

References

- [1] Alan Dennis, Barbara Haley Wixom, David Tegarden, (2004), Systems Analysis and Design with UML Version 2.0: An Object-oriented Approach, John Wiley & Sons.
- [2] Bill Evjen, Scott Hanselman, Farhan Mahammod, Sirmirasa sirakumar, Devin Radar, (2005), Professional ASP.NET 2.0, Wiley_Default,.
- [3] Brian S. Madden, Ron Oglesby, (2004), Terminal Services for Microsoft Windows Server 2003: Advanced Technical Design Guide, The Brian Madden Company, LLC.
- [4] Chen Design Associates, Michael Mabry, (2006), Fingerprint: The Art of Using Handmade Elements in Graphic Design, HOW Books.
- [5] Cristian Darie, Karli Watson, (2005), Beginning ASP.NET 2.0 E-commerce in C# 2005: From Novice to Professional, Apress, pp-(654).
- [6] David Sparks Evans, Richard Schmalensee, (2005), Magnetic card reader Paying with Plastic: The Digital Revolution in Buying and Borrowing, MIT Press, pp-(367).
- [7] David Zhang, (2000), Automated Biometrics: Technologies and Systems, Springer, pp-(344).
- [8] Design Methods Group, Design Methods Institute, Design Research Society, Design Research Society, Design Methods Institute, Design Methods Group, (1990), Design Methods and Theories, Design Methods Institute.
- [9] Dominick Baier, (2006), Developing More-Secure Microsoft ASP.NET 2.0 Applications, Microsoft Press.
- [10] Elmasri, Navathe, Somayajula, Gupta, (1989), Data Modeling using the Entity-Relationship Model, Benjamin/Cummings, pp (43-93).
- [11] Glenn Johnson, Tony Northrup, (2007), Microsoft .Net Framework 2.0 Web Based Client Development, Microsoft Press.
- [12] Mark minasi, Chirstra Andern, Michele Beveridge, C.A. Callahan, Casa Justice, (2006), Master Windows Server 2003, Sams Publishing,
- [13] Mark minasi, Chirstra Andern, Michele Beveridge, C.A. Callahan, Casa Justice, (2006), Master Windows Server 2003, Sams Publishing, pp-(1304).
- [14] Mathew MacDonald, (2006), Beginning Asp.NET 2.0 in C# 2005 from Novice to Professional, Apress.
- [15] Mike Hendry, (2001), Smart Card Security and Applications, Artech House.

- [16] Ian Sommerville, (2007), Software Engineering 6th Edition, Addison-Wesley Pub. Co., pp-(43-54).
- [17] Ian Sommerville, (2007), Software Engineering 6th Edition, Addison-Wesley Pub. Co., pp -(417-467).
- [18] Ian Sommerville, (2007), Software Engineering 6th Edition, Addison-Wesley Pub. Co., pp-(579-641).
- [19] Ian Sommerville, (2007), Software Engineering 6th Edition, Addison-Wesley Pub. Co..
- [20] Robin Dewson, (2006), Beginning SQL Server 2005 for Developers From Novice to Professional, Apress.
- [21] S. Z. Li, Zhenan Sun, Tieniu Tan, Sharath Pankanti, David Chollet, David Zhang, (2005), Advances in Biometric Person Authentication: International Workshop on Biometric Recognition Systems, IWBRIS, Beijing, China.
- [22] Samir Nanavati, Michael Thieme, (2002), Biometrics: Identity Verification in a Networked World, John Wiley and Sons, pp-100
- [23] Stacia Miner, Htachi, (2005), Microsoft SQL Server 2005 Reporting Services Step by Step, Microsoft Press.
- [24] Terry Quatrani, (1998), Visual Modeling with Rational Rose and UML, Addison Wesley.
- [25] Thin Thangarathinam, (2006), Professional ASP.NET 2.0 XML, Wiley_Default.
- [26] Victor Isakov, (2006), MCITP Developer Microsoft SQL Server 2005 Database Solutions Design, John Wiley & Sons, Incorporated.
- [27] William Stallings,(2004), Operating Systems: Internals and Design Principles, Pearson/Prentice Hall, pp-(719).
- [28] <http://www.inceptiontechnologies.com/CardReaders/CardReaders.html>
- [29] <http://www.download32.com/biometric-employee-time-clock-i4273.html>
- [30] <http://www.airforce.lk>

Appendix



University of Moratuwa, Sri Lanka.
Electronic Theses & Dissertations
www.lib.mrt.ac.lk

Appendix – A

Existing System Use Cases and Activity Diagrams

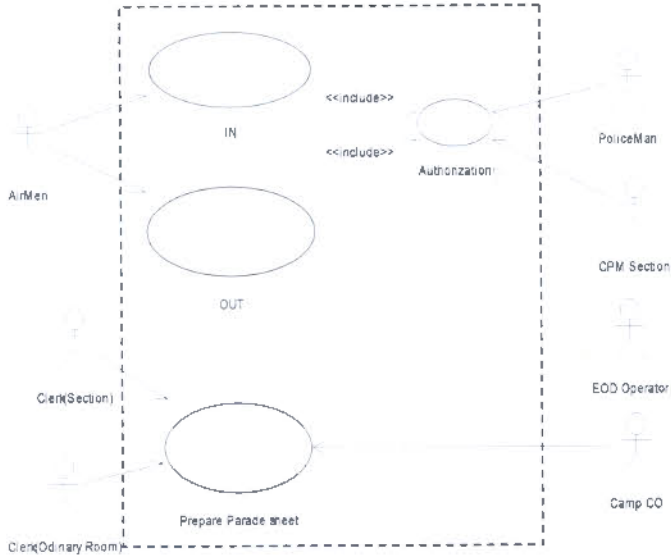


Figure A1: Use Case Diagram Manual system

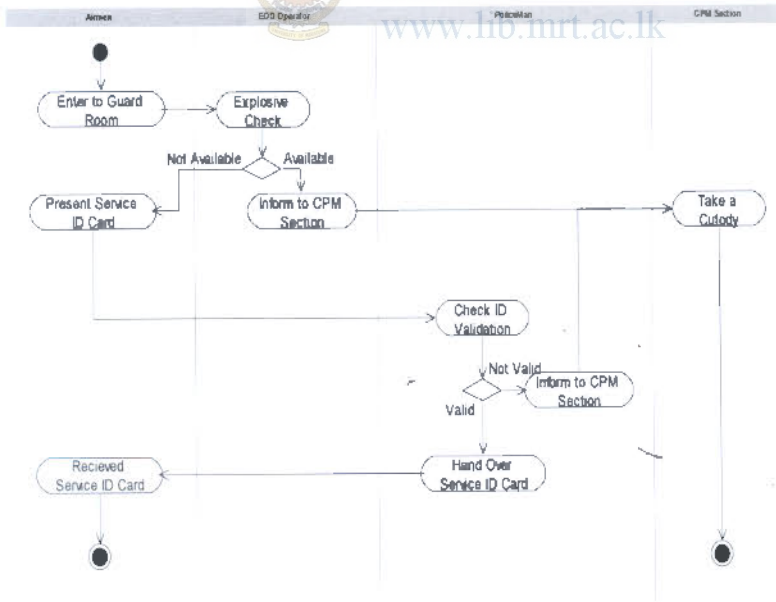


Figure A2: Activity Diagram for Authorization

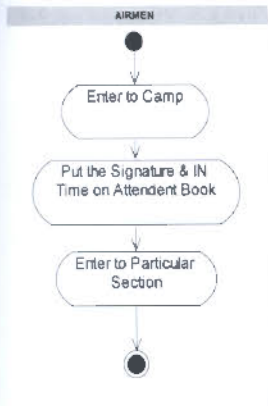


Figure A3: Activity Diagram IN

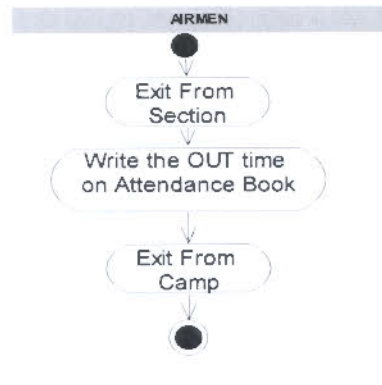


Figure A4: Activity Diagram OUT

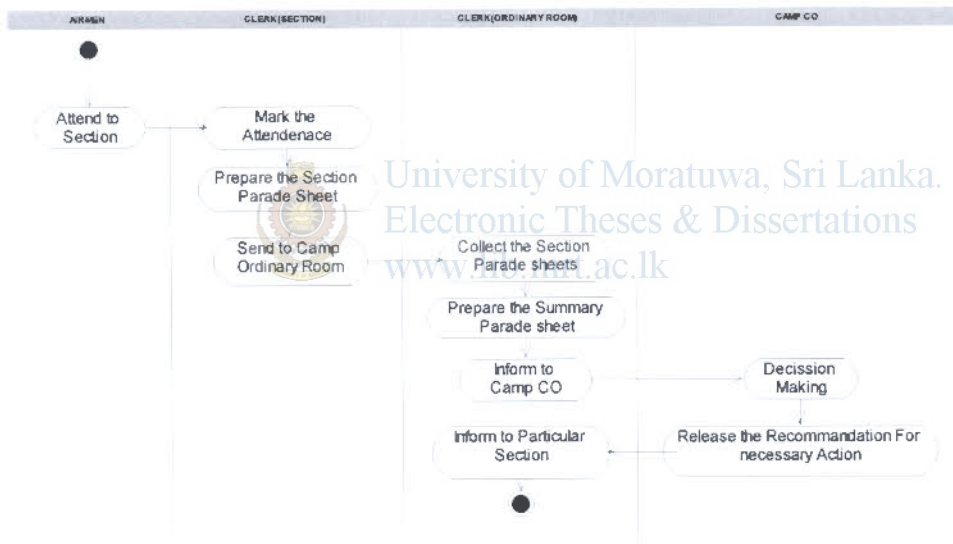


Figure A5: Activity Diagram Prepare Parade Sheet

Use Case Description

Table A1: Use Case Description Authorization

| | |
|------------------|---|
| Name | Authorization |
| ID | |
| Version | 1.0 |
| Actors | EOD operator, Airmen, Policeman, CPM Section |
| Summary | This use case detail of Authorization which very import part of Access controlling that mean without Authorization, any person cant Enter to SLAF guard room |
| Pre condition | Valid Service ID card. |
| Post condition | Get Authorization to Enter Camp |
| Basic path | <ol style="list-style-type: none"> 1. Present the service ID card to policeman. 2. Check Service ID Card validation. 3. If valid then 4. Enter to the EOD checking (Explosive). 5. If Not Available then 4. Enter to the camp |
| Alternative path | |
| Exception paths | <ol style="list-style-type: none"> 3a1. Else 3a2. Inform to CPM Section 3a3. Take custody for further investigation. <ol style="list-style-type: none"> 5a1. Else 5a2. Inform to CPM Section 5a3 Take custody for further investigation. |
| Assumption | |

Table A2: Use Case Description IN

| | |
|------------------|---|
| Name | IN |
| ID | |
| Version | 1.0 |
| Actors | Airmen |
| Summary | This use case details of IN attendant of Airmen/Airwomen. |
| Pre condition | Authorized person. |
| Post condition | Record IN time in Attendance book |
| Basic path | <ol style="list-style-type: none"> 1. Write the Name with initials in attendance book 2. Write the Current Time and Signature |
| Alternative path | |
| Exception paths | |

| | |
|------------|--|
| Assumption | |
|------------|--|

Table A3: Use Case Description OUT

| | |
|------------------|---|
| Name | OUT |
| ID | |
| Version | 1.0 |
| Actors | Airmen |
| Summary | This use case details the OUT of Airmen/Airwomen. It is necessary to exit the any SLAF main guard room. |
| Pre condition | Authorized person |
| Post condition | Record Out time in Attendance book, Exit From Camp |
| Basic path | <ol style="list-style-type: none"> 1. Find Name and In time in attendance book 2. Write the Out time and Signature 3. Exit form the camp |
| Alternative path | |
| Exception paths | |
| Assumption | |

Table A4: Use Case Description Prepare Parade Sheet

| | |
|------------------|--|
| Name | Prepare parade Sheet |
| ID | |
| Version | 1.0 |
| Actors | Clerk (Section), Clerk(Ordinary room), Camp CO |
| Summary | This use case details preparer daily parade status sheet by section clerk and ordinary room clerk then summary is inform to camp CO. |
| Pre condition | SVCNO of Airmen |
| Post condition | Received CO Recommendations |
| Basic path | <ol style="list-style-type: none"> 1. Present to section. 2. Mark the attendance by section clerk. 3. finalize section parade sheet 4. Inform to Camp ordinary room. 5. collect the section parade sheet 6. make the summary camp parade sheet by ordinary room clerk 7. Inform to camp CO 8. Get the CO recommendation to ordinary room. 9. Inform to responsible section to get necessary action. |
| Alternative path | |
| Exception paths | |
| Assumption | |

Appendix B

Grammatical Analysis

This process is examine the nouns and verbs which are included in use case descriptions and other document aware with my requirement analysis process which is help to find entity classes aware with system.

Note N-Noun , V-Verb

Table B1: Grammatical Analysis

| | | | | | |
|------------------|---|----------------------|---|------------------|---|
| Posting | V | Out Side | N | Check | V |
| Weapon Type | N | Save | V | Airwomen | N |
| Weapon Type | N | Take Stydy | V | Record | V |
| Validate | N | Show | V | In time | N |
| Transport | V | Personal data | N | Signature | N |
| Time | N | Fail | V | Current time | N |
| Submit | V | | | Write | V |
| Service Man | N | Error | N | Out time | N |
| Section | N | Remove | V | Clerk | N |
| Reject | V | Weapon number | N | Camp CO | N |
| Present | N | Viewd message | V | Recommendation | N |
| Prepare | V | Restrict | V | Mark | V |
| Posting Camp | N | Magnetic card reader | N | Collect | V |
| Police man | N | Keep Silent | V | Make | V |
| Photo | N | Weapon registry | N | Necessary action | N |
| Person | N | Inform | V | HRMS | N |
| Permission | N | Hand Over | V | Check Massege | V |
| Pass | N | Offence | N | Hear Alert | V |
| OutTime | N | Swipe | V | message | N |
| Ordinary Room | N | Update | V | Rank | N |
| Name | N | Screen Details | N | Available | N |
| Message | N | Heuristically | V | Weapon status | N |
| Issue Temped | V | Hand over | V | officers | N |
| InTime | N | Show | V | | V |
| Illegal Person | N | Misused | V | SER No | N |
| ID card | N | Database | N | Login | V |
| Guard Room | N | Decision | N | Logout | V |
| Generate time | N | Already Issued | V | Reduce | V |
| Finalize summary | V | Print | V | Browse | V |
| Explosive | V | National Id card no | N | Bring printout | V |
| Exit | V | Monitoring | V | View report | V |
| EOD Operator | N | Conformation | N | Select optic | V |
| Email system | N | | | Load file | V |
| Display | N | Armory operator | N | Close | V |

| | | | | | |
|--------------------|---|-------------------|---|-----------------|---|
| Date | N | Email | N | Armory Operator | |
| Daily parade state | N | Inquiry | V | Schedule | N |
| Cpm | N | Present strengths | N | Left Side | N |
| Click svcno | V | Enter | V | Right Side | N |
| Black list | N | New Message | N | Divide | N |
| Awol | N | Dial telephone | V | Two Panel | N |
| Authorization | N | Return Temp ID | V | Background | N |
| attendant Book | N | Send file | V | EOD Operator | |
| ServiceMan | N | Dialup connection | N | Email System | |
| AFR Rank | N | Take a custody | V | Black List | N |
| In | | Personal Data | | Attendant Book | N |
| ID Card | N | Weapon Registry | | Guard Room | N |
| Database | | screen Details | | Explosive | N |

Entity Classes

Following entity classes were founded through the grammatical analysis process

Table B2: Class ServiceMan


| Class Name: ServiceMan | |
|--|--|
|  <p>ServiceMan</p> <ul style="list-style-type: none"> • SvcNo • Rank • Name • Section • PostingCamp • Status • Photo • IDExpireDate • NicNo <ul style="list-style-type: none"> • GetAllServiceMan() • GetAwolServiceMan() • GetBlackListServiceMan() • GetCountServiceMan() • GetLeavePassServiceMan() • GetOnParadeServiceMan() • CheckAServiceMan() • CheckAwolServiceMan() • CheckBlackListServiceMan() • GetServiceMan() | <p>University of Moratuwa, Sri Lanka. Electronic Theses & Dissertations www.theses.lanka.ac.lk</p> <p>Methods</p> <ul style="list-style-type: none"> • GetAwolServiceMan • GetBlackListServiceMan • GetCountServiceMan • GetLeavePassServiceMan • GetOnParadeServiceMan • GetAllServiceMan • GetAwolServiceMan • GetBlackListServiceMan • GetCountServiceMan • GetLeavePassServiceMan • GetOnParadeServiceMan <p>Attributes</p> <ul style="list-style-type: none"> • SvcNo • NicNo • IDExpireDate • Photo • Status • Rank • Name • Section • PostingCamp |

