

1. Software Test Plan

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Test Plan: Observation System

2. INTRODUCTION:

Observation System - mounted on a telescopic mast at a height of 5 meters uses a combination of night vision and daylight cameras, GPS, azimuth system, and radar to detect people within a maximum range of 8km. The system shall identify and recognize a person from 8 km max. The system provides data to a real-time computer that communicates with the user's computer. Then, transfers the data to a video screen and map screen, along with location information. The system providing accurate and detailed information even in low-light or adverse weather conditions, weak connections and able to handle with exceptions.

3. Objectives:

- 3.1 Detection of people within a maximum range of 8km: The system aims to identify and recognize people from up to 8km, using a combination of cameras and radar technology.
- 3.2 Real-time data transfer: The system shall provide accurate and detailed information in real-time, ensuring timely responses and decision-making.
- 3.3 Reliability and accuracy: The system must be reliable and accurate, even in low-light or adverse weather conditions, to provide a dependable solution for surveillance, search, and rescue operations, and monitoring remote locations.
- 3.4 Easy positioning and adjustment: The system should be easy to position and adjust, making it ideal for use in various environments.
- 3.5 Integration with user's computer: The system shall seamlessly communicate with the user's computer, transferring data to a video screen and map screen, along with location information.
- 3.6 Security: The system should provide a secure solution, ensuring the safety and privacy of data transferred between the system and the user's computer.

4. Support Documents:

5. Tree Testing:

5.1 GUI:

- 5.1.1 Verify that all user interface elements are displayed correctly on the screen.
- 5.1.2 Verify that the user interface elements are responsive and interact as expected when clicked.
- 5.1.3 Verify that the system can handle different screen resolutions and sizes.
- 5.1.4 Verify that the system responds quickly and efficiently to user interactions.
- 5.1.5 Verify that the system can handle with different network conditions, slow or unreliable internet connections.
- 5.1.6 Verify that the system can handle many users and interactions without slowing down or crashing.
- 5.1.7 Verify that the system compatible with different input devices, such as touchscreens or keyboards.
- 5.1.8 Verify that the system can handle with GPS problems (weak connection, connection lost, unrecognized connection, etc.)

5.2 Functional:

- 5.2.1 Verify the normal reaction speed between the joystick movement, the camera display, the map and the other systems accordingly.
- 5.2.2 Verify the person location according to the systems and the map.
- 5.2.3 Verify that the system recognized person perfectly by placing characters in the test field.
- 5.2.4 Check the messages between the systems in the network by a dedicated monitor.
- 5.2.5 Testing a real time computer using a certain input and testing the corresponding output.
- 5.2.6 Verify that the systems are synchronized: check if the map is displaying the corresponding Azimuth according to the camera view, the Radar, and the laser rangefinder. They are all need to be calibrated to the same direction and opening angle.

5.3 Non - Functional:

- 5.3.1 Verify that the system can handle many simultaneous user requests without any performance degradation.
- 5.3.2 Verify that the system can handle different types of data and input formats.
- 5.3.3 Verify that the system can recover from any errors or exceptions successfully.

6. Entry and Exit Criteria:

6.1 Entry Criteria:

- 6.1.1 The observation system hardware and software are installed and configured according to the manufacturer's specifications.
- 6.1.2 The observation system passes a preliminary functional test, including basic camera and radar functionality.
- 6.1.3 The real-time communication between the observation system and user's computer is established and validated.

6.2 Exit Criteria:

- 6.2.1 All test cases in the STP have been executed and passed.
- 6.2.2 The observation system has successfully detected and recognized people at up to 8km in a variety of lighting and weather conditions.
- 6.2.3 The real-time data transfer from the observation system to the user's computer is functioning correctly and consistently.
- 6.2.4 The system meets all acceptance criteria as outlined in the support documents, including performance thresholds, reliability, and security requirements.
- 6.2.5 The observation system is documented according to the established standards, including test results, configuration data, and user manuals.

7. Test Strategy:

7.1 Test Approach:

The test approach for the observation system will focus on validating the functional and non-functional requirements provided by the client. The project will follow an agile approach with weekly iterations, with each iteration's requirements delivered to the team for testing. The testing will mainly target GUI testing to ensure a user-friendly interface.

7.2 Test Automation:

Automated unit tests will be integrated into the development process, but no automated functional tests are planned at this time.

7.3 Exploratory Testing:

This testing is carried out without test scripts and documentation to ensure critical defects are removed before the next levels of testing can start. The scope of this testing will cover Signup, send message, and mobile version, and will be conducted by the testing team.

7.4 User Acceptance Test:

This test will focus on validating the business logic of the observation system. Test cases for UAT will be created based on inputs from end-users and business analysts. Client-side testers will conduct this testing after all other levels of testing (exploratory and functional) are complete.

7.5 Functional Testing:

Functional testing will be carried out by feeding input and validating output from the observation system to ensure that it meets the functional requirements specified by the client.

8. Testing Methodology:

9. Test Environment: