
American International University-Bangladesh (AIUB)

Department of Computer Science

Faculty of Science &Technology (FST)

Summer 21 22

Section: A

Software Quality Assurance and Testing

# Public Safety Answering Point System

A Report submitted
By



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# Software Test Plan

for

# Public Safety Answering Point System

Version 3.0 **approved**

Prepared by

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05/08/2022

**Checked By Industry Personnel**

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Company:

Sign:

Date:

# Table of Contents

# Revision History

| Revision | Date | Updated by | Update Comments |
|---|---|---|---|
| 0.1 | 2022/07/25 | Mahir Rish | First Draft |
| 0.2 | 2022/08/05 | Subrata Das | Second Draft |
| 0.3 | 2022/08/09 | Whole team | Third Draft |

# 1. TEST PLAN IDENTIFIER: PSAPS 103

# 2. REFERENCES

- https://www.softwaretestingmaterial.com/test-plan-template/
- https://www.mislbd.com/
- https://www.fcc.gov/general/9-1-1-and-e9-1-1-services
- https://www.police.gov.bd/en/hot_line_number
- https://mist.ac.bd/

# 3. INTRODUCTION

## Background to the Problem

**Bangladesh Government** has contracted with **Odyssey software solutions**, Bangladesh to design, develop and test the reports of the clients (Bangladesh Government). This document will address the different standards that will be applied to the unit, integration and system testing of the specified software. The design, development and testing of these reports will be based on client's **Public Safety Answering Point System** software. Throughout the testing process we will be applying the test documentation specifications described in the **SOFTWARE QUALITY AND TESTING** course provided by AIUB for Software Test Documentation.

## Solution to the Problem

The software is a public safety answering point system. It is a call answering software designed to take call from a potential citizen who is in danger. Here when a citizen make a distress call he or she should diel 999 on the opposite side of the line a 999 dispatcher will receive the call and will help according to the citizen's need. The system is a bit complicated. As a result there will be a lot of bugs in the first release. Some potential problems are:-

- GUI problems
- Database connection problems
- Connection problems
- Line over load
- Call drop
- Nationwide coverage

For this reasons we the Odyssey Software solutions are taking the steps in testing and ironing out all the potential problems that might be faced during the time of system operation.

# 4. REQUEIREMNT SPECIFICATION

## 4.1 System Features:-

As this is a web based system which has a lot of modules to function properly. As a result there are a wide range of requirements to fulfill the tasks. In this system we need two types of system requirements. One is the citizen's end another is the 999 operator end.

Example:

The requirements are given below:-

Operator system feature:-

- The system have a login module for proper authentication
- A dashboard is present in the system.
- All the relevant emergency number and website link are present in the UI.
- Secure internet connection is required.
- OTA verification is present if the operator forgets proper credential

Citizen system feature:-

- A proper functioning cell phone with wireless connection.
- SIM card purchased using a proper NID

**Priority Level: High**

**Precondition: All relevant infrastructures to run the system should be present.**

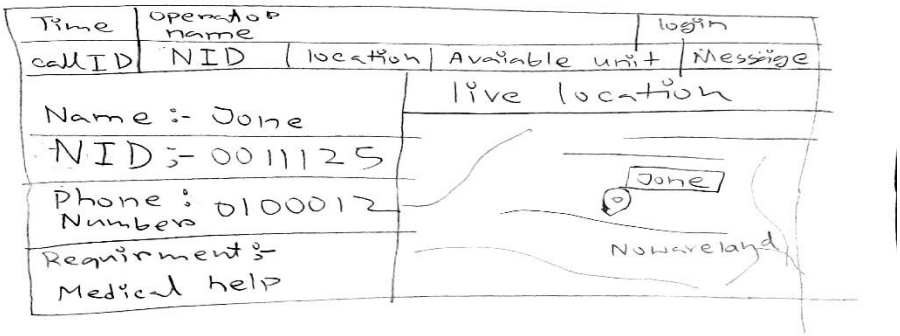
## 4.2 System Quality Attributes

First off all the User Interface should be user friendly. Basic training should be enough to operate the software. The system should be able to run on an average consumer grade system. The connectivity with the database should be iron-clad for the operation time. The system should handle all the unexpected circumstances Like Power outage, OS failure, sudden hardware issues.

