# DIGITALIZATION IN BANKING SECTOR WITH ALTERNATIVE DELIVERY CHANNEL

BY

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

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# **APPROVAL**

This Intern titled "Digitalization In Banking Sector With Alternative Delivery Channel" submitted by Vazan Das, ID No: 163-15-8289 to the Department of Computer Science and Engineering, Daffodil International University, has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of B.Sc. in Computer Science and Engineering (BSc) and approved as to its style and contents. The presentation has been held on date.

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It is hereby declared that, the work presented in this internship report is done by me

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I would also like to extend my thanks to all others who have encouraged and have provided support directly or indirectly, throughout my internship. I am grateful to Technomedia Limited for giving me an opportunity to do internship under its ATM(Automated Teller Machine) Operations Center with ADC(Alternative Delivery Channel)System. A lot of supportive person helped me during the time of writing the report by working procedure, Information as well as the management process when required, and made me clear different concept clearly.

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Finally, and with special recognition, I want to convey my deepest regard to the Almighty Lord, the beneficial, the magnificent.

#### **ABSTRACT**

Technomedia Limited (TML) is a new generation total banking solutions provider in Bangladesh. In order to serve the indigenous banking industry better, Technomedia Limited has a strategic alliance with world renowned companies like NCR Corporation, USA. Technomedia Limited (TML) is one of the pioneer distributor of NCR Corporation USA, with its System media Division, Financial Service Division, Payment System Solution etc.In 2010 Technomedia Limited is awarded as the 2nd largest distributor for NCR ATM in Middle East Africa (MEA) region. It should also be noted that Technomedia Limited has awarded NCR highest achiever award named "Circle of Distinction" in the year 2011 & 2012. We also have awarded highest achiever award by NCR named "AWARD OF DISTINCTION" for the year 2014.Our support solutions simplify our valued customer operations with a single point of contract and flexible SLA to differentiate customer experience from competitors. Our experienced Customer Care Agent log calls into our help desk system. Then allocate call to our Field Engineer within committed Service Level Agreement with our customers. We are also able to provide business critical support for 7 days x 24 hours if required.

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#### **CHAPTER 01**

#### INTRODUCTION

#### 1.1 Introduction

The objective of my internship in TML was to gather experience in real life to expand knowledge regarding automated teller machine(ATM)working procedure where most of the bank digitalization their withdraw system, payment system and others activities.

Our PrimeMinister Sheikh Hasina was to turn Bangladesh into developed day byof our nation by our vision 2041 for this reason we are ready for this implementation. If we are create some different types of technology we can improve easily. So one of them Technomedia limited is the new technologist company. Technomedia limited provide automated teller machine in our country for available our financial service. Technomedia limited has provide in Bangladesh about 5500+ automated teller machine one of them 25+ bank with involved with them.

As present age is information and technology age for this reason techniomedia limited day by day increase their automated teller machine and others financial service. In the field of computer science and engineering our concepts at analogue and digital communication system [1].

# 1.2 Motivation

We know that an internship is a discovering practice for build concrete work experience in a perfect professional discipline. This is the short time internship for this reason we cannot learn fulfil but internship practical knowledge is most important our future career .where we can work my practical experience with practical discipline. It actually helps to develop professional work habits, providing and understanding of corporate rules and regulation with their environment. It can also be an opportunity to success in your real life. It is of extreme importance to the theoretical background given by the university with the practical working environment.

# 1.3 Internship Benefit

Internship is the part of practical base knowledge where you can prove your practical work with real life, corporate life or business life for this reason I can choose this internship. I interned in Technomedia limited which provide automated teller machine in our country. I am learning how to automated teller machine work whole procedure and how to solve hardware and software issue.

For this reason my practical experiment is very important for career my future.

