



## Study The Influence Of Light And Distance To Reduce Traffic Accident

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### ABSTRACT

Traffic accidents are something that every road user wants to avoid, but sometimes these traffic accidents occur suddenly because of poor road infrastructure or due to negligence of the road users themselves. At present there are widespread accidents in the traffic system, this is caused by many factors, one of which is the arrangement of lights and the distance between vehicles on the highway. The number of traffic accidents in Indonesia has increased every year. The number of traffic accidents in Indonesia is in line with the increasing number of motorized vehicles. Good lighting and distance allow people who drive to see objects that are done clearly, quickly and without unnecessary effort, especially adequate lighting gives the impression of a better appearance and a refreshing environment. Good lighting and distance can also provide higher efficiency, can increase productivity and reduce visual difficulties and pressure when driving. Conversely, poor lighting and distance will result in a high level of traffic accidents.

### Kata Kunci

*Traffic Accident, Influence Of Light, Distance*

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## INTRODUCTION

At present the progress of science and technology plays an important role in supporting the rapid development of transportation equipment, thus causing the growth rate of vehicles to increase. The development of vehicles as a means of carrying transportation certainly has various impacts, both positive and negative impacts. The positive impact of the development of science and technology is the fulfillment and improvement of human welfare, especially as a means of mobilization to facilitate daily activities. But this is also accompanied by the emergence of several undesirable negative impacts, such as congestion and the increasing number of traffic accidents that occur every day.

Traffic accidents according to Law No. 22 of 2009 Article 1 paragraph 24 is an incident on an unexpected and unintentional road involving a vehicle with or without other road users resulting in human casualties and / or loss of property. Traffic is the movement of vehicles and people in road traffic space (MoT, 2009). An accident is an event that does not occur by accident but is accompanied by a cause that can be found out to do preventive action. Accidents can cause mild to severe effects in the form of material and non-material (Sumakmur, 2009).

The number of traffic accidents in Indonesia has increased every year. The number of traffic accidents in Indonesia is in line with the increasing number of motorized vehicles. The increasing number of motorbike type vehicles has the highest number among other types of motorized vehicles (Directorate General of Land Transportation, 2013).

Traffic accidents are something that every road user wants to avoid, but sometimes these traffic accidents occur suddenly because of poor road infrastructure or due to negligence of the road users themselves. At present there are widespread accidents in the traffic system, this is caused by many factors, one of which is the arrangement of lights and the distance between vehicles on the highway.

According to the Global Status Report on Road Safety (2013), as many as 1.24 million victims die each year worldwide and 20-50 million people suffer injuries from traffic accidents. WHO data states that traffic accidents are the main cause of child mortality in the world with an average mortality rate of 1000 children and adolescents every day in the age range of 10-24 years. Traffic accidents in Indonesia in the last three years have become the third biggest killer after coronary heart disease and tuberculosis based on an assessment by the WHO (RI State Intelligence Agency, 2014).

The number of victims and losses incurred, both due to loss of life, and the costs required for the treatment and rehabilitation of patients, then traffic accidents are included in serious problems for the community and require serious attention from all parties involved.

For this reason, it needs to be developed and increased security in driving traffic in order to reduce the risk of accidents as low as possible, which arises from one factor due to the influence of light and distance. Good lighting and distance allow people who drive to see objects that are done clearly, quickly and without unnecessary effort, especially adequate lighting gives the impression of a better appearance and a refreshing environment. Good lighting and distance can also provide higher efficiency, can increase productivity and reduce visual difficulties and pressure when driving. Conversely, poor lighting and distance will result in a high level of traffic accidents.

## **RESEARCH METHOD**

This research was conducted in Academi Maritim Belawan Laboratory. The first time, you have to make a miniature highway using plywood, cork, and small cars that are placed at different distances, namely 1m, 2m, 3m, 4m, 5m (with a description of m = cm).

Highlight the light with a flashlight at the specified size. to see the light and darkness of light and how much light and distance influence to reduce accidents. So the data is light and dark (for night and daytime). To ensure the right distance is taken 12 samples for GLB (Regular Straight Motion) and GLBB (Regular Straight Change) with constant speed. Data and make conclusions.

## RESULT & DISCUSSION

Taken 12 samples with different light distances.

### 1. GLB

No.	s (m)	t (s)	V (m/s)
1.	5	0,2	25,0
2.	10	0,4	25,0
3.	15	0,5	30,0
4.	20	0,8	25,0
5.	25	1,2	20,83
6.	30	0,7	42,85
7.	35	0,7	50,0
8.	40	1,3	30,76
9.	45	1,27	35,43
10.	50	2,32	21,55
11.	55	8,4	6,50
12.	60	2,0	30,0

### 2. GLBB

No.	S (m)	t (s)	Vo (m/s)	Vt (m/s)	A
1.	5	0,2	0	25,0	125
2.	10	0,4	0	25,0	62,5
3.	15	0,5	0	30,0	60,0
4.	20	0,8	0	25,0	31,25
5.	25	1,2	0	20,83	17,35
6.	30	0,7	0	42,85	61,21
7.	35	0,7	0	50,0	71,42
8.	40	1,3	0	30,76	23,66
9.	45	1,27	0	35,43	27,89
10.	50	2,32	0	21,55	9,20
11.	55	8,4	0	6,50	0,77

12.	60	2,0	0	30,0	15,00
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Then the best 5 samples are taken.

## CONCLUSION

The conclusions of this study are:

1. The amount of influence of light and distance in reducing traffic accidents
2. Of the 5 samples taken with different distances the best light takes place directly at a distance closer to the lighting point with the quality of light Brightness Distribution.

From 12 samples for GLB and GLBB obtained speed and acceleration are not constant, this is because the manual testing is still used but the effect of light and its distance can be known.

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