### Software Requirements Specification

### Version 1.0

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DESCRIPTION

This project is a standalone application and focuses mainly on developing an efficient algorithm. It intends to identify objects from a video and analyzing on the basis of features of identified objects .Specifically it will identify the running cars from the video of traffic captured on roads.

Algorithm component view

1. Data Acquisition
2. Designing Algorithm

3. Applying Algorithm

4. Data Analysis

User Characteristics

This project offers user to make an analytic decision on the basis of features of identified objects. User can implement the algorithm periodically on different set of inputs to make a decision as and where required.

Constraints

This project mainly focuses on designing of algorithm efficiently. It does not offer Graphical User Interface for the user.

Assumptions and Dependencies

This project is not buffering input continuously it makes use of recorded video specifically accepted by the algorithm in .mj2 format. The efficiency of an algorithm depends on the quality of input provided.

EXTERNAL RESOURCE REQUIREMENTS

User Interface

As this project intends to design an algorithm there is no user interface provided.

Software Interface

The algorithm executes on a PC equipped with licensed MATLAB7.10.0 (R2010a).

Hardware Interface

It requires any intel or AMD x86 processor supporting SSE2 instruction set it requires 1GB for MATLAB only, 3-4GB for a typical installation. It expects atleast 2048MB RAM. The operating system can be windows, vista, windows XP, windows7 and all higher versions.

Communications Interface

The user interacts with the algorithm from the main MATLAB window.

FUNCTIONAL REQUIREMENTS

This section provides two views of functional requirements of an algorithm.

* The first view provides a primary list of functional requirements. This list is organized sequentially.
* The second view provides a list of functional requirements as grouped according to a component.

Primary list of functional requirements

<Req\_1>

The algorithm will take the input video in .mj2 format.

<Req\_2>

The algorithm will explore video using inbuilt MATLAB functions.

<Req\_3>

The algorithm will detect the objects and identify the features of an object.

Functional Requirement Component View

Data Acquisition

The algorithm will make use of inbuilt functions provided in image processing tool box.

Designing Algorithm

The algorithm designing will go in phases beginning with image segmentation.

Applying Algorithm

After a successful data acquisition the designed algorithm will be applied.

Data Analysis

The results can be visualized and analyzed depending on users requirement.

USE CASE VIEW OF REQUIREMENTS

|  |
| --- |
| Use case name: User provides video as an input |
| Requirement(s) explored: |
| Actor: User |
| Precondition: Video should be in .mj2 format |
| Trigger: Changing the path of input file in matlab code |
| Main course of action: Video will be read by the algorithm |

|  |
| --- |
| Use case name: User Runs the algorithm |
| Requirement(s) explored: |
| Actor: User |
| Precondition: Data acquisition is successful |
| Trigger: Clicking run button on MATLAB window using mouse |
| Main course of action: The algorithm will be applied to the input video provided |

|  |
| --- |
| Use case name: User visualizes data |
| Requirement(s) explored: |
| Actor: User |
| Precondition: Successful application of algorithm |
| Main course of action: The animation of tagged cars will be displayed |

Design Constraints

Availability

The code is available to run after designing and coding

Security

There are no security issues

Maintainability

There are no maintain issues