Here additional benefits can be determined for the part of the internship –

- ➤ Internship provide real life working experience
- > Internship allows an intern to gain a corporate job market with an initial experience
- > It may help a student to be powerful and best career for your organization
- > Internship also helps us build up confidence
- Internship get to increase social impact with your during intern period
- ➤ Internship also gives us your real life job impact
- Most important internship works as testing field of student their theoretical experiment on how to well it is applied in our practical world

# 1.4 Report Layout

- Chapter 1: Focus the introduction details, internship motivation details, internship benefits.
- Chapter 2: The organization profile highlight, company mission vision, why choose us and other many other thing.
- Chapter 3: Working procedure of automated teller machine and which parts of the important for automated teller machine.
- Chapter 4:Call center management which persons are responsibilities for assign engineer.
- Chapter 5:ATM support in branches how to maintenance his own network.
- Chapter 6: Internship activities and task performed.
- Chapter 7: Extension and future career for real life or job market.

# **CHAPTER02**

# **ORGANIZATION PROFILE**

#### 2.1 Introduction

Technomedia Limited has started its journey in 1999 as an Information And Technology has elaborate its business in banking sector with Ordination of system media partition of National Cash Register corporation in 2005. Technomedia Limited is a unfailing vendor and service provider in the banking sector.

Technomedia Limited have also provided cash deposit machine. Some of the special machine will provide TML which is called recycle automated teller machine where this special feature is real time deposit. If this ATM is available in our country we get many advantage like as hand cash not carry. At present Technomedia limited provided 5500+ automated teller machine and 350+ field engineer which are serve all time and all of the ATM problem issue. For this reason our financial transaction is very easily. About 35+ bank of Technomedia limited clients at presents. ATM market on of the most competitive market in our country but Technomedia limited has own responsibilities and own criteria his increase business day by day [2].

We are also capable to get tight support for seven days multiply twenty four hours.

- ➤ Remote Control
- > Software Arrangement
- Ministry Channels Integration
- Expert Protection
- Update and Renewal

#### 2.2 Product AND Market Situation

Technomedia Limited market is one of the most powerful market place in our Country .Technomedia Limited provide automated teller machine (ATM), Point of Sale (POS), cash counting machine, plastic card produce machine and many others consumer product. At present Technomedia limited provide 5500+ automated teller machine in different bank one of the most, largest automated teller machine network

area in Dutch bangla bank limited. Althoughanother bank have some automated teller machine everybank online ATM machine hardware and software support TML engineer where all Bangladesh 350+engineer workingevery single day.

Technomedia Limited import NCR (National Cash Register) branded automated teller Machine. Which is the most secure and reliable automated teller machine. ATM market place in Bangladesh 65% market catch and get support Technomedia Limited.

Technomedia Limited first came automated teller machine in 2009 for this reason this market is not long time but at present situation ATM market place is very high and reliable. So we can speak easily Technomedia limited is looking promoted for sensational, next manufacture banking products and technologies from which attractive future incoming stream can be produce [3].

# 2.3TML Mission

- ➤ Technomedia Limited one of the most mission is all Bangladesh people involved financial transaction with the banking sector Special mobile banking, automated teller machine POS etc.
- > Secondlydigitalization in banking sector available automated teller machine, POS (point of sale) and others banking advantage.
- ➤ Technomedia Limited aim at offering innovative information and communication technology solution for premier quality.
- Real profitable increment by creating tall term partnership with clients.
- ➤ We destination at offering innovative ICT Solutions.
- > Product diversification with bazar share.

