

SOLUTION ON TRAFFIC AND DESIGN MULTILEVEL CAR PARKING SYSTEM: A REVIEW

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ABSTRACT: This paper presents a proposal of signal problem, parking problems, and finding a vacant car parking space is becoming more and more difficult, resulting in a practical conflicts. Problems on parking are becoming more every major city. Multiple research and development is being done all over the world to equip better and smarter parking management mechanisms. We suggested for reducing traffic congestion problems by providing a multilevel car parking system. We are planning to build the multi storied car parking having area 540 sq. m for 140 to 150 vehicles by using 45 degree method.

KEY WORDS: Traffic Signals, Parking solution, One-way System, Heavy Vehicle routing, multilevel car parking system.

I. INTRODUCTION

There are lots of traffic problems are still present on situation which creates most of the wastage of time due to lack of provision of extra wide road as per the vehicle density, traffic signal at required points, Road safety markings, parking system etc. As we started working on project on traffic solution. the traffic density, volume, and analysis of traffic for designing the multilevel parking.

We study these problems so we have to provide some solution to overcome these problems. Growth in population due to quality education and also industries are situated in cities which provides opportunity of jobs. More peoples from other cities are getting situated in city for educational or job purpose. As this population goes on increasing day by day needs is to made like inappropriate planning of city, extra wide roads, different amenities' which are to be required.

India every family normally carries 2 vehicles so as population increases also the vehicle population increases double of it also the heavy vehicles large chances of accident are produced which may create lots of trouble in

traffic operation due to less width of road.

As we seen the traffic problems also there was an need of parking areas, due to lack of provision of shop owners parking the customer parks there vehicle on road which accure the width of road and less area is remains for vehicle movement. In past days there is no provision of traffic signal at any rotary intersection so the traffic flow is in very disturbed manner so to get control over it there is need of traffic signals. In case of parking problems There is a provision of multi-storey parking system at a suitable location and for heavy vehicles the newly constructed stations and extra wide design elements of road.

II. LITERATURE REVIEW

This paper presents study of efficient way to manage the parking system by using internet of things (IOT) with the use of ultrasonic sensors to manage the parking areas. [1]

This paper represents study of intelligent transportation system (ITS) provides solution traffic problems with the help of new technology like ATIS (Advanced transportation information system), ATMS (Advanced transportation management system), APTS (Advanced public transportation system), EMS (Emergency management system) [2]

In this paper they studied on two factors which effects the traffic congestion micro level factor and macro level factor. This paper presents methods like image sensor, fixed sensor, magnetic sensor to solve the traffic congestion problems. [3]

This paper presents the identification of traffic congestion problems in Talegaon dabhade, by providing road widening management, strict lane management. Solution for these problems are strict lane management, restricting routs for rickshaw, financial penalty to the traffic law breakers, etc. [4]

This paper is generated on the basis of primary &

secondary data for solving the traffic congestion problems. Primary data means the data collected from RTO department, Municipal Corporation, bus depot etc. objective of this paper is to provide practical solution to reduce congestion. The solution is supported by the financial condition, less harassment to common people, etc. [5]

This paper represents the design of multilevel parking by using IS: 456:2000 and civil software like STAAD Pro, ETABS etc. in this problems are regulated by providing multi storey parking. & the problem is conducted up to one decade [6]

This paper represents the design of multilevel parking & also design the different components like raft foundation, retaining walls, beams, columns & slab for capacity of 600 cars & 550 bikes by using STAAD Pro. [7]

This paper presents the study of structural behavior of multistoried building for different sections like rectangular, C, I, and L. design the pre-Engineered plaza used as solution on parking. In this plaza offers strength, durability, flexibility etc. it is more economical & better solution for parking space. [8]

This paper presents the analysis and design of multilevel car parking for the purpose of traffic reduction by using STAAD Pro and ETABS at Jalgaon. They provide parking for more than 150 cars. [9]

They suggested effective way for constructing multilevel car parking by providing the steel concrete composite structure. They provide G+5 storey multilevel car parking system with capacity of 448 cars. [10]

III. PARKING STUDIES METHODS:

3.1 On street Parking : On street parking mean the motor vehicles are park on the sides of the street. This will be usually controlled by traffic management system. Some methods of parking are as mentioned below. This methods are based on the angle in which the motor vehicles are parked with respect to road alignment. As per IRC the standard dimensions of a car is taken as 5x

2.5 meters and that for a truck is 3.75x 7.5 meters. 1.

