Table 1: Revision History

Date	**Developer(s)**	**Change**
2016-09-26	Ryan	Created template with section headings
...	...	...

SE 3XA3: SRS
ohm Resistor Scanner

Team # 4, ohm
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1 Project Drivers

1.1 The Purpose of the Project

The purpose of this project is to re-implement the open source package "AndroidResistanceScanner" by allowing a user to scan a standard resistor and output the resistance value to the screen, and then build upon that previously existing application by creating additional features and putting a greater emphasis on formal docuementation.

1.2 The Stakeholders

The main stakeholders for this application are the development team and our eventual users. However there are a number of different use cases for this application, so we will divide our users into the broad demographics of electronics beginners, colorblind hobbyists, and power users. Beginners are people new to electronics who dont know how to read resistor color codes and dont yet own a resistance meter to allow for measuring resistance rather than reading it. Another group that has difficulty reading resistor color codes are colorblind hobbyists. This particular set of people would benefit greatly as without this application they would have to rely on the word from those who are not color blind, or from the matching of shades. Finally power users who want to quickly find a resistor without manually searching, possibly with other use cases.

2 Project Constraints

2.1 Mandated Constraints

2.2 Naming Conventions and Terminology

2.3 Relevant Facts and Assumptions

3 Functional Requirements

3.1 The Scope of the Work

3.1.1 The Current Situation

Electronics hobbyists will use resistors in almost any project they encounter. Currently there are a few ways they can identify the resistance of the resistors, these methods are as follows:

- Manual Method

  The resistor colour code was developed to allow the ease of reading for people. With practise, people can quickly identify resistors by the colour bands, however this is less helpful when searching for a specific resistor. Additionally building proficiency takes time and can be a frustrating slowdown for a beginner, especially if they misidentify components during assembly.

- Organizational Method

  By storing resistors according to their resistances it becomes a trivial exercise to find a resistor of a given resistance. This method is clearly superior in professional environments where very large numbers of resistors are on hand.

- Meter Method

  The current technique of choice for individuals who cannot discern colour codes is to measure a given resistor with a resistance meter. This technique is immediately faster than reading colour bands, however it is somewhat laborious to have to pick up and test individual components.

3.1.2 The Context of The Work

This work has a very limited context, it serves as a tool to any person using colour band resistors who feels it useful. There are not other subject matter domains that need to be understood or integrated with, beyond the resistor colour codes.

3.1.3 Work Partitioning

This work does not need to respond to any external business events, this section is not relevant

3.2 Business Data Model & Data Dictionary

3.3 The Scope of the Product

3.3.1 Product Boundary

3.4 Functional Requirements

4 Non-functional Requirements

4.1 Look and Feel Requirements

1. The application shall have a very minimal user interface focussed primarily around the view of the camera.

4.2 Usability and Humanity Requirements

1. The application shall be easily usable by people aged 8 to 70.
2. The application shall be suitable for a user with a minimal understanding of resistor colour codes and very little training.
3. The application shall not require the understanding of any particular language as all options symbolically.
4. The application shall be usable by those with colour blindness.

4.3 Performance Requirements

4.3.1 Speed and Latency Requirements

1. The application should launch in no more than 5 seconds.
2. The algorithm used to process the income stream of images should be able to process between 15 and 30 images per second on a standard mobile phone.

4.3.2 Precision or Accuracy Requirements

1. The application should identify an input as the correct class of resistor 95% of the time.

4.3.3 Reliability and Availability Requirements

1. The application will not require internet access.

4.4 Operational and Environmental Requirements

4.4.1 Expected Physical Environment

1. The application will not require internet access.

4.4.2 Productization Requirements

1. The application will not require internet access.

4.4.3 Release Requirements

1. The application will not require internet access.

4.5 Maintainability and Support Requirements

1.

4.6 Security Requirements

1.

4.7 Cultural Requirements

1.

4.8 Legal Requirements

1.

5 Project Issues

5.1 Open Issues

5.2 Off-the-Shelf Solutions

5.3 New Problems

5.4 Tasks

5.5 Migration to the New Product

5.6 Risks

5.7 Costs

The project faces no components that pose any cost to the development team.

5.8 User Documentation and Training

5.9 Waiting Room

5.10 Ideas for Solutions