# 2.4 TML Clients.

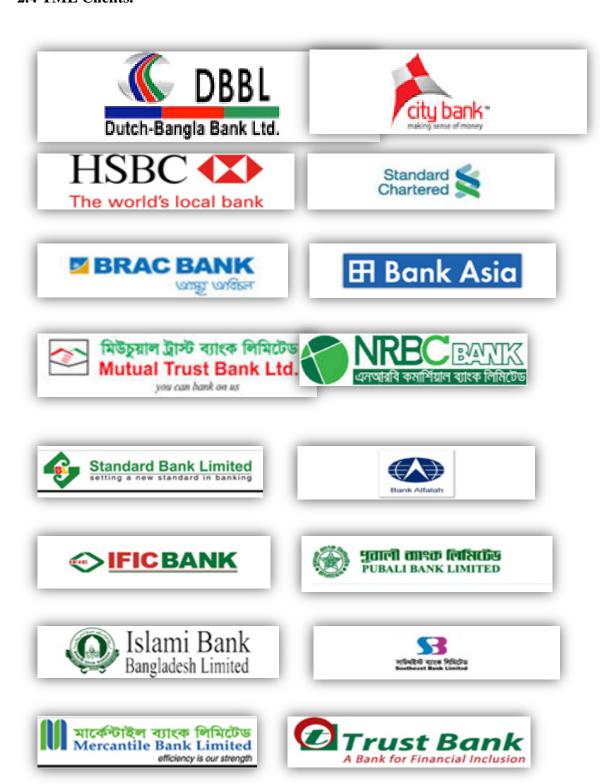








Figure 2.1:TML All Clients

# 2.5 Organizational Structure

Technomedia Limited is the private company in our country where company management structure are private. Where their main person is chairman who maintenance whole procedure in your company. Secondly the MD managing director who is responsibilities for mission, vision, running situation, demand of product and customer demand he follow this whole procedure.

Then the third person is CEO chief operating officer who is responsibilities for the total employee. Then the person is head of automated teller machine department who is responsibilities for contact all the bank for their any query. Then the manager and deputy manager is responsibilities for assign engineer which automated teller machine are problem and do not work proper way deputy manager and manager also responsibilities for support the field engineer which problem they cannot solve [4].

#### CHAPTER03

# WORKING PROCEDURE OF ATM

# 3.1 Working Procedure.

An ATM machine mainly divide into two part:

- > Hardware Part
- > Software Part

#### 3.2 Hardware Part.

In information technology, hardware is a comprehensive term for all of the physical parts of a computer.



Figure 3.1: Cash Withdraw From ATM

An automated teller machine(ATM) has been divide in two part one is upper chamber another one is lower chamber ,which device use for successfully assembly automated teller machine(ATM) upper and lower chamber follow this list [6].

# 3.2.1UpperChamber.

# 3.2.2 Lower Chamber.

# 3.2.1.1PCCore.

We use this pc core for complete our service, this pc core is not general pc core it's made for specially automated teller machine (ATM). If we use this pc core easily complete our personal work but our personal pc did not work in automated teller machine.



Figure 3.2: ATM PC Core

**Pc Core Details:** We know that a personal computer have different hardware device.

**Processing Components:** Processing components are essential for properfunctioning of IT hardware, as they perform the core information processing. These include:-

- ➤ Central Processing Unit
- Casing
- > Power supply
- Motherboard
- > Bus
- > BIOS
- Cooling System

**Storage Components:** Storage components include storage media forpreserving essential information permanently. Storage devices include:-

- ➤ Hard Disk Drive
- ➤ Read Only Memory
- Random Access Memory
- > Optical drives like CD, DVD etc.
- > Flash Drives
- > Zip rives

**Peripheral Components:**Peripheral components work as human interfaces, and not included in primary functionalities of a computer. These typically include:-

> Mouse

- > Keyboard
- > Printer
- ➤ Modem
- Sound Card
- Graphics Card
- > Scanner
- > NIC
- > Headphone
- > Microphone
- > TV Card
- ➤ Web Cam

**Networking Components:** Networking components are responsible for datatransmission and operations of a computer network. These include:-

- > Switch
- > Router
- > Hub
- > Gateway
- > Access Point
- > NIC
- > Modem
- > Networking Cable
- ➤ Networking Bridge
- > Firewall