Example:

Usability: A trained user shall be able to submit a complete request for a dispatcher in the place of commotion with in 4-5 minutes given the location of the patrol vehicle.

## 4.3 System Interface




## 4.4 Project Requirements

As this is a nationwide project issued by a Government the project requirements should be followed strictly. Some of the project constraints are mentioned below:-

- Human factors
- The cost might be higher than initially proposed
- In some areas of the country it could be proven difficult to operate this type of complex system.
- Internet connection can derail this software.
- Lack of expert operator can cause many problems in assigning the appropriate services to a citizen.
- In instance of natural calamities the system can go offline in certain part of the country

Example:

In this type of mega software projects budget and estimate time of completion can extend for a long time. Sometimes this can lead to the cancellation of the entire project. So it is better to ensure all the project constraints are fulfilled before the task began.

# 5. FEATURES NOT TO BE TESTED

The following is a list of the areas that will not be specifically addressed. All testing in these areas will be indirect as a result of other testing efforts. For example:

- As this is a mega project all the software modules should be tested and fixed. But as Odyssey is a software company we will not look into the human factors.
- We the Odyssey Software Solutions will build and test the software using minimum specification hardware.

- We will assume the client has stable internet connection.
- We assume the client has the capability to protect the facility which the system will reside.

# 6. TESTING APPROACH

## 6.1 Testing Levels

- The testing of the Public Safety Answering Point System project will fulfill all the necessary steps for a proper testing. We the Odyssey Software solutions ensure the software fulfills all the acceptance tests for a proper evaluation of the system. There will be an independent test team for system and integration testing. As the time and budget constrains are established we can create a better

- **UNIT Testing** will be done by the developer and will be approved by the development team leader. Proof of unit testing (test case list, sample output, data printouts, defect information) must be provided by the programmer to the team leader before unit testing will be accepted and passed on to the test person. All unit test information will also be provided to the test person.

- **SYSTEM/INTEGRATION Testing** will be performed by the test manager and development team leader with assistance from the individual developers as required. No specific test tools are available for this project. Programs will enter into System/Integration test after all critical defects have been corrected. A program may have up to two Major defects as long as they do not impede testing of the program (I.E. there is a work around for the error).

- **ACCEPTANCE Testing** will be performed by the actual end users with the assistance of the test manager and development team leader.

## 6.2 Test Tools

We used Jira and selenium to manage and test the software efficiently.

- We used Jira to keep track of all the tasks using a scram board

- The initial prototype was tested using Selenium

- MS Visual studio IDE was used if selenium was unable to fix module.

- Experience played a vital role in developing this software.

## **6.3** Meetings

A successful project is done when all the modules and tests are done in properly. For this fruitful result meeting between all the team mates should be done every week. All the member should use scrum board for proper accountability and efficient progress. All the teams like development team, Tester Team, Management team should be present at the time of meeting.

# 7. TEST CASES/TEST ITEMS

| | | | | |
|---|---|---|---|---|
| Project Name: Public Safety Answering Point System | | | Test Designed by: Rish | |
| Test Case ID: PSAPS_1 | | | Test Designed date: 08/08/2022 | |
| Test Priority (Low, Medium, High): High | | | Test Executed by: Rish | |
| Module Name: Portal Login session | | | Test Execution date: 08/08/2022 | |
| Test Title: verify login with valid username and password | | | | |
| Description: Test website login page for operator | | | | |
| Precondition (If any): User must have valid username and password | | | | |
| Test Steps | Test Data | Expected Results | Actual Results | Status (Pass/Fail) |
| 1. Go to the website<br>2. Enter username<br>3. Enter password<br>4. Click submit | Username: Justin Case<br><br>Password: 321 | User should login into the application | As expected, | Pass |
| Post Condition: User is validated with database and successfully login to account. The account session details are logged in the database. | | | | |