Table B3: Class InTime

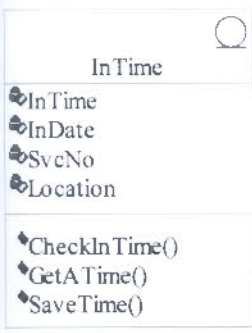
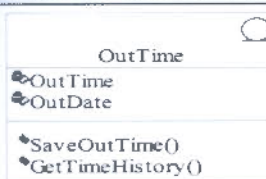
| Class Name : InTime | |
|--|-------------|
|  <pre> classDiagram class InTime { InTime InDate SvcNo Location CheckInTime() GetATime() SaveTime() } </pre> | Methods |
| | SaveInTime |
| | CheckInTime |
| | GetAInTime |
| | Attributes |
| | InDate |
| | InTime |
| | Location |
| | SvcNo |

Table B4: Class OutTime

| Class Name: OutTime | |
|--|----------------|
|  <pre> classDiagram class OutTime { OutTime OutDate SaveOutTime() GetTimeHistory() } </pre> | Methods |
| | GetTimeHistory |
| | SaveOutTime |
| | Attributes |
| | OutDate |
| | OutTime |



University of Moratuwa, Sri Lanka
 Electronic Theses & Dissertations
www.lib.mrt.ac.lk

Table B5: Class Message

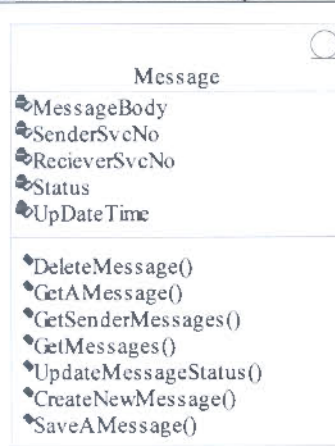
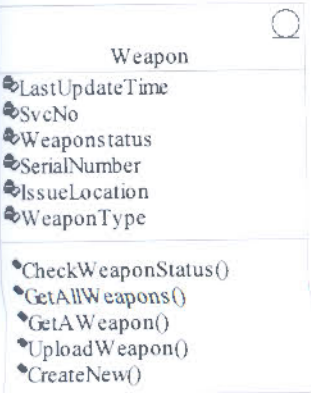
| Class Name: Message | |
|--|---------------------|
|  <pre> classDiagram class Message { MessageBody SenderSvcNo RecieverSvcNo Status UpDateTime DeleteMessage() GetAMessage() GetSenderMessages() GetMessages() UpdateMessageStatus() CreateNewMessage() SaveAMessage() } </pre> | Methods |
| | GetMessages |
| | UpdateMessageStatus |
| | CreateNewMessage |
| | DeleteMessage |
| | GetAMessage |
| | GetSenderMessages |
| | SaveAMessage |
| | Attribute |
| | MessageBody |
| | RecieverSvcNo |
| | SenderSvcNo |
| | Status |
| UpDateTime | |

Table B6: Class Weapon

| Class Name: Weapon | |
|--|-------------------|
|  <p>The diagram shows a class named 'Weapon' with a small circle icon in the top right corner. It lists the following attributes: LastUpdateTime, SvcNo, Weaponsstatus, SerialNumber, IssueLocation, and WeaponType. It also lists the following methods: CheckWeaponStatus(), GetAllWeapons(), GetAWeapon(), UploadWeapon(), and CreateNew().</p> | Methods |
| | CheckWeaponStatus |
| | GetAllWeapons |
| | GetAWeapon |
| | UploadWeapon |
| | Attributes |
| | LastUpdateTime |
| | SvcNo |
| | Weaponstatus |
| | SerialNumber |
| IssueLocation | |
| WeaponType | |



University of Moratuwa, Sri Lanka.
 Electronic Theses & Dissertations
www.lib.mrt.ac.lk



Appendix – C

Proposed System Use Case and Activity Diagrams

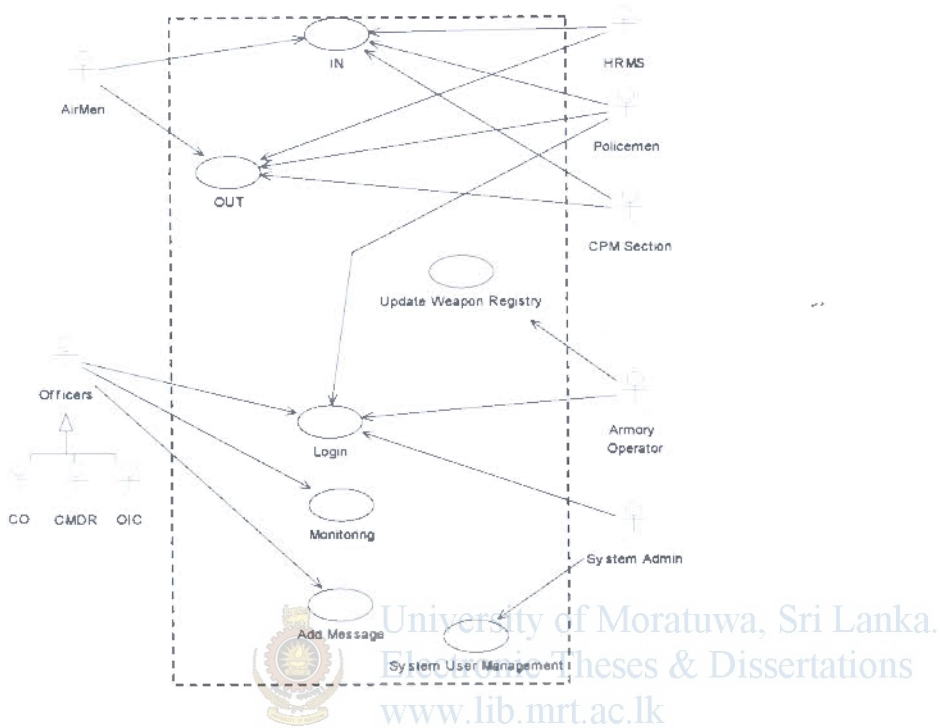


Figure C1: Use Case Diagram Propose System

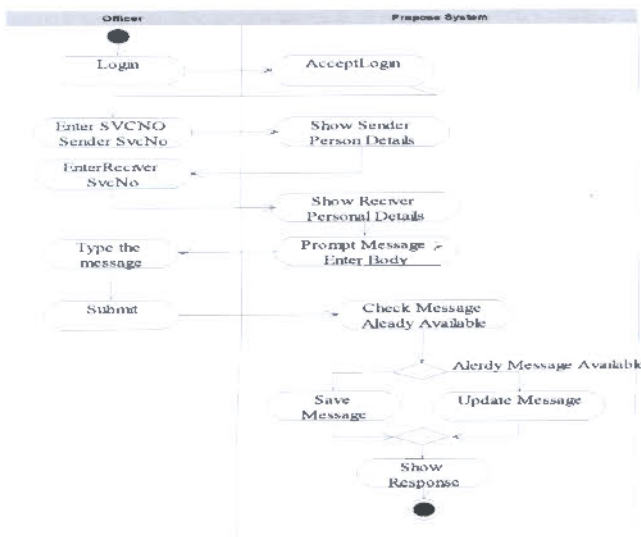


Figure C2: Activity Diagram Add Message

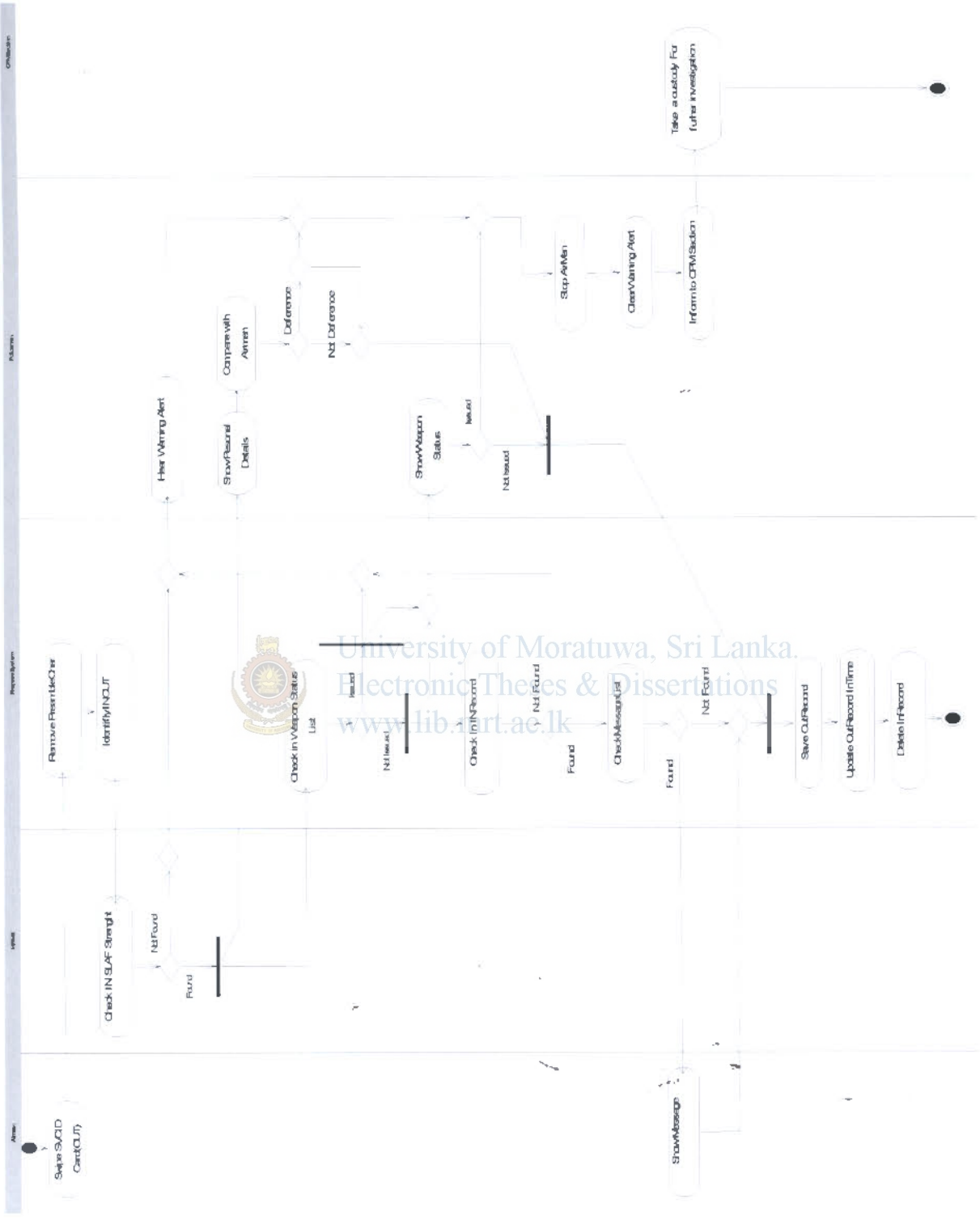


Figure C3: Activity Diagram for OUT Use Case

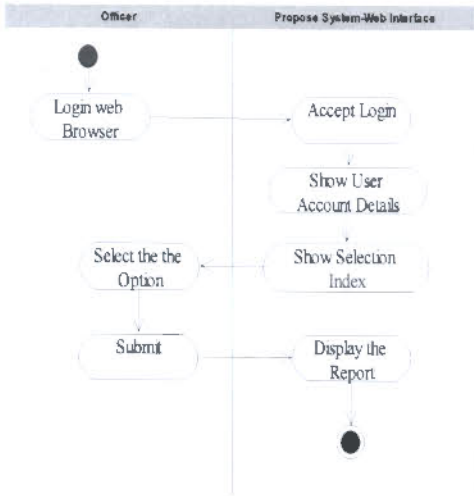


Figure C4: Activity Diagram Monitoring

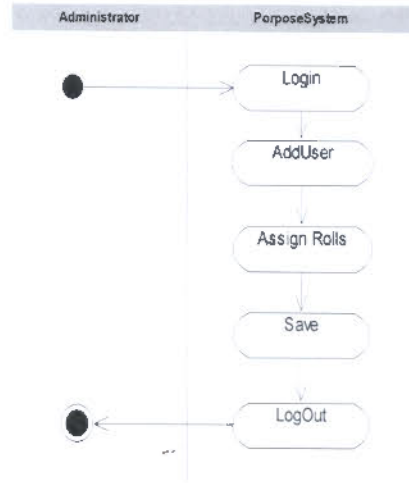


Figure C5: Activity Diagram Manage System User

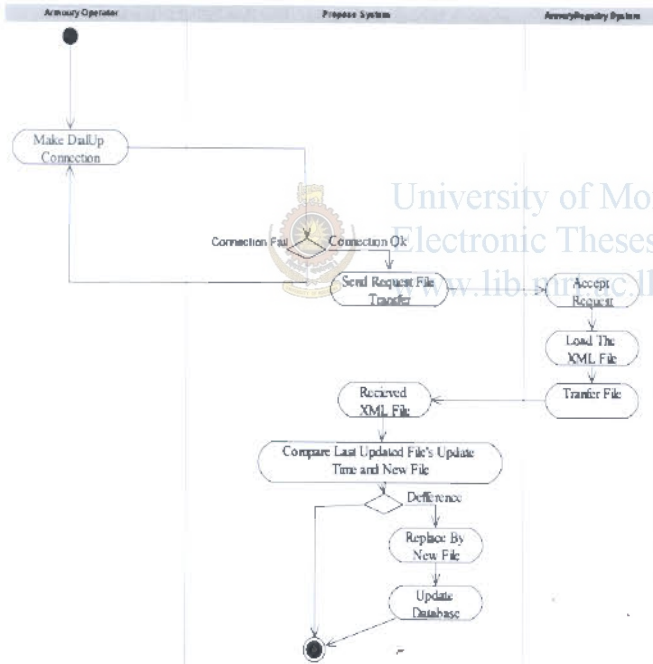


Figure C6: Activity Diagram Update Weapon Registry

Use case Description for proposed system.

Table C1: Use Case Description for OUT

| | |
|------------------|---|
| Name | OUT |
| ID | |
| Version | 1.0 |
| Actors | Airmen, Policeman, HRMS, CPM Section |
| Summary | This use case details the OUT process of Airmen. First check Authorization by the System then save the OUT time detail of all Airmen. |
| Pre condition | EOD Checking Ok, Properly IN |
| Post condition | Get Authorization for IN camp and record IN time in system |
| Basic path | <ol style="list-style-type: none"> 1. Swipe service ID card on magnetic card reader. 2. if Show personal Details OUTSIDE then 3. Compare with Airmen Details (Photo, Rank, etc...) 4. if "Airmen details" == "Screen Details" then 5. Check Weapon Status. 6. If "Not Voice Alert" and "Not Issued" then 7. Check properly IN 8. If Not Voice Alert Then 9. Check Message Available 10. If Available then 11. Show Message OUT Side 12. Exit from the Camp |
| Alternative path | |
| Exception paths | <ol style="list-style-type: none"> 2a1. Else 2a2. Hear Alert {"Not valid ID Card" } 2a3. Stop Airmen 2a4. Inform to CPM section 2a5 Take custody for further investigation. <ol style="list-style-type: none"> 4a1. Else 4a2. Stop Airmen 4a3. Inform to CPM Section. 4a4. Take custody for further investigation. <ol style="list-style-type: none"> 6a1. Else 6a2. Hear Voice Alert {Weapon Issued} & show {Weapon Issued} 6 a2. Stop Airmen 6a4. Inform to CPM Section. 6a5. Take custody for further investigation <ol style="list-style-type: none"> 8a1. Else 8a2. Hear Voice Alert {"Not properly Check In "} |

| | |
|------------|--|
| | 8 a2. Stop Airmen 8a4. Inform to CPM Section. 8a5. Take custody for further investigation 10a1.Else 10a2.Empty Message Box |
| Assumption | |

Table C2: Use Case Description for Add Message

| | |
|------------------|--|
| Name | Add Message |
| ID | |
| Version | 1.0 |
| Actors | Officers |
| Summary | <p>This use case details the Add new message to system. This part is web base because of it can easily access by remote. When any officer wants to send a message to airmen, officer can log in to system and type the message with airmen SvcNo and submit. That message can view airmen who is moving through guard room</p> |
| Pre condition | Know SvcNo of Servicemen. |
| Post condition | Submit the message |
| Basic path | <ol style="list-style-type: none"> 1. Login. 2. Enter the SVCNO 3. Type message. 2. Submit. 3. Logout. |
| Alternative path | |
| Exception paths | |
| Assumption | |

