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A Review on Self Cleaning Road with Power Generation & 3R (Recycle Reuse Restore) of Water"

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ABSTRACT: The main purpose of the Smart Highway is maintain the cleanness of Highway and make it Strong durable and smarter . There are lots of reasons for death of human being. The major cause is due to accidents. The accidents cause by natural calamities is not in our control. The amount of road accidents is more comparative to other ones. India is country where the death rate due to road accidents is more. In future, lots of highways will be constructing in India. In India temperature changes rapidly, which causes cracks to roads leading to failure of road. These problems are solved out by following remedy. By watering the road every day, the road can be reuse within sometime. This is easy and quick method of watering of road. The purpose of this study was to evaluate the possible causes of pavement failures, and to recommend remedies to minimize failures of the pavement. The paper describes lessons learnt from pavement failures and problems experienced during the last few years on a number of projects in India. Based on the past experience's various pavement preservation techniques and measures are also discussed which will be helpful in increasing the serviceable life of pavement. The revolution in the automobile industry and liberalized economy has led to tremendous increase in the vehicle ownership levels. This has resulted in changing traffic characteristics on road network. In this paper an attempt has been made to analyze the changing traffic composition trends, speed characteristics and travel patterns by taking few case studies. Further, the impact of changing traffic composition trends and emerging issues thereof are discussed.

The main objective of this design is to facilitate the clean highways, convenience, comfort, safety of people travelling and generating power through the roadway transportation by enhancing the efficient movement of road users and minimize the pollution due to humidity on the road surface. The urban roads in India generally cater to heterogeneous motorized traffic, along with slow-moving traffic including pedestrians. A proper traffic model must consider varying characteristics of all the road users to effectively design and efficiently manage signalized intersections.

KEYWORDS: Self-Cleaning Roads, Power Generation, 3R (Recycle, Reuse, Restore) for Water use.

I. INTRODUCTION

In India mostly two types of roads are constructed bituminous and concrete roads. Bituminous roads are cheap to construct compare to concrete roads. The load carrying capacity of Bituminous is less comparatively. The major reasons for it is variation in temperature and maintenance Of road . In India temperature varies with different time span even high temperature in afternoon and low at night. Concrete roads are fails mainly because of cracks

[1]. Cracks appear due same reason as mentioned above. Another problem observed on concrete road is that, we cannot drive our vehicle fast on it. Because Concrete roads are hot and when we drive our vehicle fast on it the friction is developed in concrete and vehicle's tier which leads failure of tiers. So, the cracks lead to failure of roads and friction in concrete leads to accidents. So, the problem is the observed temperature variation across the roads. And the smog on the road also causes a lot of pollution. Dust has developed due to fast moving vehicles and it is causing human health problems and air pollution. To avoid this problem, water is the best solution about it. Our solution to this kind of problem was that we provided a sprinkler inside the road post. The purpose of water spray is to clean dirt and dry the road quickly. The pipes will supply water to the pylons on the road. This concept can be used for routes of smaller length and where possible it can also be used for longer distances. Road maintenance is one of the important parts of the entire road network. The main problems are heat and dust. For this problem to solve two types of sensors are used. The sensors are temperature sensor and dust control sensor. When temperature raises on road the temperature sensor active and water sprays on the road. And also, the dust sensor will active when the dust increases on road and to maintain the moisture condition on road

[2]. The road is being specially made from this side that they have not been cleaned; they are already using such technology, so that these roads can be cleaned. In fact, during the construction of these roads, water pipes were installed so that these roads could be cleaned without problems. When this road is clean and then the pollution from traffic vehicles pours to the road surface, so that pollution caused by trains is also reduced, the air around the road is also cleaned. As a result, air pollution has been significantly reduced.



II. LITERATURE REVIEW

The study of the scientific basis of street cleaning activities as road dust mitigation measure road dust emission causes health problems due to increase in PM concentrations and other carbonaceous compounds. This document is aimed to gather all available and relevant information, and divulgate them among relevant stakeholders. The road cleaning machine can be used for cleaning the long distances and wide width reduces the human effort, so that the cleaning can be done in a single drive. It is seen at present that a human pushing machines and cleaning is doing with human effort, and it is always to be done when roads are operated without traffic. This system is very costly and to make less effort and very efficient system and also not possible because of due to large loads, with running traffic. This study shows that 250 GMS fine dust objects can be collected from roads with high efficiency. Basically, the city does quite well in terms of the environment. The two main streams, when it comes to street cleaning, are both handled with thought.

A project of title with a literature study on the cleaning of streets in Stockholm city. Sweden is a country with winter roads which makes it necessary for us to use winter tires for traffic safety. This is one two big matters causing street dust. It is very useful for cleaning the wet as well as dry roads. In modern days interior decorations are becoming an important in our life cleaning roads is very important for our health and this roads cleaning machine reduces the efforts required for cleaning. So this project is very useful in our daily life. It is very simple in construction and easy to operate, anyone can operate this machine easily. This road cleaner includes a damp cotton swab, brush, wiper and a vacuum cleaner to reduce cleaning time. The overall price of this machine is also cheap. This type of machine is widely used for this purpose, but they work on different principles and the cost is very high. In recent years, road cleaners have become more and more popular for cleaning large areas in minimal time. However, in India, a developing country, a large number of such machines are needed to meet the cleaning needs.

III. DISCUSSION

Concrete technology is subject to continuous development and improvement. One of the most recent contributions to concrete's strength and durability is its ability to self-clean. This effect is achieved by applying a photocatalyst material to the concrete mix. This article describes the effect of self-cleaning and air purification [3]. For about ten years, concrete pavers with this function have been available. With the development of the test setup and the use of nitric oxide (NO) as a sample pollutant, a method was found to quantitatively evaluate the air cleaning ability of these pavers. This seems interesting as there is no actual comparative analysis of air filter concrete products and the establishment of measurement standards for concrete products is still in draft form. A brief technical description of this experimental setup will be presented to the reader. Using this innovative setup, the effects on decomposition efficiency are investigated and a basic response model is provided.

There are many reasons that lead to human death. The main cause was an accident. Accidents can fall into several categories like earthquake, tsunami, etc. Accidents caused by natural disasters are not under our control. The number of road accidents is more than others. India has the highest rate of road accident deaths. In the future, more highways will be built in India. In India, the temperature is changing rapidly causing cracks in the roads leading to failure of road [4]. These problems are solved out by following remedy. By watering the road every day and by spraying air on it, the road can be reuse within few hours. This is easy and quick method of watering of road.

Self-cleaning of the streets using treated wastewater from electric poles. The document offers solutions to road washing problems. This technique is used in Korea, but it can also be used in India. The document describes in detail all the advantages of this technique. