SRS Document

**1) INTRODUCTION**

The following subsections of the Software Requirements Specifications (SRS) document provide an overview of the entire SRS.

**1.1) Document Purpose**

The purpose of this document is to show the software requirements of the Image classifier software. The functionality and scope of this software are described in this SRS document.

**1.2) Product Scope**

The Image Classifier aims at helping the user to classify the images based on the object present in it.

The major benefits of this software are :

* It is a unique software which helps to classify objects without any human intervention.
* It has a wide variety of modules.
* By just few user inputs, user can identify different objects and check their accuracy percentage.

**1.3) Intended audience and document overview**

This SRS document is intended for developer, professors, students for reading. The rest of the document contains the functional and nonfunctional requirements of Image classifier software.

**1.4) Definitions, Acronyms and Abbreviations**

CNN – Convolutional Neural Networks

SRS – Software Requirements Specifications

**1.5) Document Conventions**

The entire document is in Times New Roman font. The headings are numbered 1,2,3 …. And so on. Both headings and subheadings are in bold.

* Main title: Font Times New Roman and size 14
* Subtitles: Font Times New Roman and size 14
* Content: Font Times New Roman and size 12

**1.6) References and acknowledgements**

* Software Engineering book written by Rajib Mall
* [www.slideshare.net](http://www.slideshare.net/)

**2) OVERALL DESCRIPTION**

Describes the general factors that affect the product and its requirements. This section does not state specific requirements. Instead it provides a background for those requirements, which are defined in section 3, and makes them easier to understand.

**2.1) Product Perspective**

It is aimed at replacing the tedious manual work required to classify images based on their contents. The system will use machine learning algorithms to learn from a given dataset and therefore able to identify subsequent image inputs. This will thus be helpful to reduce time and complexity of classifying images.

**2.2) Product Functionality**

Some major product functionalities of the system are as follows:

* Output of classified image based on the content.
* Accuracy of classification in percentage.

**2.3) Users and Characteristics**

Primary users of the system will be employees working in company, students, staffs, managers. Very little technical expertise is required for using the software.

Educational level of the Image Classifier - Low

Experience of Image Classifier - None

Technical Expertise - Little

**2.4) Operating Environment**

Open Source, Linux.

**2.5) Design and Implementation Constraints**

High Performance, User-friendly, very fast response time.

**2.6) User Documentation**

A document containing a logical sequence of steps to run the software will be provided for help.

**2.7) Assumptions and Dependencies**

Assume that the input image provided by the user will be present within the system. If not, then system will notify an alert.

**3) SPECIFIC REQUIREMENT**

**3.1) External Interface Requirements**

**3.1.1) User interfaces**

Input: To be taken through the terminal

Output: The image of the object that is specified as input will be detected and classified in a given picture.

**3.1.2) Hardware Interfaces**

The system shall run on:

* Operating System: LINUX
* Scripts which support python3.0
* Compiler: GNU
* Interpreter: The Python interpreter is usually installed as */usr/local/bin/python3.6* on those machines where it is available

**3.1.3) Software Interface**

The software requirements are:

* API: TensorFlow
* Library: TensorFlow
* Programming Language: Python

**3.1.4) Functional Requirements**

* System takes input
* System understands the input and identifies input object in image
* System will classify different objects in an image
* Display the Result

**4) NON-FUNCTIONAL REQUIREMENTS**

Non-functional requirements define the needs in terms of performance, logical database requirements, design constraints, standards compliance, reliability, availability, security, maintainability and portability.

**4.1) Performance Requirements**

Performance requirements define acceptable response times for system functionality.

* The load time for the software shall take no longer than five seconds.
* The output time depends on the size of the dataset.
* The system shall consume very little of primary memory.

**4.2) Security Requirements**

The software user will have full access to the software functionalities.

**4.3) Software Quality Attributes**

**4.3.1) Software Compliance**

There shall be consistency in variable names within the system.

**4.3.2) Reliability**

Specify the factors required to establish the required reliability of the software system at time of delivery.

**4.3.3) Availability**

The system shall be available 24\*7.

**4.3.4) Maintainability**

The Image Classifier is being developed in Python. Python is a multi-paradigm programming language with object oriented programming support and therefore shall be easy to maintain.

**4.3.5) Portability**

The Image Classifier shall run in any linux environment that contains python3.0 support.