| | | | | |
|---|---|---|---|---|
| Project Name: Public Safety Answering Point System | | | Test Designed by: Rish | |
| Test Case ID: PSAPS_2 | | | Test Designed date: 08/08/2022 | |
| Test Priority (Low, Medium, High): High | | | Test Executed by: Rish | |
| Module Name: HTTPS inscription | | | Test Execution date: 08/08/2022 | |
| Test Title: Weather the browser HTTPS encryption works | | | | |
| Description: At the time of pressing F5 key weather the https encryption stays or get removed | | | | |
| Precondition (If any): User must have valid username and password | | | | |
| Test Steps | Test Data | Expected Results | Actual Results | Status (Pass/Fail) |
| 1. Go to the website<br>2. Press F5 key of refresh the web page | Browser with internet connection | The https encryption lock icon should show | The key icon didn't show | Failed |
| Post Condition: The https encryption didn't work. The test worked on Windows 10 and under but not in Windows 11 system. | | | | |

| | | | | |
|---|---|---|---|---|
| Project Name: Public Safety Answering Point System | | | Test Designed by: MIM | |
| Test Case ID: PSAPS_3 | | | Test Designed date:05/08/2022 | |
| Test Priority (Low, Medium, High): Medium | | | Test Executed by: MIM | |
| Module Name: Database connection | | | Test Execution date: 05/08/2022 | |
| Test Title: verify whether the shown data in the dash board are uniform throughout different devices | | | | |
| Description: Test website in different devices with different OS | | | | |
| Precondition (If any): The user should have a stable internet connection and a working browser. | | | | |
| Test Steps | Test Data | Expected Results | Actual Results | Status (Pass/Fail) |
| 1. Go to the website<br>2. Enter username<br>3. Enter password<br>4. Click submit<br>5. Inspect dashboard icons | Username: Justin Case<br><br>Password: 321 | User should be able to see all the information in the dashboard | As expected, | Pass |
| Post Condition: The test proves that the database connection is working properly on every devices regardless of the operating system. | | | | |

| | | | | |
|---|---|---|---|---|
| Project Name: Public Safety Answering Point System | | | Test Designed by: MIM | |
| Test Case ID: PSAPS_4 | | | Test Designed date: 05/08/2022 | |
| Test Priority (Low, Medium, High): High | | | Test Executed by: MIM | |
| Module Name: network connection security | | | Test Execution date: 05/08/2022 | |
| Test Title: verify whether the software is safe from malicious actors | | | | |
| Description: The test will provide weather the site is safe from Denial-of-service attack. | | | | |
| Precondition (If any): If the site is compromised then the malicious actors | | | | |
| Test Steps | Test Data | Expected Results | Actual Results | Status (Pass/Fail) |
| 1. Wait for the networking device to make the handshake for code injection | Live malware is injected for test purpose | Nothing happened | The site was smart enough to not take the handshake to receive the malware codes | Pass |
| Post Condition: The test proves the system is safe from DDOS attacks | | | | |

| | | | | |
|---|---|---|---|---|
| Project Name: Public Safety Answering Point System | | | Test Designed by: SUBRATA | |
| Test Case ID: PSAPS_5 | | | Test Designed date: 05/08/2022 | |
| Test Priority (Low, Medium, High): High | | | Test Executed by: SUBRATA | |
| Module Name: NID module security | | | Test Execution date: 05/08/2022 | |
| Test Title: verify whether the NID verification using citizen's phone number is working | | | | |
| Description: the test will show if the NID module identifies a citizen's phone number correctly. | | | | |
| Precondition (If any): The citizen should have a SIM card registered using a valid NID. | | | | |
| Test Steps | Test Data | Expected Results | Actual Results | Status (Pass/Fail) |
| 1. Make a phone call by dialing 999 | Dial : 999 | The operator should see the NID information of the caller in the System UI | As expected, | Pass |
| Post Condition: The test proves that the NID identifier module is working properly | | | | |

