Use Cases and Logical Architecture

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- Project Title: Traffic Analysis System

Section 1: For Each Use Case:

Use Case ID	001
Title (goal)	Login to the Analysis System
Primary Actor	Officer, Admin
Story	The officer or Admin will open the Application. Once opened the Officer / Admin will then be prompted to enter their username and password.
Pre-Condition	Username and password exist in the database, which allows the actor to login.
Basic Flow	On submission of a successful username and password the application will then progress to the dashboard.
Alternative Flow	On Submission of an incorrect username and password the application will prompt the user that the username or password is incorrect and encourage them to try again.

Use Case ID	002
Title (goal)	Create account on the Analysis System
Primary Actor	Officer, Admin
Story	The officer or Admin will open the Application. Once opened the Officer / Admin will then be prompted to enter their username and password or have the option to create an account. All fields will be mandatory The account application will have the following form: • First Name • Last Name • Date of Birth • Area of Work • Username • Password • Password Confirmation • Email On page two the application will then request the user to verify their email.
Pre-Condition	
Basic Flow	On submission of a successful application for an account, the application will request the email be verified by entering a code which is sent directly to the user. On submission of the correct code then progress to the dashboard.
Alternative Flow	On Submission of an incorrect criteria the application will highlight the fields and notify the user that the fields are a requirement. If the email is not verified within 10 minutes the created application should get automatically deleted. If the Username entered or email entered exists in the database, a notification will be displayed informing the actor that the information already exists.

Use Case ID	003
Title (goal)	Utilise Analytical Dashboard on Analysis System
Primary Actor	Officer, Admin
Story	The Main page “Home-Page” of the application will allow a logged in user to view the Dashboard. The Analytical Dashboard will display operational and strategic data. The Dashboard will offer drill-down functionality. Dashboard should display: • Traffic Status Meter – (Heavy, Average, Clear). • Team members can view or hide daily tasks. • Camera Status • Statistics & Data Visualisation • Live View
Pre-Condition	Successful Login
Basic Flow	The user will have the capability of viewing the above display and have the drill-down functionality available for them.
Alternative Flow	

Use Case ID	004
Title (goal)	View Website Portal
Primary Actor	Officer, Admin, Public
Story	The website portal will allow access to all. The website will have the following pages: • Home • About • Services • Downloads • Contact
Pre-Condition	
Basic Flow	All users will have access to the website pages and can navigate freely through the website.
Alternative Flow	

Use Case ID	005
Title (goal)	View Website Portal (Homepage)
Primary Actor	Officer, Admin, Public
Story	The website portal (Homepage) will have the following: • Company Logo • Brief Description • Traffic Status • Portal to enter the application. • Weather conditions
Pre-Condition	
Basic Flow	
Alternative Flow	

Use Case ID	006
Title (goal)	View Website Portal (About)
Primary Actor	Officer, Admin, Public
Story	The user can view the about page via the Tab on the menu of the Website. About will describe the goals of the project.
Pre-Condition	
Basic Flow	
Alternative Flow	

Use Case ID	007
Title (goal)	View Website Portal (Services)
Primary Actor	Officer, Admin, Public
Story	The user can view what services are available via the website services page. When they click the link for the system they will enter the application and will be prompted to enter their login details.
Pre-Condition	
Basic Flow	
Alternative Flow	

Use Case ID	008
Title (goal)	View Website Portal (Downloads)
Primary Actor	Officer, Admin, Public
Story	The user can view what Downloads are available via the website Download page. The download will present the user with Datasets which are created by the application and will be available to download which might aid navigational products like Google Maps in predicating how long a journey would take with heavy traffic.
Pre-Condition	
Basic Flow	
Alternative Flow	

Use Case ID	009
Title (goal)	View Website Portal (Contact)
Primary Actor	Officer, Admin, Public
Story	This will be a generic contact form which requests: • First name -required field • Last Name -required field • Email -required field • Phone • Message -required field
Pre-Condition	
Basic Flow	
Alternative Flow	

Use Case ID	010
Title (goal)	Identify automobile
Primary Actor	Developer
Story	The application is required to Identify a type of car i.e. Car, Truck, Van, Bike.
Pre-Condition	
Basic Flow	
Alternative Flow	

