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Proposed Smart Traffic Light System Methodology

Tanveer Singh Gaga[1], Devidatt Joshi[2], Hitesh Parihar[3]
[1, 2, 3]*Faculty, Mahaveer Institute of Technology and Science, Jadan*

Abstract: ***It is an intelligent system that adjusts count of Traffic light on the basis of amount of traffic on street. The system scans the number of vehicle present according to the density of traffic present and saves time by allowing large number of vehicles with large time count and less number of vehicles with less time.***

I. INTRODUCTION

In this We have proposed a system that calculates the range of traffic and gives a count based on the number of vehicles standing against the traffic light. It saves time as less count is given for less number of vehicle and more time is given for heavy traffic having more number of vehicles.

A. Flowchart

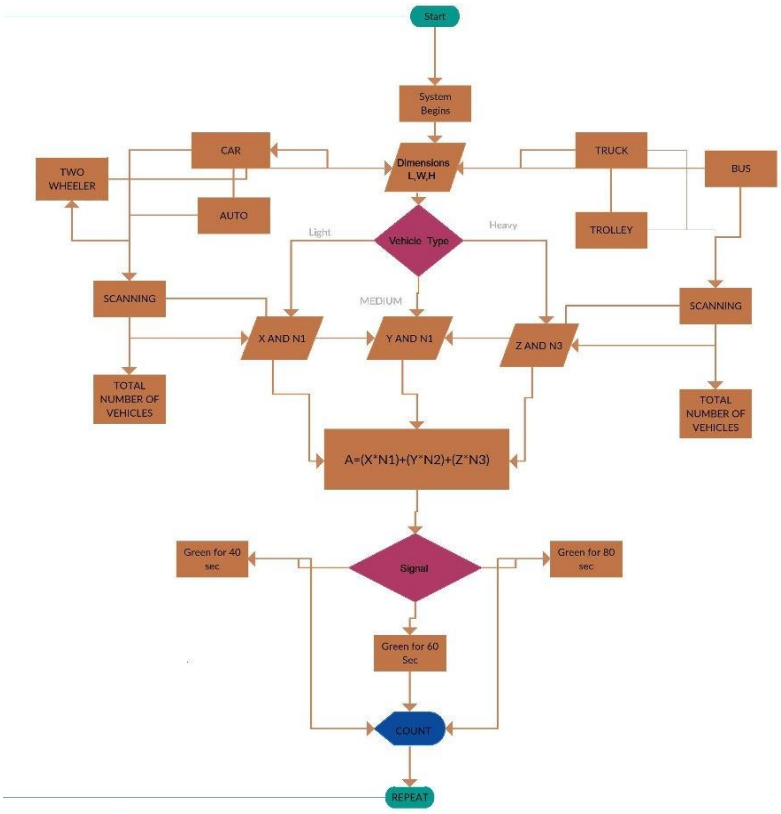


Fig. 1. Flowchart of the Proposed Traffic Light System

II. PROPOSED CALCULATIONS

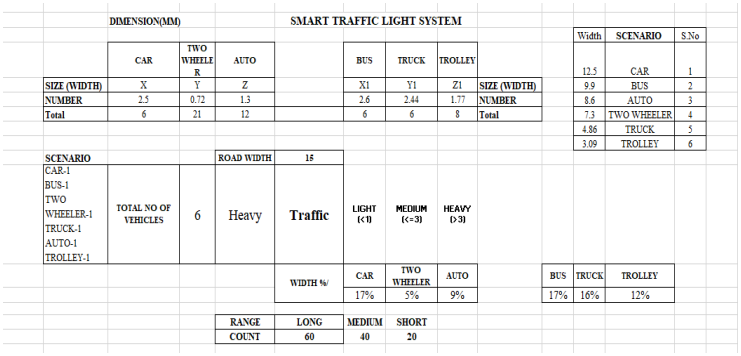
In this scenario, calculations are done in excel sheet taking dimension of road as 15 (standard) in MM as width of road. Number of vehicles are calculated by dividing width of individual vehicles with total width of road.