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|---|---|
| Project Name: Public Safety Answering Point System | Test Designed by: SUBRATA |
| Test Case ID: PSAPS_6 | Test Designed date: 06/05/2022 |
| Test Priority (Low, Medium, High): High | Test Executed by: SUBRATA |
| Module Name: Citizen's Location | Test Execution date: 06/05/2022 |
| Test Title: verify whether the system is providing the exact location of the citizen | |
| Description: Test will show weather the system can track the citizen's exact location using cell tower triangulation | |
| Precondition (If any): The user should have a stable internet connection and a working browser. | |

| Test Steps | Test Data | Expected Results | Actual Results | Status (Pass/Fail) |
|---|---|---|---|---|
| 1. Make a phone call by dialing 999 | Dial 999 | The operator should see the approximate location of the citizen | The system failed to locate the caller properly | Failed |

Post Condition: The system was unable to provide satisfactory location date of the caller. The location tracking module should be updated as so as possible.

| | |
|---|---|
| Project Name: Public Safety Answering Point System | Test Designed by: Lucky |
| Test Case ID: PSAPS_7 | Test Designed date: 01/05/2022 |
| Test Priority (Low, Medium, High): Low | Test Executed by: Lucky |
| Module Name: Time and date synchronization | Test Execution date: 01/05/2022 |
| Test Title: verify whether the central database has proper time and date synchronization through out the nation | |
| Description: Test whether the database has time and date synchronization | |
| Precondition (If any): The database should be online all the time and Geo- synchronized. | |

| Test Steps | Test Data | Expected Results | Actual Results | Status (Pass/Fail) |
|---|---|---|---|---|
| 1. Go to the database<br>2. Login as Admin<br>3. Check Geo-synchronized | Username: Admin<br><br>Password: ihatemyself101 | The setting was turned on | As expected | Pass |

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| Post Condition: The central database was geo-synchronized. As a result all the computer regardless of its location will save data according to its respective location. |

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|---|---|
| Project Name: Public Safety Answering Point System | Test Designed by: Lucky |
| Test Case ID: PSAPS_8 | Test Designed date: 02/08/2022 |
| Test Priority (Low, Medium, High): High | Test Executed by: Lucky |
| Module Name: Power failure | Test Execution date: 02/08/2022 |
| Test Title: The state of the system at the time of power outage | |
| Description: Test will provide weather the auto save feature works at an event of power outage. | |

Precondition (If any): Auto save module should save data input on the central database every 10 seconds

| Test Steps | Test Data | Expected Results | Actual Results | Status (Pass/Fail) |
|---|---|---|---|---|
| 1. Turn off the power supply for approximately 5 minutes | Operator should have data input | All the data input by the operator for the last 10 seconds should be saved. | Some data like caller unique Id was corrupted , | failed |

Post Condition: The auto save feature was not working in case of caller ID saving module.

| | |
|---|---|
| Project Name: Public Safety Answering Point System | Test Designed by: Rish |
| Test Case ID: PSAPS_9 | Test Designed date: 04/08/2022 |
| Test Priority (Low, Medium, High): High | Test Executed by: SUBRATA |
| Module Name: Auto logout | Test Execution date: 04/08/2022 |
| Test Title: verify whether the System Auto logout the operator after 5 min of inactivity | |
| Description: The test will show weather the system logout the operator after 5 min of inactivity of the system | |
| Precondition (If any): The user should have a stable internet connection and a working browser. | |