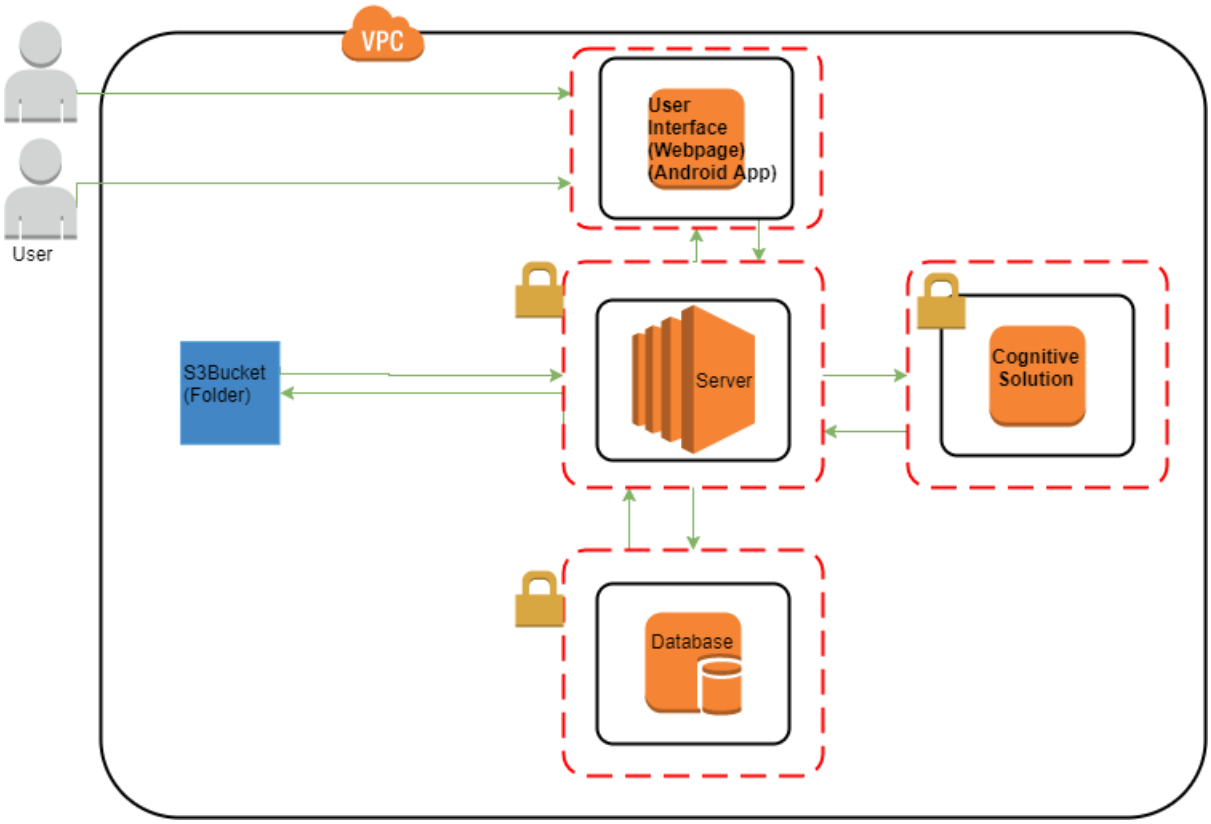
Use Case ID	011
Title (goal)	Server
Primary Actor	Developer
Story	Work on Server to connect the elements to one another.
Pre-Condition	
Basic Flow	
Alternative Flow	

Use Case ID	012
Title (goal)	Identify speed of automobile
Primary Actor	Developer
Story	The application is required to perform an analysis on the speed of the vehicle. When there is a change in speed as in if cars start travelling slower or stop completely then the user should receive a notification also the website should be updated to traffic is heavy.
Pre-Condition	
Basic Flow	
Alternative Flow	

Section 2: Prototype Schedule, Winter Semester 2017

Iteration #1, Complete 25/10/2017	
Iteration #2 Complete 15/11/2017	
Iteration #3 Complete 13/12/2017	

Section 3: Logical Architecture



Logical Architecture Discussion

1. The picture appears in the S3Bucket folder after being taken from the remote Internet Protocol camera. The image should be identified by the time stamp on which it was taken.
2. The server monitors the folder and then takes the picture with its timestamp and sends to cognitive solution. Detects the vehicles.
3. Cognitive solution performs an analysis on the image and detects the type of vehicle. Send back to the server the type and time.
4. The Server then sends the Type and timestamp to the storage in the Database.
5. Speed is then worked out in the application by accessing the database via the server.
6. Results are displayed in the drill down dashboard option in the User Interface.
7. Website is updated with traffic status.
8. When Traffic is heavy the threshold alarm goes off and notifies the users.