

Traffic congestion



Introduction:

Traffic congestion is a critical problem which happens on roads which make traffic busy because roads full of cars and buses. Traffic congestion challenges traffic flow in urban area and is prevented smooth traffic. A growing urban area creates complex problems in daily life with traffic. Congestion phenomenon's can not be terminated only by applying physical constructing such as: build bridge, motorways and increasing road capacity. It is necessary to build technology system for transportation management which is used for control of the traffic phenomenon. Traffic control systems have direct influence on traffic problems which is help to improve traffic flow and reduce traffic congestion. Usually, traffic jams are caused by many reasons such as incidents, works in roads, roads maintenance. Approximately, traffic congestion occurs at peak times in the morning or evening when people are travelling to work. In addition, transportation systems are one of the main reasons causing traffic congestion in some countries. Traffic roads have a direct effect on traffic jams which relate to small ways use or damaged ways (Katathira et al, 1994)

Firstly, when K. Macmillan invented the first cars had proper shape and wooden frame in 1839 which included many types of advantages such as: motion speed; comfort; control; economy; furniture and safety. The Automobiles industry became more popular and necessary for the life and it aimed to improve car's industrial design and create more cars by companies. In the end of 18th century, the first traffic congestion appeared on the old London Bridge which created a serious problem. After that, the London government decided to find way out for this phenomenon which led to the

invention of control system to solve traffic congestion by installing traffic lights on the old London bridge. In addition, the London government added another control system by dividing the London old bridge into two paths, one for vehicles and another for pedestrians (Bellis, 1994).

Transportation problems have been studied by many researchers and many solutions have been proposed to solve it. Improving transportation includes many ways to improve traffic performance in major cities and motorways.

The Government is responsible for improving the efficiency of transportation in cities and highways between cities which reduce traffic problems.

Transportation blockage has a clear influence on economic situation and it causes increased in live cost.

The aim of this paper is to discuss the effects of control systems can reduce traffic congestion, energy consumption and road incidents. It is important to understand the link between traffic congestion and control systems.

However, there are some solutions to decrease their negative effects.

Background

Traffic congestion, definition

Traffic congestion is complex phenomenon which is related to a number of cars on the road at the same times which is hinder motion and need extra time to reach destinations. In fact, traffic congestion is usually recurring or non recurring phenomenon. Always, recurring traffic congestion is appeared by daily event in a certain times which is solved reorganize suitable planning. On the other hand, non recurring traffic congestion is unexpected and unusual event cause by an incident which is suddenly reduced road capacity. In addition, road capacity is one of the main reason cause traffic

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congestion when the number of cars on the road increases than the road capacity. (Logi, 2001)

Control system

Control system is approach to remedy traffic phenomenons by applying technology, programming and tolls. In the end of 18th century, the first control system was applied in London by traffic light which was used to organize traffic motion on London old bridge. A growing in urban area encourage government to invent and apply a new technology has ability to reduce traffic problems which is called traffic control system. The aim of this section is to describe effect traffic congestion by traffic control system because traffic control system has direct influence on traffic problems which is helped to improve traffic flow and solve traffic problems by apply a number of system factors such as: traffic lights; road pricing; travel times; gasoline tax; transit fare and speed limitation.

Literature review

In spite of, the link between control systems and traffic congestion is important; there appear literature dearth which is especially in evidence of appropriate systems. Therefore, there is calculated and experimental evidence. As a result, the relationship between control system and traffic congestion was investigated in 1994 by Shefer which had divided volume over capacity ratio which was used to measure level of traffic congestion. Then after, in 1997 the relationship between traffic congestion and control system was studied by Shefer and Rietveld which is used sample hypothesis and provide experiment evidence by comparing traffic congestion level when peak hours the traffic congestion level was less than peak hours in usually

days. Further study, by Noland and Quddus in 2005 who was used link between traffic congestion and control system by using spatial analysis manor in London. This study achieves lower traffic congestion by applying several types of control systems (Wang et al, 2009).

Type of problems

The most type of problem that is happening in big cities is traffic congestion. Traffic congestion has high impact on smooth traffic which cause limes lose, work opportunity and energy consumption. However, traffic congestion has influenced in the city live which become extremely complicated and difficult for life. The most common with traffic congestion are road accident and road capacity which can be blockage traffic flow in cities or in country side for example in London congestion occur in some area not during peak time always during all day which cause time loses and it become serious problem which encourage the governments to find out solution for this phenomenon to decrease it and avoid many problems relate with traffic congestion which can be make life smooth and uncomplicated. Transportation system challenges by traffic congestion which is importance to develop transportation systems by using new methods and useful technology which can alleviated or decreased level of congestion in urban area. According to (Logi, 2001) point out that traffic congestion is recurring and non recurring congestion which is appeared when traffic volume increase than road capacity in a certain times. Always, recurring traffic congestion connect with daily event thought non recurring traffic congestion connect with unexpected event by road incident or road works. This phenomenon has been studied by

many researchers which aim to find approaches or solution for traffic congestion.