Table C3: Use Case Description for Monitoring

| | |
|----------------|---|
| Name | Monitoring |
| ID | |
| Version | 1.0 |
| Actors | Officers |
| Summary | <p>This use case details the Monitoring part of the system. Through this process we can avoid parade sheet preparing process and can reduce paper and printer waste. Any can log and browse the summary reports, search person status and etc If he wants can bring print out also.</p> |
| Pre condition | Know SvcNo of Servicemen. Or Section |
| Post condition | Submit the message |
| Basic path | <ol style="list-style-type: none"> 1. Login. 2. select option 3. Submit. |

| | |
|------------------|-------------------------------|
| | 2. View report. 3. Logout. |
| Alternative path | |
| Exception paths | |
| Assumption | |

Table C4: Use Case Description for Update Weapon Registry

| | |
|------------------|---|
| Name | Update Weapon Registry |
| ID | |
| Version | 1.0 |
| Actors | Access Monitoring System, Armory Operator |
| Summary | This use case details the upload the weapon details into the system. Before upload the details, connect to system by dial up connection and then armory operator can upload the XML file into the system. |
| Pre condition | Login to the system |
| Post condition | Update Database |
| Basic path | 1. Make dialup connection 2. If Connected then 2. file request 3. Upload file 2. Update database. 3. close the connection |
| Alternative path | |
| Exception paths | 2a1 Else 2.a1 Connection fail 2a2 Try again to Connect |
| Assumption | |

Table C5: Use Case Description for Manage System User

| | |
|------------------|---|
| Name | System User Management |
| ID | |
| Version | 1.0 |
| Actors | System Admin |
| Summary | This use case details the Management of System User who are authorized person of login to system, their have permission to access the monitoring part of proposed system. |
| Pre condition | Achieve to Schedule time |
| Post condition | Update Database |
| Basic path | 1. Login to System as System Administrator 2. Add User Or Delete User or Edit User rolls 2. Save 3. Log Out |
| Alternative path | |

| | |
|-----------------|--------------------------|
| Exception paths | 2a2 Try again to Connect |
| Assumption | |

Table C6: Use Case Description Login

| | |
|------------------|---|
| Name | Login |
| ID | |
| Version | 1.0 |
| Actors | System Admin , Officer , Policeman |
| Summary | This use case details the Login to system. All system user should be login to system before access the it |
| Pre condition | System User |
| Post condition | Get Access permission to access system |
| Basic path | 1.open browser 2. Add user name and password 2. Click Login button 3. then access the system |
| Alternative path | |
| Exception paths | 2a2 Try again to Connect |
| Assumption | |



University of Moratuwa, Sri Lanka.
Electronic Theses & Dissertations
www.lib.mrt.ac.lk

Proposed System Sequence Diagram

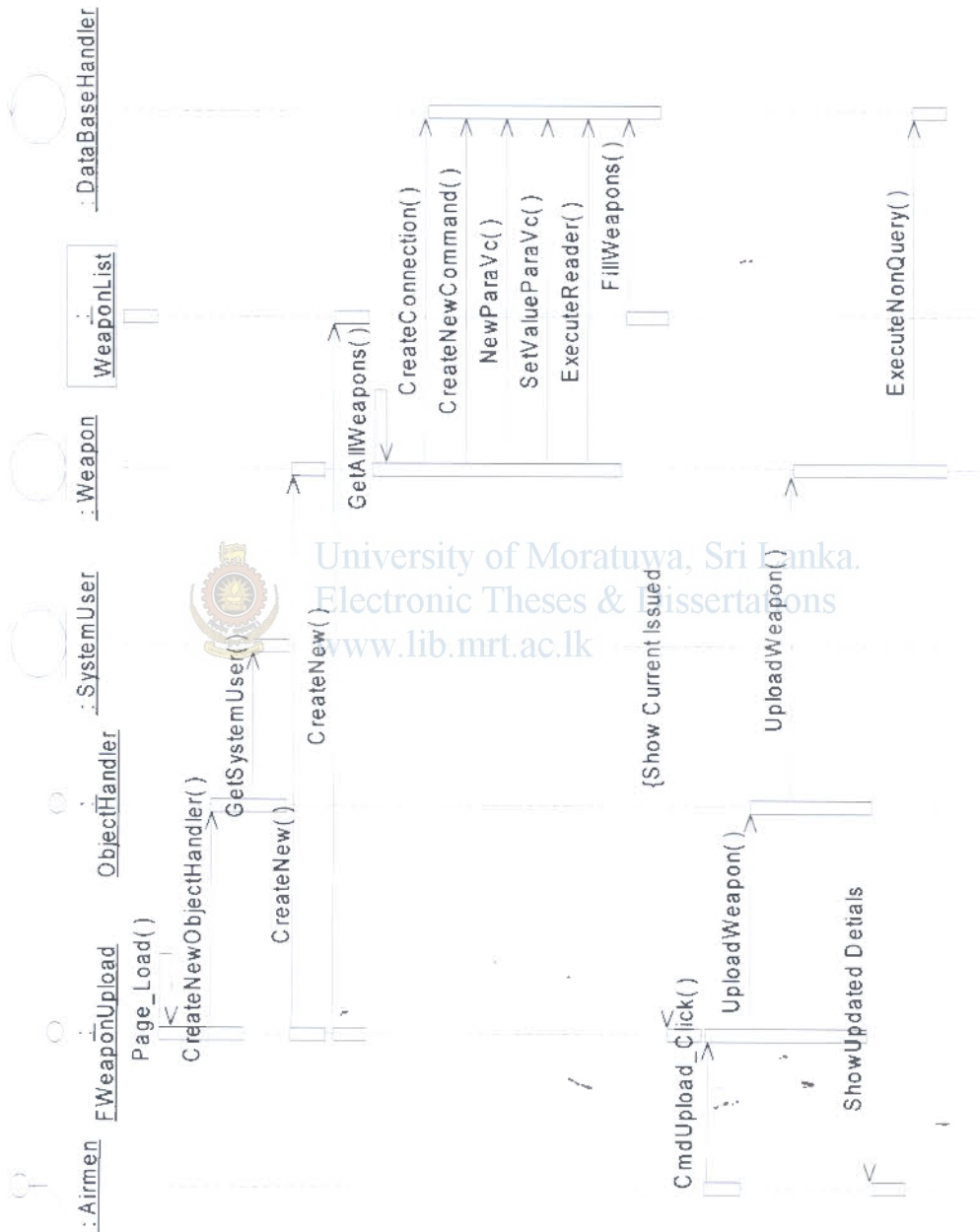


Figure D1: Sequence Diagram for Update Weapon Registry

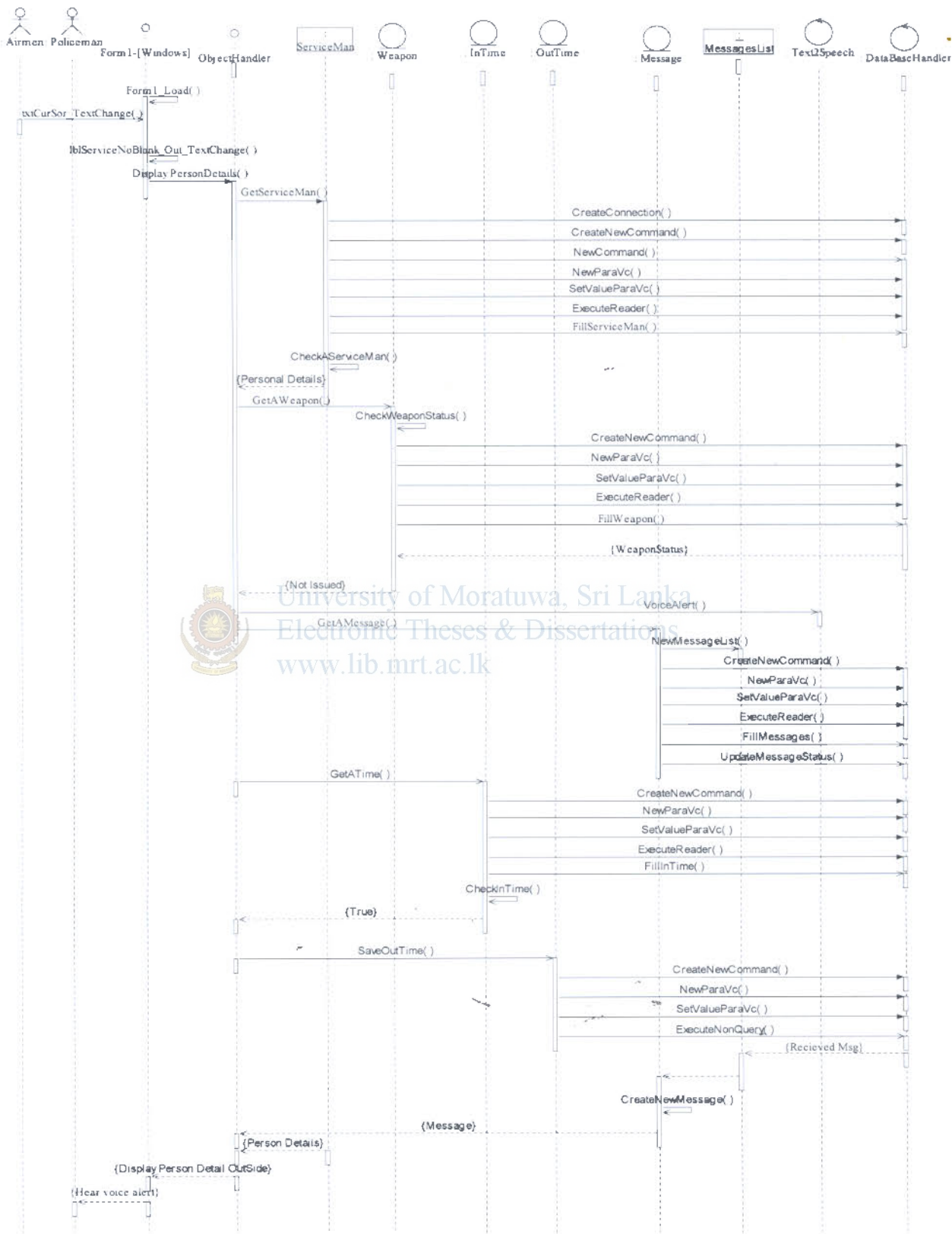
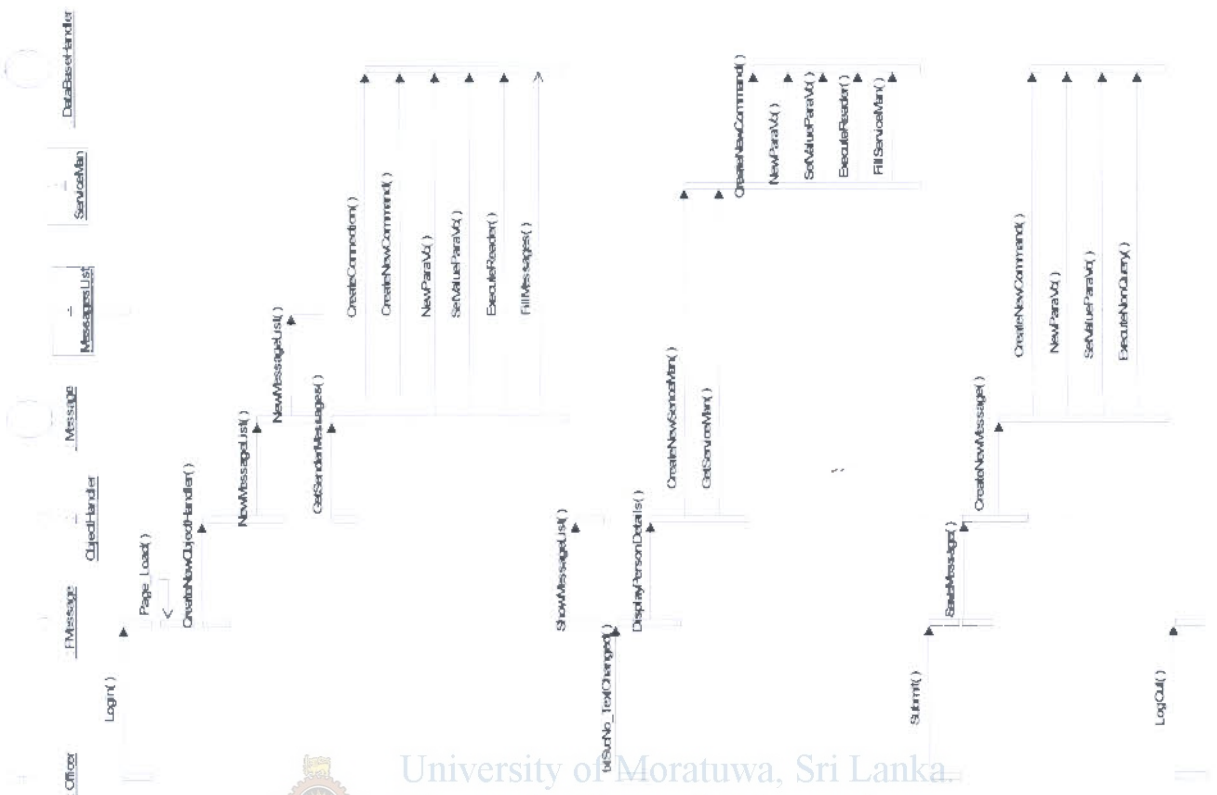


Figure D2: Sequence Diagram for Out Use Case



University of Moratuwa, Sri Lanka
 Electronic Theses & Dissertations
 Figure D3: Sequence Diagram for New Message
www.ho.nyu.ac.lk



Figure D4: Sequence Diagram for Person Monitoring

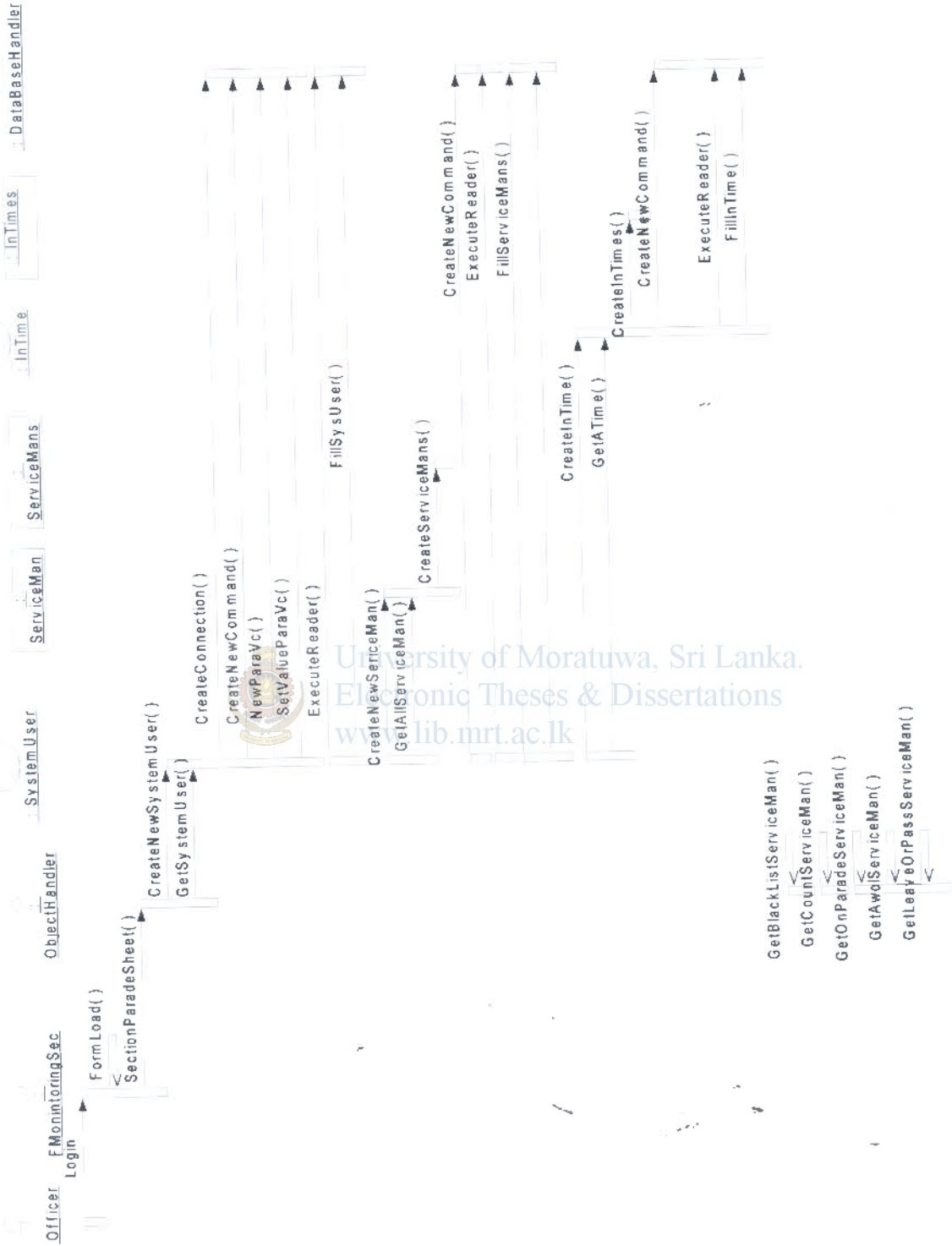


Figure D7: Sequence Diagram for Prepare Parade Sheet

Appendix E

Database Design for Proposed System Database Management

ER –Diagram

Database attributes

ServiceMan (SvcNo, Rank, Name, Status, PostingCamp, Section, NicNo, IDEXpireDate, Photo)

