

## TABLE OF CONTENTS

Letter of Transmittal.....	i
Letter of Endorsement.....	ii
Acknowledgement.....	iii
Executive summary.....	iv
List of Figures.....	iError! Bookmark not defined.

## INTRODUCTION

1.1 Introduction.....	1
1.2 Objective.....	2
<b>1.3 Methodology of the Report.....</b>	<b>3</b>
1.3.1 Primary Data Source.....	3
1.3.2 Secondary Data Source.....	3

## ORGANIZATION'S PROFILE

2.1 Organization Name.....	4
2.2 Registered Address.....	5
2.3 Bangladesh Registered Address.....	5
2.4 Work Description.....	5
2.5 Historical Background.....	5
2.6 people of eyeball networks.....	7
2.7 Eyeball Networks Service.....	8
2.8 Eyeball networks Core Technology.....	9
<b>2.9 Eyeball Networks Solutions.....</b>	<b>9</b>
2.9.1 Solution By Market:.....	10
2.9.1.1 Mobile Service Provider:.....	10
2.9.1.2 Mobile Device Makers.....	10
2.9.1.3 For application Developer.....	11
2.9.2 Solution by technology:.....	11
2.9.2.1 RCS Solutions:.....	11
2.9.2.2 SIP Solutions.....	12
2.9.2.3 XMPP Solutions.....	12
2.9.2.4 STUN, TURN & ICE.....	13

2.10 Eyeball Networks Customers .....	13
2.11 Eyeball Networks Operation.....	14
2.12 Eyeball Networks Vision .....	15
2.13. Eyeball Networks Mission .....	15
2.14 Brand Promise:.....	15
2.15 Eyeball Networks Team structure.....	16
2.16 Human Resource.....	16

## INTERNSHIP DETAILS

<b>3.1 Internship@Eyeball Networks</b> .....	<b>17</b>
3.1.1 Why preferred Eyeball Networks:.....	18
3.1.2 Office culture and environment.....	18
3.1.2.1 Informal: .....	18
3.1.2.2: Meetings: .....	18
3.1.2.3 Schedule :.....	18
3.1.2.4 Communication:.....	19
3.1.2.5 dress code : .....	19
3.1.2.6: Facilities : .....	19
<b>3.2 Projects</b> .....	<b>20</b>
3.2.1 EyeballMessengerSDK.....	<b>20</b>
3.2.1.1 Benefits of Eyeball Messenger SDK .....	21
3.2.1.2 Contents of Eyeball Messenger SDK.....	22
3.2.1.3 Supported features.....	22
3.2.1.4 Supported Platforms.....	24
3.2.1.5 Application and Service Architecture .....	26
3.2.2 Eyeball Messenger.....	27
3.2.3 Features of eyeball messenger.....	29
3.2.4 user interface of eyeball messenger: .....	30

<b>3.3 Tasks</b>	31
3.3.1 Bug detection	32
3.3.2 Sanity check	33
3.3.3 Test plan generation	34
3.3.4 Ticket testing	35
3.3.5 NAT testing	36
<b>3.4 Technical skills acquired</b>	38
3.4.1 Log file:	38
3.4.2 Wireshark	39
3.4.3 Airdroid	39
3.4.4 WinSCP	40
3.4.5 ADB (Android Debug Bridge) & PuTTY	40
3.4.6 Visual basic studio	41
<b>3.5 Non-technical skills acquired</b>	41
3.5.1 Analytical skills	42
3.5.2 Verbal and written communication skill	42
3.5.3 High productivity	42
3.5.4 Concentration	43
<b>3.6 Documentation</b>	43
3.6.1 Sanity check Report:	44
3.6.2 Existing Test Plan:	44
3.6.3 Custom Test Plan:	45
3.6.4 NAT Traversal Report:	47
3.6.5 Issue Report:	46
<b>3.7 Challenges and Limitations:</b>	47
3.7.1 facing the office environment	48
3.7.2 Strict office hour :	48
3.7.3 Meeting the Time line :	48
3.7.4 insufficient resources:	49
3.7.5 Lack of previous experience:	49
3.7.6 Testing Materials:	49
3.7.7 Trust Issues:	50

## SELF ASSESSMENT / PROFESSIONAL GROWTH

4.1 Attitude.....	52
4.2 Ability to learn.....	52
<b>4.3 Dependability .....</b>	<b>53</b>
4.3.1 Timeliness: .....	53
4.3.2 Productivity .....	53
4.3.3 Working Without Supervision.....	54
4.3.4 Attention to Detail .....	54
4.4 Initiative.....	54
4.5 Quality of work: .....	55
4.6 Relation with others: .....	55
4.7 Maturity-poise.....	56
4.8 Quantity of work: .....	56
4.9 Judgment.....	56
4.10 Punctuality and attendance: .....	57
4.11 Overall progress: .....	57

## CONCLUSION

5. Conclusion .....	58
Reference .....	60
Appendix.....	60

## LIST OF FIGURES

Figure 1: core technology of Eyeball Networks .....	9
Figure 2: RCS Solutions by Eyeball Networks.....	11
Figure 3: XMPP Solutions provided by Eyeball Networks.....	12
Figure 4:Customers of Eyeball Networks Inc.....	13
Figure 5: Eyeball Network's Operation .....	14
Figure 6: Eyeball Networks Team Structure .....	16
Figure 7: Supported platforms for EyeballMessengerSDK.....	25
Figure 8: Applications and services based on Eyeball Messenger SDK .....	26
Figure 9: Features of eyeball Messenger .....	30
Figure 10: User interface of EyeballMessenger .....	31
Figure 11:rules for detecting bug in an application .....	33
Figure 12: Attributes of sanity checking .....	34
Figure 13:parameter for preparing tickets.....	36
Figure 14:Components of Test plan of EyeballMessenger and EyeballMessengerSDK .....	45
Figure 15:Integrates of custom test plan.....	46
Figure 16:Basic attributes for an issue report.....	47
Figure 17: Sample of sanity test .....	62
Figure 18: Sample of NAT test.....	63
Figure 19: Sample of Custom Testplan.....	64
Figure 20: Sample of ticket testing.....	65
Figure 21: Sample of issue report.....	66



# INTRODUCTION

## **1.1 INTRODUCTION:**

Internship provides students the opportunity to test their interest in a particular career before permanent commitments are made. And it's also a chance to relate their theoretical knowledge with the tough real world environments. Moreover, if the internship is within a bachelor program and the students have to return to the academia after completing it, the skills that they have developed during the internship help them to gain a more sound academic result.

As a student of Institute of Information Technology (IIT), I am very lucky to have a whole semester for doing my internship and I had the opportunity for gaining industrial experience. I was sent to Eyeball Networks Inc. to complete my internship. I joined Eyeball Networks as an intern on 1<sup>st</sup> January 2013. I was placed in the Quality Assurance department of Eyeball Networks Dhaka Office. The expectations were high and now almost nearing the end of my internship I must admit that it was a really wonderful experience.

There were many obstacles, new technologies that I have to handle with, so the journey wasn't that simple. But after overcoming each challenge I had discovered a new potential within myself. The skills that I have gathered are priceless to me. Moreover, after completing my internship program, now I am quiet confident that I will establish my career as QA engineer in future.

## 1.2 OBJECTIVE

The primary objective of this report is to present an overall description of the internship program at Eyeball Network. This report is a short description of my six months internship carried out as compulsory component of the BSSE program. At the beginning of the internship I formulated several learning goals, which I wanted to achieve:

- To get experience by working in a professional environment;
- To apply my gained academic knowledge;
- To enhance my communication skills;
- To build a network.

This internship report contains my activities that have contributed to achieve a number of my stated goals.

## 1.3 METHODOLOGY OF THE REPORT

Information included in this report are collected from both primary and secondary data source. Most of the information regarding the organization is collected from web sites, articles, Eyeball Networks employees and some journals.

### 1.3.1 PRIMARY DATA SOURCE

- Direct inspection through the internship time
- Conversation with Eyeball networks employees
- Participation in different in-house activities
- Observing others jobs

### 1.3.2 SECONDARY DATA SOURCE

- Records of the Eyeball networks
- Web site of Eyeball Networks
- Related published documents
- Internet

## 1.4 SCOPE

This report gives an insight of the experience that I faced in my workplace. Professional growth, developed skills, experiences and achievements are described. A brief description of Eyeball Networks Inc. is included along with so that other students will get to know about the company. There may be lots of challenges in an internship program but there is a lot to learn from them. The challenges that I have faced over this period of time are discussed in this document.





# ORGANIZATION'S PROFILE

## 2.1 ORGANIZATION NAME

- Eyeball Network Inc.

## 2.2 REGISTERED ADDRESS

- #730 1201 West Pender  
Vancouver, B.C.  
Canada, V6E 2V2

## 2.3 BANGLADESH REGISTERED ADDRESS

- Road 19/B,  
House 300,  
New DOHS,  
Mohakhali, Dhaka

## 2.4 WORK DESCRIPTION

I was recruited in the Quality Assurance department of Eyeball Networks Inc. And I was assigned to the team named **CRAZY MESSENGER**. This team consists of developers who work in windows, android, ios and mac environment and quality assurance engineer. The team is dedicated to develop EyeballMessenger and EyeballMessengerSDK for android, windows, ios and mac platform. I was appointed to test the developed products for different platform and assure their quality. We were given the designation —Intern Quality Assurance Engineer. I was assigned under direct supervision of Mr. Abdullah Al Mamun, Product Development Manager (Messenger) and Mr. Khiroul Bashar, Administrator and SQA, Eyeball Networks Inc.

## 2.5 HISTORICAL BACKGROUND

Eyeball Networks is a West Vancouver based world leader software company in VoIP and video telephony software for service providers and device manufacturers. Eyeball Networks develops connectivity solutions for the world's leading providers of mobile communications services and devices, enabling seamless delivery of carrier-grade VoIP, video telephony, and messaging services. The company sells solutions to service providers such as telecommunications and cable companies, device manufacturers, and application developers, who, in turn, provide services to the consumer and enterprise markets.

‘For better off or worse, technology affords us the benefit of living in a world of instant gratification: You want it now? There’s an app for that. But before those possibilities become realities, it takes a team of engineers, device manufacturers, and developers to not only create the technology to meet the ever-changing needs of the customer, but to be one step ahead of the game and predict those needs’, says Chris Piche, CEO of West Vancouver-based Eyeball Networks Inc.

CEO and the founder of Eyeball Network Chris Piche, one of Canada's Top Young Leaders by the Globe & Mail, an Ernst & Young Entrepreneur Of The Year finalist, and a Canadian representative to the Asia-Pacific Economic Cooperation (APEC). He is a very talented guy. In the year 1999, when Chris was in University of British Columbia at that time, he was trying to build a video chat application with the existing technology. But the limitation of that technology could not fulfill his requirements properly. Because he was thinking about how the application will handle the connectivity with the quality call facilities once two or more than two nodes are connected rather than the functionality of that application.

At that time he decided to find out the solution of that problem instead of developing the application. After that he invented the proper solution of that specific problem to ensure guaranteed connectivity among nodes. And gradually being courted by large global communication companies for the technology behind his application. The companies were impressed with how well the app handled connectivity and with the quality of the calls once connected. Chris quickly turned gears, realizing he was in the solutions business, patented some of those unique technologies by his name and wrapped a line of products around them. And launch Eyeball Network Inc. in November, 2002.

## 2.6 PEOPLE OF EYEBALL NETWORKS

The people of Eyeball Networks are problem solvers, and this focus is what drives the innovation and superior technological solutions we deliver our customers. Eyeball's management team consists of:

### **Chris Piche - CEO and Founder**

Chris has been named one of Canada's Top Young Leaders by the Globe & Mail, one of Vancouver's Top 40 Under 40 by Business in Vancouver, an Ernst & Young Entrepreneur Of The Year finalist, and a Canadian representative to the Asia-Pacific Economic Cooperation (APEC). Chris holds a degree in computer science and mathematics from the University of British Columbia and several patents in TCP/IP networking.