| Test Steps | Test Data | Expected Results | Actual Results | Status (Pass/Fail) |
|---|---|---|---|---|
| 1. Go to the website<br>2. Enter username<br>3. Enter password<br>4. Click submit<br>5. Wait for 5 minutes | Username: Justin Case<br><br>Password: 321 | User should be logout from the website | As expected, | Pass |

| |
|---|
| Post Condition: The operator was successfully logout from the website after 5 minutes of inactivity. |

| | | | | |
|---|---|---|---|---|
| Project Name: Public Safety Answering Point System | | | Test Designed by: SUBRATA | |
| Test Case ID: PSAPS_10 | | | Test Designed date: 10/08/2022 | |
| Test Priority (Low, Medium, High): Low | | | Test Executed by: MIM | |
| Module Name: User interface | | | Test Execution date: 10/08/2022 | |
| Test Title: verify whether the user interface of the system is uniform through the website. | | | | |
| Description: The test will show weather all the modules has the same UI design. | | | | |
| Precondition (If any): The UI design of all the individual modules should be completed and merged | | | | |
| Test Steps | Test Data | Expected Results | Actual Results | Status (Pass/Fail) |
| 1. Go to the website<br>2. Enter username<br>3. Enter password<br>4. Click submit<br>5. Surf the site | Username: admin<br><br>Password: ihatemyself | User should find all the module design uniform into the application | As expected, | Pass |
| Post Condition: User was not able to fine any UI design flaws in any modules regardless of different operating system. | | | | |

## 8. ITEM PASS/FAIL CRITERIA

The test was completed successfully. All the ten tests ware done properly without any problems. There were some issues in test #2, #6, #8. As of writing this report the project manager is notified and necessary action are being taken to fix the issues. Overall the system is ready for our respective customer as all the major requirements were fulfilled. The system will work properly in any circumstances.

# 9. TEST DELIVERABLES

- **Acceptance test plan**

  All the user acceptance test were completed successfully. The User Interface were easy but effective to understand. As a result the UAT was completed without any problem.

- **System/Integration test plan**

  Like we saw in module 7 all the system integration were done correctly. As a result the database was working properly and all the functionality were working smoothly.

- **Unit test plans/turnover documentation**

  The unit testing were done and all were working order.

- **Screen prototypes**

  In total three prototypes were made and the last system (3rd) one was the one we used in this project as this was the least issued one. For this reason this will be our final product which we are submitting.

- **Report mock-ups**

  The report we are reading is the project report so there were no mock-ups of this report all are originals

- **Defect/Incident reports and summaries**

  Like we saw in module 7 all but 3 test were not acceptable. As a result all the resource are focused on this 3 modules at the moment. But the modules are not that bad to derail the project. As a result we are able to deliver the project in time and on budget. The above mentioned failed modules will be fixed in the release day patch.

- **Test logs and turnover reports**

  The test logs of module 7 were all shown. The mentioned module shows all the test logs and turnover report. All the test were done properly and none were serious issues.

## 10. STAFFING AND TRAINING NEEDS

All the teammates worked together to create this software properly. But there were some needs which should be fulfilled as soon as possible. Some are

