laptop friend he lived in different country his laptop daily show an error in exploer.exe and message “The instruction at 0x03dfe000 referenced memory at 0xc000000. The memory could not be written.” after read and check the error from google and experience of the technical assistance the error have been fixed by few clicks (Instruction at referenced memory could not be read).

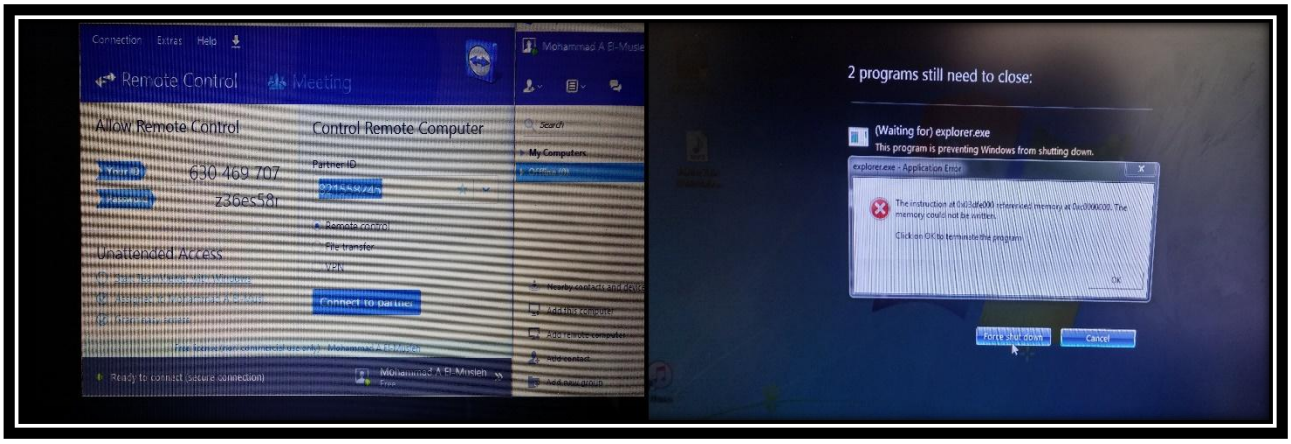

Figure (68): Using TeamViewer to fix other problems

12.DAY ELEVEN

I went to at the morning to GIS office, and their no work today due to the leader of technical department went to North Lebanon to fix a problem with network, so I took the opportunity to ask the leader of development department Mustafa ALASSADI A few question I keep wonder about the answer about my future.

I ask the leader of development department in GIS about:

- His work type and how much his salary
- Which web hosting they use and preferred
- Is you want to stay in your position in GIS company or find another job?
- What programming languages should I learn for better job and future
- What are the best courses online preferred to take from EDX website?
- How to get a link of website Stream Online T.V and add it on my web page
- How to add my location on my web page as html code

In addition, I ask him many other questions prepared before…

Teacher Mustafa ALASSADI was very friendly and answered all my question and gave me many books and software to read and use and helped me with summer report information, and explain the type of work in company and customer services. And how he develops himself step by step to step until he become the leader of development department in GIS. [people.bayt.com/mustafa-alassadi/]

He answered my question one by one first his salary 1000$/month and increased as work increase to reach maximum 2000$/month and as leader in development department his word in computer desktop creating websites from zero without buy any theme and after he save he check his work in “internet explorer” because whatever the customer browser is should work as should while in trying in chrome or Firefox may some wrong code work due to smart browser so if the code work in “internet explorer” it will work for the rest browse and he use Visual Studio and Dreamweaver and Notepad++ to type web code (HTML, CSS, JavaScript, PHP, others) .

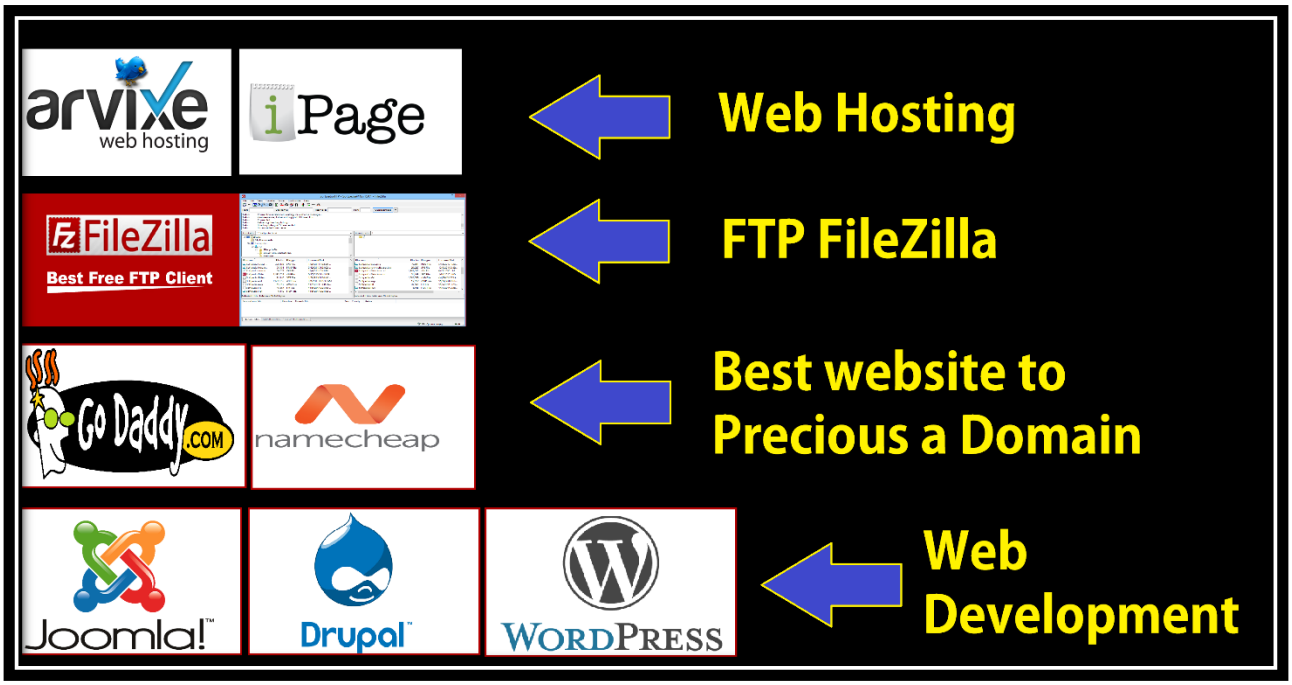

Figure (69): Web development online software

In the company they use ***Arvixe*** as web hosting and I use ***Ipage*** as web hosting, he is using ***Arvixe*** as Virtual Private Server (VPS Hosting) this for professional in web hosting and he create the a website according to customer then he use and preferred ***Go Daddy*** to buy a domain name (cheaper and have sub-domain, secure and protected and fast to use) then he use ***FTP program*** to upload the website to the domain and its ready to use (The customer pay every year for domain and hosting service and any extra change) when I ask him how much they take for it, he said we take 1000$ reach to 6000$ according to the work. For me I preferred to use ***namecheap*** to buy the domain name because they have a cheaper new domain name like .xyz, .TV, .online and more maximum can totally cost 1$/year also in web hosting I use ***Wordpress*** and try many web developer like ***Weebly*** “Weebly to add and drop” also ***FTP FileZilla*** to upload and backup my website. Also, he is not planning to change the web hosting.