### **Matt Sims - Vice President Marketing**

Matt is an experienced business professional who has been marketing and selling technological solutions to customer business problems for over 23 years, primarily in the telecom and data networking sectors. He has worked and lived in Montreal, Toronto, and most recently, Vancouver, Canada. He is passionate about customer focus, and believes any fool can make something complicated. He tries hard every day not to be that fool.

### **David Buechner - VP of Business Development**

David has 20 years of experience in executive management and marketing of software and telecommunications products to Fortune 100 customers. He is former Vice President for Impulse Accelerated Technologies where he led global revenue efforts and Vice President Sales for Harris Corporation Network Support Division, where he managed a worldwide sales team of 80, managed 600 independent representatives and generated annual revenues of \$120M selling to service providers worldwide. David has a MA from Holy Names University.

## 2.7 EYEBALL NETWORKS SERVICE

Within June, 2013, from November, 2002 Eyeball Networks has a complete line of products available to serve all the VoIP, Video telephony, and Instant Messaging and NAT traversal needs. The products can either stand alone to fulfill specific requirements, or work in tandem to support fully integrated service deployments involving multiple services.

The services that Eyeball Network Inc. provides to their clients are divided in to two parts.

- Firewall And NAT Traversal Service.

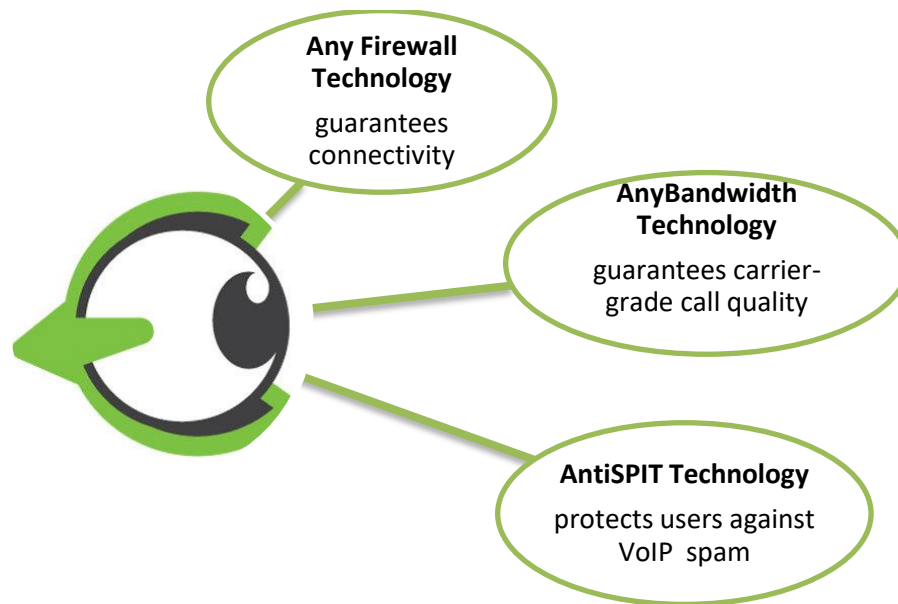
1. Any Firewall Engine.
2. Any Firewall Server.
3. Any Firewall Gateway.

- VoIP, VVoIP & IM Services

1. Eyeball Messenger
2. Messenger SDK
3. Any Bandwidth Engine
4. SIP Server
5. IM Server
6. AntiSPIT Server

## 2.8 EYEBALL NETWORKS CORE TECHNOLOGY

To support all the services properly, from the beginning, Eyeball Networks depends on their own patented technology. There are lots of patent technologies by the name of Eyeball Network Inc. Among those there are three core technologies which are the surface of Eyeball Networks present product line.



**Figure 1: core technology of Eyeball Networks**

## 2.9 EYEBALL NETWORKS SOLUTIONS

Eyeball Networks designs customized IP communications solutions that enable businesses to deliver carrier-class services on massive scale. ‘Eyeball is not everything to everyone, and eyeball is happy about that’ - because it means better value to those customers where eyeball is focused on.

Eyeball classified their solutions in two categories:

- Solution By market
- Solution By technology

## 2.9.1 SOLUTION BY MARKET:

### 2.9.1.1 MOBILE SERVICE PROVIDER:

Traditional lines of business are facing challenges from the market every day. Disruptive technologies, changing consumer trends, and regulatory change keeps customer's strategists guessing where the industry, and customers, are going to be tomorrow. One certainty - they will be mobile.

Agile, quick to market service deployments and mobile IP based services will be required to maintain competitive advantage in this fast moving environment.

.Eyeball Networks solutions for mobile service providers are :

- VoIP and Video Telephony
- Federated Presence, IM, SMS, and Social Messaging
- Guaranteed Firewall and NAT Traversal
- VoIP Spam Mitigation

### 2.9.1.2 MOBILE DEVICE MAKERS

The tablet and smartphone markets are evolving at high speed. Consumers increasingly expect mobile services and capabilities without restrictions - they want to communicate from any physical network, to any other device on any virtual (social) network.

VoIP and Video telephony are quickly losing novelty status and becoming standard expectations on any new device. Delivering on these expectations isn't easy, but Eyeball Networks has done it. They are:

- Integrated IM, SMS, and Social Messaging
- Integrated VoIP and Video Telephony
- Guaranteed Firewall and NAT Traversal
- Guaranteed VoIP and Video Quality

### 2.9.1.3 FOR APPLICATION DEVELOPER

The days of applications existing as independent islands are gone. Federated networks, embedded voice and video communications, and seamless cross platform IP connectivity are more than wishes, they're expectations. If someone's developing an application that needs to provide VoIP or video telephony to maintain competitive advantage, he will need strong support on avoiding the many pitfalls of achieving interoperability and providing dependable service quality.

- Integrated Presence, IM, SMS, and Social Messaging
- Integrated VoIP and Video Telephony
- Guaranteed Firewall and NAT Traversal
- Guaranteed VoIP and Video Quality

## 2.9.2 SOLUTION BY TECHNOLOGY:

### 2.9.2.1 RCS SOLUTIONS:

Rich Communications Suite (RCS) is a suite of rich communication services that can be launched from a capable enhanced phone book. RCS provides a common framework for services that are interoperable among mobile operators and devices. Primary features offered by RCS are:

RCS Solutions		
<b>RCS-Enhanced Phonebook</b> <ol style="list-style-type: none"> <li>1. Presence</li> <li>2. Service capability discovery</li> <li>3. Network address book</li> </ol>	<b>RCS-Enhanced Messaging</b> <ol style="list-style-type: none"> <li>1. Multimedia messaging</li> <li>2. Chat, SMS, MMS, IM</li> <li>3. File transfer</li> </ol>	<b>RCS-Enriched Calls</b> <ol style="list-style-type: none"> <li>1. Video share</li> <li>2. Image share</li> </ol>

Figure 2: RCS Solutions by Eyeball Networks



### 2.9.2.2 SIP SOLUTIONS

Cost savings and trunk consolidation are big drivers behind interest in SIP technology. Another important characteristic with SIP technology is that the applications are in control of content, not the network - which has seen the emergence of many new, and often disruptive service offerings coming to market.

With Eyeball's SIP Server's scalable architecture, 100% service up-time and patented AntiSPIT technology, service providers can quickly deploy massively scalable VoIP and video telephony services to maintain competitive advantage in today's rapidly evolving communications market.

### 2.9.2.3 XMPP SOLUTIONS

XMPP services provide a wide range of functionality for today's applications and devices, such as:

XMPP Solutions			
<b>Presence management</b> <ol style="list-style-type: none"> <li>1. Tree based buddy lists and presence blocking</li> <li>2. Federated with AOL, Google Talk, MSN and Yahoo!</li> <li>3. Custom status and alert notifications</li> </ol>	<b>Rich text messaging</b> <ol style="list-style-type: none"> <li>1. Group texting</li> <li>2. Typing indication</li> <li>3. Unicode support</li> <li>4. Smileys and buzzers.</li> </ol>	<b>Presence management</b> <ol style="list-style-type: none"> <li>1. Tree based buddy 2. lists and presence blocking</li> <li>3. Federated with AOL, Google Talk, MSN and Yahoo!</li> <li>4. Custom status and alert notifications</li> </ol>	<b>Peer-to-peer services</b> <ol style="list-style-type: none"> <li>1. File transfer</li> <li>2. Picture and media sharing</li> <li>3. Off-line messaging</li> </ol>

**Figure 3: XMPP Solutions provided by Eyeball Networks**

### 2.9.2.4 STUN, TURN & ICE

Benefits to Eyeball Networks implementation of the STUN, TURN and ICE standards are:

- Guaranteed 100% call completion
- Peer-to-peer for services scalable to 50M + subscribers
- No compromise in NAT/firewall security
- Easy integration with existing VoIP products and services
- Standards based for maximum interoperability
- Massive scalability for carrier-class implementations
- Media delivery in UDP networks

## 2.10 EYEBALL NETWORKS CUSTOMERS

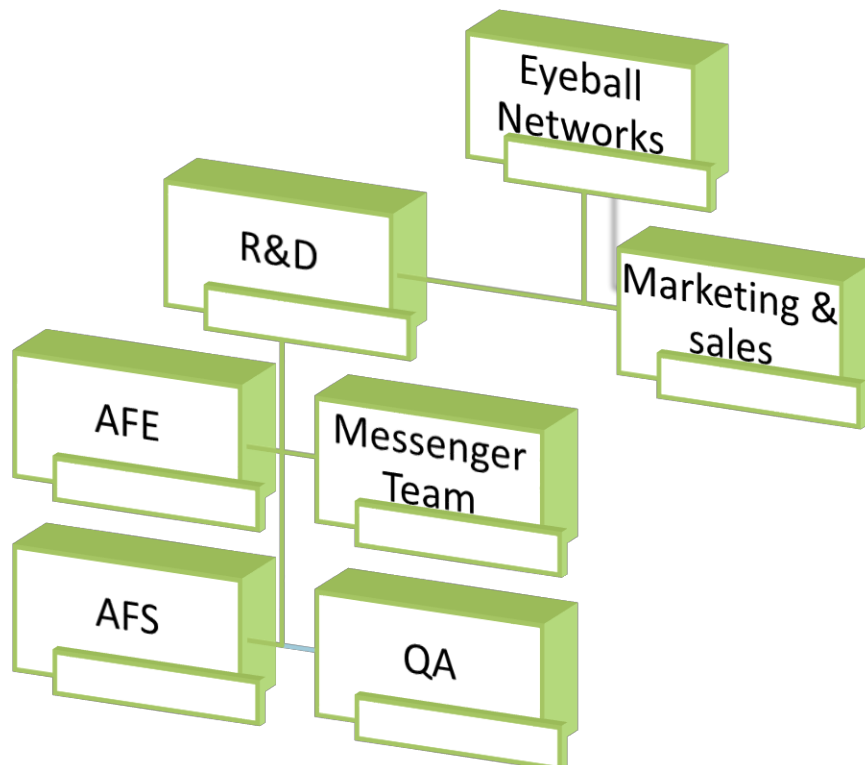
Eyeball Networks is proud to be the technology partner of choice for many reputable and respected companies around the world. Customers include tier 1 service providers, device manufacturers and enterprises that continue to count on Eyeball Networks for their NAT traversal, VoIP and Video telephony needs.



Figure 4: Customers of Eyeball Networks Inc.

## 2.11 EYEBALL NETWORKS OPERATION

Eyeball Network Inc. develops VOIP solutions and infrastructure applications for their clients. The research and development office is in Bangladesh. In Bangladesh there are different teams to develop software and to provide support facilities to their clients. According to the team's responsibility and their function, we can set the hierarchy like this:



**Figure 5: Eyeball Network's Operation**

## 2.12 EYEBALL NETWORKS VISION

- Dynast ever-evolving industry.
- Think a step ahead of the game.
- We are sure to keep our eye on the ball.
- We see the big picture.
- We see through wall.

