**TRAFFIC MANAGEMENT**

**Abstract:**

In 2014, 54% of the total global population was urban residents. The prediction was a growth of nearly 2% each year until 2020 leading to more pressure on the transportation system of cities.

Cities should be making their streets run smarter instead of just making them bigger or building more roads.

This leads to the proposed system which will use a Raspberry pi and Camera for tracking the number of vehicles leading to time-based monitoring of the system.

Stable urbanization trends lead to the concentration of the population in large cities, as well as the expansion of the car fleet, while there is a colossal lag in the development of transport infrastructure.

This article is dedicated to exploring traffic management and the ways in which it can be performed. Various approaches to defining a transport system were explored, and the elements of a transport system were presented.

Existing practices of traffic management system implementation in cities around the world were reviewed.

We formulated the main purposes of using traffic management and elements of traffic management systems. Based on that, a traffic management system architecture model was created.

**INTRODUCTION :**

A smart traffic management system utilizing camera

data, communication and automated algorithms is to

be developed to keep traffic flowing more smoothly.

The aim is to optimally control the duration of green

or red light for a specific traffic light at an

intersection.

The traffic signals should not flash the same stretch of

green or red all the time, but should depend on the

number of vehicles present. When traffic is heavy in

one direction, the green lights should stay on longer;

less traffic should mean the red lights should be on

for a longer time interval.

This solution is expected to eliminate inefficiencies at

intersections and minimize the cost of commuting

and pollution.

Traffic management is the organisation, arrangement, guidance and control of both stationary and moving traffic, including pedestrians, bicyclists and all types of vehicles.

Its aim is to provide for the safe, orderly and efficient movement of persons and goods, and to protect and, where possible, enhance the quality of the local environment on and adjacent to traffic facilities.

This book is an introduction to traffic management, written in laypersons' language, and assuming no background knowledge of the subject.

Various basic traffic characteristics relating to road users, vehicles and roads, and traffic regulation and control, are discussed, including some traffic volume and traffic flow considerations relevant to traffic management.

**Objective:**

The objectives of this policy are:

a. The establishment of appropriate traffic flow and access into and through the Town of Cottesloe, which maximises road safety and local amenity.

b. The establishment of a procedure from which necessary traffic management works are undertaken in a cost effective and equitable manner.

c. Integration of the traffic management policy into the Council's Strategic Plan.

The primary goal of traffic management is to make the movement of goods and persons as efficient, orderly, and safe as possible. This applies to everyone who uses the roads, not only operators of motor vehicles but also pedestrians and cyclists.

**Requirements:**

| **Hardware:** |
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| Connected CCTV cameras. |
| Connected traffic light systems.  Smart toll gates / electronic road pricing gantry systems.  Edge devices — chips on edge nodes for faster data processing.  IoT road sensors including:   * RFID (radio frequency identification) or AIDC (automatic identification and data collection) tags. * Temperature sensors.   Air quality sensors. |

| **Software:** |
| --- |
| * Big data and predictive analytics. * Cloud computing and edge processing capabilities: * Traffic data platform/data lake. * Cloud-based traffic control systems. * Geographic information systems (GIS). * All supporting transportation apps. * AI/ML: * Computer vision * Optical character recognition (OCR) * Reinforcement learning. * Location-based services. * **Design:** * Overview of traffic management systems.  |  | | --- |  * Fig: Desing of Traffic Management System * + Fig: Traffic management system using IOT * Traffic management system architecture.   + - **Fig;** [**Developing a Traffic Management System Architecture Model**](https://www.researchgate.net/publication/349747363_Developing_a_Traffic_Management_System_Architecture_Model?_tp=eyJjb250ZXh0Ijp7ImZpcnN0UGFnZSI6Il9kaXJlY3QiLCJwYWdlIjoiX2RpcmVjdCJ9fQ)   The improvement of town traffic condition is largely dependent on the modern ways of traffic management and control.  Advanced traffic signal controllers and control system contribute to the improvement of the urban traffic problem.  The intelligent of traffic signal controller that is introduced in this project with powerful function   * **Conclusion:**   In software implementations, should choose clear and understandable the solutions.  Design a traffic light using the state machine is very difficult compare to design using the logic gates.  Verilog HDL (Hardware Description Language) text editor was chosen to write a program code for simulation only to get a timing diagram. This is because it easy to write and understand compare to other language. |
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