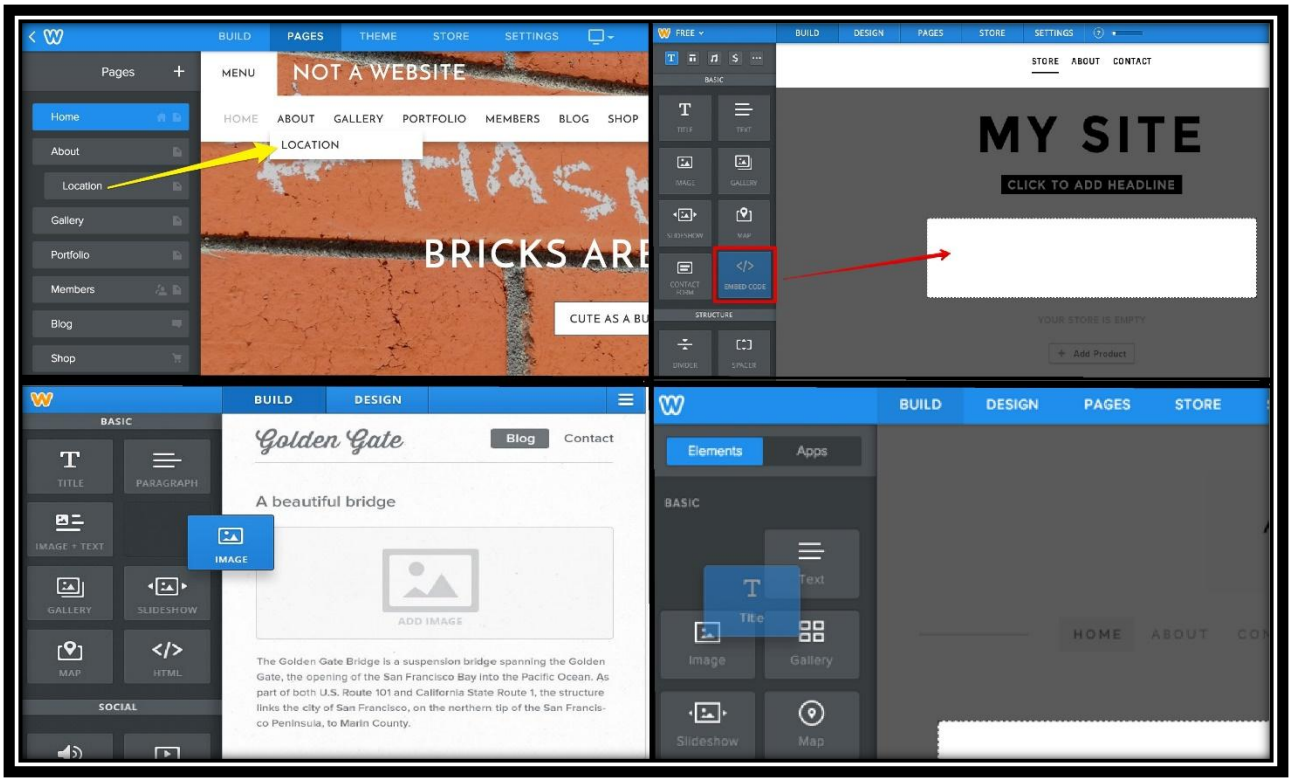

Figure (70): Weebly to add and drop software

Teacher Mustafa said about his job is good and it's suitable for him and since it's the best company in Lebanon offers this service with vary good salary, he is not planning to leave bit he now teaches in collage in SAIDA after work time, and he is planning to learn phone application since it recommended this day and to become GIS leading of software in Lebanon to achieve it goal and to avoid competition with new company.

About programming languages, he supports me to learn C++ and C# since many popular software is created by it and from it learn other languages became easier like Java, and web development languages to create a website and earn money and I can make final project in university.

He supports me to take an online course from ***EDX*** since all are helpful and there is a certificate at the end which I can add to CV as experience and help to find a job. He preferred courses from Microsoft and Linux Company.

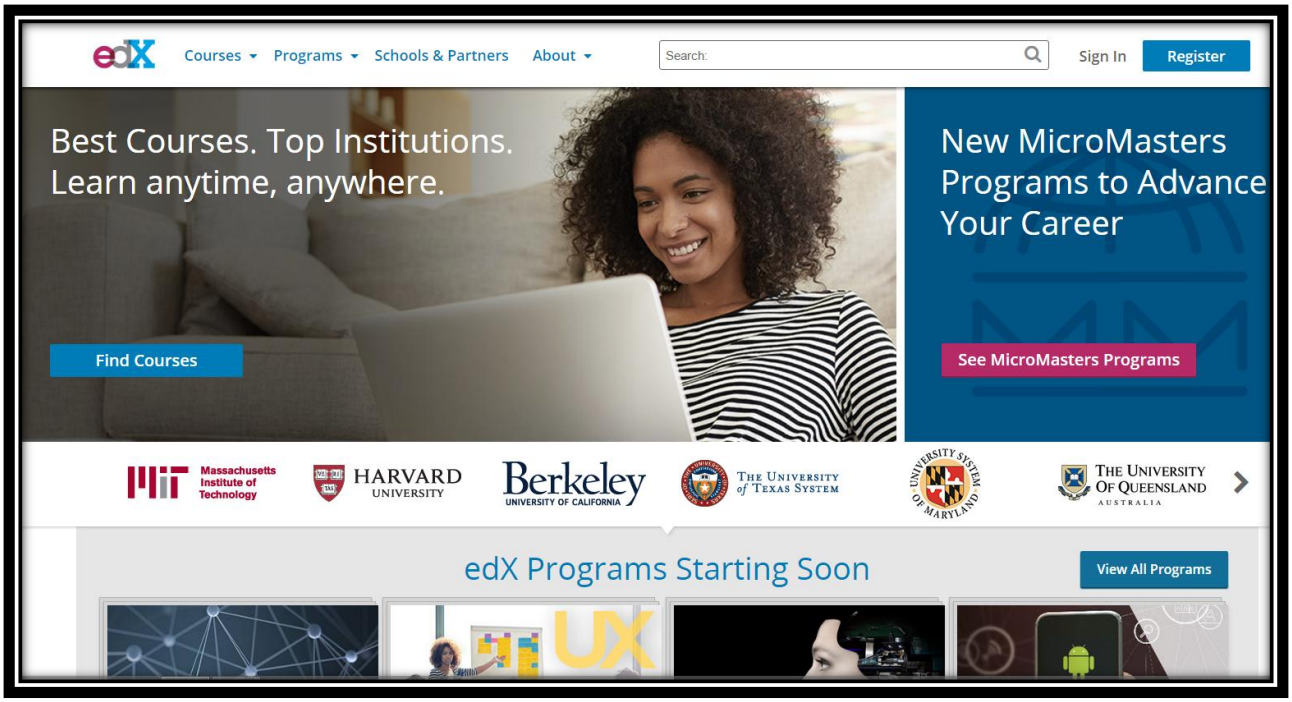

Figure (72): EDX for online code

When I ask him about to get the TV steaming online code to add it on my web page he tell me I need to contact with the company provide for sanding me the ***Embed Code*** like *filmon.com*, *watchallchannels.com* and *elahmad.com* this website show many T.V. channel streaming live (many channel offer it in their website).