InTime (SvcNo, Intime, InDate, Location)

TimeHistory (SvcNo, Intime, InDate, OutTime, OutDate, Location)

WeaponStatusList (SvcNo, WeaponStatus, WeaponType, SerialNo, IssueLocation, LastUpdate)

MessageList (SvcNo, SenderSvcNo, Message, Status, LastUpdateTime)

SystemUser (SvcNo, Role, UserName, PassWord)

Audit (SvcNo, LoginTime, Location)

ER Mapping



University of Moratuwa, Sri Lanka.
Electronic Theses & Dissertations

www.lib.mrt.ac.lk

| | | | | | | | | | |
|------------------|-------|-------------|------------|----------|----------------|------------|-------|------------|-------|
| WeaponStatusList | SvcNo | WeaponStatu | WeaponType | SerialNo | IssueLocatio | LastUpdate | | | |
| ServiceMan | SvcNo | Rank | Name | Status | PostingCam | Seccio | NicNo | IDExpireDa | Photo |
| MessageList | SvcNo | Sender | Message | Status | LastUpdateTime | | | | |
| SystemUser | SvcNo | Role | UserName | PassWord | | | | | |
| Audit | SvcNo | LoginTime | Location | | | | | | |

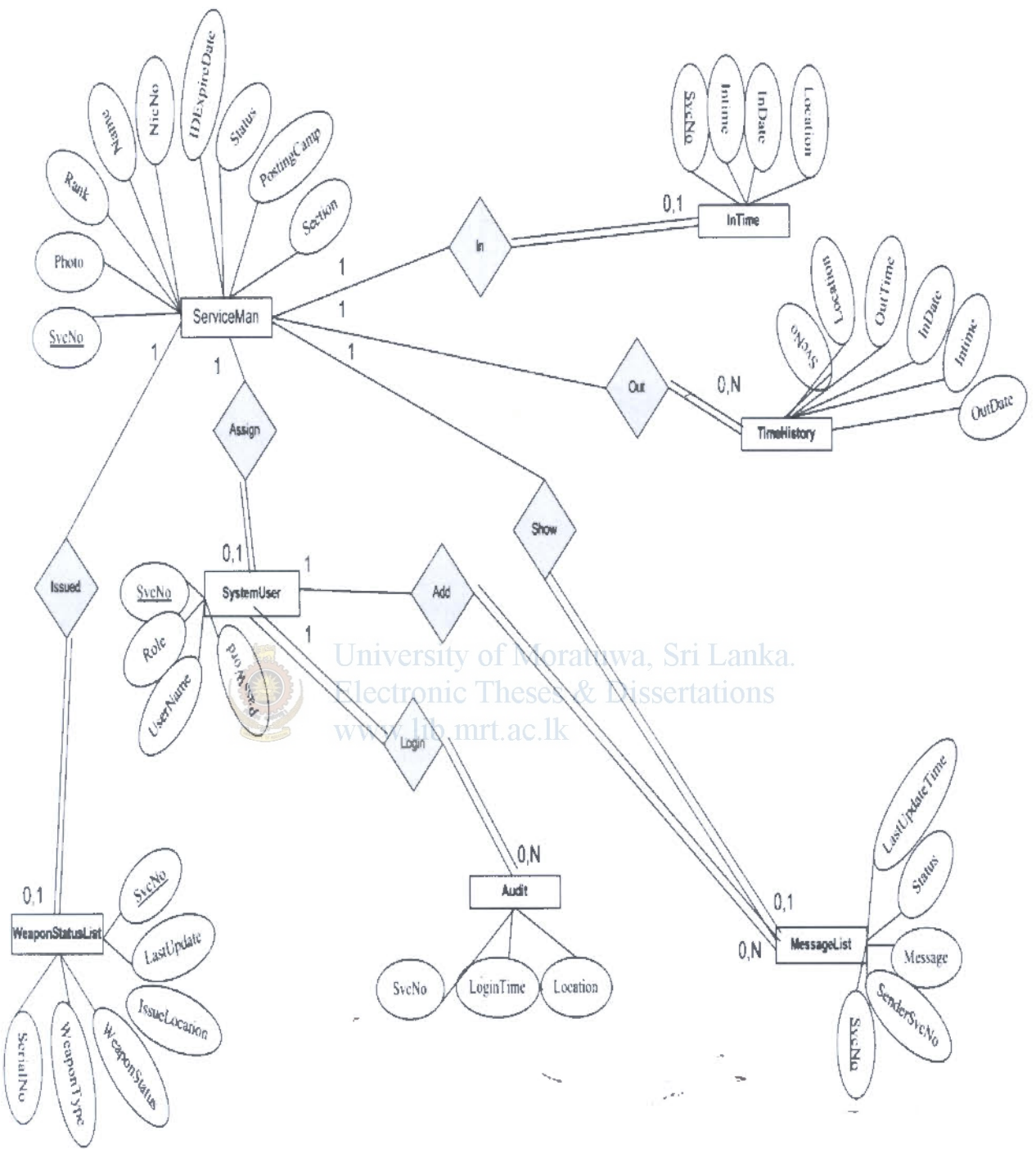


Figure E1: ER Diagram

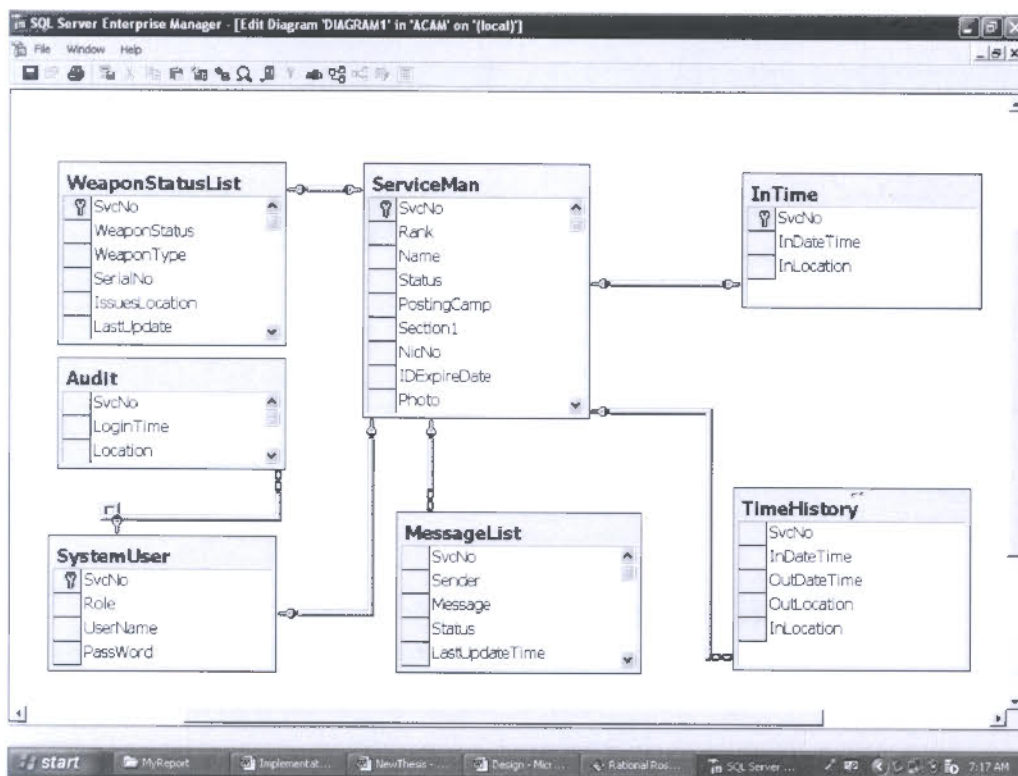


Figure E2: Table relational diagram, Sri Lanka Electronic Theses & Dissertations www.lib.mrt.ac.lk

Table structures

Table E1: Table Structure ServiceMan

| Table Name:ServiceMan | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|-----------|--------------------|-------------|-------------|-------------|------------|-------------------|-------------|--|-------|---------|----|--|--|------|---------|----|---|--|------|---------|-----|---|--|--------|---------|----|---|--|-------------|---------|----|---|--|----------|---------|----|---|--|-------|---------|----|---|--|--------------|----------|---|---|--|-------|---------|----|---|--|
| ServiceMan will hold the personal details of SLAF ServiceMan after interconnected with HRMS this local database table will be convert to view because actually data stored in HRMS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1"> <thead> <tr> <th>Column Name</th> <th>Data Type</th> <th>Length</th> <th>Allow Nulls</th> <th></th> </tr> </thead> <tbody> <tr> <td>SvcNo</td> <td>varchar</td> <td>10</td> <td></td> <td></td> </tr> <tr> <td>Rank</td> <td>varchar</td> <td>30</td> <td>✓</td> <td></td> </tr> <tr> <td>Name</td> <td>varchar</td> <td>150</td> <td>✓</td> <td></td> </tr> <tr> <td>Status</td> <td>varchar</td> <td>50</td> <td>✓</td> <td></td> </tr> <tr> <td>PostingCamp</td> <td>varchar</td> <td>50</td> <td>✓</td> <td></td> </tr> <tr> <td>Section1</td> <td>varchar</td> <td>50</td> <td>✓</td> <td></td> </tr> <tr> <td>NicNo</td> <td>varchar</td> <td>50</td> <td>✓</td> <td></td> </tr> <tr> <td>IDExpireDate</td> <td>datetime</td> <td>8</td> <td>✓</td> <td></td> </tr> <tr> <td>Photo</td> <td>varchar</td> <td>50</td> <td>✓</td> <td></td> </tr> </tbody> </table> | | | | | Column Name | Data Type | Length | Allow Nulls | | SvcNo | varchar | 10 | | | Rank | varchar | 30 | ✓ | | Name | varchar | 150 | ✓ | | Status | varchar | 50 | ✓ | | PostingCamp | varchar | 50 | ✓ | | Section1 | varchar | 50 | ✓ | | NicNo | varchar | 50 | ✓ | | IDExpireDate | datetime | 8 | ✓ | | Photo | varchar | 50 | ✓ | |
| Column Name | Data Type | Length | Allow Nulls | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SvcNo | varchar | 10 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Rank | varchar | 30 | ✓ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Name | varchar | 150 | ✓ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Status | varchar | 50 | ✓ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PostingCamp | varchar | 50 | ✓ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Section1 | varchar | 50 | ✓ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NicNo | varchar | 50 | ✓ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| IDExpireDate | datetime | 8 | ✓ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Photo | varchar | 50 | ✓ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>SvcNo –The Service number of serviceman Rank – The Rank of Serviceman Name – the Name of serviceman Status – the current status of serviceman Posting camp- the present posting camp of serviceman Section1 – posting section of serviceman- NicNo – National identification Card IDExpireDate- the date of service identification card Expire Photo – the path of person photo is stored</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Sample data | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SvcNo | Rank | Name | Status | PostingCamp | Section1 | NicNo | IDExpireDate | Photo | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 02457 | Flt.Lt | Malinda Vikum S... | ON | CBO | ITU | 776791780v | 12/5/2009 12:0... | 02457.bmp | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 02455 | Fg.OFF | API Sampth | ON | KAT | AP&SU | 780091780v | 12/4/2010 12:0... | 02455.bmp | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Table E2: Table Structure Audit

| Table Name: Audit | | | | | | | | | | | | | | |
|--|-------------------|-------------------------------------|-------------|-------|-------------------|--------------------------|-----------|-------------------|-------------------------------------|----------|-------------|-------------------------------------|--|--|
| Audit will hold the login details of SLAF system users | | | | | | | | | | | | | | |
| <table border="1"> <thead> <tr> <th>Column Name</th> <th>Data Type</th> <th>Allow Nulls</th> </tr> </thead> <tbody> <tr> <td>SvcNo</td> <td>varchar(10)</td> <td><input type="checkbox"/></td> </tr> <tr> <td>LoginTime</td> <td>datetime</td> <td><input checked="" type="checkbox"/></td> </tr> <tr> <td>Location</td> <td>varchar(50)</td> <td><input checked="" type="checkbox"/></td> </tr> </tbody> </table> | Column Name | Data Type | Allow Nulls | SvcNo | varchar(10) | <input type="checkbox"/> | LoginTime | datetime | <input checked="" type="checkbox"/> | Location | varchar(50) | <input checked="" type="checkbox"/> | <p>SvcNo –The Service number of serviceman LoginTime: the login time of system user Location : Login place</p> | |
| Column Name | Data Type | Allow Nulls | | | | | | | | | | | | |
| SvcNo | varchar(10) | <input type="checkbox"/> | | | | | | | | | | | | |
| LoginTime | datetime | <input checked="" type="checkbox"/> | | | | | | | | | | | | |
| Location | varchar(50) | <input checked="" type="checkbox"/> | | | | | | | | | | | | |
| Sample data | | | | | | | | | | | | | | |
| <table border="1"> <thead> <tr> <th>SvcNo</th> <th>LoginTime</th> <th>Location</th> </tr> </thead> <tbody> <tr> <td>02454</td> <td>12/29/2007 12:...</td> <td>KAT</td> </tr> <tr> <td>02463</td> <td>12/20/2008 12:...</td> <td>CBO</td> </tr> <tr> <td>NULL</td> <td>NULL</td> <td>NULL</td> </tr> </tbody> </table> | SvcNo | LoginTime | Location | 02454 | 12/29/2007 12:... | KAT | 02463 | 12/20/2008 12:... | CBO | NULL | NULL | NULL | | |
| SvcNo | LoginTime | Location | | | | | | | | | | | | |
| 02454 | 12/29/2007 12:... | KAT | | | | | | | | | | | | |
| 02463 | 12/20/2008 12:... | CBO | | | | | | | | | | | | |
| NULL | NULL | NULL | | | | | | | | | | | | |

Table E3: Table Structure InTime

| Table Name: InTime | | | | | | | | | | | | | | | | | |
|---|--------------------|-------------------------------------|-------------|-------|--------------------|--------------------------|------------|--------------------|-------------------------------------|------------|--------------------|-------------------------------------|---|------|------|--|--|
| All in time of serviceman are stored in this table | | | | | | | | | | | | | | | | | |
| <table border="1"> <thead> <tr> <th>Column Name</th> <th>Data Type</th> <th>Allow Nulls</th> </tr> </thead> <tbody> <tr> <td>SvcNo</td> <td>varchar(10)</td> <td><input type="checkbox"/></td> </tr> <tr> <td>InDateTime</td> <td>datetime</td> <td><input checked="" type="checkbox"/></td> </tr> <tr> <td>InLocation</td> <td>varchar(50)</td> <td><input checked="" type="checkbox"/></td> </tr> </tbody> </table> | Column Name | Data Type | Allow Nulls | SvcNo | varchar(10) | <input type="checkbox"/> | InDateTime | datetime | <input checked="" type="checkbox"/> | InLocation | varchar(50) | <input checked="" type="checkbox"/> | <p>SvcNo: The Service number of serviceman InDateTime: InDate and InTime InLocation: InLocation of ServiceMan</p> | | | | |
| Column Name | Data Type | Allow Nulls | | | | | | | | | | | | | | | |
| SvcNo | varchar(10) | <input type="checkbox"/> | | | | | | | | | | | | | | | |
| InDateTime | datetime | <input checked="" type="checkbox"/> | | | | | | | | | | | | | | | |
| InLocation | varchar(50) | <input checked="" type="checkbox"/> | | | | | | | | | | | | | | | |
| Sample data | | | | | | | | | | | | | | | | | |
| <table border="1"> <thead> <tr> <th>SvcNo</th> <th>InDateTime</th> <th>InLocation</th> </tr> </thead> <tbody> <tr> <td>02454</td> <td>9/24/2008 3:32:...</td> <td>KAT</td> </tr> <tr> <td>02456</td> <td>9/13/2008 10:5:...</td> <td>KAT</td> </tr> <tr> <td>02457</td> <td>9/24/2008 4:57:...</td> <td>KAT</td> </tr> <tr> <td>NULL</td> <td>NULL</td> <td>NULL</td> </tr> </tbody> </table> | SvcNo | InDateTime | InLocation | 02454 | 9/24/2008 3:32:... | KAT | 02456 | 9/13/2008 10:5:... | KAT | 02457 | 9/24/2008 4:57:... | KAT | NULL | NULL | NULL | | |
| SvcNo | InDateTime | InLocation | | | | | | | | | | | | | | | |
| 02454 | 9/24/2008 3:32:... | KAT | | | | | | | | | | | | | | | |
| 02456 | 9/13/2008 10:5:... | KAT | | | | | | | | | | | | | | | |
| 02457 | 9/24/2008 4:57:... | KAT | | | | | | | | | | | | | | | |
| NULL | NULL | NULL | | | | | | | | | | | | | | | |

