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Evaluation of Accidents on Curves in Ghat Section

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Abstract: Accidents are commonly occurring in hilly regions. They are caused because of curve roads and speed breakers placed in mountain roads. Many mountain climbing roads are having tight curves. The vehicles from opposite side cannot be visible to the driver. Millions of peoples are losing their life because of the accidents. And by arising these situations an idea is proposed to avoid those types of accidents by implementing composite barrier.
Keywords: Curve sections , Composite barrier , Hilly area , Vehicles , safety.

I. INTRODUCTION

India is one of the highest motorization growths in the world accompanied by rapid expansion in road network and urbanization over the years and is facing with serious impacts on road safety levels. Nowadays accidents are widely happened in many areas and millions of people lost their lives. Most of the accidents are happened in hill regions especially at narrow curve roads. In curve roads the other road end of vehicle cannot seen by driver. According to death about 2.5 million people die in India per annum. At night time accidents may happens by intensity of head light from opposite side of vehicles. Also, the light intensity problem occurs both curved roads and mountain roads. Vehicle movement control and accident avoidance in hilly track . There is highly failure in hilly region. If the vehicle is in very speed then it is difficult to control and there are chances of falling to cliff.

Rolling barrier are different in mechanism than other types of normal barriers. It also reduces the hazard and road today's performance accidents. The shock energy absorb from a curved crash is absorbs then the shock is converting in a rotational energy. Thus, this decreases the car damage and ensures the safety of drivers and passenger in the vehicles. Rolling barrier the cost and maintenance of repair significantly less, this is another economic advantage of this technology.

Rigid barrier they are simple rigid body and made with cement concrete. The deflection of rigid barrier is almost zero.

India is among those developing economies in the world which will soon take up the band of developed nations. The high growing economy not only requires monetary growth but also the life safety and high status of living of the nationals.

We have decided to use combination of two barriers i.e. Rigid barrier and Rolling barrier which can reduse cost and improve the road safety on curves in hilly areas .

A. Ghat Selected

For the study purpose bhorghat has been selected. The elevation of bhorghat is 622 metres and 2041ft in depth. It is located between khopoli and khandala.

Fig no.1 Top View of Bhor Ghat

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Fig no.2 Curve Section of Bhor Ghat

II. PROBLEM STATEMENT

In this study we got to know about accident which occurs on the road at ghat section. Roads are not in proper condition. In ghat section concrete barrier are provided on some curve section but they are not in proper condition. According to study barriers are not provided on curves where required.

A. Objectives

1) To reduce the accidental damage.
2) To ensure safety of the passengers onboard.
3) To ensure the curves at ghats are safe enough.

III.RESEARCH METHOLOGY

The data was collected from both primary and secondary sources. The primary source of data is respondents concerned and collected by using a predefined questionnaire. The secondary sources include books, articles, periodicals, newspapers, various reports, websites etc.

Data Sources:

1) The study is based on both primary and secondary data. Secondary Data: Secondary data is collected from the company records publications of Journals,
2) Newspapers and Websites.

For this analysis, many alternative concepts have been generated. The various generated concepts were then individually evaluated to find the most appropriate concept for the product. The concepts that gave the most advantages were considered as the best concept and a waits further evaluation. The product sketch for the chosen concept was further drafted.

a) Literature review
b) Identification of the problem
c) Finding solution of the problem
d) Data collection
e) Design of product
f) Market survey for required components
g) Testing and experimentation
h) Evolution of result of the project.

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IV. WORKING

Whenever the accident takes place at curves of ghat section the vehicle dashes the concrete barrier that leads to huge amount of damage to vehicle as well as the passenger. So this project is about introducing the composite barrier which is combination of concrete as well as rollers. In this barrier rollers are provided due to which the vehicle tends to move with it.

Composite barrier is the combination of both rolling and concrete barriers which is more effective than they are individually.

Forces acting on vehicle at curves in ghat section

A. While taking a curve three types forces are involved they are directional force momentum force and centrifugal force. Centrifugal force comes into play when you're rounding a curve. It tends to pull your vehicle out away from the inside edge, regardless of which direction you're traveling.

B. If a car on the "inside" lane of a curve tries to navigate with too much speed, centrifugal force will pull it away from the center and potentially, into the path of oncoming traffic.

C. Or, if a car is travelling with too much speed from the other direction-in the "outside" lane of a curve-centrifugal force will pull it out to the right and off the roadway.

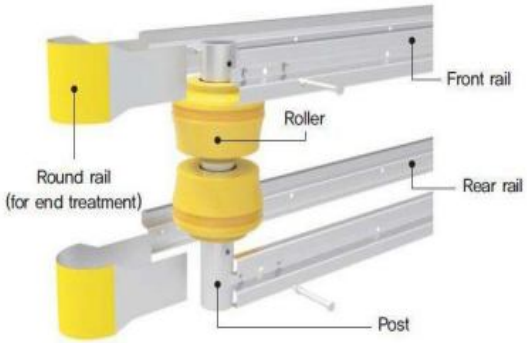

Fig. no 3 : parts of rolling barrier

1) *Types Of Barrier*

a) *Roadside Barriers:* These are used to prevent the traffic from roadside obstacles or hazards or do not fall down from hilly areas.