After he showed me his best website created an explain to me how he did the company website (www.gis-leb.com) and how to add ***Google Map*** of the location wanted in the website, it's done by 2 easy way one from ***Google Map*** after select the location the page offer to get it as HTML code then copy and paste it in html page with frame I want (length and width) and second it came with many web development as service to add a map with wanted location like ***Weebly***.

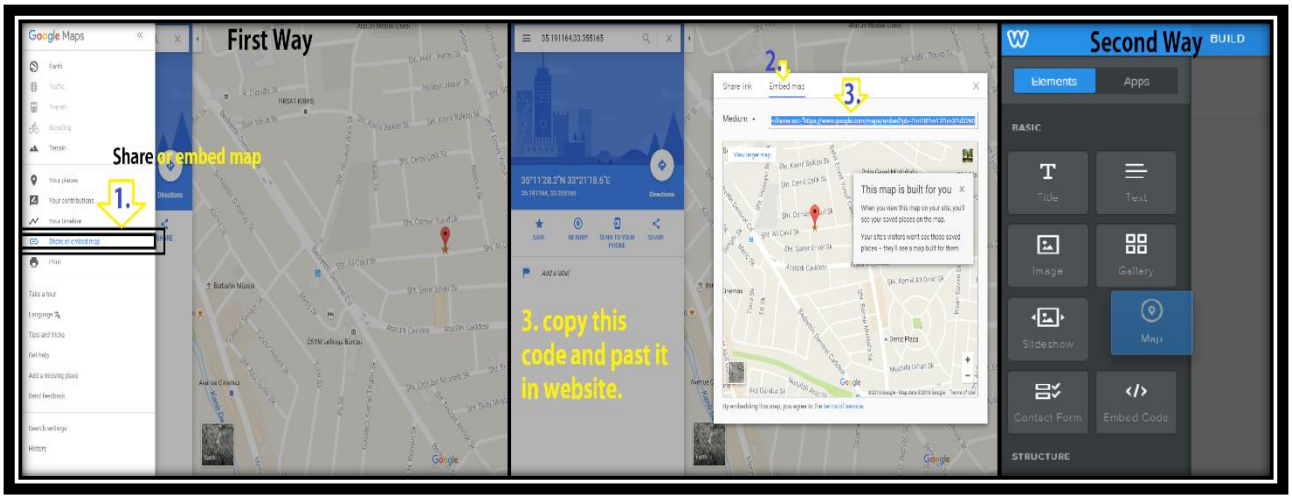

Figure (73): Taking code from Google Map

13.DAY TWELVE

The next location was in **Mount Lebanon Governorate** (**IQLIM ALKHURUB**)**- SIBLINE – Sibline Tanning Center for Palestinian Refugee for UNRWA**, we went there by the leader of technical department in GIS (Yousef CHANAA) to add a patch panel box in security room, and add network point connection for security room to STC bus parking room.

Figure (74): SIBLINE Tanning Center collage main entrance

We informed before we reach there that the bus parking room need to reserve internet connection because every time the officer in the room need to go to secretary to ask to use the computer to send important report, and after we reach there they want us to add network point in that room, we put the patch panel box in security room because there is an old network point from main server so we let that point become main point and it give to bus parking room and security room.

The main tools we use 3M network cable, cache cable 16x25" 2 meter, Concrete Sleeve Anchor, tester, compression crimping tools, cable ties, diagonal cutting pliers, cable ties, RJ45 plugin, RJ45 Jack (8 pins) 1 Ports, , cable stripper (the both plugin and jack of RJ45 are with colored wire type-B (T-568B Standard), cover socket, drill and (Krone) punch down tool.

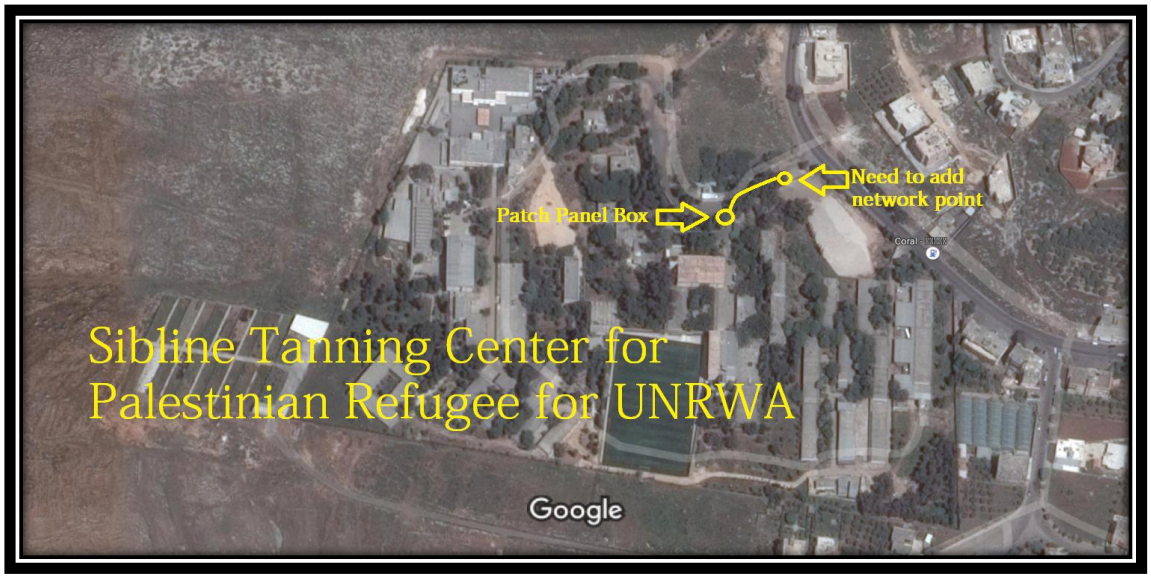

Figure (75): Location from Google map 100ft shown distances want to cover

The distance between the security room and bus parking room is distance 74 meter, so we use plastic flexible tube to cover the 3M cable between the two rooms. It take to finish working around 4 hours, it take long because we didn't bring a plastic flexible tube along the wanted distance with us so the technical leader went to find a shop to sell us the best flexible tube, so we didn't start until he find it.

Figure (76): Adding new patch panel box in security room

We start by adding the patch panel box in security room, so first we make holes in back side of patch panel box by drill then we put it in wall and use marker to mark perfect point that correspond the patch panel box, after we maker holes by drill, and attach the patch panel to wall by Concrete Sleeve Anchor that catch the box in wall.

Smart Tip: The smart tip I learn is how to make perfect hole in wall from room to outside, so the idea is we drill the hole inside the room downward with include 30 degree to avoid claimed changes either it's raining or dust storm to enter inside the box.

Figure (77): Smart tips to make hole in wall

Then we went outside to calculate the distance and path of flexible tube, so we start push the 3M cable inside the plastic flexible tube until it reaches the wanted building, we attach the plastic flexible tube with the Fence along the path with cable ties.

Figure (78): The distance between wanted building

Smart Tip: The smart tip we did is due to the short distance of plastic scale cable and we will face many problem if we push directly the 3M cable, so the scale 5 meter long and easily to push so every 4.5 meter long in flexible tube we make a slit on it and catch scale and bring it outside then we add shampoo to let the wire pass fast, when we have long distance we return it inside to continue push the 3M cable, we repeat this process until it reach the end of plastic flexible tube and cover each slit with adhesive tape.