#### **3.2.1.2** Monitor

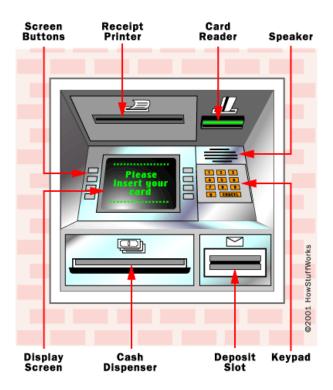


Figure 3.3: ATM Monitor

We know that, monitor is a output device for every electronic product. So monitor is one of the most important device for automated teller machine(ATM) .Although sometimes atm monitor has some problem like as monitor black ,monitor power problem etc. Monitor is upper chamber device but its different others electronic device because his power input is dc 24 volt. We can't use ac power or 220/230 volt.All transactions like as balance enquiry, cash Withdraw, fund transfer and all of the output result given here then customer complete there, work or transactions.

# 3.2.1.3 Card Reader





Figure 3.4: ATM Card Reader

# 3.2.1.3.1 Many types of ATM card



Many types of ATM card in Bangladesh like as Visa, Master, Nexus, Debit, Credit etc. when you insert your debit or credit card into the automated teller machine, it reads the actuality encoded on the magnetic strip on the card. Basically your card is the hardcopy for access your account. When you insert your card in the ATM machine then machine verify your information is invalid or legal. If the card is legal then he want, to the pin number for your account. Next your pin is right then he give some option for cash withdraw or balance search or fund transfer etc. If your pin number is mistake then card reader back your card for invalid information. You can give invalid pin in three time, when you give the invalid pin in fourth time then your card is lost or card is put the ATM machine.

# Some reason ATM card not working:

- The machine you are using has no cash in it to dispense
- The machine you are using is either faulty or been cloned.
- > Your PIN is no longer valid.
- Your bank have cancelled the card either through misuse, or it has corrupted.
- You have no money or you overdraft limit exceeded.
- ➤ The Chip or the magnetic strip have corrupted.
- Your account has been compromised in some other way.

#### 3.2.1.4: Receive Printer

After each transaction, the document that is written on the ATM machine of every transaction is written as a receiver printer. There is no type of ink used on this receive printer. Instead of the colour, a special type of paper is used and it is called thermal paper printer hits for writing on this paper, so that the letters written on they are visible.

Sometimes receive paper have some problem this time customer no any document after completed their transaction. Sometimes no paper with printer for this reason printer can't provide any document.

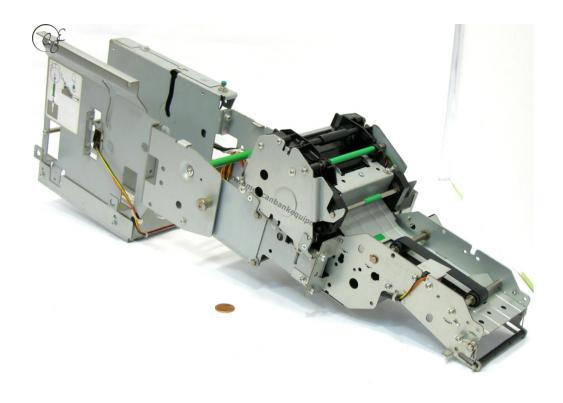


Figure 3.5: Receive Printer

# 3.2.1.5 Encryption Pin Pad (EPP)



Figure 3.6: EPP

Encryption pan pad (EPP) is used for automated teller machine pin entry and its control by a device controller.

#### 3.2.1.6 Journal Printer



Figure 3.7: Journal Printer

Automated teller machine journal is the most important evidence for future. When an ATM machine Open, Lock, Cash withdraw, Cash with amount and time date and all other include here. Journal is used for banking future evidence. When a customer withdraw money from ATM machine then he or she get transaction receive but journal copy can't see customer it can see only authorized or banking persons. Last of all journal printer is use for ATM daily activity record. Receive printer and journal printer working procedure are same but its use for two different work.