## 2.13. EYEBALL NETWORKS MISSION

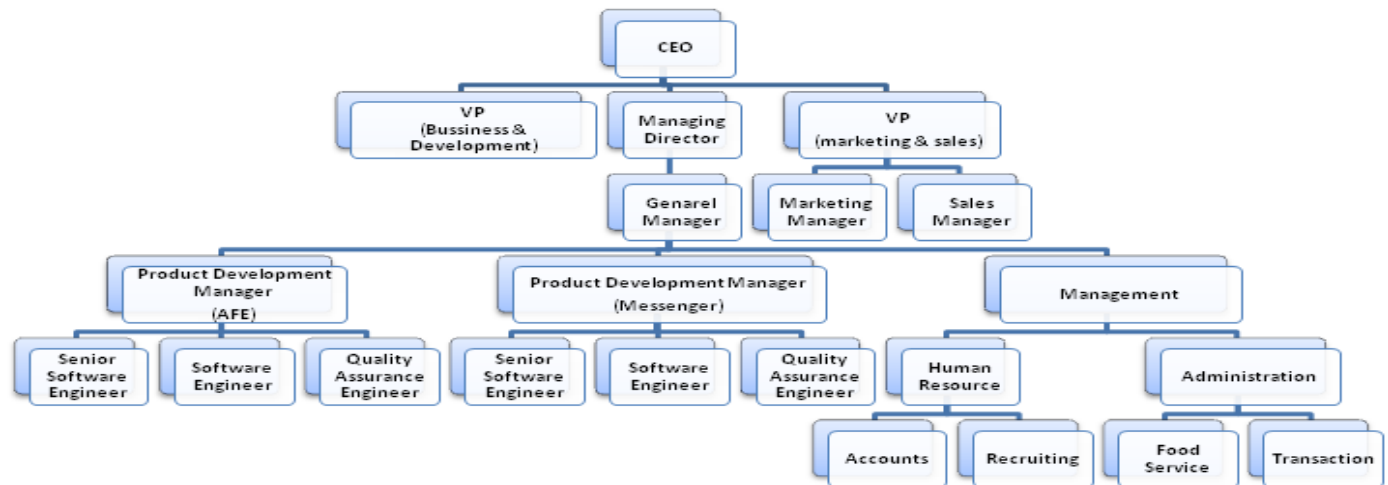
“ANY NETWORK ANY FIREWALL ANY DEVICE GUARANTEED”

## 2.14 BRAND PROMISE:

We never lose sight of your business

Eyeball has delivered carrier-grade VoIP solutions for some of the world's best known service providers, application developers, and handset and tablet makers. With over 200 deployments to more than 20 million subscribers worldwide, you can count on Eyeball to provide the service quality your customers expect. That's important because - when all is said and done - satisfied customers are what make your business grows.

## 2.15 EYEBALL NETWORKS TEAM STRUCTURE



**Figure 6: Eyeball Networks Team Structure**

## 2.16 HUMAN RESOURCE

Every year Eyeball Networks recruits best developers of Bangladesh from different universities. Most of them are among top 25 students of Bangladesh. The new recruits go through an extensive training program. Currently there working more than 50 employees at Bangladesh office.



# INTERNSHIP DETAILS

## 3.1 INTERNSHIP@EYEBALL NETWORKS

### **3.1.1 WHY PREFERRED EYEBALL NETWORKS:**

Eyeball Networks is the world's leading VoIP Solution Provider Company. Eyeball is the dream for the world class developer as well as for anyone who is interested to connect the whole world with in internet. Eyeball has their R&D Department in Bangladesh. So when I get a chance to work with Eyeball, without any doubt I thought Eyeball is the right choice for me as well as for any technology guy to start professional career.

### **3.1.2 OFFICE CULTURE AND ENVIRONMENT**

The office environment is informal, and there is no apparent hierarchy between managers and their subordinates. Employees are treated as equals and independent views are welcomed.

#### **3.1.2.1 INFORMAL:**

An informal culture fosters informal communication styles. In Eyeball Networks, employees pass along information spontaneously, through groups of friends or associates they feel comfortable with. Someone might stop by a desk to tell a fellow employee the latest company development, and that employee may call a friend in another department. A totally brother sister culture resides in this company. Regardless how everyone address a person, everyone respects the work relationship which everyone have with the superior.

#### **3.1.2.2: MEETINGS:**

Meetings were common in our organization. These meetings were not necessarily for making the big decision. Meetings are held for taking about small decisions and planning. Input from every relevant person is taken into account and valued before an appropriate decision is made. Weekly meeting with the CEO of our company by video conferencing with everyone was held there.

#### **3.1.2.3 SCHEDULE :**

At first, when I joined there, the office time was from 9.30 am to 6.30 pm. But due to synchronizing the time for communication with Canada head office with Bangladesh head office, the time was reorganized. And it was from 7am to 5 pm. Though everyday I went to office in time, but most of the days, working pressure made me to stay at office after ending the working hour. That means, I have worked there even more than 12 hours a day. And I was generally not expected to work during the weekends, but sometimes for the releasing of new products , I had to work during the weekends.

#### 3.1.2.4 COMMUNICATION:

The informal communication channel in Eyeball Network was a very reliable measure for the company's mood. They enable people to open up and help us to understand them and their performance better. Moreover, informal communication is more appropriate for motivating employees. Due to the very nature of informal communication it allowed me to communicate freely with the respected group members of my team.

Another platform for communicating with each other was SKYPE. Skype was used for sending the test results, log files, screen shots immediately. SKYPE helped me a lot for communicating with my respective colleagues in any problem.

#### 3.1.2.5 DRESS CODE :

Eyeball's objective in establishing a relaxed, casual, and informal work dress code is to enable the employees to work comfortably in the workplace. Yet, certain standards are established so employees in a casual work setting, employees should wear clothing that is comfortable and practical for work, but not distracting or offensive to others. Any While the office setting are casual because customers don't visit. But traveling to see customers, exhibiting at or attending trade shows, and representing the company in the business community, requires different decisions about attire.

#### 3.1.2.6: FACILITIES :



- ***Transportation:***

The office provided vehicles for the employees. Employees can use those vehicles whenever they want.

- ***Food:***

In-house food was given to the employees. Tea and coffee was available all time.

- ***Devices:***

There was plenty of devices. As Eyeball networks makes mobile based applications. So devices are must for testing. I have used android , ios and mac devices there for testing.

## 3.2 PROJECTS:

### 3.2.1 EYEBALLMESSENGERSDK

Eyeball Messenger Software Development Kit (SDK) provides tools to application developers that allow integration of live video communications features into new or existing applications and services.

Developers can use Eyeball Messenger SDK to create a custom client application with peer-to-peer audio/video communications, text messaging and presence/availability management. These video-enabled applications communicate with server components to seamlessly deliver interactive, high-quality video to users. Eyeball Messenger SDK incorporates Eyeball's patented AnyFirewall™ and AnyBandwidth™ technologies to ensure 100% connectivity and the best possible call quality.

Eyeball Messenger SDK provides a powerful solution for developers to integrate the following features into their products quickly and easily:

- Interactive audio communications
- Interactive peer-to-peer video communications
- Instant text messaging, online presence detection and contact list management

These features can be applied to applications and services such as on-line customer support, web communities, distributed games, distance education and entertainment.

Eyeball Messenger SDK consists of libraries of ActiveX controls (Windows)/Java (Android)/C++ (iOS) that provide programmers with a high-level interface to the main features and functions of Eyeball Messenger. The methods can be split into two subgroups:

- XMPP Communicator control: Supports contact list, presence detection, instant text messaging and file transfer.
- SIP Communicator control: Supports video calls between two parties, multiple SIP accounts, advanced telephony features (multiple lines, hold, forward, caller ID, etc.), DTMF, media settings, device selection and volume adjustment.

In addition, there are controls available to display and handle video windows (for SIP video calls, used together with the SIP Communicator control), audio device detection and federated IM, i.e., interoperability with other instant messaging services like MSN, Yahoo!, AOL, Google Talk, or ICQ.

### **3.2.1.1 BENEFITS OF EYEBALL MESSENGER SDK**

Some of the benefits of Eyeball Messenger SDK include:

#### **Guaranteed Best Video Quality**

Internet video quality is affected by unpredictable bandwidth, packet loss, latency, jitter and CPU heterogeneity. Eyeball Messenger SDK uses Eyeball's patented AnyBandwidth™ technology to guarantee the best possible video quality over any Internet connection and on any device.

#### **Seamless Firewall Interoperability**

Firewalls and modems can inadvertently block video calls, resulting in frustration, lost productivity and missed revenue opportunities. Eyeball's patented AnyFirewall™ technology ensures seamless video delivery between any combinations of standard firewalls and modems without compromising firewall security. This includes TURN compliant relay using UDP, TCP or HTTP proxy tunneling.

#### **Scalable Peer-to-Peer Architecture**

Sending audio and video data through a central relay server consumes costly server hardware and bandwidth resources, and reduces video quality. Eyeball's server solutions are based on a peer-to-peer architecture in which data is sent directly from one client computer to another. As a result, Eyeball can scale service providers to millions of users with minimal operational costs and maximum video quality.

## Embedded Video Support

Eyeball Messenger SDK allows application developers to implement video communications as either a standalone client or an embedded component in an application. When embedded, the video client is sent to a user seamlessly as part of an application. This eliminates the need for users to install a separate video client and allows developers to update their application without the installation of new video client software.

## Multiple SIP Accounts

Application developers and users can register multiple SIP accounts, with multiple proxy servers.

### 3.2.1.2 CONTENTS OF EYEBALL MESSENGER SDK

Eyeball Messenger SDK v8.1 consists of:

- Eyeball Messenger SDK v8.1 ActiveX for Windows
- Eyeball Messenger SDK v8.1 Java Library for Android
- Eyeball Messenger SDK v8.1 C++ Library for iOS and Mac
- Eyeball Messenger SDK v8.1 Developer's Reference Guide
- Source code for sample applications for each platform.

### 3.2.1.3 SUPPORTED FEATURES

Eyeball Messenger SDK v8.1 enables rapid development of customized applications and services that support real-time audio/video communications based on Session Initiation Protocol (SIP 2.0, RFC 3261). This SDK provides a powerful solution for developers to integrate standards-based audio/video communications features and instant messaging into their products quickly and easily.

Eyeball Messenger SDK v8.1 supports the following features:

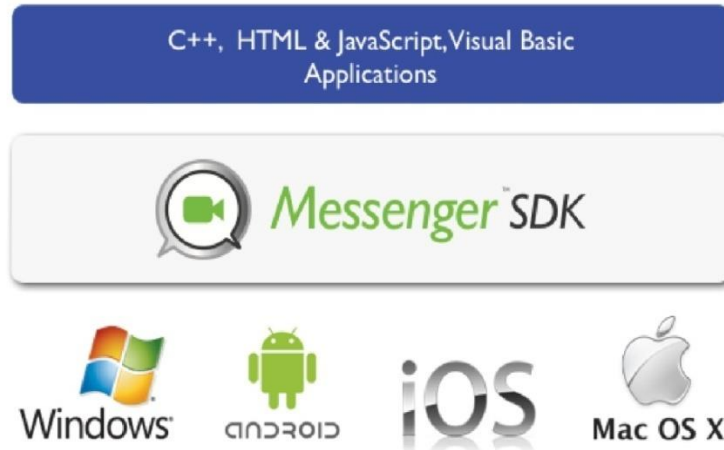
Feature	Windows	Android	iOS	OS X
Full SIP 2.0 (RFC 3261) compliance	✓	✓	✓	✓
Send/receive audio/video calls (using soft -phones, standard phones (POTS), IP-phones, and video-phones)	✓	✓	✓	✓
Multiple concurrent calls	✓	✓	✓	✓
Audio and video conferencing	✓	NCS*	NCS*	NCS*
Advanced call features (call forward, call hold, and call transfer)	✓	✓	✓	✓
Call history (incoming and outgoing)	✓	✓	✓	✓
Proxy/WWW authentication	✓	✓	✓	✓
Multiple proxy authentication	✓	✓	✓	✓
STUN firewall detection	✓	✓	✓	✓
Smart NAT traversal using AnyFirewall™ Engine, including TURN compliant call relay using UDP, TCP	✓	✓	✓	✓
HTTP proxy tunneling with support for basic, NTLM v1, and NTLM v2 authentication	✓	NCS*	NCS*	NCS*

Table 1: Features of Eyeball Messenger SDK v8.