\\\\\\\\

Figure (79): smart tips to connect the wires inside plastic tube

Then we start adding the point in bus parking room in wanted place so the distance inside the room is 10 meter of 3M network cable covered with cache cable then added the network point by RJ45 jack in cover socket, then we make connection between the computer and RJ45 Jack by short 3M cable have RJ45 plugin in both terminal.

Figure (80): Adding socket in wanted building

After done from bus parking room we went to the patch panel box to connect the 3M wires, so we remove the RJ45 Jack and attach it with new 3M cable and push from patch panel to bring both cable the old cable make it the main, the new one and outside cable from parking room connect them with network switch rack (witch we add it previously) to make local internet connect and makes internet reach the parking room. We add the cable in switch rack by RJ45 Jack each and catch it in switch and attach the cables on it with cable ties (we make 3M cables long incase changes in future).

Figure (81): Connect the wires to patch panel box

14.DAY THIRTEEN

The last location was in **South Lebanon – Tyre - El-Buss Palestinian Refugee Camp, DEIR-YASSIN High School for UNRWA** we went there by the leader of technical department in GIS (Yousef CHANAA) and his assistance to add a one network cable connection for library room located under patch panel room.

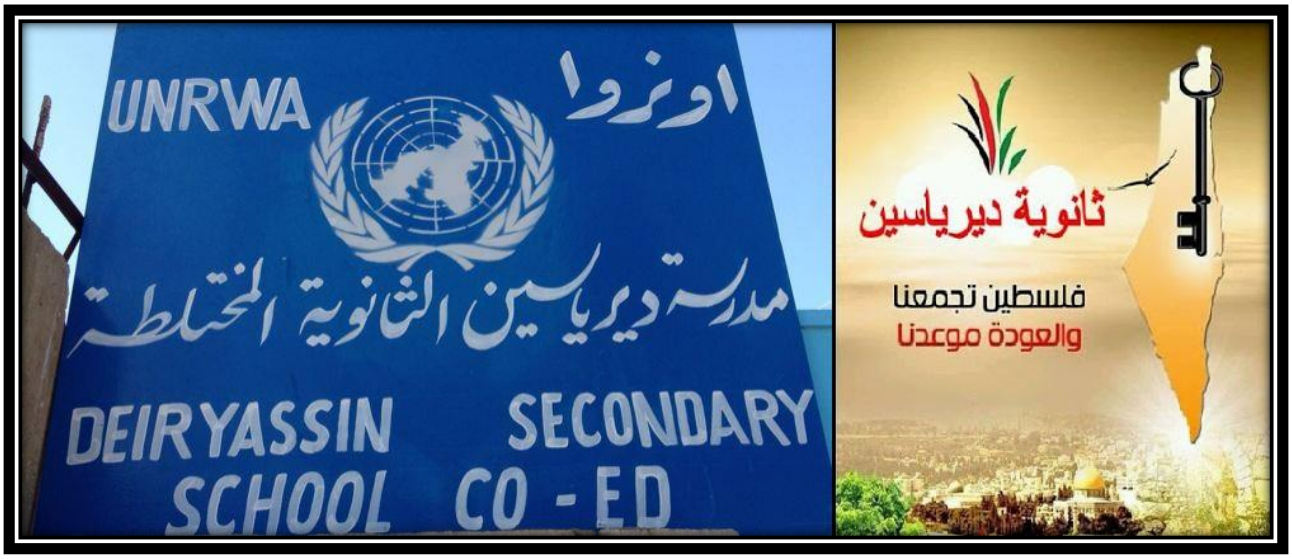

Figure (82): In front DEIR-YASSIN High School for UNRWA

Our mission is to add one network point in library room in 2nd floor connected to patch panel box in 1st floor directly under it in opposite site. This not my first time doing this work, since the first day I watch and learn every step the technical leader did, so it took us to finish from this point around 2 hours. It is not new and we do smaller think before.

So before we start checking the patch panel box to see if their empty place in the network switch rack and we found place for needed point.

The main tools we use 3M network cable, cache cable 16x25" 2 meter, tester, compression crimping tools, cable ties, diagonal cutting pliers, cable ties, RJ45 plugin, RJ45 Jack (8 pins) 1 Ports, cable stripper (the both plugin and jack of RJ45 are with colored wire type-B (T-568B Standard), cover socket, drill and (Krone) punch down tool.

So we begin by calculating the distance in wanted place in library to outside (we can't drill the ground) then we calculate the distance in outside from library to patch panel room (near spot) then from outside to patch panel box (the switch). The technical leader teach me the important to add more meter to the location point, like the distance 25 meter we put 30 meter in case we want to cut the RJ45 jack or plugin and change them over years.

Then we start adding the point in library room in wanted place so the distance inside the library is 10 meter of 3M network cable covered with cache cable then added the network point by RJ45 jack in cover socket.

Figure (83): Network socket ın library room

Then we want outside, we cover the 3M cable with flexible tubing cable along for protections, and we use cable ties because we didn't use the scale wire so we push the 3M cable by hand then we cut the flexible tube to part to make the process easier and collect it back with cable ties, and we attach the flexible with nylon winged wall plugs as same as purpose before. Then we make hole in wall by drill to get inside patch panel room.

Figure (84): Distance covered of 3M cable in flexible tube

After done from library room we went to the patch panel box to connect the 3M wire to network switch rack which is patching into WIFI router for local internet connect. In the 2nd part of 3M wire we sort the (8 wires) in according to corresponding colors on the switch and insertion the network wire by using (Krone) punch down tool to connect them. (It will work fine if we add RJ45 Jack and connect it with Cisco switches by 3M cable have RJ45 plugin in both sides)

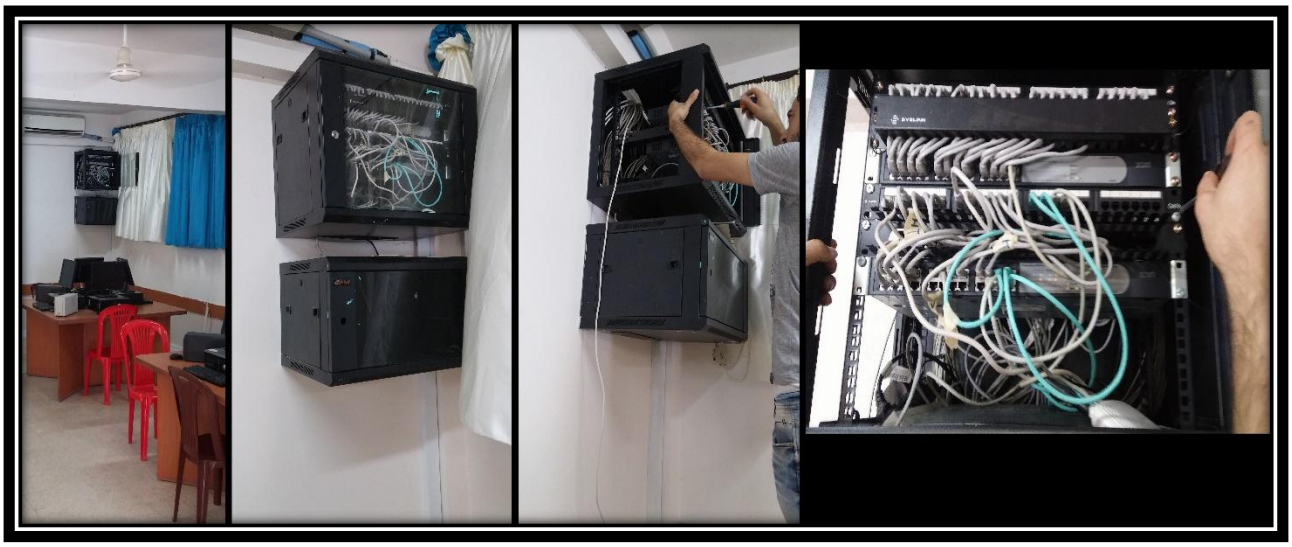

Figure (85): Add the network point in patch panel box

Then we use tester to check if the connection of cable is working fine as same code of color for type-B. So, we connect one of tester tools in switch and one in added point, so we can see if the screen show the orders of number up and down same, this mine the wire in connected good and ready to use. At the end, we connect the port we are working on it with Cisco Switch.

