Experiment 2

Aim:

To understand an SRS of Object Detection Solution.

Theory:

A software requirements specification (SRS) is a detailed description of a software system to be developed with its functional and non-functional requirements. The SRS is developed based the agreement between customer and contractors. It may include the use cases of how user is going to interact with software system. The software requirement specification document consistent of all necessary requirements required for project development. To develop the software system, we should have clear understanding of Software system. To achieve this, we need to continuous communication with customers to gather all requirements.

There are a set of guidelines to be followed while preparing the software requirement specification document. This includes the purpose, scope, functional and nonfunctional requirements, software and hardware requirements of the project. In addition to this, it also contains the information about environmental conditions required, safety and security requirements, software quality attributes of the project etc.

In here Object Detection Solution is used as an example to explain a few points.

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SRS For Object Detection Solutions:

1. Introduction:
    a. Purpose: Purpose of creating an Object Detection Solution is to find and gather information of things in our day to day lives, and to automate, and bring precision in various other aspects of industrial life.
    b. Document Convention: We have gathered various labelled images to train the data, the results are stored in csv files as well as JSON files.
    c. System Overview: This Project is shipped under Apache License 2.0, the right remains to the owner, and whenever this Solution be used, the author must be cited. It's meant for Educational Purpose only.
    d. References: https://en.wikipedia.org/wiki/Object_detection, https://hal.inria.fr/file/index/docid/548512/filename/hog_cvpr2005.pdf, https://www.cv-foundation.org/openaccess/content_iccv_2015/papers/Girshick_Fast_R-CNN_ICCV_2015_paper.pdf
2. Overall Description:
    a. Production Perspective: An Object Classifier that is actually a pretrained neural network, that detects and annotates objects in real time, with various light modes (Hardware Dependent).
    b. Operating Environment:
        i. NoSQL database
        ii. Neural Network Model
        iii. Data
        iv. Computer Vision API
    c. D&I Constraints:
        i. Get Data, and Train the model
        ii. Save the model & validate
        iii. Wrap around a UI to make it usable to general public
3. System Features:
    a. Functional Requirements: The Functions that the Solution may perform are, but not limited to:-
        i. Object Detection
        ii. Reading Texts from objects
        iii. Create a 3-D model from a Real Life Object
4. External Interface Requirements:
    a. User Interface: A simple Responsive web app, using ReactJs, Angular, etc.
    b. Hardware Interface: A Camera, and a display attached to it, to sense & provide the output.
    c. Software Interface: An environment to Deploy Pythonic apps, and Responsive web applications.
5. Non-Functional Requirements:
    a. Performance Requirements:
        i. High Computing workstations are required.
    b. Safety Requirements:
        i. Encryption Required so that anyone unknown isn't able to access the data.
    c. Software Quality Attributes:
        i. User can pass an object to the camera.
        ii. The recognition will scan the data.
        iii. Output will be provided to the user.

Conclusion:

The SRS for Object Detection System was made with the following rules specified above.