G.711 (A-law, $\mu$ -law), G.729 Annex A, and Speex audio codecs	✓	✓	✓	✓
GSM, iLBC, Polycom® Siren™ (G722.1C, 24 kHz, and 48 kHz) audio codecs	✓	NCS*	NCS*	NCS*
H264 (main profile) video codec	✓	✓	✓	✓
H.263, H.263+, and EyeStream video codecs	✓	NCS*	NCS*	NCS*
Acoustic echo cancellation (AEC) and auto gain control (AGC)	✓	✓	✓	✓
Adaptive jitter buffering	✓	✓	✓	✓
Early media handling	✓	✓	✓	✓
DTMF digits (for PBX calls and Touch Tone services) using RFC 2833 (RTP Payload), RFC 2976 (SIP INFO), or inband	✓	✓	✓	✓
Snapshot of local or remote video	✓	NCS*	NCS*	NCS*
DNS SRV lookup for SIP, STUN, and XMPP servers	✓	✓	✓	✓
Multiple SIP accounts for registration with multiple SIP proxies at the same time	✓	✓	✓	✓
Buddy list/block list management	✓	✓	✓	✓
Contact groups	✓	✓	✓	✓
Display name	✓	✓	✓	✓
Presence update	✓	✓	✓	✓
Standard and custom user state/status	✓	✓	✓	✓
Typing indication	✓	✓	✓	✓
Multiple user resources	✓	✓	✓	✓
User profile	✓	✓	✓	✓
Text chat	✓	✓	✓	✓
Multiparty text chat	✓	✓	✓	✓
Offline messages	✓	✓	✓	✓

**3.2.1.4 SUPPORT** Table 1: Features of Eyeball Messenger SDK v8.

Eyeball Messenger SDK supports today's most popular platforms and programming languages, making service development flexible, and fast.



**Figure 7: Supported platforms for EyeballMessengerSDK**

Figure 7: Eyeball Messenger SDK allows development of stand-alone and web-based applications and services using languages such as C++, HTML and JavaScript, and Visual Basic.

## Windows:

### 1. System Requirements

Operating system : XP, Vista, Win7  
Hardware requirements: Audio device, camera for video call

### 2. Developer Platforms

Programming Languages : C/C++, C#, HTML and Javascript  
Developer tools : Visual Studio 2005 or later  
Other software : DirectX 8.1 and .Net Framework 1.1 or later versions

## Android:

### 1. System Requirements

Operating system : Android 2.3 or later  
Hardware requirements: Android tablet

### 2. Developer Platforms

Programming Languages : Java  
Developer tools : Android SDK 2.3.3 or later

## iOS, Mac

## 1. System Requirements

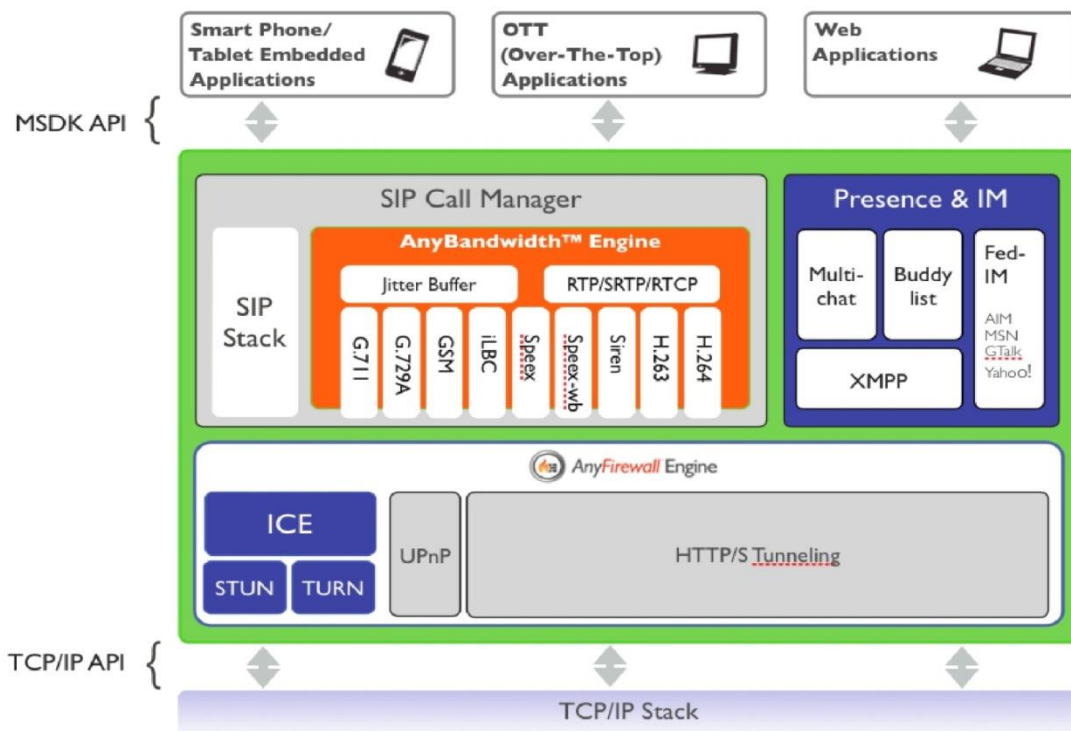
Operating system : iOS 5.0 or later for iOS and Mac OS X 10.6.6  
Hardware requirements: iPad, Mac PCs, audio device, camera for video call

## 2. Developer Platforms

Programming Languages : C++, Objective C++  
Developer tools : Xcode

### 3.2.1.5 APPLICATION AND SERVICE ARCHITECTURE

Using Eyeball Messenger SDK, application developers can implement video communications as either a standalone client or an embedded component in an application, service or website.



**Figure 8: Applications and services based on Eyeball Messenger SDK**

Figure 8 shows details of Eyeball Messenger SDK architecture and the possible applications that can be built with it. Software developers can implement new applications, services or websites that will have Eyeball Messenger SDK components embedded in them. They may be stand-alone applications that execute in Microsoft Windows or other operating systems, and web-based applications and services that can be accessed using a web browser such as Internet Explorer and others.

In order for these applications and services to provide interactive video communication capabilities, the embedded Eyeball Messenger SDK components need to communicate with the respective standard-compliant servers. For example a SIP proxy or SIP-enabled PSTN gateway for audio/video calls or an XMPP server for instant messaging such as Eyeball SIP Proxy server or Eyeball XMPP server. For the best possible firewall traversal solution, Eyeball's AnyFirewall™ Server is recommended.

### 3.2.2 EYEBALL MESSENGER

Eyeball Messenger is a mobile soft phone which provides instant messaging, VOIP and video conferencing based on SIP, XMPP, STUN, TURN and ICE. Messenger is the only mobile soft phone which delivers instant, seamless and guaranteed class and voice and video quality over any fixed or mobile network, across any NAT or firewall and on any device with the added benefits of peer-to-peer media transport and carrier-grade scalability.

Messenger supports deployments of tens of millions of subscribers and has deployed to more than 20 million subscribers by licensees including Comcat, FujiFilm, Intel, Maxis, Research in Motion and more.

Messenger can be deployed with other Eyeball products as part of an end-to-end IM, VoIP, and video conferencing solution, or it can be integrated with third-party, standards-based products.

#### Guaranteed firewall and NAT traversal:

Messenger includes Eyeball's patented AnyFirewall™ Engine to guarantee 100% call completion over any fixed or mobile network and through any NAT or firewall.

#### Guaranteed voice and video quality:

Messenger includes Eyeball's patented AnyBandwidth™ Engine to guarantee the best possible voice and video quality over any fixed or mobile network and on any device.

#### Federated presence and instant messaging:



Messenger supports federated presence and instant messaging with AOL, Google Talk, MSN, Yahoo!, and more.

### Supported platforms:

Messenger supports major fixed and mobile device platforms, including Android, iOS, Linux, OS X, Windows, and Windows Phone, and fixed and mobile networks, including cable, DSL, 3G, LTE, 4G, and WiFi.

### Standards Compliance and Certification:

- Compliant with IETF standards SIP and XMPP
- Compliant with IETF, 3GPP, and CableLabs standards STUN, TURN, and ICE
- Plug-and-play voice codecs including G.711, G.729, GSM, iLBC, SirenTM, Speex, and more
- Plug-and-play video codecs including EyeStreamTM, H.263, H.264, and more
- Federated instant messaging with AOL, Google Talk, MSN, Yahoo!, and more
- Android, iOS, Linux, OS X, Windows, and Windows Phone support

### Guaranteed Voice and Video Quality:

Patented AnyBandwidth Technology guarantees voice and video quality over mobile network including cable, DSL, WiFi, 3G, LTE, and 4G

- Personal Quality Profile enables personalized prioritization of voice and video quality parameters
- High definition voice and video
- Packet loss concealment for 3G, 4G, LTE, and WiFi mobile networks
- Voice processing (AEC, AGC, CNG, NS, VAD) for hands-free handsets and tablets
- Power management for mobile devices
- Conferencing for up to 8 parties

### Guaranteed Firewall and NAT Traversal:

- Patented AnyFirewall Technology guarantees 100% NAT traversal through any firewall, NAT, proxy, or UPnP
- Supports all NAT types including full cone, address restricted cone, port restricted cone, and symmetric
- Supports all fixed and mobile networks and devices including cable, DSL, WiFi, 3G, LTE and 4G

### High Performance:

- ~1.5 MB footprint for integration into embedded systems and mobile devices
- Peer-to-peer media transport over UDP-enabled networks for low latency and high scalability
- Scalable to tens of millions of subscribers

### Security:

- TLS for signalling encryption
- SRTP for media encryption

### Field Proven:

Eyeball Messenger is one of the world's most widely deployed mobile VoIP and video conferencing softphones, having been deployed to more than 20 million subscribers by licensees including Comcast, FujiFilm, Intel, Maxis, Research in Motion, and many others. Messenger is the only VoIP and video conferencing fixed and mobile softphone which delivers instant, seamless, and guaranteed calls and voice and video quality.