Table E4: Table Structure MessageList

| Table Name: MessageList | | | | | | | | | | | | | | | | | | | | | | | |
|--|--------------|-------------------------------------|-------------|-------|-------------|--------------------------|--------|-------------|-------------------------------------|---------|--------------|-------------------------------------|--------|-----|-------------------------------------|----------------|----------|-------------------------------------|-------|-----------|--------------------------|---|--|
| All Messages are stored in this table | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1"> <thead> <tr> <th>Column Name</th> <th>Data Type</th> <th>Allow Nulls</th> </tr> </thead> <tbody> <tr> <td>SvcNo</td> <td>varchar(10)</td> <td><input type="checkbox"/></td> </tr> <tr> <td>Sender</td> <td>varchar(10)</td> <td><input checked="" type="checkbox"/></td> </tr> <tr> <td>Message</td> <td>varchar(100)</td> <td><input checked="" type="checkbox"/></td> </tr> <tr> <td>Status</td> <td>bit</td> <td><input checked="" type="checkbox"/></td> </tr> <tr> <td>LastUpdateTime</td> <td>datetime</td> <td><input checked="" type="checkbox"/></td> </tr> <tr> <td>test1</td> <td>timestamp</td> <td><input type="checkbox"/></td> </tr> </tbody> </table> | Column Name | Data Type | Allow Nulls | SvcNo | varchar(10) | <input type="checkbox"/> | Sender | varchar(10) | <input checked="" type="checkbox"/> | Message | varchar(100) | <input checked="" type="checkbox"/> | Status | bit | <input checked="" type="checkbox"/> | LastUpdateTime | datetime | <input checked="" type="checkbox"/> | test1 | timestamp | <input type="checkbox"/> | <p>SvcNo –The Service number of serviceman Sender: Message Sender SvcNo Message: Message Content Status : whether message received or not LastUpdateTime: Update time of Message Test1 : Con current handler</p> | |
| Column Name | Data Type | Allow Nulls | | | | | | | | | | | | | | | | | | | | | |
| SvcNo | varchar(10) | <input type="checkbox"/> | | | | | | | | | | | | | | | | | | | | | |
| Sender | varchar(10) | <input checked="" type="checkbox"/> | | | | | | | | | | | | | | | | | | | | | |
| Message | varchar(100) | <input checked="" type="checkbox"/> | | | | | | | | | | | | | | | | | | | | | |
| Status | bit | <input checked="" type="checkbox"/> | | | | | | | | | | | | | | | | | | | | | |
| LastUpdateTime | datetime | <input checked="" type="checkbox"/> | | | | | | | | | | | | | | | | | | | | | |
| test1 | timestamp | <input type="checkbox"/> | | | | | | | | | | | | | | | | | | | | | |

Sample data

| Table - dbo.MessageList | Table - dbo.InTime | Table - dbo.SystemUser | Table - dbo.Audit |
|-------------------------|--------------------|------------------------|-------------------|
| SvcNo | Sender | Message | Status |
| 02454 | 02454 | Foruth message... | True |
| 02455 | 02455 | Test2 | True |
| 02454 | 02454 | test5 | True |
| 02454 | 02454 | sdfsdfsdfsd | True |
| 02456 | 02462 | sadasdas | False |
| 02454 | 02462 | 33233 | True |
| NULL | NULL | NULL | NULL |

Table E5: Table Structure SystemUser

Table Name: SystemUser
All system users details are stored in this table

| Table - dbo.SystemUser | Table - dbo.ServiceMan | Table |
|------------------------|------------------------|-------------------------------------|
| Column Name | Data Type | Allow Nulls |
| SvcNo | varchar(10) | <input type="checkbox"/> |
| Role | varchar(20) | <input checked="" type="checkbox"/> |
| UserName | varchar(30) | <input checked="" type="checkbox"/> |
| PassWord | varchar(20) | <input checked="" type="checkbox"/> |

SvcNo –The Service number of serviceman
Role: level of role
UserName: UserName.of system users
Password : password of System users

Sample data

| Table - dbo.MessageList | Table - dbo.InTime | Table - dbo.SystemUser | Tab |
|-------------------------|--------------------|------------------------|----------|
| SvcNo | Role | UserName | PassWord |
| 02454 | Admin | Admin | 123 |
| 02463 | OIC | OICDL | 123 |
| NULL | NULL | NULL | NULL |

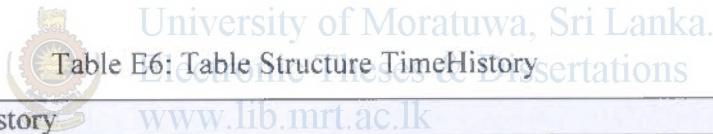


Table E6: Table Structure TimeHistory

Table Name: TimeHistory
All Outtime and time history of serviceman are stored in this table

| Table - dbo.TimeHistory | Table - dbo.SystemUser | Table |
|-------------------------|------------------------|-------------------------------------|
| Column Name | Data Type | Allow Nulls |
| SvcNo | varchar(10) | <input type="checkbox"/> |
| InDateTime | datetime | <input checked="" type="checkbox"/> |
| OutDateTime | datetime | <input checked="" type="checkbox"/> |
| OutLocation | varchar(50) | <input checked="" type="checkbox"/> |
| InLocation | varchar(50) | <input checked="" type="checkbox"/> |

SvcNo –The Service number of serviceman
InDateTime: InDate and Time of ServiceMan
OutDateTime: Out Date and Time of ServiceMan
OutLocation : OutLocation of Serviceman
InLoaction : InLocation of Serviceman

Sample data

| Table - dbo.TimeHistory | Table - dbo.MessageList | Table - dbo.InTime | Table - dbo.SystemUser |
|-------------------------|-------------------------|--------------------|------------------------|
| SvcNo | InDateTime | OutDateTime | OutLocation |
| 02454 | 9/22/2008 3:30:... | 9/11/2008 10:5:... | KAT |
| 02454 | 9/22/2008 7:33:... | 9/13/2008 9:25:... | KAT |
| 02455 | 9/22/2008 3:30:... | 9/13/2008 9:26:... | KAT |
| 02454 | 9/22/2008 7:33:... | 9/13/2008 9:20:... | KAT |
| 02454 | 9/22/2008 7:33:... | 9/13/2008 9:42:... | KAT |
| 02456 | 9/13/2008 10:5:... | 9/13/2008 10:1:... | KAT |
| 02454 | 9/22/2008 7:33:... | 9/13/2008 10:1:... | KAT |



Table E7: Table Structure Weapon Status

| Table - dbo.WeaponStatusList | | | Table - dbo.TimeHistory |
|------------------------------|-------------|-------------------------------------|--|
| Column Name | Data Type | Allow Nulls | |
| SvcNo | varchar(10) | <input type="checkbox"/> | SvcNo –The Service number of serviceman WeaponStatus: weapon issued or not Weapontype : issued weapon type Serial No: Serial Number of Issued weapon IssuedLocation: weapon issued location LastUpdate: Last update time of weapon list |
| WeaponStatus | bit | <input checked="" type="checkbox"/> | |
| WeaponType | varchar(50) | <input checked="" type="checkbox"/> | |
| SerialNo | varchar(50) | <input checked="" type="checkbox"/> | |
| IssuesLocation | varchar(50) | <input checked="" type="checkbox"/> | |
| LastUpdate | timestamp | <input checked="" type="checkbox"/> | |

| Sample data | | | | | |
|------------------------------|-------------------------|-------------------------|--------------------|----------------|---------------|
| Table - dbo.WeaponStatusList | Table - dbo.TimeHistory | Table - dbo.MessageList | Table - dbo.InTime | | |
| SvcNo | WeaponStatus | WeaponType | SerialNo | IssuesLocation | LastUpdate |
| 02455 | True | T-B1 | 2432423 | CBO | <Binary data> |
| 02456 | False | CH-P | 1341123 | KAT | <Binary data> |
| 02457 | False | CH-P | 1341123 | CBO | <Binary data> |
| NULL | NULL | NULL | NULL | NULL | NULL |

Stored procedures

```

CREATE PROCEDURE dbo.CheckIn(@SvcNo Varchar(10))
AS
select count(SvcNo) from InTime where SvcNo = @SvcNo;
    
```

```

CREATE PROCEDURE dbo.CheckMessage(@SvcNo varchar(10))
AS
select count(*) from MessageList where SvcNo =@SvcNo;
    
```

```

CREATE PROCEDURE dbo.GetAMessage(@SvcNo varchar(10))
AS
select * from messageList where SvcNo =@SvcNo;
    
```

```

CREATE PROCEDURE dbo.GetServiceMan(@SvcNo Varchar(10))
AS
select * from ServiceMan where SvcNo =@SvcNo;
    
```



```
CREATE PROCEDURE dbo.GetAllInTime
```

```
AS
```

```
Select * from InTime ;
```

```
CREATE PROCEDURE dbo.GetLeaveorPassPerson(@Section varchar(20))
```

```
AS
```

```
select SM.*, IT.InDateTime  
from serviceMan SM left outer join InTime IT  
ON IT.SvcNo = SM.SvcNo where IT.InDateTime is null  
and SM.Status like 'ON' and SM.Section1 like @Section ;
```

```
CREATE PROCEDURE dbo.InsertInTime(@SvcNo varchar(20),  
@Location varchar (50) )
```

```
AS
```

```
insert into intime(SvcNo, InDateTime, InLocation)  
values (@SvcNo,GetDate(), @Location );
```

```
CREATE PROCEDURE dbo.InsertMessage(@SvcNo varchar(10),  
@SenderSvcNo varchar(10), @Message text)
```

```
AS
```

```
insert into MessageList(SvcNo, Sender, Message)  
values(@SvcNo,@SenderSvcNo,@Message );
```

```
CREATE PROCEDURE dbo.InsertTimeHistory( @SvcNo varchar(20), @Location varchar(50) )
```

```
AS
```

```
insert into TimeHistory(SvcNo,OutDateTime,OutLocation) values  
(@SvcNo, GetDate(), @Location );
```

```
CREATE PROCEDURE dbo.UpDateMessage(@SvcNo varchar(10),  
@SenderSvcNo varchar(10), @Message text)
```

```
AS
```

Update MessageList set Sender = @SenderSvcNo,
Message= @Message where SvcNo=@SvcNo;



University of Moratuwa, Sri Lanka.
Electronic Theses & Dissertations
www.lib.mrt.ac.lk

Appendix – G

Check List

| | Requirement No | Use Case | Activity Diagram | User Interface | Test case |
|----|----------------|---------------------------|--------------------------------|--|-------------|
| 1 | 1 | IN OUT | IN OUT | MainForm –Authentication Sub System | 2 |
| 2 | 2 | IN OUT | IN OUT | MainForm–Authentication Sub System | 2 |
| 3 | 3 | 1. IN 2.OUT | IN OUT | MainForm –Authentication Sub System | 2 |
| 4 | 4 | 1. Monitoring | Monitoring | MonitoringSec – Monitoring Sub System | 6 |
| 5 | 5 | 1. Monitoring | Monitoring | MonitoringSec – Monitoring Sub System | 6 |
| 6 | 6 | 1.Monitoring | Monitoring | Monitoring- Monitoring Sub System | 5 |
| 7 | 7 | 1.Monitoring | Monitoring | MonitoringSec – Monitoring Sub System | 6 |
| 8 | 8 | 1.message IN OUT | Message | Message- Monitoring Sub System | 4 |
| 9 | 9 | OUT | OUT | Main Form –Authentication Sub System | 2 |
| 10 | 10 | Update Weapon Registry | Update Weapon Registry | WeaponUpload | 8 |
| 11 | 11 | SystemUser Management | Manage System User Login | SystemUser Login-WebInterfce Login-Windows | 7 1 2 |

Appendix – H

User interfaces

Sri Lanka Air Force
Access Control And Monitoring System

Location
Date
Time

Service No Rank Name Status

NIC No ID ExpireDate Base/Unit Section

Message

University of Moratuwa, Sri Lanka
Electronic Theses & Dissertations
www.lib.mrt.ac.lk

Figure H1: User Interface Authentication Form

Table H1: User Interface Description for Authentication Form

| Control Name | Type | Width | Height | Back Color | Text | Fonts | | |
|-------------------------|-------|-------------|--------|------------|--------------|------------------------------|-------------|--|
| lblStatus_In | Label | 70 | 13 | Window | Status | Microsoft Sans Serif, 8.25pt | | |
| lblStatusBlank_In | | 359 | 20 | | | | | |
| lblNicNo_In | | 70 | 13 | | NicNo | | | |
| lblNicNoBlank_In | | 100 | 20 | | | | | |
| lblIDExpireDate_In | | 70 | 13 | | IDExpireDate | | | |
| lblIDExpireDateBlank_In | | 100 | 20 | | | | | |
| lblBaseUnit_In | | 70 | 13 | | BaseUnit | | | |
| lblBaseUnitBlank_In | | 100 | 20 | | | | | |
| lblSection_In | | 70 | 13 | | Section | | | |
| lblSectionBlank_In | | 100 | 20 | | | | | |
| PanelOutSide | | Panel | 513 | | 620 | | Snow | |
| PicWeaponStatus_Out | | Picture Box | 100 | | 72 | | Transf rent | |

| | | | | | | |
|--------------------------|-------------|-----|-----|----------------|------------------|------------------------------|
| picOutSide | Picture Box | | | Transf rent | | |
| PanelInSide | Panel | 513 | 620 | Alice Blue | | |
| txtSvcNo_In | Label | 70 | 13 | Window | SvcNo | Microsoft Sans Serif, 8.25pt |
| txtSvcNoBlank_In | | 100 | 20 | | | |
| lblRank_In | | 70 | 13 | | Rank | |
| lblRankBlank_In | | 100 | 20 | | | |
| lblName_In | | 70 | 13 | | Name | |
| lblNameBlank_In | | 100 | 20 | | | |
| lblStatusBlank_In | | 100 | 20 | | | |
| lblNicNo_Out | | 70 | 13 | | NicNo | |
| lblNicNoBlank_In | | 100 | 20 | | | |
| lblIDExpireDate_Out | | 70 | 13 | | IDExpireDat e | |
| lblIDExpireDateBlank_Out | | 100 | 20 | | | |
| lblBaseUnit_Out | | 70 | 13 | | BaseUnit | |
| lblBaseUnitBlank_Out | | 100 | 20 | | | |
| lblSection_Out | | 70 | 13 | | Section | |
| txtSvcNo_Out | | 70 | 13 | | SvcNo | |
| txtSvcNoBlank_Out | | 100 | 20 | | Rank | |
| lblRank_Out | | 70 | 13 | | Name | |
| lblRankBlank_Out | | 100 | 20 | | | |
| lblName_Out | | 70 | 13 | | | |
| lblNameBlank_Out | | 100 | 20 | | Status | |
| lblStatus_Out | 70 | 13 | | | | |

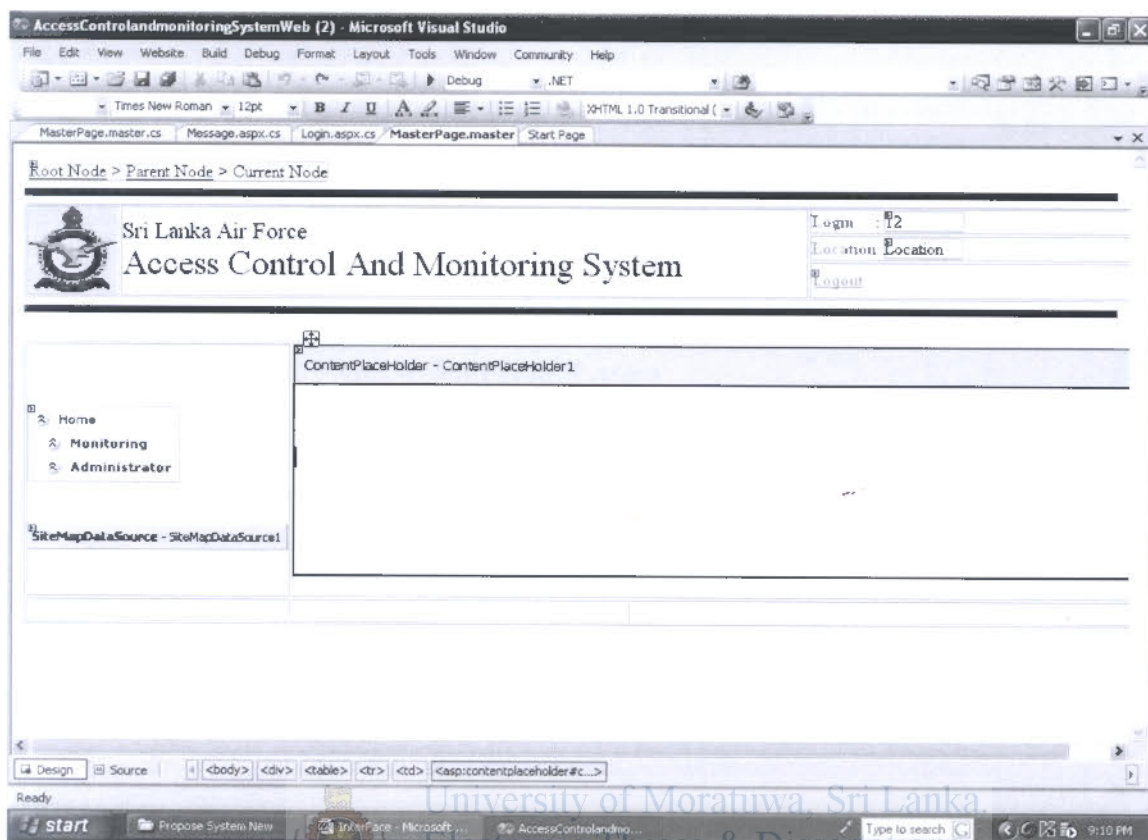


Figure H2: User Interface Master page design

Table H2: User Description for Authentication Form

| ControlName | Type | W | H | Back Color | Text | Fonts |
|---------------------|--------------------|----|----|------------|----------|---------------------------------|
| SiteMapPath1 | SiteMapPath | | | White | | Microsoft Sans Serif, 8.25pt |
| | PictureBox | 80 | 80 | | | |
| lblUserName | Label | 72 | | | UserName | |
| lblLocation | Label | | | | Location | |
| cmdLogOut | Button | 49 | | | Logout | |
| TreeView1 | TreeView | | | | | |
| ContentPlaceHolder1 | ContentPlaceHolder | | | | | |
| | | | | | | |
| | | | | | | |