# 3.2.1.7 AC Power Supply



Figure 3.8: AC Power Supply

The ATM is just a computer. Just like all computers need a power source to work, ATM also needs a power source to function. Electricity is what powers the ATM.ATMs also need a power back-up, like a UPS, to keep it going when electricity from the mains is cut-off, so that any ongoing transaction or withdrawal is not interrupted. But this AC power supply is very important for automated teller machine (ATM) we know that its upper chamber device for this reason upper chamber other devices like as receive printer ,card reader ,journal printer need to 24 volt DC for active . This 24 volt DC provide, this Ac power supply.

# 3.2.1.8 MiscellaneousInterface



Figure 3.9: Miscellaneous Interface

The work of the miscellaneous interface is to run the machine according to different commands. The connection between the users and machines.

# 3.2.1.9 Camera



Figure 3.10: ATM Camera

Camera is one of most important security part of automated teller machine where every customer log in, cash withdraw, cash receive and exit all are located here. An automated teller machine have minimum two camera one is portal camera where catch all customer physical body and face other camera caught cash which cash receive customer. Some camera caught all of the record and evidence [7].

# **3.2.1.10** Speaker



Figure 3.11: ATM Speaker

The voice provides the cardholder with audience feedback when a key is pressed [7].

# **3.2.2.1 Exit Shutter**



Figure 3.12: Exit Shutter

When this shutter is open, customer received cash [8].

# **3.2.2.2** Cassette

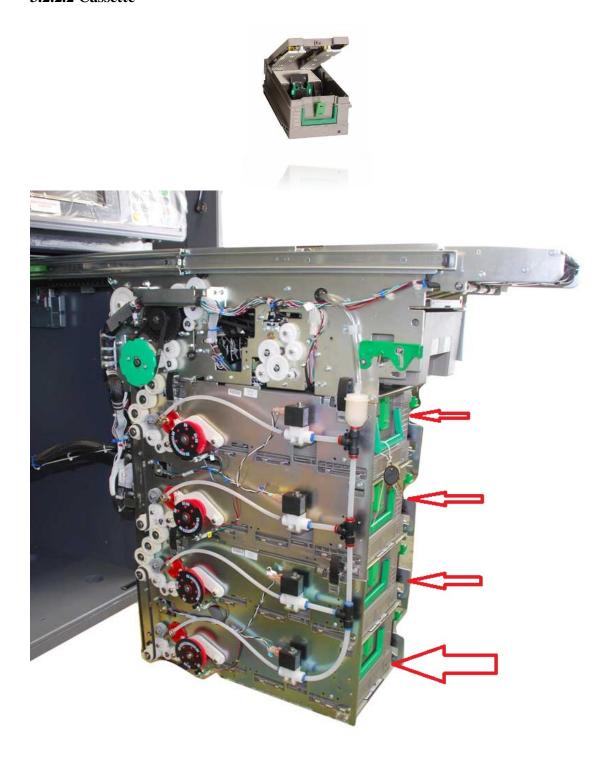


Figure 3.13: ATM Cassettes

This is one of the most important part an ATM(automated teller machine). Per cassette different type like as type-one, type- two, type- three, type- four it can be change if bank customer want ,where it can be identify thousand and hundred. An ATM machine can serve four cassettes where one cassette put 2000 notes, if the notes is thousand you can put 2000000 taka every cassette but the notes is five hundred you can put 1000000. At last total fourth cassettes you can put 8000000 taka if the notes is thousand one the other hand you can put 4000000 taka if the notes is five hundred.

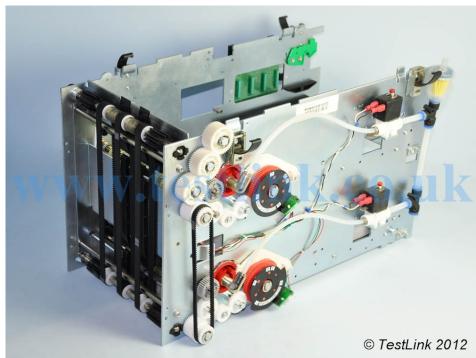
# **3.2.2.3 Reject Bin**



Figure 3.14: Reject Bin

Reject bin is the box where all types of failed transaction cash deposit here.