Figure (86): Test the added network point by tester

15.DAY FOURTEEN

At the morning in the main office of the Global Integrated Solutions office is located in ***SAIDA, AL MAKASED Bld., 8th Floor,*** I spend more than 2 hours watching the leader of technical department in GIS (Yousef CHANAA) make configuration for two "RouterBOARD SXT Lite 5 devices" to use them next day between two schools.

Figure (87): 2 box of RouterBOARD SXT Lite 5 device

Each one of this "RouterBOARD SXT Lite 5 devices" cost in Lebanon 35$ and after programing it and build it in wanted site it gives income to company 500$. Before we went to site location it need to be configure and this process consist of 3 steps, first step is to configure one of them (1st) to send a signal and second step is to configure the 2nd one to receive the signal from the first one only so it can't be access to another RouterBOARD around the covered area like a high level of security, and the last step is to make test to check if it work (All of this process should done before in office to avoid discover a damage after connecting it. We use the "RouterBOARD SXT Lite 5 devices" to make a local network like if building have internet but the next building not it will create a wireless network to give internet in both building. (For best signal both should face each other no barriers and no disruption)

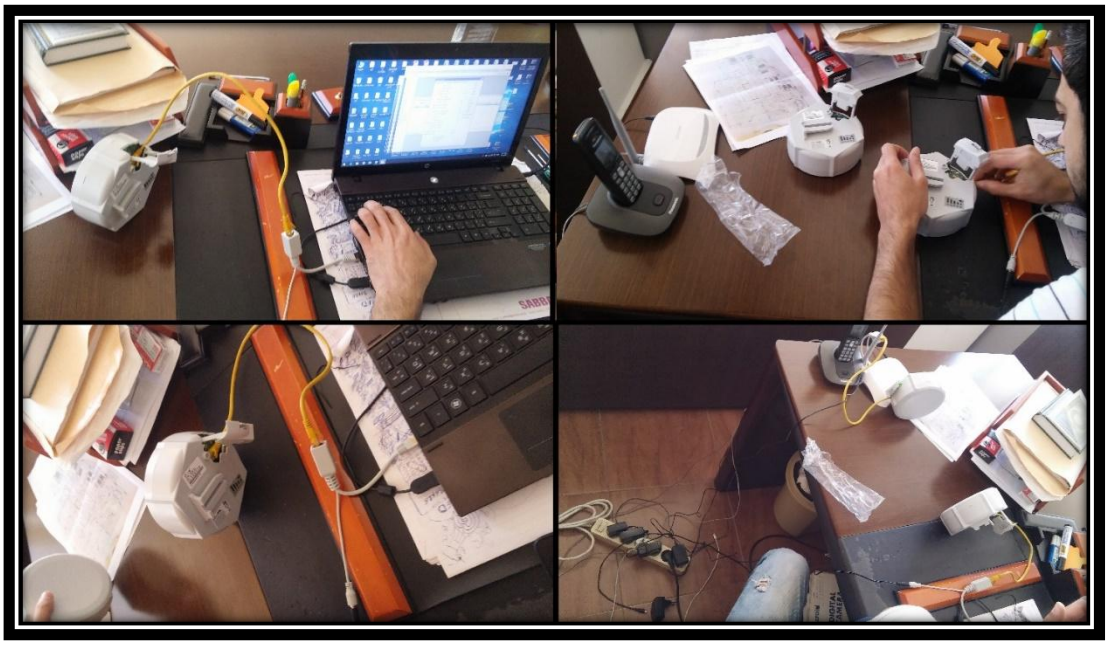

Figure (88): Configuring RouterBOARD SXT Lite 5 devices

The reason beyond choosing “RouterBOARD SXT Lite 5 devices” to connect the internet from one building to another first it is cheaper and second faster than 3M cable, and third the main reason for connecting this two RouterBOARD in 2 schools behind each other is because they use before “CISO fiber switch” it damages due to high voltage and it’s so expensive around 1000$, but fiber is faster than RouterBOARD and 3M cable.

In Configuration process we connect one to configure it to send internet and configure the second to receive internet from the first one, then we connect the one with internet to WIFI and the second with laptop to test it and it work fine. (The leader of technical department in GIS *Yousef CHANAA* assisted in his work by video from web to make the work 100% fine).