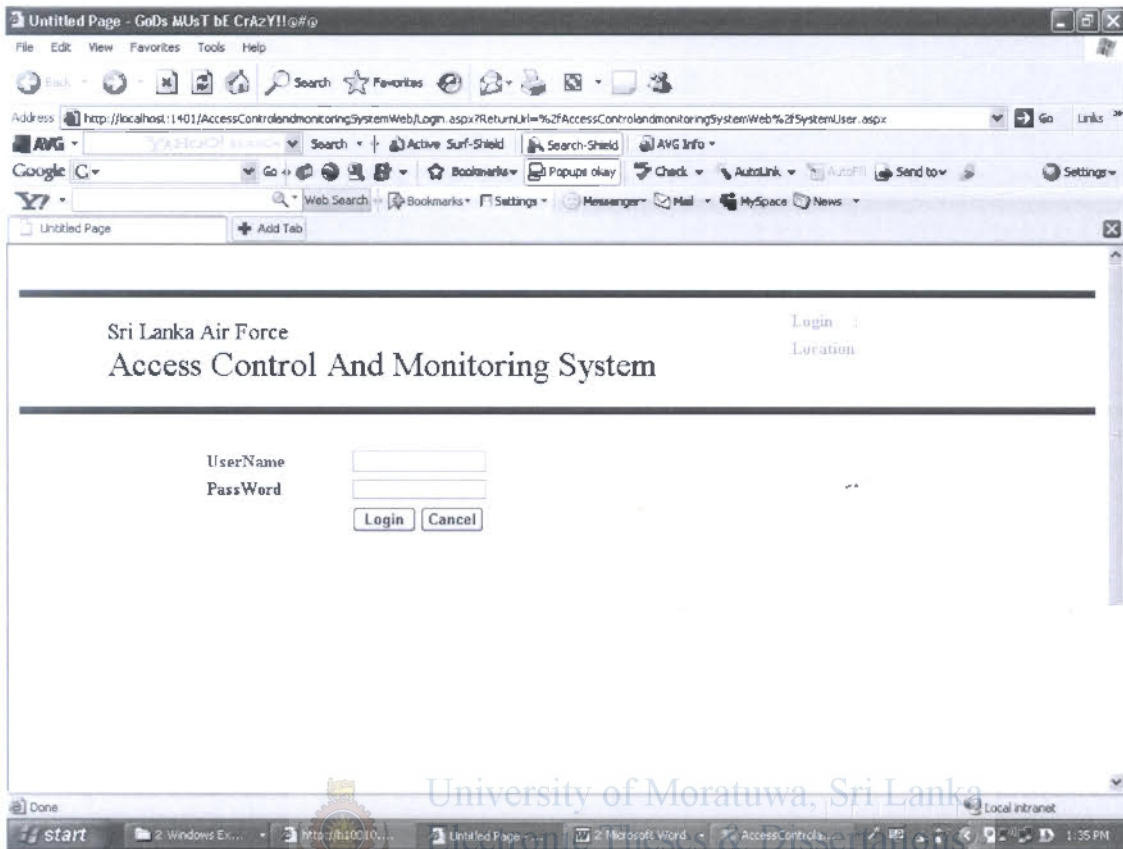


Figure H3: User Interface Login Page

Table H3: User Interface Description for Login Form

| ControlName | Type | W | H | BackColor | Text | Fonts |
|-------------|---------|-----|----|---------------------|----------------|-----------------------------|
| txtUserName | TextBox | 120 | 16 | AliceBlue Window | UserName | Microsoft Serif, Sans |
| txtPassWord | TextBox | 120 | 16 | | | |
| cmdLogin | Button | 50 | 20 | | Login | |
| cmdCancel | Button | 50 | 20 | | Cancel | |
| Label1 | Label | 100 | 23 | | Error Label | |

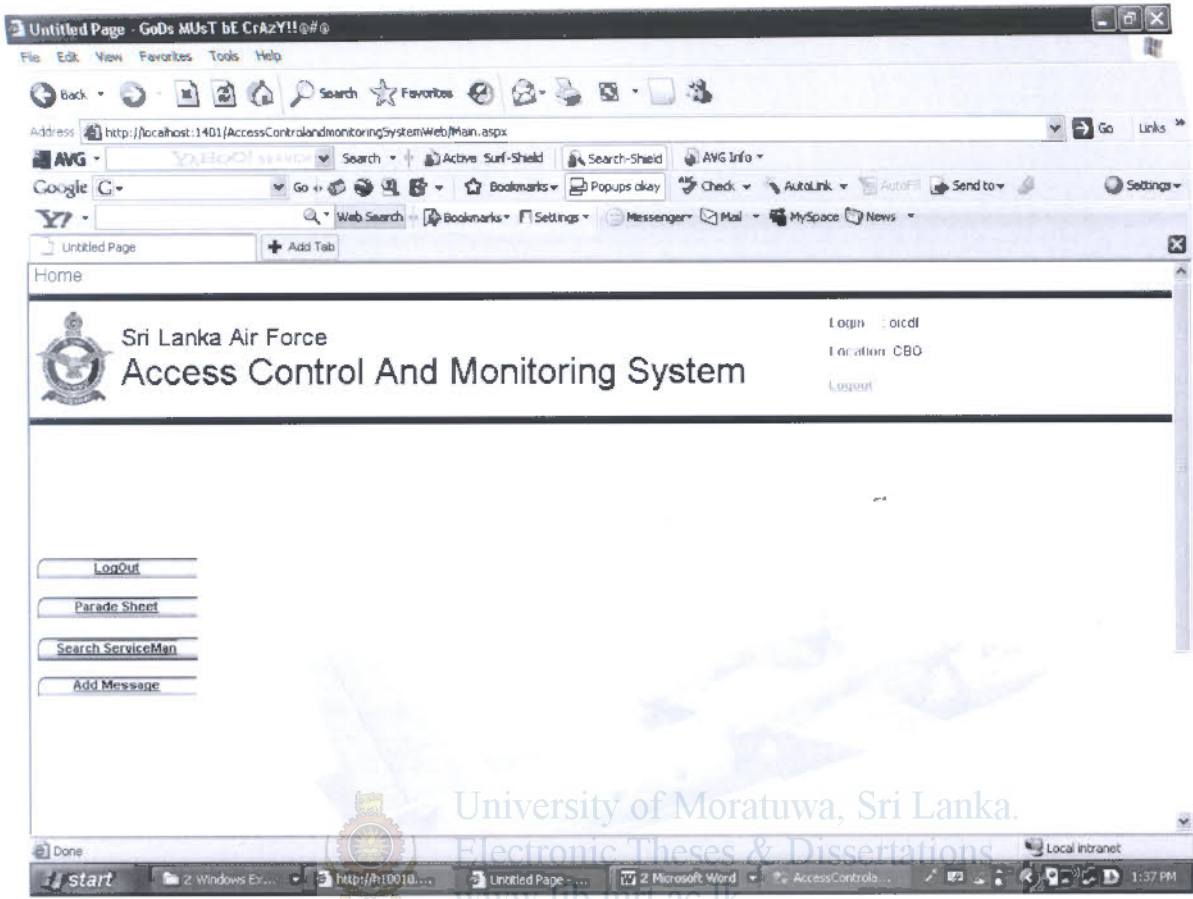


Figure H4: User Interface Main Interface



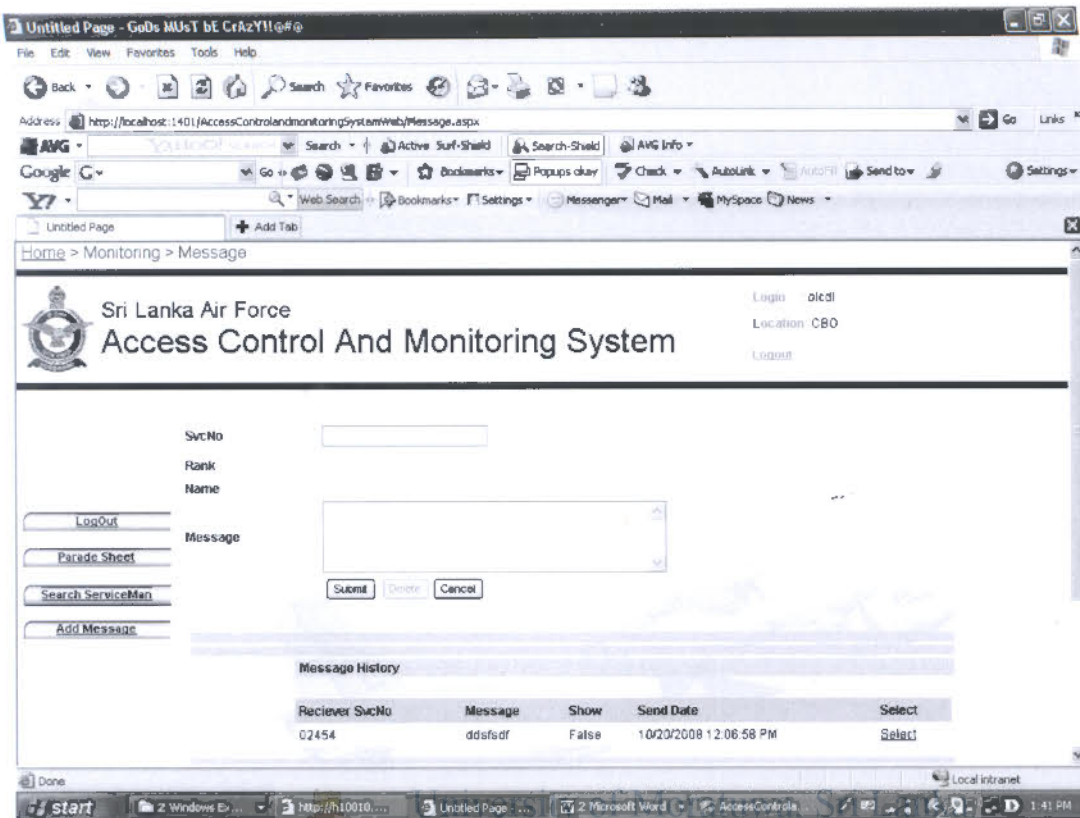


Figure H5: User Interface Message Interface
www.lib.mrt.ac.lk

Table H4: User Interface Description for Message form

| ControlName | Type | W | H | Back Color | Text | Font s |
|----------------|---------------|-----|----|------------|---------|-----------------------------|
| txtSvcno | TextBox | | | Window | | Microsoft Sans Serif 8.25pt |
| Svcno | Tabel Field | | | | Svcno | |
| lblRank | Label | 120 | 16 | | Rank | |
| Rank | Tabel Field | | | | | |
| lblName | Label | 120 | 16 | | Name | |
| Name | Tabel Field | | | | | |
| txtMessageBody | TextBox | 323 | 62 | | Message | |
| Message | Tabel Field | | | | | |
| GridView1 | DataGridview1 | | | | | |
| btnSubmit | Button | 50 | 20 | | Submit | |
| btnCancel | Button | 50 | 20 | Cancel | | |
| cmdDelete | Button | 50 | 20 | Delete | | |

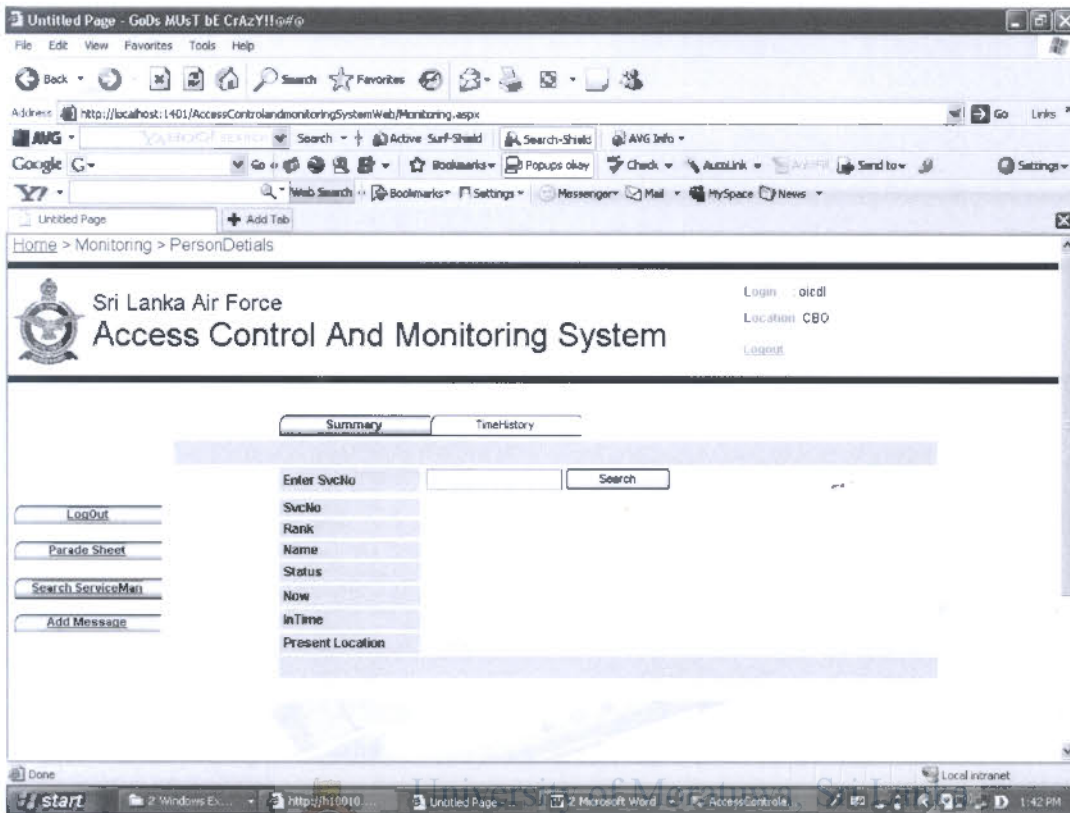


Figure H6: User Interface Personal details

Table H5: User Interface Description for Personal details

| ControlName | Type | W | H | BackColor | Text | Fonts |
|--------------|-------------|-----|----|-------------|--------|-----------------------------|
| txtSvcno | TextBox | 120 | 16 | Window | | Microsoft Sans Serif 8.25pt |
| lblSvcNo | Label | 120 | 16 | | | |
| | Table Field | | | | SvcNo | |
| lblRank | Label | 120 | 16 | | | |
| | Table Field | | | | Rank | |
| lblName | Label | 120 | 16 | | | |
| | Table Field | | | | Name | |
| lblStatus | Label | 120 | 16 | | | |
| | Table Field | | | | Status | |
| lblNow | Label | 120 | 16 | | | |
| | Table Field | | | | Now | |
| lblInTime | Label | 120 | 16 | | | |
| | Table Field | | | | InTime | |
| lblPLocation | Label | 120 | 16 | | | |
| cmdSummary | Button | 140 | 22 | Summary | | |
| cmdOnparade | Button | 140 | 22 | TimeHistory | | |
| cmdSearch | Button | 100 | 22 | Search | | |