Fig. no 4

b) *Medium Barriers:* These types are used to stop vehicles crossing over medium as it may lead to oncoming vehicle accident.

Fig. no 5

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c) *Bridge Barrier:* Used at bridges.

Fig. no 6

V. FUTURE SCOPE

A. Work is restricted to curve of hilly areas only.
B. Safety features are installed at curves by the Road safety authority.
C. Preventive measures like, Installation of composite Barrier, its feasibility and its impact on life is studied.

VI. ADVANTAGES

A. Safety of the roads increased.
B. Maintenance is low.
C. Reduces the accidents on highways, expressways etc.
D. Useful in hilly regions, curved sections or roads.
E. Vehicles turn back on the road which saves the life of driver.
F. Easy to install.
G. Provided at ramps in city and highways.
H. Vehicles are prevented from colliding on obstacles by Rolling Barriers.

VII. CONCLUSIONS

Accidents are commonly occurring in hilly regions. They are caused because of curve roads and speed breakers placed in mountain roads. Many mountain climbing roads are having tight curves. The vehicles from opposite side cannot be visible to the driver. Millions of peoples are losing their life because of the accidents. And by arising these situations an idea is proposed to avoid those types of accidents by implementing composite barrier. The motive of this evaluation and analysis was of providing idea of safe composite barrier which is safe enough to protect the vehicle and passengers with huge amount of damage.

VIII. ACKNOWLEDGMENT

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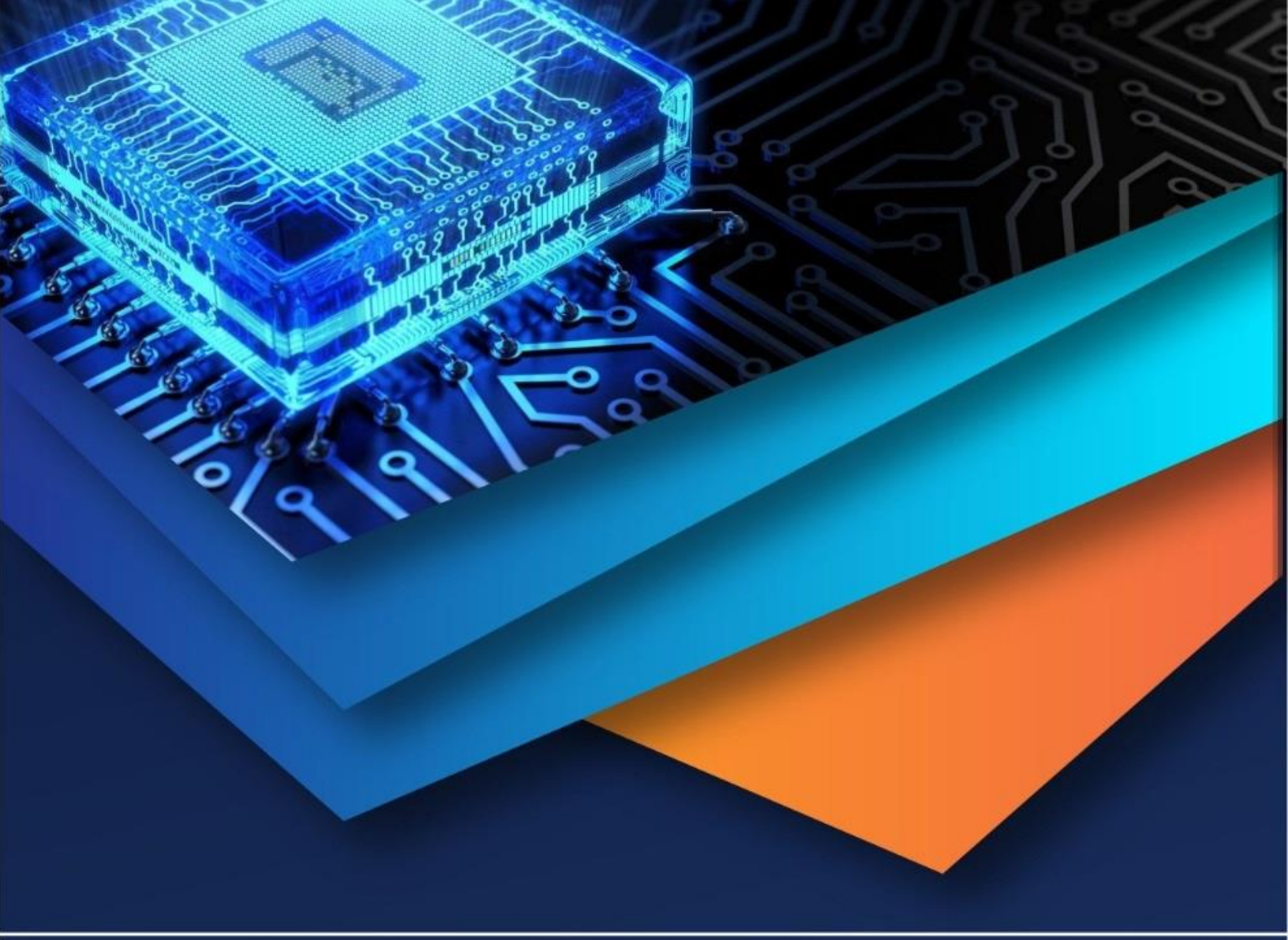

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