SE 3XA3: Test Plan
Ohm: Resistor Scanner

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Contents

List of Tables

List of Figures

Table 1: **Revision History**

Date	**Version**	**Notes**
Date 1	1.0	Notes
Date 2	1.1	Notes

1 General Information

1.1 Purpose

This document will describe the testing procedure used to ensure the correct functionality of Group 4's 3XA3 Project, Ohm. While the implementaion of the project is not complete, it is important to have plan tests that verify that the project complies with the specifications and requirements set out in the SRS. These tests are necessary in order to produce a high quality end product, as well as track and manage the progress of the group.

1.2 Scope

The tests prescribed in the test plan should verify the efficacy of the resistor band detection, the colour selection and the resistor body detection (note: the resistor body detection has not yet been implemented).

1.3 Acronyms, Abbreviations, and Symbols

Table 2: **Table of Abbreviations**

Abbreviation	**Definition**
Abbreviation1	Definition1
Abbreviation2	Definition2

Table 3: **Table of Definitions**

Term	**Definition**
Term1	Definition1
Term2	Definition2

1.4 Overview of Document

The Test Plan will contain five main sections excluding this introductory one, as well as an appendix.

2 Plan

2.1 Software Description

Ohm will allow users with a desktop computer or smartphone equipped camera to determine the resistance of a standard 4-band resistor by placing it within the camera frame. The software will, using Opencv, detect and read the colour bands of the resistor automatically to determine it's resistance. This software will be implemented in Java.

2.2 Test Team

All members of Group 4, Jonathan Brown, Graeme Crawley, and Ryan Marks will be responsible for testing components of the application as well as the application as a whole.

2.3 Automated Testing Approach

2.4 Testing Tools

JUnit 4 will be the tool for testing individual modules of the software.

2.5 Testing Schedule

INTSERT TABLE HERE

See Gantt Chart at the following url ...

3 System Test Description

3.1 Tests for Functional Requirements

3.2 Tests for Functional Requirements

3.2.1 User Input

Resistor Scanning

1. test-id1
   Type: Functional, Dynamic, Manual, Static etc.

Initial State: App is open, camera is on

Input: Camera is pointed at resistor in incorrect orientation

Output: No output

How test will be performed: The user will point the camera at a resistor without lining up the red line on the app to intersect the four bands of the resistor.

2. test-id2
   Type: Functional, Dynamic, Manual, Static etc.

   Initial State: App is open, camera is on

   Input: Camera is pointed at resistor in correct orientation with red line crossing through first stripe from either side

   Output: No output

3. test-id3
   Type: Functional, Dynamic, Manual, Static etc.

   Initial State: App is open, camera is on

   Input: Camera is pointed at resistor in correct orientation with red line crossing through two stripes from either side

   Output: No output

4. test-id4
   Type: Functional, Dynamic, Manual, Static etc.

   Initial State: App is open, camera is on

   Input: Camera is pointed at resistor in correct orientation with red line crossing through three stripes from either side

   Output: No output

5. test-id5
   Type: Functional, Dynamic, Manual, Static etc.

   Initial State: App is open, camera is on

   Input: Camera is pointed at resistor in correct orientation with red line crossing through four stripes from either side

   Output: Resistance value is displayed on the screen

   How test will be performed:

3.2.2 Area of Testing2

...

3.3 Tests for Nonfunctional Requirements

3.3.1 Area of Testing1

Title for Test

1. test-id1
   Type:

   Initial State:

   Input/Condition:

   Output/Result:

   How test will be performed:

2. test-id2
   Type: Functional, Dynamic, Manual, Static etc.

   Initial State:

   Input:

   Output:

   How test will be performed:

3.3.2 Area of Testing2

...

3.4 Tests for Nonfunctional Requirements

3.4.1 Area of Testing1

Title for Test

1. test-id1
   Type:

   Initial State:

Input/Condition:

Output/Result:

How test will be performed:

2. test-id2

   Type: Functional, Dynamic, Manual, Static etc.

   Initial State:

   Input:

   Output:

   How test will be performed:

3.4.2 Area of Testing2

...

4 Tests for Proof of Concept

4.1 Band Identification

Title for Test

1. PC-BI-1

   Type: Functional, Dynamic, Manual, Static etc.

   Initial State: Software not running

   Input: Run Command

   Output: Software displays static image of resistor with no bands selected.

   How test will be performed:

2. PC-BI-2

   Type: Functional, Dynamic, Manual, Static etc.

   Initial State: Software running, no axis selected

   Input: Select axis directly across resistor body.

Output: A ring centered around

How test will be performed:

4.2 Area of Testing2

...

5 Comparison to Existing Implementation

6 Unit Testing Plan

JUnit4 will be used to perform unit testing for this application.

6.1 Unit testing of internal functions

Unit testing will be performed on any independant functions where comparison to expected results is possible. This project features several prime candidates for such testing: expected band locations, and expected colour selection. Once this unit testing is performed these individual modules can be combined and dyamic and functional testing can be performed to verify the final resistance output. Modules featuring image processing (the majority of them) will be tested using a stub to pass them static images in place of camera input. The application behaves quite linearly, allowing for complete test coverage.

6.2 Unit testing of output files

This project does not feature any output files.

7 Appendix

This is where you can place additional information.

7.1 Symbolic Parameters

The definition of the test cases will call for SYMBOLIC_CONSTANTS. Their values are defined in this section for easy maintenance.

7.2 Usability Survey Questions?

This is a section that would be appropriate for some teams.