# 3.2.2.4 Pick Module



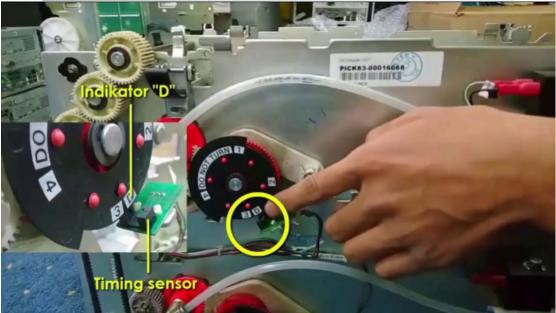


Figure 3.15: Pick Module

Pick module is important part of the dispenser unit. Where all types cassette put in this module.

# **3.2.2.5 Presenter**



Figure 3.16: Presenter

Presenter is a device which can provide cash to the users.

# 3.2.2.6 Main Controller Board



Figure 3.17: Main Controller Board

This device all commands of ATM machine are controlled.

#### 3.3 Software Part

We know that every hardware part is a live when there is software installed. Every automated teller machine run normal windows like as windows XP, windows 7, etc. If we want to install successfully an automated teller machine obviously we follow this procedure [12].

**Step-1:** At first load acronix which can provide vendor is called brand of automated teller machine.

**Step-2:** When acronix loaded is complete then we can give a TIB(that means banking software) which is provided bank IT where there bankworking procedure and which benefits customer give and which feature they provide for customer service. Different bank there customer service is different where someone give mobile banking which service is available for anywhere, on the other hand another bank provide extra service like as mobile recharge.

Some of the special banks they active without Card transaction that is called biometric this is the extra feature of ATM service. This is the Dutch Bangla Bank Limited customer service procedure. But most of the bank provide same customer service.



Figure 3.18: Display Option

# **CHAPTER 04**

# CALL CENTER MANAGEMENT



Figure 4.1: TML Call System

This is the call center management of Technomedia limited where assign call for all Bangladesh. Every engineer have fixed zone where they are support all time for any query of automated teller machine. When call system assign engineer then TML management see the update and pending issue [5].

#### 4.1 Why assign engineer and how to know ATM problem?

We know that, every bank have IT sector where create all of the maintenance banking rules and regulation on of them ADC that means alternative delivery channel they are maintenance ATM division where they can see all of the fault , use this procedure.

- ➤ Using remote access software for log in admin mode.
- ➤ Alternative delivery channel computer using RUN menu.
- > Desired software setup files in the alternative delivery channel.
- > Install the software.
- Reset the remote pc to finish the installation.
- ➤ When installation was successful shutdown from the computer otherwise repeated all steps again.

When they can fault their ATM (Automated Teller Machine) they, it division sent mail with problem in Technomedia Limited, after get the mail Technomedia limited call system assign engineer for this problem. Then TML engineer communicate with bank persons which are cash incharge in his bank. But some bank have third party which are not bank person like as G4S, Money Plant, Ornate, securex etc. Some bank use this third party like Dutch Bangla, Mutual Trust, AB bank, Prime bank etc [13].

# **CHAPTER 05**

# ATM NETWORKING BACKING IN BRANCHES

# 5.1 Branch LAN Management&Software Support

Every ATM machine his own server that means in ATM booth server to main server 24/7 connected. When a customer withdraw cash in ATM machine then all information get main server. If any reason main server have down then ATM service is down because when two server information is same then transaction is successful and customer get his cash. Whole procedure maintenance bank alternative delivery channel.

This is the most challenges issue in our country. For this reason this is the most advantage technology for our financial transaction. Although this whole procedure maintenance online operation where include business strategies customer facility and many other financial issue. Since whole procedure maintenance online operation for this reason, security is the most important issue. Where physical and networking security is most important [7].

# Some of the featurefor atm privacy.

- > Transaction recording
- > Customer records with CCTV
- > Physically security guards

#### CHAPTER 06

# INTERNSHIP ACTION AND TASK ACCOMPLISHED

When I interned in Technomedia Limited in this time I have been assign to some tasks related to the automated teller machine. I have performed my task and practical experiment according to the instruction of my supervisor. My performed duty are brief as follows:

# 6.1 Introduce of ATM

When I introduce an automated teller machine I can see the whole parts of ATM machine every parts have different work and I also seen this their lab test machine which is used for test purpose.

# 6.2 Follow Full ATM Working Procedure

An ATM machine have divide into two part one is upper chamber and second is lower chamber. Upper and lower chamber, two chamber are consists into different parts.

Where every single parts have different work like as card reader use for pushing card ,receive printer use for after payment complete receive ,monitor is use for see the transaction procedure .

#### **6.3 How to Find out ATM Troubleshoot**

When I am working Technomedia Limited or TMLlab this time our instructor learn how to find out troubleshoot where an ATM machine fixed for our troubleshoot and solution . He could say that if you can't troubleshoot in right way where consist different parts which parts are problem at first find out this parts or device. You can easily find out the problem if you can follow the message which is caught ATM machine.

#### **6.4 Troubleshoot Solution**

Solution is the most important word for any device I can solved for any trouble shoot in automated teller machine .Because I know that how to solve this problem when I can see the troubleshoot message in ATM admin mode then I can find which device is problem [9].

Although here is the two parts of problem one is he hardware problem and second is the software problem every problem have different solution which I can do.

# **6.5 Practical experiment with online ATM machine (DBBL)**

Practical experiment with online Dutch Bangla Bank limited automated teller machine where I can see how to dispense cash then cash arrive the customer and which command use for cash withdraw and fund transfer mobile recharge etc.

When every transaction have completed then customer give cash with money receipt some bank use special feature for customer advantage purpose when customer command for cash withdraw then machine count cash then left the card ATM card reader customer collect the card before customer get money [10].

# **CHAPTER 07**

# CONCLUSION AND DESTINY CAREER

#### 7.1 Discussion Conclusion

An automated teller machine is most important device for digitalization in banking system with alternative delivery channel. Where every single day about 10 million financial transaction with automated teller machine. This financial transaction is not only general banking where include everything like as mobile banking, point of sell (POS), Visa,Master and also include national payment switch banking system which is under bangladesh bank. So this area is huge demanding for complete our vision 2021 and vision 2041. At present this service active only urban area and semi urban area this service is not available for rural area. If we can do this,our whole rural area and village people their all financial transaction include digital banking system. So that we are all equal for digital banking system and digital payment system.

This sector is part of the information and communication technology (ICT). For this reason we can't thing digitalization in banking without it. I have completed my internship and build my career in this sector. I have concern with this achievement to the good fortune of almighty, the teaching of my respected educators form DIU, the leading of the many helpful employees of Technomedia Limited, the encouragement of my friends my family and my personal best efforts and organic hard work. I would be very thankful if this internship report of Technomedia Limited who are accepted in highly positive and welcoming variety envisage my inscription and sincerity. So it was great learning and practical experience for me [11].

# 7.2 Scope for Future Career:

As a student of Computer Science and Engineering (CSE) the experience of my internship at Technomedia Limited, has been many enhance and helpful, allowing me to pamper in essential and affluent practical activities to fulfil my theoretical learning and bestowed upon me, by the extremely brilliant and many respected faculty sir and mam of my beloved institution Daffodil International University. Specially thanks my respectable supervisor he has all time guided my. And also thanks Technomedia Limited for allowing me and provide with the practical knowledge for information

and communication technology based skills. For this reason my career build up a successful engineer where my practical experience whose basement gem was laid with my education form my respectable and beloved university [14].

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