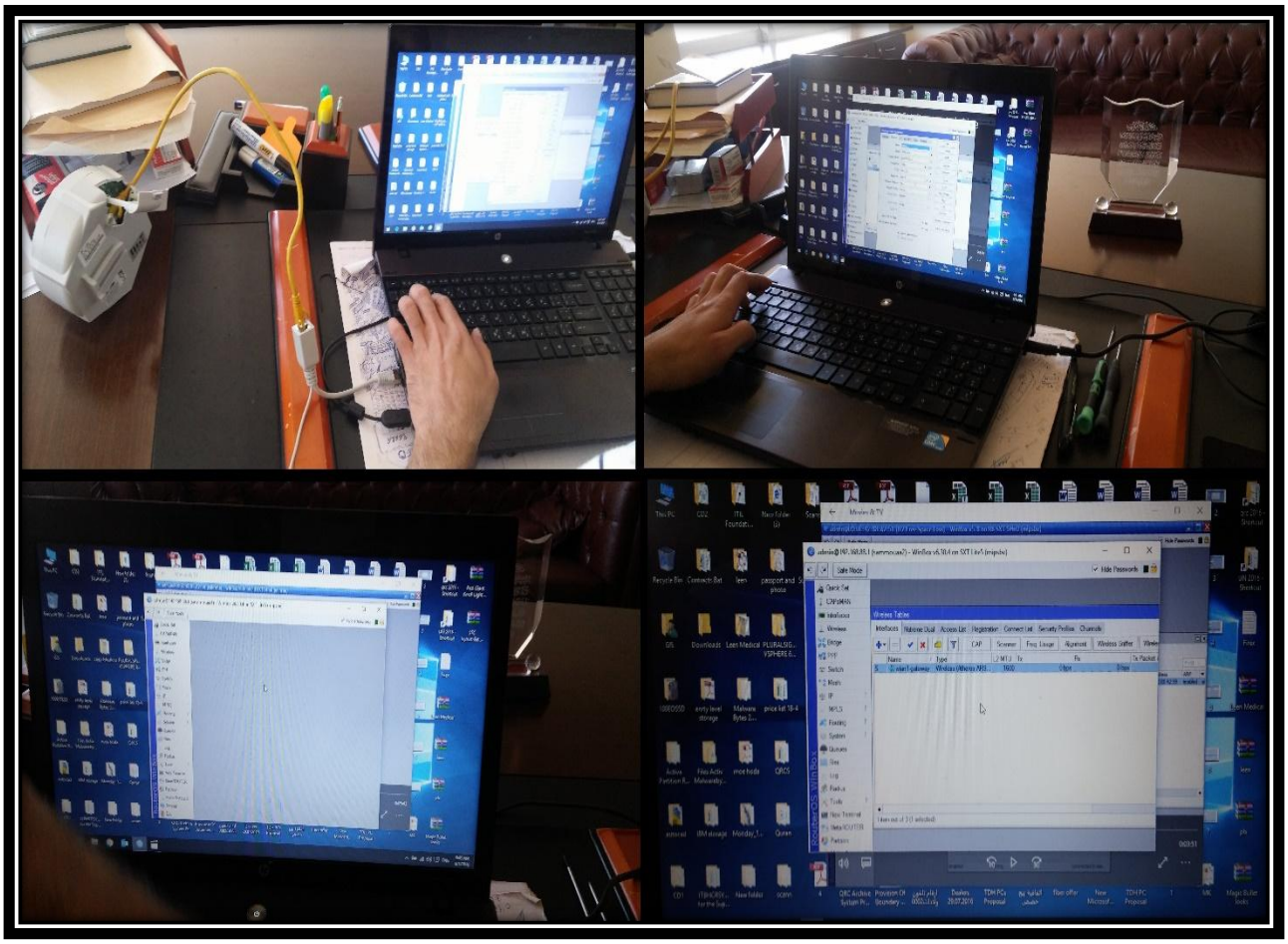

Figure (89): Using main program to configure the devices in laptop

16.DAY FIFTEEN

The next location was in **Beirut – West Beirut - Sabra Palestinian Refugee Camp**, **Ramallah Primary School for UNRWA**, we went there by the leader of technical department in GIS (Yousef CHANAA) to add a one network cable connection for library room located 3rd floor and the patch panel box in manager room in ground floor.

Figure (90): Inside RAMALLAH Primary School for UNRWA building

Our mission is to add one network point in library room in 3rd floor connected to patch panel box in ground floor in manger room. The school want to add extra network point in library room so I watch before and I helped the technical leader from the begging as expert, so it took us to finish from this point around 3 hours it should take less time but due to school started and student in school.

So before we start checking the patch panel box to see if their empty place in the network switch rack and we found place for needed point.

The main tools we use 3M network cable, cache cable 16x25" 2 meter, tester, compression crimping tools, cable ties, diagonal cutting pliers, cable ties, RJ45 plugin, RJ45 Jack (8 pins) 1 Ports, cable stripper (the both plugin and jack of RJ45 are with colored wire type-B (T-568B Standard), cover socket, drill and (Krone) punch down tool.

So we begin by calculating the distance in wanted place in library to outside we use the drill to make hole in the wall to outside but we found an old hole so we pass the 3M cable from it, then we calculate the distance in outside from library to manger room where the patch panel located (short patch) then from outside to patch panel box (the switch). We didn't cover with flexible

cable the 3M wire because we can’t attach it with nylon winged wall plugs so we keep it uncover.

Then we start adding the point in library room in wanted place so the distance inside the library is 2 meter of 3M network cable covered with cache cable then added the network point by RJ45 jack in cover socket.

Figure (91): Adding network socket in library room

Then we want outside, we didn’t cover the cable with flexible tube due to hard condition and far distance so we can’t control, we just throw the wire from library to reach the ground then we calculate the distance wanted to reach the patch panel then we just attach the 3M cable with cable ties with wall when the 3M cable reach the ground floor. Then we make hole in wall by drill to get inside patch panel room.

Figure (92): Distance covered by 3M cable inside flexible tube

After done from library room and outside we went to the patch panel box in manger room to connect the 3M wire to network switch rack which is patching into WIFI router for local internet connect. In the both part of 3M wire we sort the (8 wires) in according to corresponding colors with same type-B so on the switch we insertion the network wire by using (Krone) punch down tool to connect them. Then we connect a wire from switch to WIFI router by short 3M cable with RJ45 plugin in both terminal.

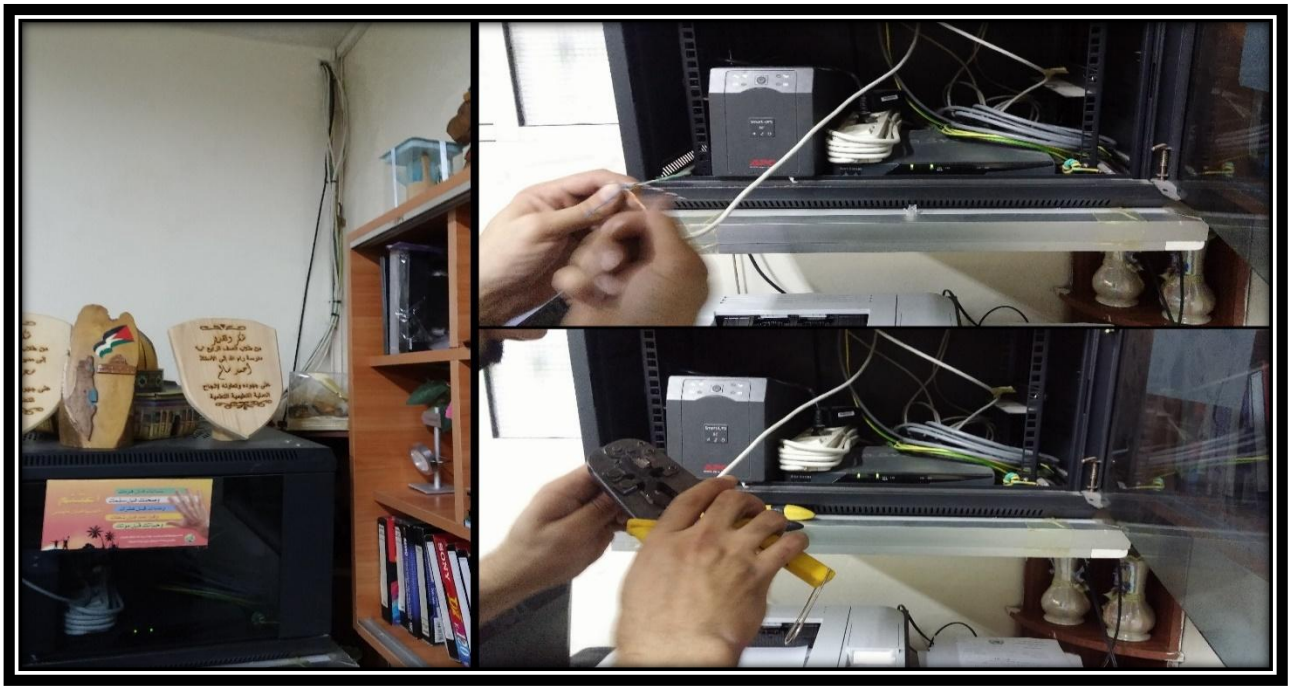

Figure (93): Add the network point in patch panel box

At the end, we use tester to check if the connection of cable is working fine (Color code: type-B). So, we connect one of tester tools in switch and one in added point, so we can see if the screen show the orders of number up and down same, this mine the wire in connected good and ready to use.

Figure (94): Make test by tester

17.DAY SIXTEEN

The next location was in **Beirut – West Beirut - Sabra Refugee Camp (for Palestinian) - RAMALLAH Primary School for UNRWA**, we went there by the leader of technical department in GIS (Yousef CHANAA) to test and fix network cable connection for secretary room located ground floor and the patch panel box in computer Lab room in 1st floor.