## 3.2.3 FEATURES OF EYEBALL MESSENGER

Voice calling features	Calling features	Video calling features	Instant messaging & presence	Contact list features
<ul style="list-style-type: none"> <li>• 3 way calling</li> <li>• Caller ID with name</li> <li>• Call status in dictators</li> <li>• Call waiting , call forward , call hold and call transfer</li> <li>• Call screening or blocking</li> <li>• Messaging waiting indicator (MWI)</li> <li>• Call history (received and dialed)</li> <li>• Access to video and voice mail box</li> <li>• Sound alert</li> </ul>	<ul style="list-style-type: none"> <li>• Three way audio calling</li> <li>• Speaker phone</li> <li>• Mute voice</li> <li>• Microphone and speaker selector</li> <li>• Audio message record</li> <li>• Audio tuning wizard</li> <li>• Voice activity detection</li> <li>• Automatic gain control for voice</li> <li>• Acoustic cancellation and support for speaker phone</li> <li>• Touch tones for DTMF or PBX calling</li> </ul>	<ul style="list-style-type: none"> <li>• Three way video calling</li> <li>• Large display</li> <li>• Picture in picture</li> <li>• Video preview</li> <li>• Pause video</li> <li>• Take snapshot</li> <li>• Video message record</li> <li>• Video tuning wizard</li> </ul>	<ul style="list-style-type: none"> <li>• Federated IM and presence with yahoo, google,msn</li> <li>• Multi-party chat</li> <li>• Typing indication</li> <li>• Rich text messaging</li> <li>• Input smiley</li> <li>• File transfer</li> <li>• Do not disturb,busy and available status</li> <li>• Custom status</li> <li>• Avatar to represent self and other</li> <li>• Offline messaging</li> <li>• Multiple language supported</li> </ul>	<ul style="list-style-type: none"> <li>• Tree based contact list</li> <li>• Add contact</li> <li>• Delete contact</li> <li>• Block contact</li> <li>• Contact authorization</li> </ul>

**Figure 9: Features of eyeball Messenger**

### 3.2.4 USER INTERFACE OF EYEBALL MESSENGER:



**Figure 10: User interface of EyeballMessenger**

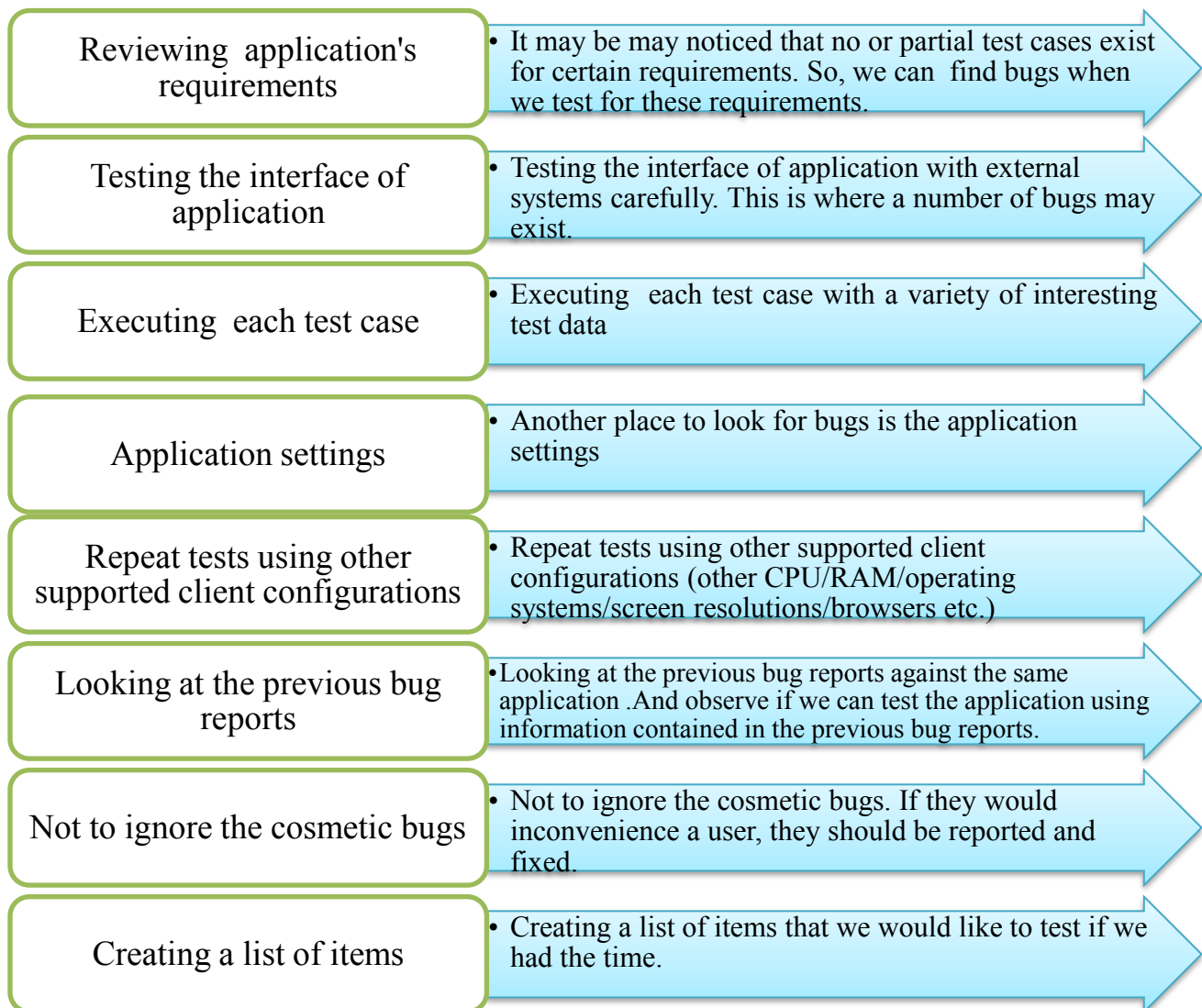
### 3.3 TASKS:

### 3.3.1 BUG DETECTION:

On the very first day, when we joined eyeball networks, we were given some android and ios devices. On those devices, Eyeball's products –EyeballMessenger and EyeballSDK were installed. And we were told to use those products just as normal users. And after that, they told us to find out the problems of those products as users. And also to find what we expected more from those products. On that day we reported about which of the features of the products were not working and what was our expectation from those products. And thus from the first day at Eyeball networks, learning capability was initiated among us for finding out the bugs of applications.

As time went on, we tried to find out the bugs that are most difficult to find and those always misleads users. Finding such a subtle bugs is most challenging work and end of the day it gives satisfaction of what we have done the whole day.

For finding bugs, we used to follow some steps. They are:



**Figure 11:rules for detecting bug in an application**

In case we are working as part of a testing/ QA team, we cannot restrict our self to the areas that we are supposed to test. We may find bugs in the other areas. Instead of rushing through the tests at top speed, we have to slow down .It would give enough time to think more clearly.

### 3.3.2 SANITY CHECK :

In our case, whenever a new build of Eyeball Messenger or EyeballSDK arrived in our hand, the first duty was to perform the sanity check. A sanity test or sanity check is a basic test to quickly evaluate whether a claim or the result of a calculation can possibly be true. The advantage of a sanity test, over performing a complete or rigorous test, is speed. Sanity test, is a form of software testing which offers quick, broad, and shallow testing, determines whether it is possible and reasonable to proceed with further testing. Sanity test determines whether it is possible and reasonable to continue testing.

The basic functionalities of both Eyeball Messenger and EyeballSDK are audio calling, video calling and text messaging. So for these two products, sanity testing or which we called basic testing included testing the audio call, observe the quality of audio call, testing the video call, observe the quality of video call and check if the text messages are sent and received properly. And we had to fill up the corresponding excel sheet with pass/fail. Sanity test, is a form of software testing which offers quick, broad, and shallow testing, determines whether it is possible and reasonable to proceed with further testing. Sanity test determines whether it is possible and reasonable to continue testing. So, if the sanity test failed, it was not reasonable to attempt more rigorous testing. Sanity tests are ways to avoid wasting time and effort by quickly determining whether an application is too flawed to merit any rigorous testing.



**Figure 12: Attributes of sanity checking**

### **3.3.3 TEST PLAN GENERATION:**

A test plan is a document detailing a systematic approach to testing a system such as a machine or software. The plan typically contains a detailed understanding of what the eventual workflow will be. A test case in software engineering is a set of conditions or variables under which a tester will determine whether an application or software system is working correctly.

Existing test plan of the products Eyeball Messenger and EyeballSDK for different platforms were provided to us after a few days of joining Eyeball networks. Our main task was to test the products according to those test plans and place results to the test plans. We had to mail those results to our SQA.

After a month, we were assigned to extend the existing test plans which were previously given to us. So we generated test cases in order to fully test that all the requirements of an application are met. And according to the products, there were at least two test cases for each requirement: one positive test and one negative test. If a requirement had sub-requirements, each sub-requirement had at least two test cases. Written test cases included a description of the functionality to be tested. And formal written test-case was characterized by a known input and by an expected output, which was worked out before the test is executed.

As messenger is a totally vast product, after every release of a new build, clients added new requirements. So, after release of every new build, new requirements were added, and we had to create new positive and negative test cases according to those requirements and update the test plan.

### 3.3.4 TICKET TESTING:



In our company QA engineers cannot directly communicate with the developers about the bugs of the products. So, there is a website, called [track.eyeball.com](http://track.eyeball.com), where we have a common server for all employees of Eyeball. There the QA engineers can make tickets about the bugs which they have detected in the products. Developers can view those tickets and can fix the bugs. Each ticket contains an unique number. Sometimes we were given ticket numbers by our supervisor and we had to test those tickets and prepare the test results.

<b>Type</b>	<ul style="list-style-type: none"> <li>Type refers to the category of bug. At first, there are only a few classifications such as: GUI, logical and Technical. As applications are released more types of bugs are added</li> </ul>
<b>Severity</b>	<ul style="list-style-type: none"> <li>This indicates how severe the bug is to the application. however the severity are three types of: 1. major 2. minor 3. trivial.</li> </ul>
<b>Frequency</b>	<ul style="list-style-type: none"> <li>Frequency indicates if the issue can be replicated every time, when someone goes through the steps, or if it only works a few times.</li> </ul>
<b>Action Performed</b>	<ul style="list-style-type: none"> <li>The test case is the process which the tester went through in order to recreate the bug mentioned. This is the most critical fieldpiece of information because the testing manager will try to reproduce the bug based on the information supplied in this field.</li> </ul>
<b>Expected Result</b>	<ul style="list-style-type: none"> <li>This field refers to the tester's expectations when encountering a situation</li> </ul>
<b>Actual Result</b>	<ul style="list-style-type: none"> <li>The result refers to the actual occurrence.</li> </ul>
<b>Environment and Additional Info</b>	<ul style="list-style-type: none"> <li>Environment and additional info is where additional information about the platform is entered, or other external conditions that might have caused the reported bug.</li> </ul>
<b>Attachments</b>	<ul style="list-style-type: none"> <li>Screenshots and logs are highly important to describe a bug in a professional manner. A good screenshot can make the difference between a crystal clear bug and a vague bug</li> </ul>

**Figure 13: parameter for preparing tickets**

### 3.3.5 NAT TESTING:

Network Address Translation (NAT) is the process of modifying IP address information in IPv4 headers while in transit across traffic device. The simplest type of NAT provides a one-to-one translation of IP addresses.

Eyeball has developed Any Firewall Technology to ensure seamless traversal of media across different NATs, firewalls, UPnP gateways, & web proxies. This comprises of two products:

**I. Any Firewall Engine (AFE)** – the industry's leading firewall and NAT traversal SDK offering the most comprehensive implementation of STUN, TURN and ICE.

**II. Any Firewall Server (AFS)** - a carrier-grade STUN and TURN server ready for licensing and mass deployment.

In Eyeball networks, NAT testing was one of the most important parts of our responsibilities. NAT test actually refers to check the competition type of NAT traversal, check the IPE competition, and record the quality of each traversal.

In eyeball networks, there were 5 types of NAT available. And those are:

- PRC
- FC
- SYMM
- UPNP
- UDP

And for testing it was also required to use STUN and TURN server and ICE check. The IETF (Internet Engineering Task Force) has devised a suite of protocols, namely

- STUN (Session Traversal Using NAT)
- TURN (Traversal Using Relay NAT)
- ICE (Interactive Connectivity Establishment)

To address the limitations of the currently available NAT traversal solutions. **STUN** allows the applications to discover the public IP address and port mappings that the applications can use to

communicate with its peer. **TURN**, on the other hand, allocates a public IP/port on a globally reachable server and uses it to relay media between communicating parties. **ICE** is a framework that defines how to use the STUN and TURN protocols to solve the NAT traversal problem, by choosing the best possible interconnection method between two users. Since ICE incorporates STUN and TURN methods, sometimes ICE is also used to refer to the complete STUN, TURN, and ICE solution.

### 3.3 Technical skills acquired:

I believe every software engineering students should be equipped with skills that allow them to understand and dominate the evolution of technology. Learning by studying at institution vs. learning by doing at work is not the same. The two ways of learning are necessarily different and complementary.

By working in Eyeball Networks, I have earned some technical skills which will help me to relate theoretical knowledge with practical one in the next academic carrier.

So here I am going to share my technical skills which I have gained by working in Eyeball Networks.

I had to use some tools on daily basis for testing the products as QA engineer. And to understand why I have used some helping tools for my job, at first I have to explain log file first.

#### 3.3.1 LOG FILE :

Log file is a recording of everything that goes in and out of a particular server. It is a concept much like the black box of an airplane that records everything going on with the plane in the event of a problem. The information is frequently recorded chronologically, and is located in the root directory, or occasionally in a secondary folder, depending on how it is set up with the server.

The point of a log file is to keep track of what is happening with the server. If something should malfunction within a complex system, there may be no other way of identifying the problem. Log files are also used to keep track of complex systems, so that when a problem does occur, it is easy to pinpoint and fix.

The tools described here mainly helped me to extract the log files which were created by Eyeball products. And the list of the tools is described here:

### 3.3.2 Wireshark:



Wireshark is a free and open-source packet analyzer used for network troubleshooting, analysis, software and communications protocol development. It is formerly known as Ethereal, which captures packets in real time and display them in human-readable format. Wireshark includes filters, color-coding and other features that let us dig deep into network traffic and inspect individual packets.

The enormous thing about wireshark is that packets are highlighted in green, blue and black. Wireshark uses colors to help us identify the types of traffic at a glance. By default, green is TCP traffic, dark blue is DNS traffic, light blue is UDP traffic and black identifies TCP packets with problems - for example, they could have been delivered out-of-order. Those colors help any analyzer to have an enormous advantage over the whole analysis process.

### 3.3.3 AIRDROID:



AirDroid is a free and fast app that helps to manage Android from a desk web browser, all over the air. AirDroid is a fast, free app that lets us wirelessly manage & control our Android devices (phone & tablet) from a web browser. It's designed with the vision to bridge the gap between our Android device and web browser, on desktop computers or tablet devices, on Windows or Mac.

Files or complex collection objects can be stored by the application, and it reserves them for private use by itself, or it can expose its data to all other applications on the device. That's why this app is used for retrieving the log files by filtering by their creator apps. Airdroid allows to make sure that collected those log files were generated by only EyeballMessenger products.

### **3.3.4 WinSCP :**



WinSCP (Windows Secure Copy) is a free and open-source SFTP, SCP and FTP client for Microsoft Windows. Its main function is secure file transfer between a local and a remote computer. Beyond this, WinSCP offers basic file manager and file synchronization functionality. For secure transfers, it uses Secure Shell (SSH) and supports the SCP protocol in addition to SFTP. It uses Secure Shell (SSH) technology to enable the safe copying of files between a local and a remote PC using the File Transfer Protocol (FTP), SSH FTP, or SCP (Secure Copy) protocols, as well as offering some basic file management features. WinSCP is easy to use, providing two optional user interfaces to deal with, one that similar to the old Norton Commander file manager and the other similar to Windows Explorer. It supports securely dragging and dropping files for transfer across a network and can be integrated directly into the Windows shell. Thus it makes file transfer from IOS really flexible.

### **3.3.5 ADB (ANDROID DEBUG BRIDGE) & PUTTY:**

ADB, is a development tool included with the Android SDK (Software Developer Kit), which allows for communication from an Android device (such as a phone or tablet) to a personal

computer, and vice-versa. the full meaning of ADB is, Android Debug Bridge. This communication can be made over a wifi connection. ADB can also be used by developers for communicating from a computer to a virtual android machine that is also running on the computer. ADB has a terminal connection feature, which will be enabled if we connect the device to the ADB server in a particular mode.

PuTTY is a free and open-source terminal emulator, serial console and network file transfer application. It supports several network protocols, including SCP, SSH, Telnet and rlogin. PuTTY is used for retrieving those ADB log files for analyzing AFE support behind EyeballMessenger. My job was to extract them and handed over to the developer team.

### **3.3.6 VISUAL BASIC STUDIO:**

Visual basic studio is a Microsoft object-oriented programming (OOP) language. It evolved from Visual Basic 6 (VB6) to meet an increasing need for easy web-services and web development. Basically it was not very much convenient for me to use Visual basic studio for completing my testing tasks. But after learning some basic syntax I found the language quite easy to work with. I was given some VC sample (video code) of the EyeballMessenger and EyeballSDK. I had to make sure that those code chunks are running both in debugging mode and release mode.

### **3.4 NON-TECHNICAL SKILLS ACQUIRED:**

As I was assigned to the quality assurance team of Eyeball Networks, I had to acquire special skills which are essential for becoming good software QA.

Quality assurance is actually the corporation wide effort to assure that a product possesses the quality required for its performance. And it includes setting the standard for the products quality and designing and implementing all the activities that contribute to the proper manufacture, performance and servicing of the product.

The role of QA is every more important in our very competitive world. A Software Quality Assurance Engineer is involved in the entire software development process to ensure the quality of the final product. This can include processes such as requirements gathering and documentation, source code control, code review, change management, configuration management, release management and the actual testing of the software. For becoming a good quality assurance engineer, following skills are indispensable. Which I tried to acquire throughout my whole internship period-

### **3.4.1 ANALYTICAL SKILLS:**

Analytical skill is the most important skill which helps to be a good quality assurance engineer. Throughout the internship journey , I tried to develop my analytical ability , which helped me to break up a complex software system into smaller units to gain a better understanding .And it helped me to created corresponding test cases. As well as, I had to make the most complex scenario for making any application crash.

### **3.4.2 VERBAL AND WRITTEN COMMUNICATION SKILL:**

I used to generate testing artifacts like test cases/plans, bug reports etc every single day. And it was a must to write the report in a way that every single person in the office can understand that. Dealing with developers, in case of bugs or any other issue required a shade of discreetness and diplomacy. And as my reports were submitted to the Canada head office, it was obvious for me to prepare the report in accurate sense. Especially when it was time to make tickets, it required the simplest language to put any tickets. Thus, everybody can just go through the steps, and create that scenario and find the bug in no time.

### **3.4.3 HIGH PRODUCTIVITY:**

Being a quality assurance engineer, I had to manage the workload, especially during release of any product had to complete every testing related tasks, which were required for specific product

in one or two days. And I had to manage those workloads efficiently and had to prepare my reports so that no one can complain about the reports as the quality of the product was depended on those reports. I assume that, now I have the capability for managing the workload efficiently with high productivity , exhibiting optimal time management and organization skills.

#### **3.4.4 CONCENTRATION:**

The most significant trait for quality assurance engineer is to have a deep concentration and a great degree of passion. Without having a deep concentration, it is not easy to have a broad understanding of each part of the product, and conduct complex scenario for making test cases. Throughout my whole internship , by working as QA engineer, I think my level of concentration has increased. Passion is also a great facet for any quality assurance engineer. It is a very tough work to create the same scenario more than 100 times for producing only one bug, which can be a threat for maintaining the standard quality of a product.

#### **3.5 DOCUMENTATION:**

Generally, the larger the team/organization, the more useful it will be to stress documentation, in order to manage and communicate more efficiently. QA practices may be documented to enhance their repeatability. Specifications, designs, business rules, configurations, code changes, test plans, test cases, bug reports, user manuals, etc. may be documented in some form. There will be a system for easily finding and obtaining information and determining what documentation will have a particular piece of information. Projects that have all the documents is said to have a high level of maturity. For effective testing process, documentation is always a help note. The documentation reduces dependency of certain resources and develops sound knowledge about system to perform effective software testing. Documentation can also escape ‘Finger on you’ when client is not satisfied with delivery.

Eyeball Networks follows some rules while documenting a project. Each and Every project has to contain some specific document and then it can be registered in their server.



Being a QA engineer in Eyeball, documentation was an important allotment of my responsibilities. Throughout the whole internship period, I had to provide following documentations:

### **3.5.1 SANITY CHECK REPORT:**

A sanity test or sanity check is a basic test to quickly evaluate whether a claim or the result of a calculation can possibly be true. It is a simple check to see if the produced material is rationally working or not. Eyeball's messenger team is devoted to develop a complete functional messenger app. And for fulfilling the purpose, a new build (a new version of the messenger) was provided to us every day. The first thing which my supervisor always told me to perform was to sanity check whenever a new build came to hand. I completed the sanity check the day I received the build and delivered this report to the developers. Sanity checking is done for making sure that there is no major issue present in the particular build.

### **3.5.2 EXISTING TEST PLAN:**

Eyeball has pre-generated test plans of its own. And in the first month when I joined there, after a week they gave me an existing test plan. Then I worked there as tester. And I was given those plans and was suppose to follow those plans and make test results according that plan. I had to create the exact situations that were described in the plan. The good side of working with a pre-generated plan is there is no brain-storming needed. But, there was no opportunity to think about any situation and apply my creativity also.

The major components of this test plan are:

### Basic\_Feature\_Test

- Testing the major functionalities that can be generated easily

### Complete\_Test

- Test plan for details of every functionalities, possible crash situations, complex demonstration, pressure testing etc

### InterOP-server\_Client

- Test plans for communication between designated OS and other OS's

### AV\_Quality\_Codec

- Determining the qualities of audio and video in between different types of codecs

### NAT\_Firewall\_Test

- Possibly most important part of the test plan. Test plans for communicating between different NATs' and preferred NAT traversal type