Suppose if a vehicle is standing on road , then first the number of vehicles will be calculated using its standard dimension in width and which will be divided by the standard Bwidth of Road on highway (for instance 15 meter here) and depending upon the further calculations, normal, heavy or medium traffic will be calculated as follows: Normal= 1, Medium=2, Heavy=3 and depending upon the intensity of traffic, a range count is given like: SHORT=20 SECONDS, MEDIUM=40 SECONDS, LONG=60 SECONDS Percent-

age show the space taken by an individual vehicle out of the total width of road.

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SMART TRAFFIC LIGHT SYSTEM

DIMENSION(MM)

	CAR	TWO WHEELER	AUTO
SIZE (WIDTH)	X	Y	Z
NUMBER	2.5	0.72	1.3
Total	6	21	12

	BUS	TRUCK	TROLLEY
SIZE (WIDTH)	X1	Y1	Z1
NUMBER	2.6	2.44	1.77
Total	6	6	8

Width	SCENARIO	S.No
12.5	CAR	1
9.9	BUS	2
8.6	AUTO	3
7.3	TWO WHEELER	4
4.86	TRUCK	5
3.09	TROLLEY	6

SCENARIO			ROAD WIDTH	15
CAR-1 BUS-1 TWO WHEELER-1 TRUCK-1 AUTO-1 TROLLEY-1	TOTAL NO OF VEHICLES	6	Heavy	Traffic

	LIGHT (<1)	MEDIUM (<=3)	HEAVY (>3)

WIDTH %/	CAR	TWO WHEELER	AUTO
	17%	5%	9%

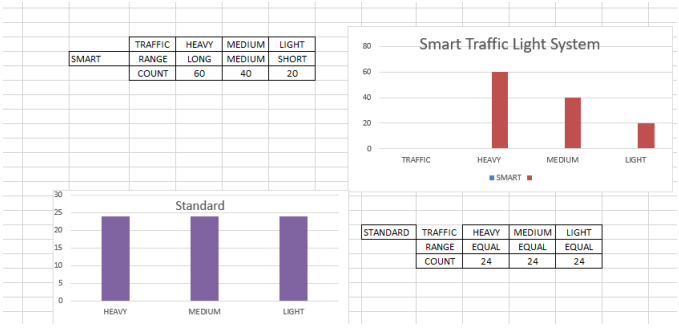
BUS	TRUCK	TROLLEY
17%	16%	12%

RANGE	LONG	MEDIUM	SHORT
COUNT	60	40	20

Fig. 2. Proposed Calculations

III. GRAPHICAL COMPARISON

It shows the comparison of normal /standard method of count on traffic lights and the proposed traffic light system. RED bar show the variable count depending on the number of vehicles and traffic according to it and VIOLET bar shows the equal count value for all category of traffic. And one can see the difference between them. The graph shows the comparison of smart traffic with standard method of traffic calculation. It shows save in time with smart traffic method.



	TRAFFIC	HEAVY	MEDIUM	LIGHT
SMART	RANGE	LONG	MEDIUM	SHORT
	COUNT	60	40	20

STANDARD	TRAFFIC	HEAVY	MEDIUM	LIGHT
	RANGE	EQUAL	EQUAL	EQUAL
	COUNT	24	24	24

Fig. 3. Proposed system V/s standard system

IV. VEHICLE DIMENSION

A. The values are random (based on an assumption)

	TRUCK	BUS	TWO WHEELER	CAR	TROLLEY	AUTO
LENGTH	9.01	12.9	1.97	5	2.95	2.63
WIDTH	2.44	2.6	0.72	2.5	1.77	1.3

Fig. 4. Assumed Vehicle Dimensions (in mm scale)

