IEEE Standard for Software Test Documentation

(ANSI/IEEE Standard 829-1983)

This is a summary of the ANSI/IEEE Standard 829-1983. It describes a test plan as:

"A document describing the scope, approach, resources, and schedule of intended testing activities. It identifies test items, the features to be tested, the testing tasks, who will do each task, and any risks requiring contingency planning."

This standard specifies the following test plan outline:

Test Plan Identifier:

Smart Classroom System_1.0

Introduction

1- This test plan for Smart Classroom system testing supports the following objectives:

1. To define the tools to be used throughout the testing process.

2. To communicate to the responsible parties the items to be tested, set expectations around the schedule, and define environmental needs.

3. To define how the tests will be conducted.

Test Items

The systems to be tested include the model used to detect people in the classroom, the interface that registers the admin, adds doctors, and schedules class times, and the Raspberry Pi to act based on the data received from the model. The systems should be tested on both Windows and Raspberry Pi OS.

Features to be Tested.

As an admin, log into the system as an admin.
- As an admin, add doctors.
- As an admin, delete doctors.
- As an admin, choose the way to control the system, either manually or automatically.
- As a user, add their own schedule.
- As a user, control the system either manually or automatically.

Features Not to Be Tested

All the features are going to be tested.

Approach

Tests will be conducted per the documented test cases stored in Test Lodge. The test manager will create test runs for each tester. The tester will execute the tests in Test Lodge and mark each case as Pass / Fail / Skip. The tester should leave notes on actual results and any other relevant details when possible.
When tests are marked as Fail, bug reports will automatically be created in the issue tracker integrated with Test Lodge.
Once complete, the test manager should review the test run reports in Test Lodge and report back to the team accordingly.

Item Pass/Fail Criteria

All core functionality of the systems should function as expected and outlined in the individual test cases. There must be no critical defects found and an end user must be able to handle with the system successfully and can use the system to detect the people in the classroom. 95% of all test cases should pass and no failed cases should be crucial to the end-user's ability to use the system.

Suspension Criteria and Resumption Requirements

Testing should be paused immediately if either system experiences login issues or the model failure to detect the people.

Test Deliverables

- Test Plan: Outlines testing approach, team roles, criteria for test completion, and schedule.
- Test Design Specifications: Details head detection model's function to detect people and communicate with Raspberry Pi.
- Test Case Specifications: Includes tests for varying numbers of people, communication between head detection model and Raspberry Pi, and device control.
- Test Procedure Specifications: Outlines procedures for tests, equipment, steps, and expected results.
- Test Item Transmittal Reports: Documents tested items, including head detection model, Raspberry Pi, and controlled devices.
- Test Logs: Documents test details, results, issues, and date/time.
- Test Incident Reports: Documents issues encountered during testing and steps taken to resolve them.
- Test Summary Reports: Provides a summary of test results, issues, and overall success.

Test Input and Output Data:

- Input data: The input data includes data used to train and test head detection model, such as images of classroom environments with varying numbers of people.

- Output data: The output data includes the number of people detected in the class and the status of the devices controlled by the Raspberry Pi.

Testing Tasks

The following tasks need to be accomplished to carry out the testing activity:

- Develop a test plan.
- Create test cases.
- Produce functional specifications.
- Ensure that the testing environment is set up and ready for use.
- Execute the tests.
- Prepare a detailed summary report of the testing results.

Environmental Needs

To prepare the testing environment, it's necessary to input some test data, including user and administrator information like names and passwords. Additionally, we must ensure that all the hardware components, such as the Raspberry Pi, camera, sensors, and wires, are properly connected to the system and powered on.

Responsibilities

- The role of the Test Manager involves facilitating the testing project, providing necessary training when required, solving any potential risks to the team, and providing for the environmental needs.
- The role of the Tester is to provide the test items, execute test cases, and to be committed to the expected completion date and required level of quality.

Staffing and Training Needs

- Testing should be done by three testers. All testers should know the working mechanism of the system and have basic knowledge of writing test cases and reporting bugs.

Schedule

- Testing will take place 2 weeks prior to the launch date.
- First week should include creating test plan, creating test cases, and setting up the testing environment.
- The second week should include executing test cases, reporting bugs, and writing a report of the testing results.

Risks and Contingencies

- If the pre-testing requirements are not completed within 1 week, it could delay bug fixes and final testing.
- If the testers don’t have a basic understanding of the system, testing could be delayed or not conducted properly.

Approvals

- Both the test manager and the team leader must agree on a testing plan and completion of the testing project and decide when it is ready to progress to the next step.