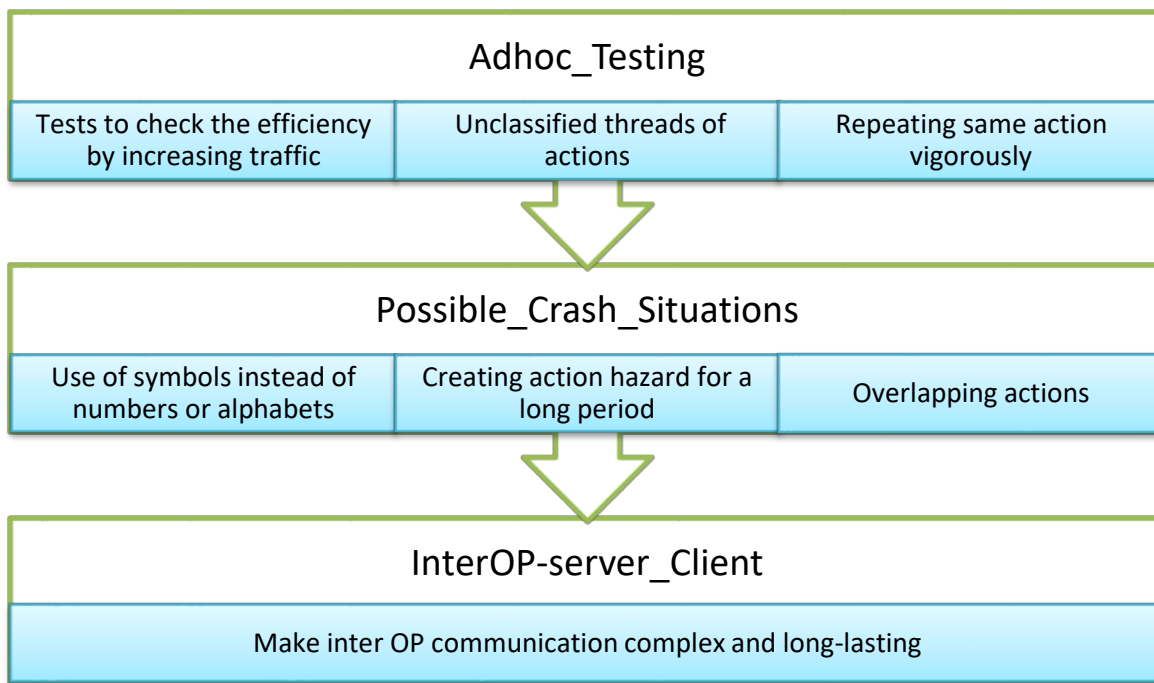
### Summarized\_Report

- Total overview for the quality assurance process

**Figure 14:Components of Test plan of EyeballMessenger and EyeballMessengerSDK**

### 3.5.3 CUSTOM TEST PLAN:

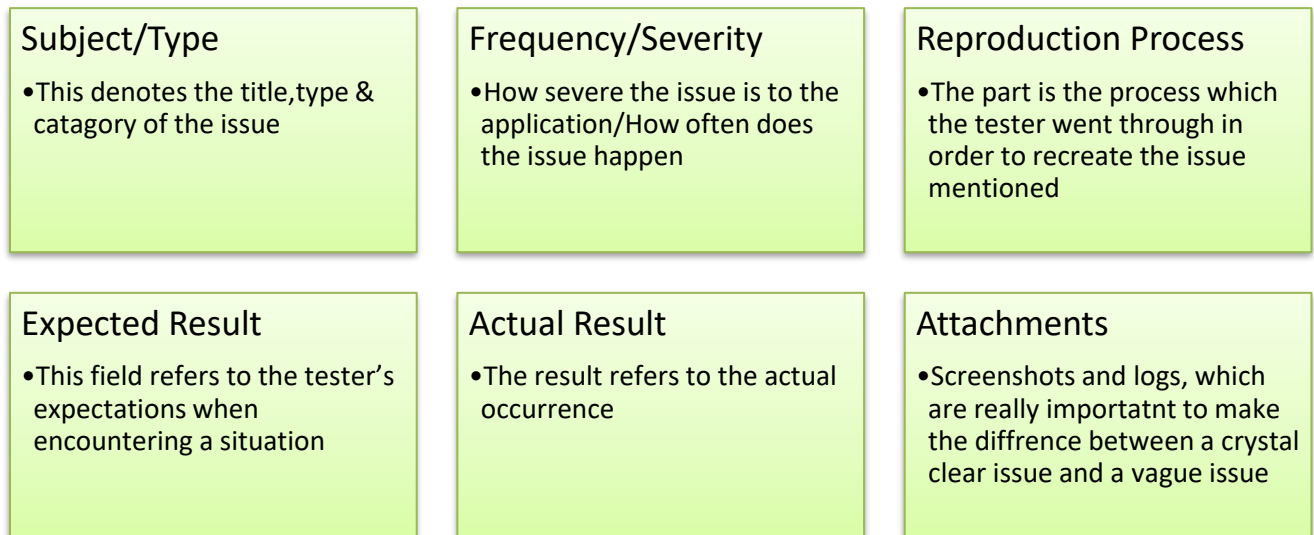
I think working as tester was quite an easy job for me. But after working as tester for a month, the opportunity for calling myself a Quality Assurance engineer was in front of me. The main dominance I got for promoting to my new positions was that, I got to open up my creativities. And as a QA engineer I was suppose to have a broad understanding of the products. and had to think about the situation n which case the program can act differently. The immediate platform that I got to show ability is my own custom test plan. By working in Eyeball Networks for a month, I was well acquainted with the applications. I used this knowledge to create a custom plan, which contained details of complex demonstration etc.



**Figure 15: Integrates of custom test plan**

### 3.5.5 ISSUE REPORT:

One of my most important responsibilities was to submit the issue report. The bugs were had to be reported, no matter how insignificant it looked or how difficult was it to reproduce. I used to maintain a template for reporting issues, which contained project name, reporter's name, description, possible solution. And Every issue had to be reported along with some basic details. Such as:



**Figure 16:Basic attributes for an issue report**

### 3.5.4 NAT TRAVERSAL REPORT:

NAT traversal is a general term for techniques that establish and maintain Internet protocol connections traversing network address translation (NAT) gateways. I had the responsibility which are pointed here :

- Convert device's NAT
- Observe the communications between different types of NATs
- Check their completion type and traversal type and document them. NAT testing was one of the most conspicuous jobs at Eyeball that I was given throughout the whole period.

### **3.6 CHALLENGES AND LIMITATIONS:**

Throughout my internship experience, I may have come across some limitations. Some issues were meant to be confronted. But at the end of the day, it is the experience that matters only.

#### **3.6.1 FACING THE OFFICE ENVIRONMENT**

Spending time up to 9 hours and above to work at office was a totally new experience for me. I am very lucky to have this kind of opportunity before starting my actual professional life.

It was quite uncomfortable for me to adapt the new environment, as I was the first female employee in the office. Thanks go to my supervisor and my colleagues who helped me abundantly. They were very much co-operative which made me to get accustomed with the office environment in no time.

#### **3.6.2 STRICT OFFICE HOUR :**

To get accustomed with the office time was a really very challenging job for me. When the office time was from 9:30, it was not tough for me to catch the office. But due to time synchronization with Canada head office with Bangladesh office, the time was changed. And it was from 7am in the morning. At first, it was quite difficult for me. But soon I was used to with it. Though I have entered my office every day in due time but most of the time can't say the same for my home.

#### **3.6.3 MEETING THE TIME LINE :**

I had to complete my tasks in a given time. An assuring quality of a product is a very responsible job. The quality of any product totally relied on me, so it was very tough for me to perform my tasks in a given time. There were some times, when I have tested every single feature of the product, and have prepared the reports for submission, on that time I detected new bugs. So that made me to re-test the products which took much time for completing.

Again, the products were dependent fully on network. So, sometimes the servers went down, and it took time for only logging in to the application. In those cases it was very much difficult to meet the timeline. But I have always tried to so complete my assigned works in the due time though it was very cohesive for me.

### **3.6.4 INSUFFICIENT RESOURCES:**

Eyeball Networks has some of its own patented technology. And designs customized IP communications solutions and deliver them to some world renowned companies. The kind of domain that Eyeball subsumes is not very well recognized. And Eyeball Networks does not allow revealing its own patented technology. And for this, the popular learning method, Google didn't work for me. I have faced quite difficulties to find resources of my interest from the internet. But my supervisor provided me sufficient documents so that I can overcome my complications.

### **3.6.5 LACK OF PREVIOUS EXPERIENCE:**

Eyeball Network is a pure networking company, so for working here, having job here means having practical knowledge of core networking. In our academic life learnt theoretical networking rather than practical. So I had to study about many protocols, articles about servers and its functionalities with which eyeball networks work. I have been using different types of messenger for years. But gaining access to the back-end of a messenger was a whole new experience for me. I learned how to observe the quality of any call, how the call is established, how the packets moves from one NAT to another, data flow, how to keep track of the protocols and so on

### **3.6.6 TESTING MATERIALS:**

In my academic life, I had a course on software quality assurance. And when I was assigned to quality assurance department, I was quite confident that I can perform the job much better. But when I got to the work field, I realized that excellence in the theory does not translate to excellence in practice. Moreover, I gained most of my knowledge about testing front-end of websites. But in Eyeball, I was asked to test the network side of a messenger which was running in android/IOS/mac/windows platform. The application was different, the platform was different, and the method and the whole testing process were relatively different. I was introduced to new devices, which was running on different OS. And it is said for the software engineers that, it is quite easy to handle different OS. But in working here, I realized that, working on different OS at the same time is not that much easy. Especially if it is used for testing. It took time to learn techniques for using different tools for different operating systems.

### **3.6.7 TRUST ISSUES:**

Eyeball Network has a product-line that has to be maintained with a great level of efficiency. And at least in the first month, I really didn't get a chance to have a glance of all the products or servers that this company deals with. It was totally like suspense to me. I knew only about that product which my supervisor assigned me to work on. I had no idea about the other products of Eyeball. Eventually, the trust issue solved and I got their accession. And I think bug detection and NAT testing have made me to gain their trust. These reports made them to decide whether they are going to submit those issues or not in the head office. And now all of us, the interns can translate the findings (the issues) into tickets and submit them to the servers. Some limited access to the server is also included in the achievement.



# SELF ASSESSMENT /PERSONAL GROWTH

## **4. SELF-ASSESSMENT/PROFESSIONAL GROWTH**



## 4.1 ATTITUDE

At the beginning, I was a little bit afraid about the new environment of the company. Certain change of the environment made me more nervous. But in the first day my supervisors and other colleagues made me feel like I am at my home. From the very first day I have tried to get accustomed with the office environment as well as with my supervisors. And I had always respected my supervisor as my teachers.

My first assignment was to generate test plans, and I had no experience about generating test plans in my academic life. But my supervisor gave me the idea of how to generate test plans with requirements and without requirements. And then he told me to just create a test plan following those requirements and rules. And gradually I learnt how to work in a QA team, how to observe the quality, how to test NAT. Although it is always difficult and challenging to learn new things but I think that I was able to cope with these challenges. My hard-working and platonic attitude helped me to cope with the office culture and new technology.

## 4.2 ABILITY TO LEARN

As eyeball network is a pure networking company, so for having a job here means having the core knowledge of networking. By joining Eyeball networks, I have learned huge knowledge of networking by having practical experiences. I have learnt about many internet protocols, network address translations and the most effective thing is that I have increased my analytical ability by joining the quality assurance team.

The goal of the QA engineer is to try and make things not work so the programmer can catch errors before they occur. So my duty was to completely test the functionality of a product, which was actually the main job of a tester. But the QA field gave me the opportunity for showing my creativity. I was used to have a broader view of the product, and I had to concentrate on every single functionality of each product. And the most interesting part for me was to generate scenario which will make the product stop working or which will make the product crash as well as which will make the functions working counterfactual. and the critical job was to decide the quality of product. It's a hard job because quality differs to every single person. So deciding whether the quality is good or bad was a very tough job.

## 4.3 DEPENDABILITY:

Dependability is a valuable quality in the workplace, as far as I have observed. When I joined Eyeball networks, at first my supervisor helped me a lot. He taught me how to complete my assigned works, how can I complete my assignments in a given time, how to check the quality of a product, how to increase analytical ability as I joined there as intern QA engineer. But as time went, I think within a month, I learnt all these things and I was able to do all my works without having help of my supervisor. And I learnt how to manage all the works in time.

I think I can categories dependability in few points :

### 4.3.1 TIMELINESS:

Punctuality is an important component of dependability in the workplace. When an employee shows up late for work, especially on a regular basis, it can turn into a snowball effect including lateness to meetings and completing tasks after the deadline. When it comes from arriving to work on time, I have always tried to be at office on my due time. And I think regardless two or three days I was always at office in time. No matter if office time was at 9.30 am or office time was 7.00 am in the morning.

Aside from arriving to work on time, I had completed all my tasks within the time frame allotted. As QA engineer its very important to complete the testing of any product at time, because the quality of the product depends completely on QA engineer .And if there is any bug existing in the product, then the developers has to fix it in order to release the product in due date. My supervisor has always given me a time limit for testing any product and submitting the report. I have always tried to complete my task in time, but I think in this case some times I haven't been able to submit my test results within the due time. Because testing is a really vast procedure and bugs can occur in any time even if I have completely tested that product. Also the testing procedure was totally based on network, so some days if servers were having some problems and it took much time for only starting the testing procedure.

### 4.3.2 PRODUCTIVITY

I think a dependable employee can be counted on to do his portion of the work in a timely manner. And once finished with the job at hand, the same employee can take the initiative to

Speak with the supervisor or manager to find out what else can be done. Rather than spend extra time conducting personal business on the computer or telephone. A dependable, productive employee demonstrates team spirit by being willing to pitch in with other tasks once his task is completed.