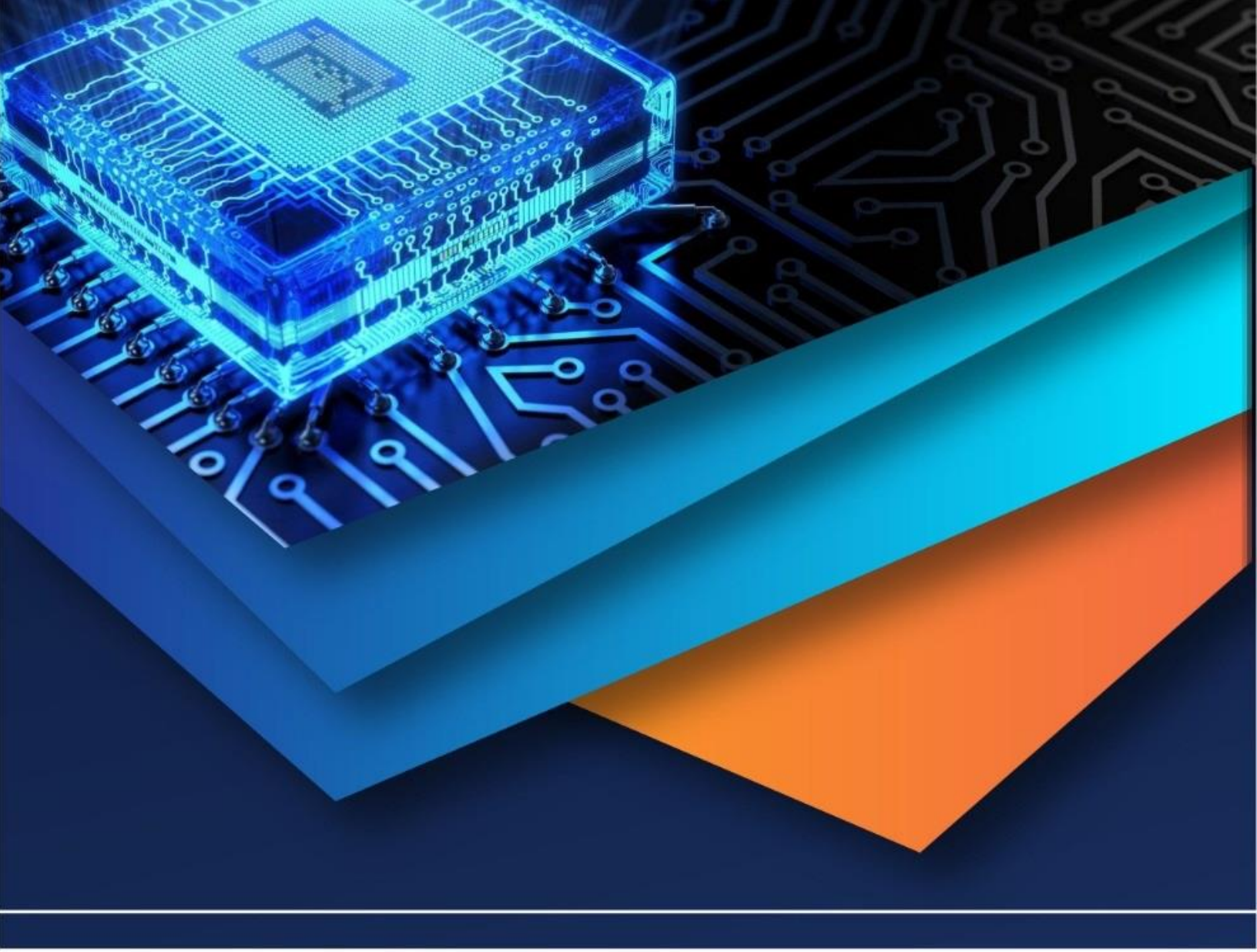
V. CONCLUSION

If a system is developed based on this scanning method then a lot of time can be saved which is wasted at traffic light. As the technology is changing, it will help big traffic jam situations in India.Different scanning tools can be used to scan the vehicles standing on traffic light in terms of area like radar and laser scanning, so as to confirm the density of traffic and count can be confirmed with actual condition.

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