

# Project Research Document

## Traffic Management System

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The research document should provide detailed information on the project, its scope and aims, prospective users, and possible technologies that will be used for implementation.

The research should include a review of the state of the art in the application area.

More specifically the research document should provide information on the following Topics:

## Section 1 Detailed Discussion x 1 Page

The project is based on software looking at a video, analysing the video and being able to recognise that a moving object in the video is a car also analysing the motion of the car in the video and being able to recognise that a car is slowing down or stopping. The application will be cloud based which will mean that it can be accessed through a web browser and an android application will ensure the user is kept up to date with notifications on the traffic.

The reasoning behind the application would be that the user would receive a notification that any unnecessary heavy traffic / accidents / cars gathering etc on the road.

There will be different users for the application and different levels of interaction being provided for the users. The Priority user would be the "Officer Role" which would be played by the user that would receive the notifications also they will be monitoring the statistics produced by the application. There would also be the "Public Role" which will be very basic and will not require a login.

Users:

The Officer Will Enter the web page and login to the portal. Once logged in the user can watch the video playback and see the software identifying cars, Trucks, Busses, Vans and estimating the speed they are travelling, Also the when there are many cars gathered an alert will be triggered to notify the Officer. When the Officer is on the mobile application they will have a dashboard, they can look at to keep up to date with the main application.

## Section 2 Existing Applications in this domain x 1/2 Page

Name	Difference
iTraffic	iTraffic is a Real-Time information application that utilises Satellite, Predicts Traffic patterns, Uses GPS technology and Road side cameras to validate its information. Cellular floating vehicular data. Strong security. Uses o2s cellular technology bouncing off masts and plotted on a user-friendly interface and locates where the phone is in relation to the road.
smart traffic management system simulation	High level architecture. The system controls traffic signals along the emergency vehicles travel path. This is achieved remotely from the Traffic Management Server(TMS) Powered by IBM Bluemix. Basically, Smart Traffic Management System Simulation controls the traffic signals and calculates the distance from the emergency vehicle and signal and changes the signal to green when the vehicle is near the light.

## Section 3 Platform, Technologies and Libraries x 1/2 Page

The Project will need to utilise the following:

- Video Api – Intelligent Video Processing. Detect (Motion, Faces, Tracking)
- C#, Naked Object Framework 7, SQL,
- Microsoft Visual Studio – IDE
- Microsoft Azure
- Android Studio
- Windows Presentation Services

## Section 4 The risks x 1 Page

What are the main risks to the project? (ie, are you depending on 1 library to provide key functionality?)

1. The first main risk would be that Cognitive Services – Video API may not be able to support a live stream. Currently Video API can analyse a 100MB video but has not got the capability of analysing a live feed.
2. Second Risk is that Microsoft Azure transactions on the cloud may cost too much per month.
3. Third Risk is that the Application will need to be on the Cloud for access.
4. Fourth risk is that access to a camera facing a road would be needed.