Parallel parking: The motor vehicles are placed along the size of the road. Here there is no movement involved while parking or to remove the vehicle. Hence, it is the guarded parking from the accident point of view. However, it gobble the maximum kerb length and therefore only a minimum number of motor vehicles can be placed for a particular kerb length. This method of parking make least barrier to the traffic on the road. Parallel parking of cars is shown in figure

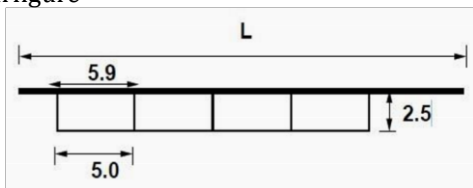


Fig. 1 On Street Parking

30° parking: In thirty degree parking, the vehicles are placed at 30° with respect to the road alignment. In this case, more motor vehicles can be placed differentiate to parallel parking. Also there is better manoeuvrability (moving freely).

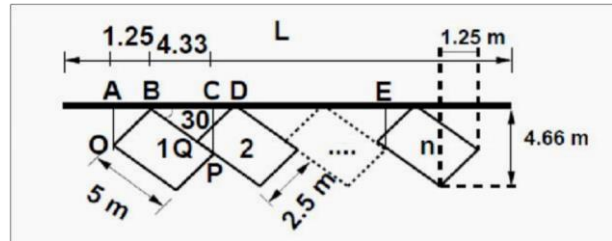


Fig.2 30° Parking System

45° parking: As the angle of parking increases, more number of vehicles can be parked. Hence, contrast to parallel parking and thirty degree parking, more number of motor vehicles can be satisfy in this type of parking. From figure, length of parking space available for parking N number of vehicles in a particular kerb is $L = 3.54 N + 1.77$

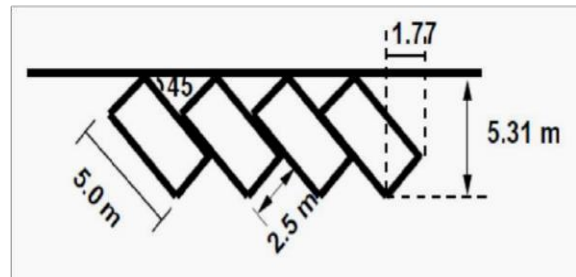


Fig. 3 45° Parking System

60° parking: The vehicles are placed at 60° to the direction of road. More number of vehicles can be satisfy in this parking type. From the figure, length available for parking N vehicles = $2.89N + 2.16$.

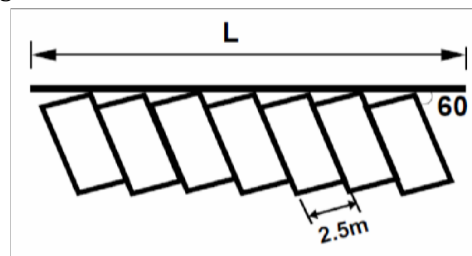


Fig. 4 60° Parking System

Right angle parking: In right angle parking or 90degree parking vehicles are placed perpendicular to the direction of the road. Although it gobbles maximum width kerb length required is very little. In this type of parking, the vehicles need complex manoeuvring (moving freely) and this may cause serious accidents. This arrangement causes barrier to the road traffic particularly if the road width is less. However, it can accommodate maximum number of vehicles for a particular kerb length. An example is shown in figure. Length obtainable for parking N number of vehicles is $L = 2.5N$.

SUMMARY

By providing signals, there will be reduction in the argument. And also there will be an orderly movement of traffic in the cross- section for the roads from one station towards another towards. And also the multilevel parking system reduces the traffic of the area. It provides maximum width of road for vehicle circulation.

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