Figure (95): Inside RAMALLAH Primary School for UNRWA

Before we reach the site, we informed that secretary computer can't access to local network with internet and the computer in teacher room can't print since the printer connected to secretary computer so they can't print any paper unless the computer is ON and both computer should access to local internet connection.

The main tools we use 3M network cable, cache cable 16x25" 2 meter, tester, compression crimping tools, cable ties, diagonal cutting pliers, cable ties, RJ45 plugin, RJ45 Jack (8 pins) 1 Ports, Face Avant 22.5x45 1 port, cable stripper (the both plugin and jack of RJ45 are with colored wire type-B (T-568B Standard), cover socket, drill and (Krone) punch down tool.

As soon as we reach there the secretary lead us to the location of each room, so we found in secretary room that computer is fine the problem with the RJ45 jack and the 3M cable that connected to the computer is connected in bad way and not cover with cache cable, and the teacher room we also found a problem with the RJ45 jack so we change them all and make test at the end.

First, we start with secretary room, we change the RJ45 jack (It must be covered with suitable socket be it is not) and before the 3M cable was connected from RJ45 Jack (main) to computer directly so we change it by make long 3M cable connected from RJ45 Jack (main) to near east point and we add RJ45 Jack covered by suitable socket, then we make a short 3M cable from new RJ Jack to computer with RJ45 plugin at each terminal.

Figure (96): Adding 3M cable covered by cache cable

At the end, we use tester to check if the connection of cable is working fine (Color code: type-B). So we connect one of tester tools in switch and one in added point, after it show “Wire Map: Pass” it mean it work fine so we check the computer network icon show it work fine and browser work as well.

Figure (97): Make test by tester

After the end from secretary room we went to teacher room, to change the RJ45 Jack and check if the printer will print from computer in teacher room. So we change them and change is simple process just cut the old RJ45 Jack and use splitter to cut the cable that cover the 8-wires then we make them equal Straight line then push them inside the Jack and close it, then cover it with Face Avant (1 port) then with suitable socket. After changing them we re-connect the 3M cable from RJ45 Jack to computer, and try to print and it work fine a paper came out from secretary room.

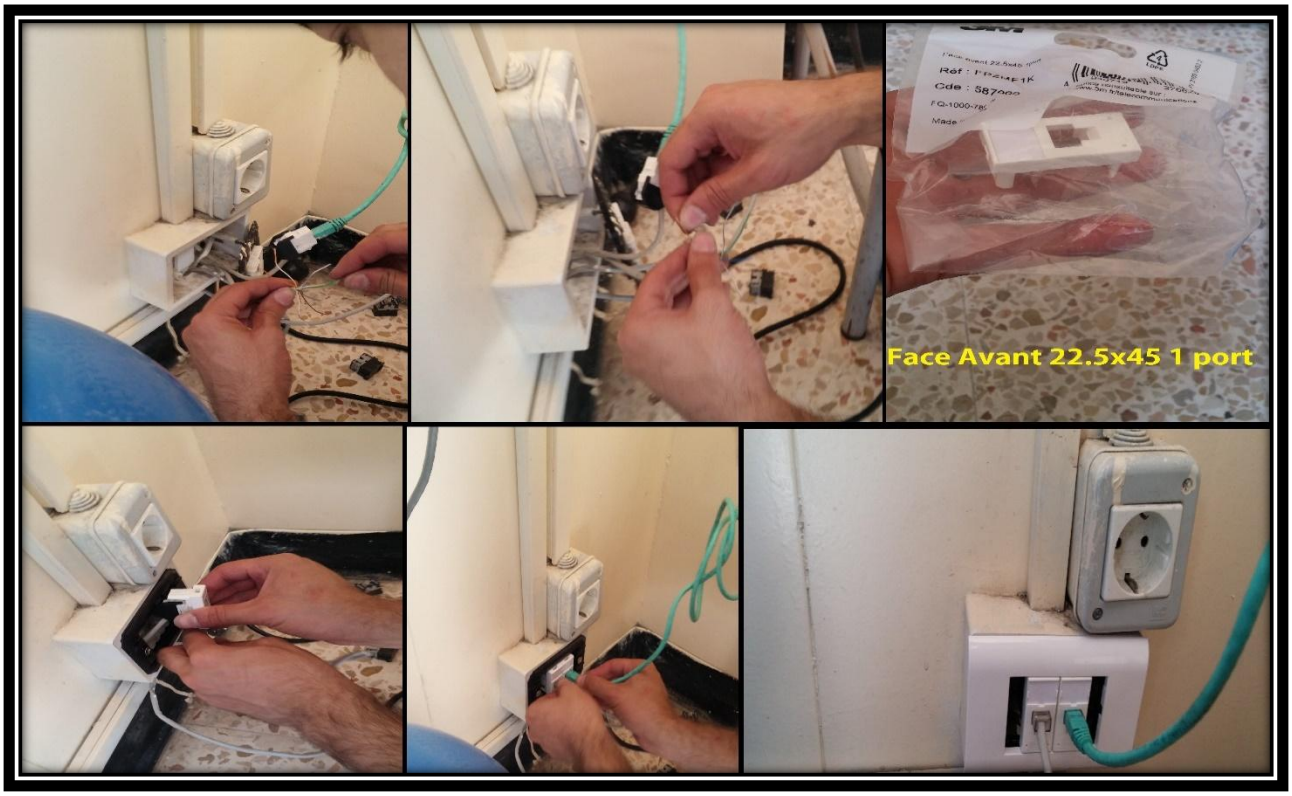

Figure (98): Adding new network socket in secretary room

Smart Tips: While changing the RJ45 Jack in secretary room we cut it twice due to weak wires so to avoid losing it because the cable become too much short and If we cut again we need to break the wall to catch it again, so we put RJ45 Plugin instead of RJ45 Jack and we add a RJ45 Jack in separate 3M cable, so it become as extension cord we can do whatever we want on it.

18.DAY SEVENTEEN

The next location was in **Southeast of the city of SAIDA, EIN EL-HILWEH Palestinian Refugee Camp, SAMMOU Primary School for UNRWA and BISSAN Secondary School for UNRWA,** we want there by the leader of technical department in GIS (Yousef CHANAA) and his assistance to fix the "RouterBOARD SXT Lite 5 devices" between the 2-building school of school instead of cable across the distance.

Figure (99): Inside SAMMOU Primary School

This was 2nd time I see and helped in add "RouterBOARD SXT Lite 5 devices", the reason for add them is due to damage the fiber CISCO switch after no internet connection and to change the fiber switch is very expensive and SXT is cheaper and send Internet connection between the two school.

This two RouterBOARD SXT devices has been configured before by the technical leader, also this two are connected to Patch Panels by 3M wire each to let the internet reach the second school (SAMMOU) from main school (BISSAN).

Figure (100): Steps of adding RouterBOARD SXT device in roof

First, we want to roof for first building to put iron stand to catch the RouterBOARD SXT device, we choose the best location to meet the next point in the second roof, so we start by making four eyelets to catch the iron stand then we put "concrete sleeve anchor". Then we attached the RouterBOARD SXT device on the top of the iron stand. This RouterBOARD SXT device connected by patch panels throw 3M wire, so we insert the 3M wire in Flexible tube, then add RJ45 on its end and connected to RouterBOARD SXT device, then we pass the wire from roof to ground flower to first patch panels (located in Computer Lab).

