**Software Requirements**

**Specification**

**for**

**Spot**

**Version 1.0 approved**

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# Revision History

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Date** | **Reason For Changes** | **Version** |
|  |  |  |  |
|  |  |  |  |

# Introduction

## Purpose

## The purpose of this project is to serve as an educational tool for computer education. The project aims to solve the problem of being unknowledgeable and unfamiliar to certain objects that pertains to computer education. Spot application is intended for visually impaired who were trying to reach out and discover the growth and usage of technology but aside that, we thought that the project could also be applied to anyone who are into computer education.

## Document Conventions

|  |  |
| --- | --- |
| **Convention** | **Description** |
| Bold text | To emphasize the main or important part of the paper |
| Bigger font size | To emphasize the main or important part of the paper |

## Intended Audience and Reading Suggestions

This document is intended for the developers, project manage and the whole team it is also for the panelist that will be present during the final defense.

## Product Scope

The project developers formulated the scope and limitations of the project to identify the boundaries of the application. The scope of the project includes the following:

· The application will be able to gather information through narrowing searches and finding the most viewed results

· The application will be able to convert the displayed text into a speech module where target users will be able to hear it.

· The application will enable visually impaired people, who are the main target of the application; find out what subject is in front of them and harvest information about that subject.

· The application can save recent scans of a subject for offline use.

# Overall Description

## Product Perspective

The project aims to solve the problem of being unknowledgeable and unfamiliar to certain objects that pertains to computer education. Spot application is intended for visually impaired who were trying to reach out and discover the growth and usage of technology but aside that, we thought that the project could also be applied to anyone who are into computer education.

## Product Functions

* Identify a certain object related to computer education
* Gives information about the object identified

## User Classes and Characteristics

The java web application will be managed by the project team while the user side of the application can be used by people that knows how to use mobile phones and they can be used often regardless of technical expertise and for the educational background should be those people in the primary level because they already know how to read and understand what they are reading.

## Operating Environment

The application is running with the help of an A.I. or Artificial Intelligence from OpenCV (Open source computer vision). The application will be using the SIFT (Scale-Invariant feature transformation) and FAST (Features from Accelerated Segment Test) algorithm, these algorithms will be used for image matching which will came from the user and from them application’s database. The application will also be using a java web application connected to MySQL which will serve as the local host or admin side of the application. The application can only be used in Android phones.

## Design and Implementation Constraints

The application’s default language will be English. There would be unknown information or object, if the object presented is not familiar to the application and/or there are no same images coming from the application’s database. For the application to be used, the user needs to turn on and have Wi-Fi or 2G/3G/4G data connection.

## User Documentation

All you need to do is to point the camera to an object related to technology that you want to identify and it will automatically scan what it looks like. The information will not only focus on the visual details but it will also give its name, description, usage of the object, and a brief history about it.

## Assumptions and Dependencies

Spot runs with the use of A.I. or artificial intelligence which is powered or came from OpenCV (Open source computer vision) API. The application will be using the SIFT (Scale-Invariant feature transformation) and FAST (Features from Accelerated Segment Test) algorithm, these algorithms will be used for image matching which will came from the user and from them application’s database.

# External Interface Requirements

## User Interfaces

The user interface includes the activity splash screen after running the application, there will be a match label button after clicking the button it will proceed to the camera, after taking the picture the application will match the picture taken by the user to those in the database. After that it will provide the information of the picture.

## Hardware Interfaces

The hardware components could be the phones that run in android 4.4 Kitkat android os and above because the application is created under it. The data interaction includes the point where the application gathers results in from the database.

## Software Interfaces

The database of the application will be connected with java web application, the operating system of the phones where the user should run the application is android 4.4 Kitkat and above. The tools that have been used in the application is OpenCV together with the external libraries used in the development of the application.

## Communications Interfaces

## The application uses java web application connected to the MySQL database, there would be no communication security or any issues with the data transfer rates, encryption and synchronization mechanisms.

# System Features

## Match Label

Description and Priority

This will allow the user to take photos that will be matched to those who are in the database

4.1.2 Stimulus/Response Sequences

This will trigger when the user presses the match label button.

4.1.3 Functional Requirements

Camera permission should be allowed because this will proceed to the camera itself

## Information display

Description and priority

This will allow the application to display the information that corresponds to the photo

4.1.2 Stimulus/Response Sequences

This will be triggered after the user takes photos.

4.1.3 Functional Requirements

The application will gather data from the database to provide the information to be displayed.

# Other Nonfunctional Requirements

## Performance Requirements

The performance requirements for the application are android mobile phones that have an operating system of android 4.4 KitKat and the camera permissions being enabled by the user during the first run of the application so that they will be able to run the application

## Safety Requirements

The phones are prone to stealing because for an instance one person should get it out of their pockets to be able to use it, external policies and regulations of school about using mobile phones are still effect especially without the consent of the teacher or when it is not required.

## Security Requirements

There are no security or privacy issues that surround the application.

## Software Quality Attributes

Some software quality attributes that will be present in the application will be the reliability, robustness and the availability of the application this will provide the ease of use with the ease of gathering information and provide adequate learning

## Business Rules

The application will be performing under the specific circumstances as a learning supplement for people who are in school. They can also be used by teachers and students and can serve as a learning or teaching material for them.

# Other Requirements

The other requirements that the app need is a java web application that is connected to MySQL. There are no other internalization requirements except the camera permission that the user will allow during the first run of the application.