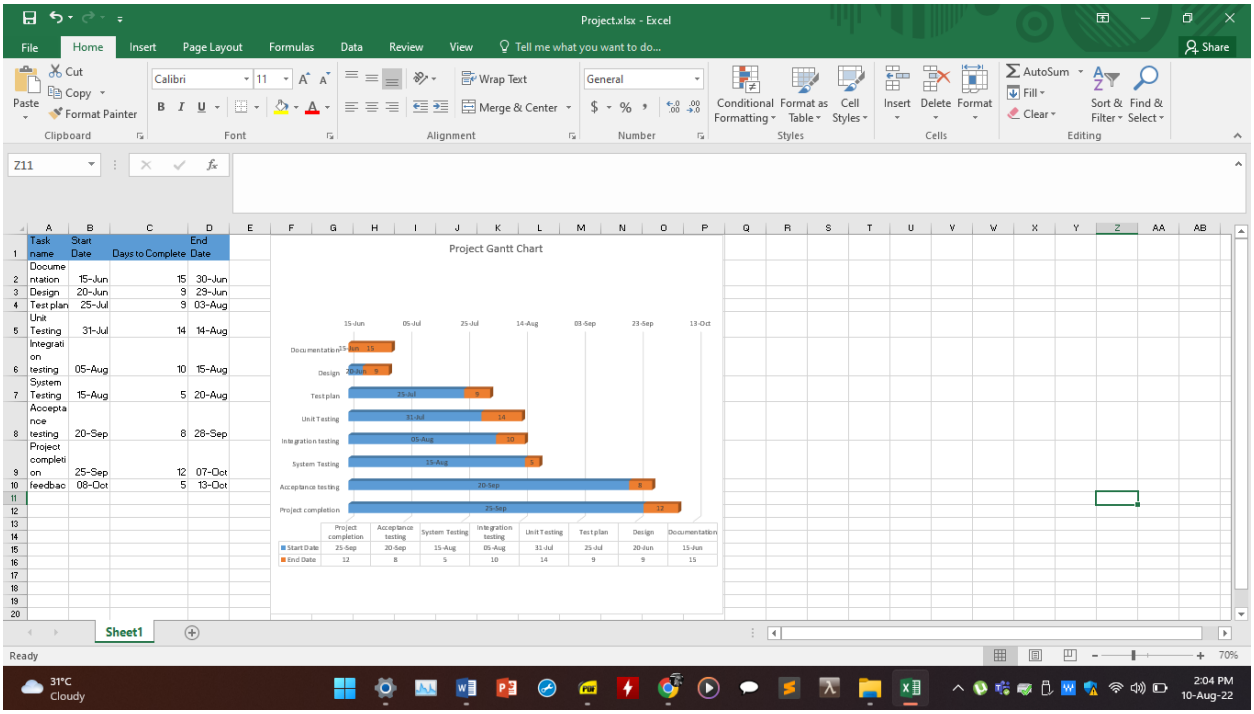
- The developer, tester and the project management teams should work properly for smooth team work. All should cooperate if there is a serious problem in the modules
- Prototype of the project should be tested vigorously for potential bugs
- The operators need to be taught all the modules for efficient operation of the system.

## 11. RESPONSIBILITIES

| | TM | PM | Dev. Team | Test team | Client |
|---|---|---|---|---|---|
| Acceptance test documentation & Execution | X | X | | X | X |
| System/Integration test Documentation & Execution | X | | X | X | |
| System Design reviews | X | | X | X | |
| Detail Design Reviews | X | X | X | X | X |
| Test Procedures and Rules | X | X | X | X | |
| Screen & Report prototype reviews | | | X | X | X |
| Change control and regression testing | X | X | X | X | X |

## 12. TESTING SCHEDULE

Time has been allocated within the project plan for the following testing activities. The specific dates and times for each activity are defined in the project plan timeline. The persons required for each process are detailed in the project timeline and plan as well. Coordination of the personnel required for each task, test team, development team, management and customer will be handled by the project manager in conjunction with the development and test team leaders. Schedule must be done using any PM tool.




## 13. PLANNING RISKS AND CONTINGENCIES

- The worst problem for any software project is the budget. The budget should be approved and task should be approved before the project is started
- The time interval should be followed strictly.
- The module dependency should be resolved before the delivery date.
- The client operator should be adequately trained.
- All the prototype of the software should be destroyed after delivery of the product.
- Team should scrum board to keep accountability in the task.
- "**Customer is always right**" should be the mentality for everyone involved in the project.

## 14. APROVALS

| | |
|---|---|
| Project Sponsor | PASS |
| Development Management | PASS |
| EDI Project Manager | PASS |
| RS Test Manager | PASS |
| RS Development Team Manager | PASS |
| Reassigned Sales | PASS |
| Order Entry EDI Test manager | PASS |