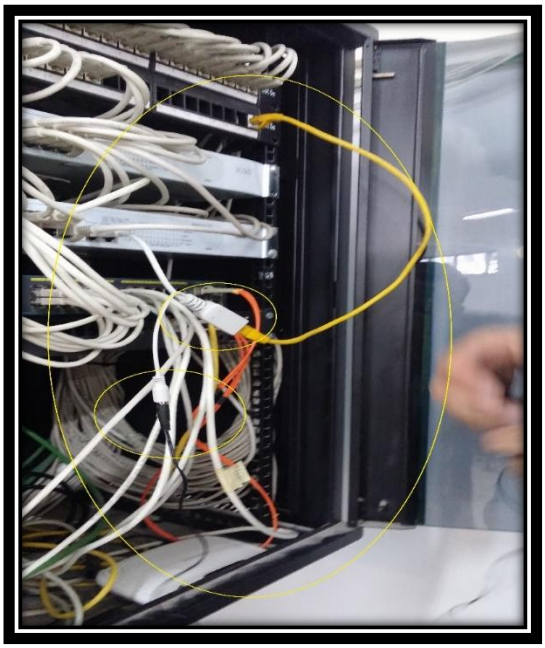

Figure (101): Connect the extension of RouterBOARD SXT device

Then we connect the 3M wire connected from the RouterBOARD SXT device to its extension which consist of an electric source (Power) and network cable (Data) connected to patch panels.

Figure (102): View of RouterBOARD SXT device in two locations

After finish first site to want to the roof of second site and find best location to add 2nd RouterBOARD SXT device which viewed to 1st one to give high signal.

Figure (103): Distance covered from RouterBOARD SXT to patch panels box

We attached the RouterBOARD SXT device on an old Iron stand, This RouterBOARD SXT device connected by patch panels throw 3M wire, so we insert the 3M wire in Flexible tube, then add RJ45 on its end and connected to RouterBOARD SXT device, then we pass the wire from roof to 2st flower (Computer Lab for Girls Part in BISSAN School) to second patch panels.

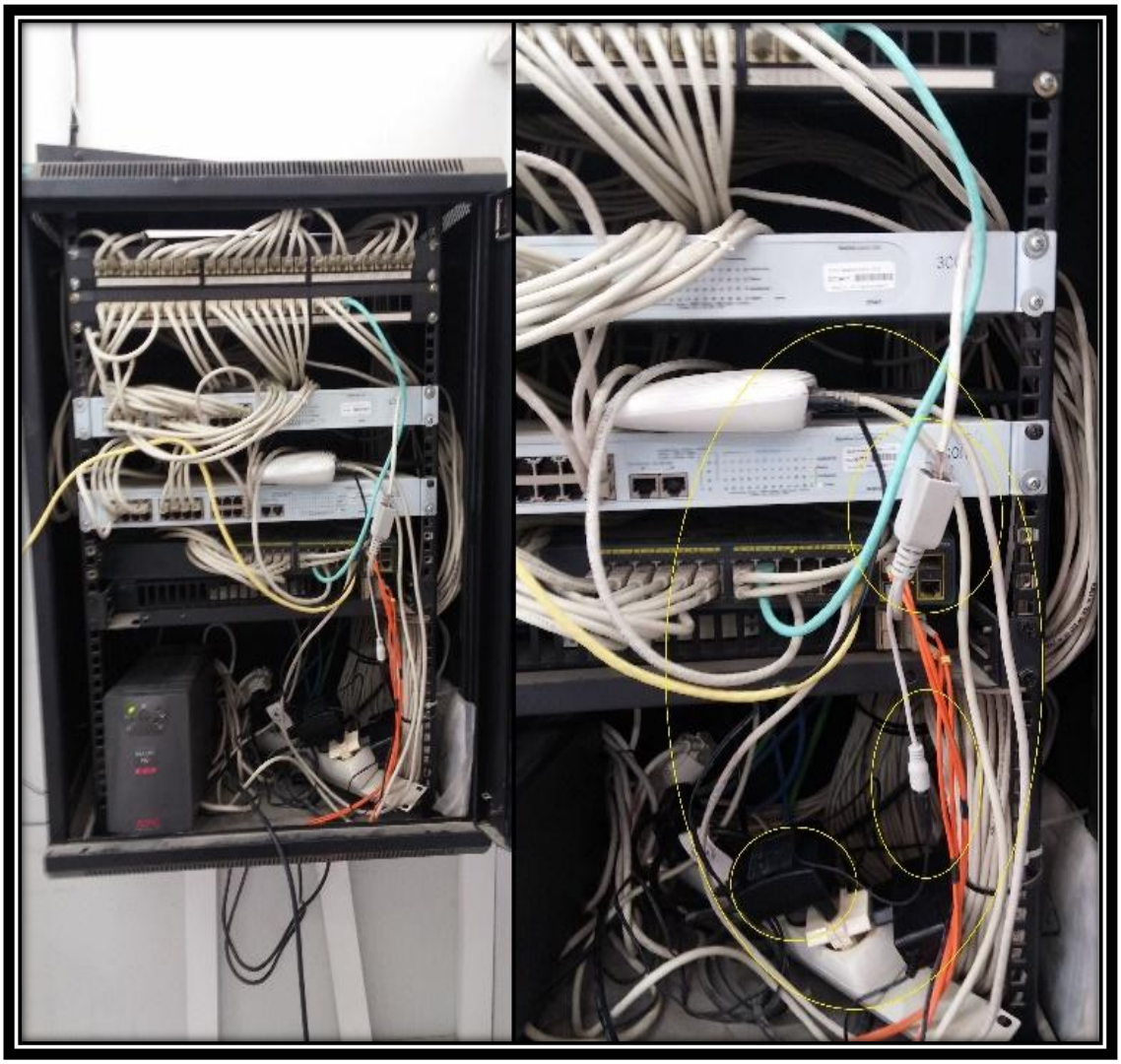

Figure (104): Add the RouterBOARD SXT in patch panel box

Then we connect the 3M wire connected from the RouterBOARD SXT device to its extension which consist of an electric source (Power) and network cable (Data) connected to Cisco Switches which running local internet connection by Ethernet to patch panels. We end the day after finishing from second site we make test by tester to check if connection is connected as well between the two devices and we get very high signal around 90%.

19.CONCLUSION

In this 20 days summer practice I expanded my engineering knowledge. The most time I spend in the working site, I used to ask so many questions, all the questions that used pop out to my mind. This summer training included too many parts that will assemble an engineering knowledge in the future.

The summer practice included a lot of new and beneficial informations and should be taken in a proper way. I would like to thanks the Near Easy University for giving me this opportunities to make this helpful summer practice as well as GIS Company.

Thankfully, I was able to see the difference between what is written on papers and what down there in the real field. It was such a pleasure to meet Eng. Yousef CHANAA, who was a great help to me and I was astonished by his passion and abilities. Also, as undergraduate student in Computer engineering department, I see it's a good experience and very helpful to me and to all students as well.

The main goal of this training is to provide an opportunity for students in department of Computer Engineering to observe and practice real work. And gain good experience in this fields and learn the works and their stages.

Finally, no matter what we learn in universities or schools, it will not stay in mind for a long time. But if there are experiences and work processes remain in mind for a life time because it is something that has been practiced.