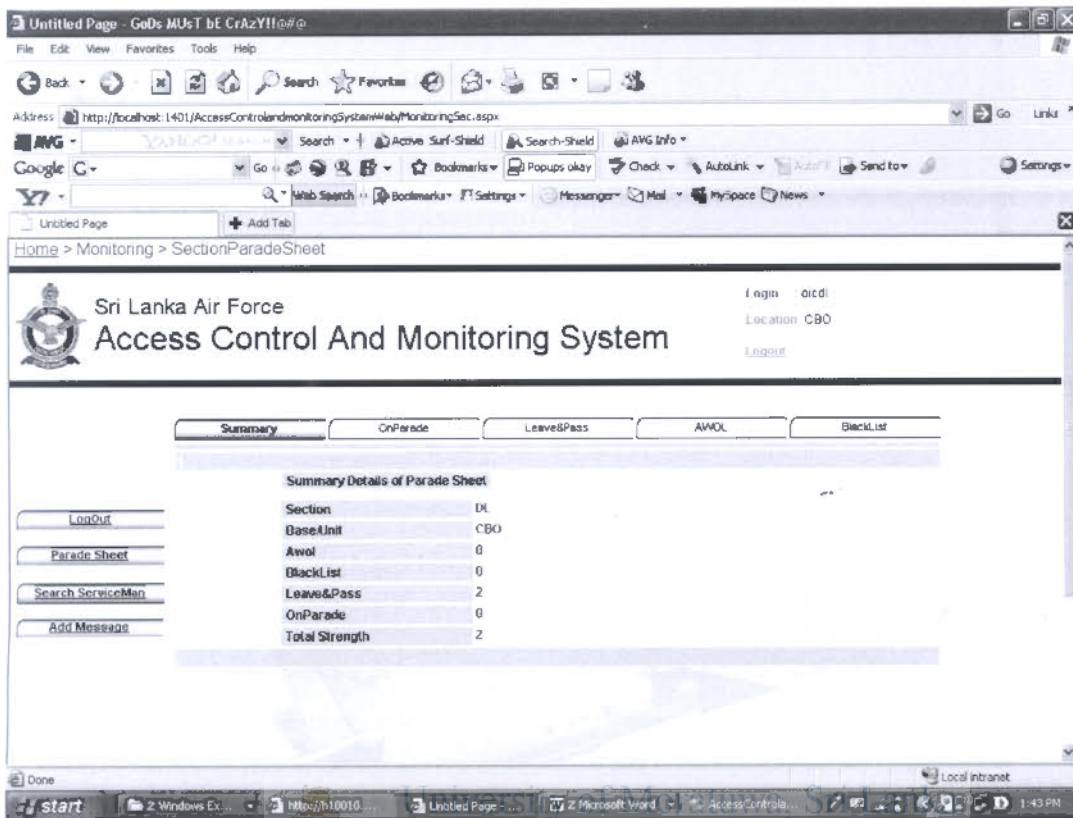


Figure H7: Section parade sheet Interface

Table H6: User Interface Description for Section parade sheet

| ControlName | Type | W | H | BackColor | Text | Fonts |
|------------------|------------|-----|----|-----------|-----------|-----------------------------|
| lblSection | Label | 120 | 16 | Window | | Microsoft Sans Serif 8.25pt |
| | TableField | | | | Section | |
| lblBaseUnit | Label | 120 | 16 | | | |
| | TableField | | | | Base Unit | |
| lblAwol | Label | 120 | 16 | | | |
| | TableField | | | | AWOL | |
| lblBlackList | Label | 120 | 16 | | | |
| | TableField | | | | BlackList | |
| lblLeavePass | Label | 120 | 16 | | | |
| | TableField | | | | LeavePass | |
| lblOnParade | Label | 120 | 16 | | | |
| | TableField | 120 | 16 | | On Parade | |
| lblTotalStrength | Label | | | | Total | |
| cmdSummary | Button | 140 | 22 | | | |
| cmdOnparade | Button | 140 | 22 | OnParade | | |
| cmdLeave | Button | 140 | 22 | Leave | | |
| CmdAwol | Button | 140 | 22 | AWOL | | |
| CmdBLACK | Button | 140 | 22 | BlackList | | |

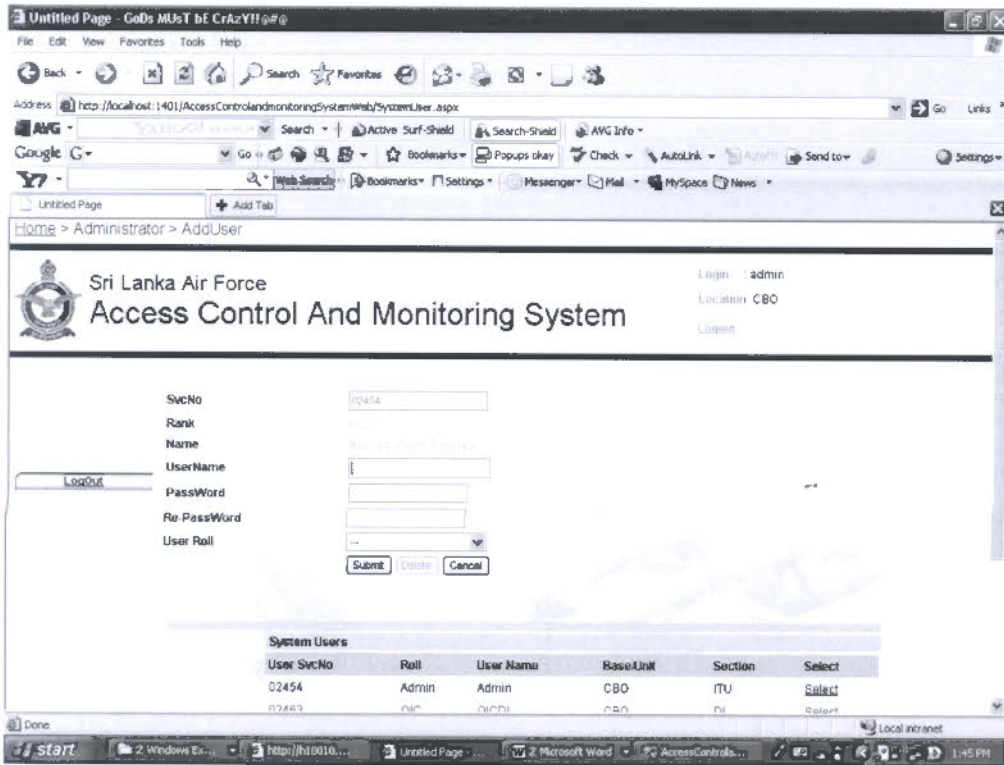


Figure H8: Add system user interface

Table H7: User Interface Description for Add system user

| ControlName | Type | W | H | BackColor | Text | Fonts |
|---------------|--------------|-----|----|-----------|-----------|-----------------------------|
| txtSvcno | TextBox | 150 | 20 | Window | Svcno | Microsoft Sans Serif 8.25pt |
| lblRank | Label | 120 | 16 | | Rank | |
| | Table Field | | | | Name | |
| lblName | Label | 120 | 16 | | UserName | |
| | Table Field | | | | Password | |
| txtUserName | TextBox | 150 | 20 | | User Roll | |
| | Table Field | | | | Submit | |
| txtPassword | Textbox | 150 | 20 | | Cancel | |
| | Table Field | | | | Delete | |
| txtRepassWord | Textbox | 150 | 20 | | | |
| DdUserRoll | DropDownList | 144 | 20 | | | |
| btnSubmit | Button | 50 | 20 | | | |
| btnCancel | Button | 50 | 20 | | | |
| CmdDelete | Button | 50 | 20 | | | |

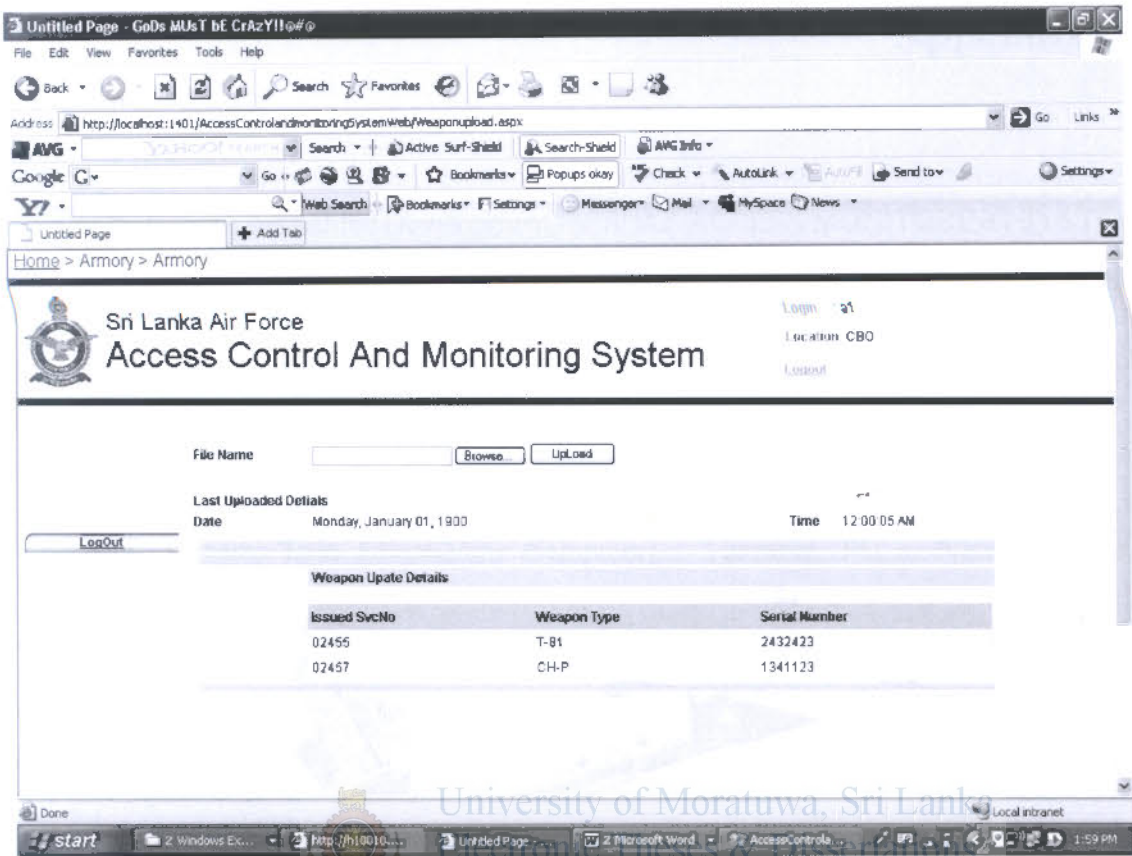


Figure H9: Armory weapon list upload interface

Table H8: User Interface Description for Armory weapon list upload

| ControlName | Type | W | H | BackColor | Text | Fonts |
|-------------|--------------|-----|----|-----------|------------------------|---------------------------------------|
| lblInfo | Label | 120 | 16 | Window | | Microsoft Serif 8.25pt Sans |
| File | | | | | File Name | |
| | Table Field | | | | Last Upload Details | |
| | Table Field | | | | | |
| GridView | DataGridView | | | | | |
| CmdUpload | Button | 50 | 20 | | UpLoad | |



Appendix – I

Feasibility study

Economic Feasibility

Cost of Resources needed for Development for SLAF ACCESS MONITORING SYSTEM

When developing this system, the resources needed are;

Human Resources - 200 Man Hours (Max)

Rate per Hour - \$1

System Requirements

IIS Web Server, Terminal Server, SQL 2005 Data Base Server, Windows 2003 R2 Operating System, Thin Client(Mini Computer) , Intranet, PC s, Network System, Magnetic Card reader, .NET 2.0 Environment .

New computers, thin client and magnetic card readers have been allocated for particular guard room.

Development tool like Visual studio 2005 and other Microsoft product license already available in our organization

Cost for human resource is not an important one because if staff neglects to do they eligible for get monthly salary. Therefore there is no additional payment only cost for equipment is needed.

Training

Most of the users who are going to interact with this system haven't at least the basic computer knowledge and using intranet. So development team will have to devote lot of time for giving training to SLAF police Section till get familiar with new system. Some time new appointment may be taken place once a year therefore development team will have to conduct a training session to train these new comers.

Man Hours needed for training - 50 Man Hours

Technical Feasibility

Development Risk

All responsibilities should be tolerated by development team, development team must complete project before or on deadline with massive data recovery and security process.

Project Risk

Project team should responsible for complete project before or on deadline but sometimes

project deadline may be changed which is depended on country security situation. Before change it, I will discuss this with project supervisor. However, I hope to complete project on deadline if any unavoidable incident will not be taken place during my project.

Product Risk

This product is helped to enter an authorization process of SLAF guard room but without proper testing and parallel run can't predict quality security assurance. This product is not affected any person's job or their career. Product's security benefits for all people who are serving to Sri Lanka and national properties.

Organization Risk

When launching new thing in any organization, it will be caused to increase human stress and **impedance** against new product. But SLAF is different from other civil organizations. There is no strikes, picketing among serviceman who are obeyed one command of the highest rank. So any new implementation in the organization is not difficult to compare with other civil organizations.

Resource Availability

Hardware & Software



University of Moratuwa, Sri Lanka.
Electronic Theses & Dissertations
www.lib.mrt.ac.lk

I hope to use Microsoft licensed software for development process. SLAF already have been brought Microsoft visual studio 2005, Microsoft windows 2003 R2 and Microsoft windows SQL server 2005. So development tool software is already available on hand.

Per one guard room are required one computer, two thin client, one 4 port hub, two fax modem, 3UPS and 4 swipes card readers. (this accessories depend on the type of guard room that mean some guard room is small so that type of guard room can use IN and OUT in same place otherwise use two place for IN and OUT process)

Hardware accessories have been brought and allocated to particular guard room

Finger printer scanner's public tender is called by SLAF tender section "Annex A". After complete installation of this project, finger printer scanners can be used as future development of ACCESS MONITORING SYSTEM.

Technical Know-how

I hope to develop this project by myself. So I have enough knowledge aware Microsoft .Net developing Technology and SQL database Administration. I have self confidence to

complete this product before on deadline. I have already developed some software packages in Web and Windows base by using .NET Technology for SLAF internal usage.

Technology

There are very sophisticated systems which are built on this technology around the world that we are going to use in developing this system. As we are using .NET Environment with Microsoft software developing technology, we can get the new upgrades, necessary support freely from the web because we are a licensed partner of Microsoft Company. Therefore we can get necessary technical support from open forum in internet.

Legal Feasibility

License

Since we are using Microsoft software for the development can use licensed version for development process and should be needed to obtain Terminal Server’s CAL License per user according to requirement from Microsoft.

Agreement

There is no agreement between development team and client because we are internal employee of SLAF. SLAF also have signed agreement with Microsoft company agent of Sri Lanka for renew license OS and Database.

Confidential Documents

This is very important part because we are security organization so the development team will be fully responsible for the documents took in secrete place with out expose for others.

Alternative System

1. Stand-alone window base system.
2. Browser base system
3. Combination of stand-alone window system and browser base system

| Requirement No | | Stand-alone window system (1) | Browser base System (2) | Combination of win & web (3) |
|------------------------------------|--------------|----------------------------------|----------------------------|---------------------------------|
| Functional (Desirable requirement) | Non-Function | | | |
| 1 | | Y | Y | Y |
| 2 | | N | Y | Y |

| | | | | |
|----|--|---|---|---|
| 3 | | Y | Y | Y |
| 4 | | N | Y | Y |
| 5 | | Y | Y | Y |
| 6 | | N | Y | Y |
| 7 | | Y | Y | Y |
| 8 | | Y | Y | Y |
| 9 | | Y | Y | Y |
| 10 | | N | N | Y |
| 11 | | Y | Y | Y |

Above mentioned all alternative systems fulfill all functional requirements but some systems violated some non functional requirements

1. Stand-alone window base system

When consider stand-alone system it is violated **Desirable functional requirement** no 2, 3, 6 and non functional 3, 7.

Stand-alone system should not have a facility to communicate with SLAFHQ Central Server so this is a critical reason for reject this method system and unable to implementation under current network infrastructure.

2. Web technology base system

Browser base system is violated non-functional requirement no 3 and 5,6.

Web base system is not able to implement under current SLAF network infrastructure. As security organization, web base system is not provided massive security feature for corresponding data. Still not provide complete secure web technology without any security hole.

3. Combination of stand-alone window system and web technology base system

The competition of selection of most suitable access monitoring system, we will have to select option 3 that means combination of stand-alone window system and browser base system.



Combination of stand-alone window and browser base system is successfully provided all non-function requirements

So I have to decide to select the third option as my proposed system.

Cost Benefit Analysis

Time

Since there are lot of manual processes are involved with existing system, considerable amount of time is being wasted.

Updating the data and communication of the same is done through the Intranet; the data delivery time can be reduced up to zero. Searching process and tracking AWOL person can be done efficiently without any time delay.