I have always tried to complete my assignments at the given time limitation. And I had that kind of day also when I have submitted my assigned works in time and asked my supervisor what else I can do for him. Most of the times he gave me work to complete, which was very important for that day. I really feel great when I think that I have helped him in completing his tasks in such a stressful day.

### **4.3.3 WORKING WITHOUT SUPERVISION**

At first, my supervisor was used to spend time with me for observing how I complete my work. And I was also used to report him personally that what bugs I have found in the product, what are my test results and also showed him the rough copy of tickets before putting it on the server.

As time went on, there was no need for supervising my works. Because I was able to understand how to complete my own works, how to submit them. As time went there was no need to even show my work results directly to my supervisor. I just mailed them to him as final testing result for individual product. And he liked my work that much that I was permitted to put tickets directly on server for all of the employees.

### **4.3.4 ATTENTION TO DETAIL**

I think my supervisor had relied on me that much that even if he did not arrive at office one day, developers gave the products directly to me for testing them. And it's a big achievement for me.

## **4.4 INITIATIVE**

In a company every body works in a group and in each group every person has his own responsibilities. I tried to complete all my task with my own responsibility, and if I had any problems , then I can went for any types of helps needed for that task to my team members. Or even I had completed my works before the given time limitation, with my own responsibility I have done another tasks. Actually my works were defined there. It was known to me, that what I have to do on daily basis, and if there was any works which I didn't knew, my supervisor assigned that for me. Working in QA team has made me more responsible as quality of product totally dependent on me and it made me able to take initiatives for the upcoming tasks.

#### **4.5 QUALITY OF WORK:**

Most of the time it is seen that, company's think that interns are freshers. So it is not possible for them to perform the actual job. But in my case, my company treated me just as their regular employee, and make me that much important. As in our company there are few engineers in QA team, so they were always under lots of pressure. So when I joined there, from the second week they gave me there works and I think it made them much more relief. And I was very much delighted when my report was sent to head office of Eyeball networks in Canada. The product quality is the main thing on which a company's reputation depends and product quality depends on quality of works. So I always tried to maintain the highest quality of work throughout the internship.

#### **4.6 RELATION WITH OTHERS:**

Interpersonal relations at work serve a critical role in the development and maintenance of trust and positive feelings in a farm organization.

In my company there were no other female employee accept my classmate. And from the perspective of our country, it's not totally possible to interact with employees who are all males. So in the beginning, thing was a little bit tough for me when I heard that there was no other female employee in the office. But all my colleagues were really very friendly, that it made much easier for me to interact with them. As time went on, it was so easy for me to share every work related problems with my colleagues .As I am a member of CRAZY messenger team, interaction with my team members was really very good. But interaction with the other teams, like AFE

team or SERVER team was quite good also. It was really good to work with experienced and talented persons in my company.

#### **4.7 MATURITY-POISE**

At the very beginning I had a average confidence on myself, but gradually I gained more and more confidence on myself. Having practical experiences about networking and working as QA engineer, helped me quite maturity poise and confident. By involving in QA team, also taught me how to think about any scenario that will certainly stop any functionality of a product, how to maintain the quality of a product, how to observe the quality and how to think analytically. Joining QA team also taught me how to complete a test in a timely manner even if there is no plenty of resources. My maturity and poise also helped my supervisor to easily involve me into trustable works. Now I am confident and poised and I hope it will be maintained through all time.

#### **4.8 QUANTITY OF WORK:**

As from the beginning, Eyeball networks treated me like an employee, I was assigned to a bundle of works from the very beginning. At first they introduced me with their products, as Eyeball is a company which sells its patented own product. And they asked me to use the product as a user. And report about the product, that if I was a client for that, then what else requirement should I has demanded for those. And on the first day I submitted report as they told me. The next day they told me to study about what technology they are using for their product, as Eyeball is a totally networking company, so I had to study about lots of networking protocol and how actually the products are built across those networks. And after a week, they assigned me works related to Quality Assurance department. Sometimes it is seen that many companies do not want to involve their interns into their main and core projects and I think they were not sure that whether I can do the work as a fresher. But by hardworking I earned their trust and eventually they gave me all those assignments which were related to their running projects. And I must say Eyeball network is a company where hardworking is must, because here work pressure is that much high, that I always went to office in time , but most of the days I came at home lately.

#### **4.9 JUDGMENT**

Judgment is not generated within a day or in a month. It is the quality that builds up gradually with gathering experience. As I was in the QA team, so judgment was very much important for me. Because assuring quality of a product is a very difficult job. Because, I can be satisfied with the quality of a specific product, but on the other hand, client will or will not be satisfied about the quality of the product. So as QA engineer, I have to take on my mind, that who are the clients, and what they want from the products. And in this case developing judgment over myself was so important, without developing it I cannot assure the quality of any product. All these helped me to grow the judgment quality inside me with time and experience

#### **4.10 PUNCTUALITY AND ATTENDANCE:**

The importance of punctuality in the office hardly needs any emphasis. Punctuality is a wonderful trait of a person, one to be admired and respected. In our company, punctuality and attendance is highly emphasized. At first our office timing was from 9.30am-6.30 pm. But after a week of my joining, the office time changed from 9.30 am to 7.00 am because of synchronizing the communication of Canada office with Dhaka office. The new time was pretty much awkward, specially when it was winter season. But I always tried to arrive at office sharp at 7am. I can tell that, rather 2 or 3 days I was late at office. And attendance was totally full. If I had some problems, then I was asked to complete the work and then I can went home.

#### **4.11 OVERALL PROGRESS:**

The six months internship period, have given me lots of experience and knowledge. With these experiences I can build my career more successfully in the future. Working on a QA team has made my analytical mind stronger. Now I am pretty much sure that, I have the capability to completely test any product and assure the quality of the products. Involvement on these projects also taught me how to manage everything easily, how to maintain tasks timeline and schedule, how to develop a complete test plan. The journey at Eyeball networks made me more hardworking, passionate, punctual ,responsible and confident.



# CONCLUSION

A good quality assurance engineer has a 'test to break' attitude, an ability to take the point of view of the customer, a strong desire for quality, and an attention to detail. Eyeball Networks taught me all this things. I learned that tact and diplomacy are useful in maintaining a cooperative relationship with developers, and an ability to communicate with both technical and non-technical people is useful. I' m pretty much sure that, now I have the ability to understand the entire software development process and how it can fit into the goals of the organization. Being a QA engineer means holding patience and diplomacy insight. And it brings the ability to find problems as well as to see 'what's missing' is important for inspections and reviews.

Working at Eyeball networks gave me a wonderful experience. Now I'm enough capable for working hard in any environment. By working there, I gained enough confidence over me. And have decided that I will build my career in quality assurance in future. Being a quality assurance engineer was a very interesting job to me.

I would like to convey my thanks to IIT, DU for providing me an opportunity to gain idea of the competitive environment in the professional field. It has certainly lifted my point of view of the customer, a strong desire for quality, and an attention to detail.



## REFERENCE

- [1] History, Eyeball Networks Inc. <http://advantagemagazine.ca/2012/eyeball-networks/> [22may,2013]
- [2] History, Eyeball Networks Inc <http://www.eyeball.com/> [22may,2013]
- [3] Projects, Eyeball Networks Inc <http://www.eyeball.com/> [22may,2013]
- [4] Technical skills, Airdroid, <http://www.airdroid.com/> [22may,2013]
- [5] Technical skills, <http://en.wikipedia.org/wiki/Wireshark> [22may,2013]
- [6] Technical skills , winscp, <http://en.wikipedia.org/wiki/WinSCP> [22may,2013]
- [7] Technical skills, ADB, <http://developer.android.com/tools/help/adb.html> [22may,2013]
- [8] Technical skills, Putty, <http://www.chiark.greenend.org.uk/~sgtatham/putty/> [22may,2013]
- [9] Book, Developer's Reference Guide,2002-2013 Eyeball Networks inc.



# Appendix

## Appendix: Screenshots of assigned tasks

### Sanity test:

	A	B	C	D
25	SANITY TEST RESULTS			
26				
27	Testers:	Tasnim Rahman		
28		Test case	Test Result	QA comments
29				
30		Does the application load properly?	pass	it crashes sometimes
31		Can an audio call be placed from device 1 to device 2?	pass	
32		Is audio clear, without delay?	pass	
33		Can an audio call be placed from device 2 to device 1?	pass	
34		Is audio clear, without delay?	pass	
35		Can a video call be placed from device 1 to device 2?	fail	
36		Is video good quality, without distortion or stuttering?	pass	average
37		Can a video call be placed from device 2 to device 1?	fail	
38		Is video good quality, without distortion or stuttering?	pass	average
39				

Figure 17: Sample of sanity test

▪ NAT test:

Call Completion Test						
			Caller NAT type			
Callee ↓	PRC	FC	SYMM	UDPBL	UPNP	PUB
PRC		UDP-R	UDP-R	TCP-R	UDP-R	
FC	TCP-R		P2P	TCP-R	P2P	
Symm	TCP-R	P2P			P2P	
UDP-BI	CALL COULD NOT BE ESTABLISHED	UDP-R	UDP-R		UDP-R	
UPNP	P2P	P2P	P2P	TCP-R		
PUB						

G45								
	A	B	C	D	E	F	G	H
34								
35	Call Completion Test (pass/fail)							
36					Caller NAT type			
37	Callee ↓	PRC	FC	SYMM	UDPBL	UPNP	PUB	
38	PRC		pass	pass	pass	pass		
39	FC	pass		fail	pass	pass		
40	SYMM	fail	pass		pass	pass		
41	UDP-BL	pass	pass	fail		fail		
42	UPNP	fail	pass	pass	pass			
43	PUB							

Figure 18: Sample of NAT test

## ■ Custom test plan:

	A	B	C	D	E	F	G	H	I
1	Eyeball SDK v7.6 - Test Report								
2	© Eyeball Networks								
3	Generator: Tasnim Rahman								
4									
5	No#	Category	Test Scenario	Expected Result	Estimated Hours: 65.3	Actual Hours: 3	Version	Pass/Fail	Comments
6	Installer / Uninstaller				3	3			
7		Installer / Uninstaller	Install the new build and make sure the new DLL's got registered properly	DLL's got registered properly					
8		Installer / Uninstaller	Do Uninstallation	DLL registry Uninstallaton successful					
9		Installer / Uninstaller	Command prompt should run as administrator	DLL installation and uninstallation will be successful					
10	Read Me File								
11			Open the ReadMe file	There should be a ReadMe file telling about the contents of the package and how to use it. There shouldn't be any mistake in naming, dates, version, addresses.					
12	Sample application code								
13			Compile the sample app's source code, following the instructions in the ReadMe file for the sample app.	Should compile successfully without any error.					
14	Register/Login (TCP, UDP, TLS)				2				
15		Register/Login (TCP, UDP, TLS)	Click on "Lookup" button	SRV domain lookup will be successful and set the STUN, TURN, HTTP configurations					
				Status should be updated and					

Figure 19: Sample of Custom Testplan

- **Ticket testing:**

[illegible]

### Figure 20: Sample of ticket testing

## ▪ Issue report:

Android messenger SDK

Build: 8.0.20130328

Reporter : Tasnim Rahman

### SDK Crashes:

- User tries to login right after changing preferences/application crashed (Three times/Log attached)
- User slides xmpp to sip vigorously again and again. Program crashed (Log attached)

### XMPP Issues:

#### Issue 1: Background window goes upwards with pop-up window

- Suppose, kotha is logged in xmpp
- She clicks on "add buddy"
- A pop-up window appears for adding a buddy
- With the appearance of this pop-up window, background window shifts upwards (Happens every time)
- This situation happens while writing message too

#### Issue 2: No confirmation message provided while removing a buddy

- Q2 is in supta's buddy list
- Supta removes q2 from her list
- Supta's list get updated but no confirmation message is provided

#### Issue 3: Error message confusion

Figure 21: Sample of issue report