Information Storing

All the guard rooms maintain there attendance sign on a hand writing format. It may be delay with time and provide chance to unauthorized changes through illegal way.

A central data repository and Local data repository will be introduced with the proposed system and the cost of maintaining manual sheets can be minimized to a certain extent.

Data Quality

In the current system, most of the time, attendance books are maintained verbally through telephone and this could lead to misinterpretation and data may be erased, reduce clear of reading with time and not secure.

With the proposed system, since there are centralized data repository and local data repositories, all the guard rooms will have same information at the same time on a web page on local system lead to minimizing misinterpretation.

Appendix – J

Test Cases

ii. Test case2: Test Authentication

This test case should be test following condition with given service number of serviceman. The permission have to enter SLAF, authorized person only further this specific inputs are given for your connivance. Otherwise, can be used any type of input for testing, if there violation of below check, system will generate the voice alert.

Note: you can input the data by using several magnetic cards or using key board

If you use the keyboard; use begin and terminal character with user input.

For example 02454 ->X02454# or Y02454#, when you enter SvcNo to system which is invisible

Invalid ID card : 123
 AWOL : 02400
 BLACK List : 02401
 Weapon Check : 02402
 Already check in : 02403
 Not properly check in : 02404

Authorized Person : 02454



University of Moratuwa, Sri Lanka.
 Electronic Theses & Dissertations
 www.lib.mrt.ac.lk

| No | Test Item | Level | Input | Expected Output | Actual Output |
|-------------|---------------------------------------|-------|-------------------------------|--|------------------|
| Test case 2 | Test Authentication sub system-person | 1 | SvcNo:X# (blank In SvcNo) | 1.No data show in side 2. Hear a voice alert "Invalid Service Number " | Same as expected |
| | | 2 | SvcNo:Y# (blank Out SvcNo) | 1 No data show out side 2. Hear a voice alert "Invalid Service Number " | Same as expected |
| | | 3 | SvcNo:XYER# | 1.Show SvcNo as YER in side 2. Hear a voice alert "Invalid Service "Number " | Same as expected |
| | | 4 | SvcNo:Y123# | 1.Show SvcNo as 123 Out side 2. Hear a voice alert "Invalid Service "Number " | Same as expected |



| | | | | |
|--|----|----------------|--|------------------|
| | 5 | SvcNo: X02401# | show personal details inside Hear a voice alert "02400 black list person" | Same as expected |
| | 6 | SvcNo: Y02401# | 1 show personal details outside No voice alert | Same as expected |
| | 7 | SvcNo: X02400# | 1.show personal details inside 2 Hear a voice alert "02400 absent person" | Same as expected |
| | 8 | SvcNo: Y02400# | 1 show personal details outside 2 No voice alert | Same as expected |
| | 9 | SvcNo: X02402# | 1 show personal details outside 2 No voice alert | Same as expected |
| | 10 | SvcNo: Y02402# | 1.show personal details inside 2 Hear a voice alert "02400 to Issued weapon" 3 weapon indicator change to green to red color | Same as expected |
| | 11 | SvcNo:X02404# | 1 show personal details inside 2 No voice alert | Same as expected |
| | 12 | SvcNo:X02405# | 1 show personal details inside 2 No voice alert | Same as expected |
| | 13 | SvcNo:X02404# | 1 show personal details inside 2 Hear a voice alert "service number Already Check in" | Same as expected |
| | 14 | SvcNo:Y02403# | 1 show personal details outside 2 No voice alert | Same as expected |
| | 15 | SvcNo:Y02405# | 1 show personal details outside 2 No voice alert | Same as expected |
| | 16 | SvcNo:Y02403# | 1 show personal details Outside 2 Hear a voice alert "Not properly check in" | Same as expected |
| | 17 | SvcNo:X02454# | 1 show personal details outside 2 No voice alert | Same as expected |
| | 18 | SvcNo:Y02454# | 1 show personal details outside 2 No voice alert 3 weapon indicator color green | Same as expected |
| | 19 | SvcNo:X02454# | 1 show personal details inside 2 No voice alert 3 clear svcno label in outside | Same as expected |

iii. Test case3: Login to Monitoring sub system

| No | Test Item | Level | Input | Expected Output | Actual Output |
|-------------|---|-------|-------------------------------------|--|------------------|
| Test case 3 | Test Monitoring sub system- System User Login | 1 | User Name: "" Pass Word: "" | 1.Show popup message "Invalid User Name" 2.Set focus Username | Same as expected |
| | | 2 | User Name: Test123 Pass Word: "" | 1.Show popup message "Invalid Pass Word" 2.Set focus Password | Same as expected |
| | | 3 | User Name: COCBO Pass Word: "" | 1.Show popup message "Invalid Pass Word" 2.Set focus Password | Same as expected |
| | | 4 | User Name: Admin Pass Word:123 | 1.Show Main Form with Logout and System User Button | Same as expected |
| | | 5 | User Name: COCBO Pass Word:123 | 1.Show Main Form with Logout ,search person, parade sheet and Message Button | Same as expected |
| | | 6 | User Name: OICITU Pass Word:123 | 1. Same as above result | Same as expected |
| | | 7 | User Name: ARMCBO Pass Word:123 | 1.Show Main Form with Logout ,Weapon Update button only | Same as expected |
| | | 8 | User Name: CMD Pass Word:123 | 1.Show Main Form with Logout ,search person, parade sheet and Message Button | Same as expected |

iv. Test case4: Messages

| No | Test Item | Level | Input | Expected Output | Actual Output |
|-------------|-------------------------------------|-------|---|--|------------------|
| Test case 4 | Test Monitoring sub system- Message | 1 | SvcNo: "" Message Body: "" | 1.Show popup message "Invalid SvcNo" 2.Set focus Username | Same as expected |
| | | 2 | SvcNo: "sfsd" MessageBody: "" | 1.Clear SvcNo then Set Focus to SvcNo | Same as expected |
| | | 3 | SvcNo: 02459 MessageBody: "" | 1.Show the personal details 2.Show Error Message Empty Message | Same as expected |
| | | 4 | SvcNo: 02459 MessageBody: "test Message" | 1.Show the personal details 2.Show Show Message List and refresh form | Same as expected |

v. Test case5: Search personal details

| N o | Test Item | Level | Input | Expected Output | Actual Output |
|-------------|-----------------|-------|----------------|--|------------------|
| Test case 5 | Test Monitoring | 1 | SvcNo: "" | 1.Show popup message "Invalid SvcNo" 2.No Details shown | Same as expected |
| | | 2 | SvcNo: asdasda | 1.No Error Message 2.No Details shown | Same as expected |
| | | 3 | SvcNo: 02454 | 1.Show the personal details 2.Show The Time History | Same as expected |

vi. Test case6: Section parade sheet prepare

| N o | Test Item | Level | Input | Expected Output | Actual Output |
|-------------|----------------------------------|-------|--|---|------------------|
| Test case 6 | Test Monitoring sub system- Camp | 1 | Login to system in login form User Name: CMD Pass Word :"" | 1.Show popup message "Invalid SvcNo" 2.Set focus Username | Same as expected |
| | | 2 | User Name: CMD Pass Word :""123" | 1.Show Overall Strength of SLAF & Summary | Same as expected |
| | | 3 | User Name: CO Pass Word :""123" | 1.Show Overall Strength of particular Camp & summary of strength | Same as expected |
| | | 4 | User Name: OIC Pass Word :""123" | 1.Show Overall Strength of particular Section & summary of strength | Same as expected |

vii. Test case7: System user management

| N o | Test Item | Level | Input | Expected Output | Actual Output |
|-------------|--|-------|----------------|--|------------------|
| Test case 7 | System User Management sub system- System User Login | 1 | SvcNo: "" | 1.Show popup message "Invalid Svc No" 2.Set focus SvcNo | Same as expected |
| | | 2 | SvcNo: "asdad" | 1.No message Show Form Refresh | Same as expected |
| | | 3 | SvcNo: "02454" | 1.Show personal details set focus to Username | Same as expected |
| | | 4 | User Name: "" | 1.Show message Invalid "User Name" | Same as expected |
| | | 5 | User Name: OIC | 1.show Message Already used one select another one | Same as expected |

| | | | | |
|--|---|---|-------------------------------|------------------|
| | 6 | User Name User7 Pass Word 123 Re password 123 | Incorrect Conformation | Same as expected |
| | 7 | Don't select User Role | Show message select User role | Same as expected |

viii. Test case8: Armory weapon list upload

| No | Test Item | Level | Input | Expected Output | Actual Output |
|-------------|----------------------------|-------|--------------------|---------------------------|------------------|
| Test case 8 | sub system-Monitoring Test | 1 | Username ARCMCO | 1.Show Weapon Upload link | Same as expected |
| | | 2 | "Upload 1-XML | 1.show two record | Same as expected |
| | | 3 | Upload 2-XML | 1.no record | Same as expected |

Below Xml files can be used for weapon upload test case

XML File One

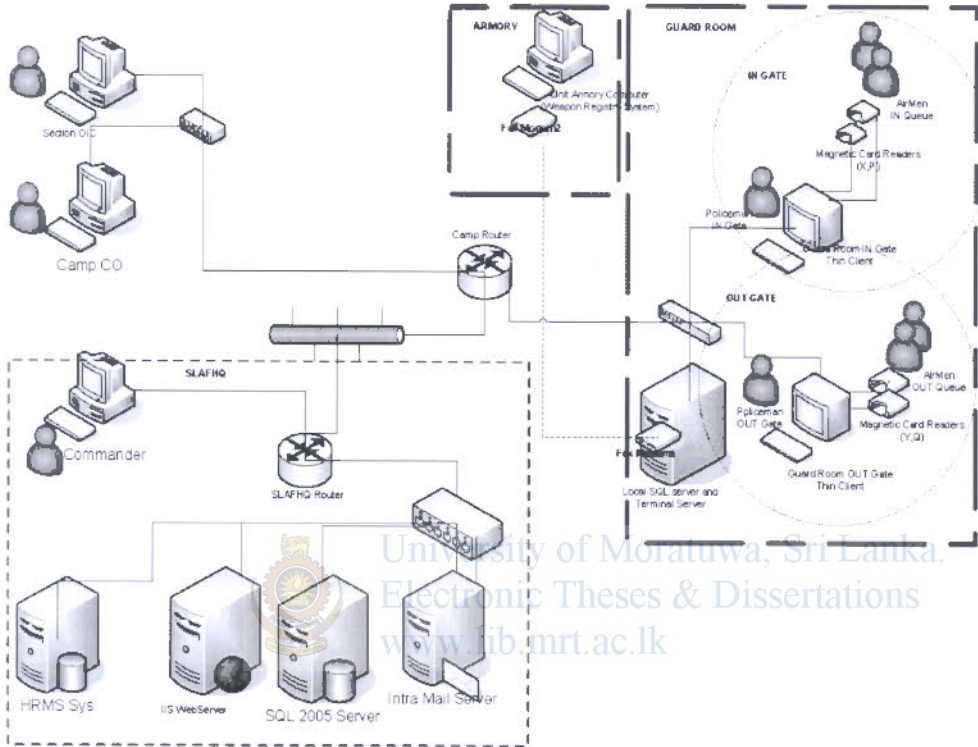
```
<?xml version="1.0" standalone="yes"?>
<Weapon>
  <SvcNo>02455</SvcNo>
  <WeaponStatus>true</WeaponStatus>
  <WeaponType>T-81</WeaponType>
  <SerialNo>2432423</SerialNo>
  <IssuesLocation>CBO</IssuesLocation>
  <LastUpdate>AAAAAAAAABL0=</LastUpdate>
</Weapon>
<Weapon>
  <SvcNo>02457</SvcNo>
  <WeaponStatus>true</WeaponStatus>
  <WeaponType>CH-P</WeaponType>
  <SerialNo>1341123</SerialNo>
  <IssuesLocation>CBO</IssuesLocation>
  <LastUpdate>AAAAAAAAABj8=</LastUpdate>
</Weapon>
<Weapon>
  <SvcNo>02457</SvcNo>
```

XML File Two

```
<?xml version="1.0" standalone="yes"?>
<Weapon>
  <SvcNo>02455</SvcNo>
  <WeaponStatus>False</WeaponStatus>
  <WeaponType>T-81</WeaponType>
  <SerialNo>2432423</SerialNo>
  <IssuesLocation>CBO</IssuesLocation>
  <LastUpdate>AAAAAAAAABL0=</LastUpdate>
</Weapon>
<Weapon>
  <SvcNo>02457</SvcNo>
  <WeaponStatus>false</WeaponStatus>
  <WeaponType>CH-P</WeaponType>
  <SerialNo>1341123</SerialNo>
  <IssuesLocation>CBO</IssuesLocation>
  <LastUpdate>AAAAAAAAABj8=</LastUpdate>
</Weapon>
<Weapon>
```


Implementation Architecture Overview

Guard room "Type 2"



User Manual

1. Prepare the parade sheet

After login to system , user will shown the following menu

| |
|-------------------|
| LogOut |
| Parade Sheet |
| Search ServiceMan |
| Add Message |

Then user can select the parade sheet

| | | | | |
|---------|----------|------------|------|-----------|
| Summary | OnParade | Leave&Pass | AWOL | BlackList |
|---------|----------|------------|------|-----------|

| Summary Details of Parade Sheet | |
|---------------------------------|-----|
| Section | DL |
| BaseUnit | CBO |
| Awol | 0 |
| BlackList | 0 |
| Leave&Pass | 2 |
| OnParade | 0 |
| Total Strength | 2 |

Then user can see the summary parade sheet further user want to see details of each category like on parade member, leave and pass ,AWOL or etc ,

Please click on the particular button shown in screen

Example: click on leave& pass button, following result can show

| | | | | |
|---------|----------|------------|------|-----------|
| Summary | OnParade | Leave&Pass | AWOL | BlackList |
|---------|----------|------------|------|-----------|

| Leave&Pass or OutSide of Camp Person Details | | | | | | |
|--|------|--------|---------|---------------|---------------|----------|
| SvcNo | Rank | Name | Section | Last Out Date | Last Out Time | Location |
| 02462 | LAC | Kumara | DL | | | |
| 02463 | LAC | Dias | DL | | | |

After completed the searching user can logout from the system

2. Search the Person Details

After login to system, user will shown the following menu

| |
|-------------------|
| LogOut |
| Parade Sheet |
| Search ServiceMan |
| Add Message |

Then user can select the Search ServiceMan ,following screen is shown

Then user can enter service number of serviceman whose details want to find then click

search

Summary TimeHistory

Enter SvcNo Search

SvcNo
Rank
Name
Status
Now
InTime
Present Location

Then user can see the all person details and current location of particular serviceman

Summary TimeHistory

Enter SvcNo 02454 Search

SvcNo 02454
Rank FIL LI
Name Matinda Vikum Sanjaka
Status ON
Now IN
InTime 3:32 PM
Present Location KAT

if user want to see time history of particular serviceman , please click on TimeHistory button then user can see the following history details.

Summary TimeHistory

Time History

On Parade Details

| In Date | In Time | Out Date | Out Time | Location |
|-----------|---------|-----------|----------|----------|
| 9/22/2008 | 7:33 PM | 9/13/2008 | 9:25 AM | KAT |
| 9/22/2008 | 7:33 PM | 9/13/2008 | 9:28 AM | KAT |
| 9/22/2008 | 7:33 PM | 9/13/2008 | 9:42 AM | KAT |
| 9/22/2008 | 7:33 PM | 9/13/2008 | 10:13 AM | KAT |
| 9/22/2008 | 7:33 PM | 9/13/2008 | 10:26 AM | KAT |
| 9/22/2008 | 7:33 PM | 9/13/2008 | 10:28 AM | KAT |
| 9/22/2008 | 7:33 PM | 9/13/2008 | 10:29 AM | KAT |
| 9/22/2008 | 7:33 PM | 9/13/2008 | 10:35 AM | KAT |
| 9/22/2008 | 7:33 PM | 9/13/2008 | 10:36 AM | KAT |
| 9/22/2008 | 7:33 PM | 9/13/2008 | 10:37 AM | KAT |

22

It shown indate, in time, out date and outtime with location ,

Note : this data shown on page by page as 10 record per sheet so user can see the other record by navigation number shown on bottom .

3. Add Message

After login to system, user will shown the following menu



- [LogOut](#)
- [Parade Sheet](#)
- [Search ServiceMan](#)
- [Add Message](#)

Then user can select the Add Message ,following screen is shown . it shown all history messages of login user with indicate of whether particular message was received or not for particular serviceman

Then user can enter service number of receiver of message then press enter key , if valid service number then show the person details of receiver

Then user can enter message to message area

Then submit

Then user can see the add particular message into message history list

One use can add unlimited messages

SvcNo

Rank

Name

Message

Message History

| Receiver SvcNo | Message | Show | Send Date | Select |
|----------------|---------|-------|------------------------|--------|
| 02454 | ddsfrdf | False | 10/20/2008 12:06:58 PM | Select |

University of Moratuwa, Sri Lanka.
Electronic Theses & Dissertations

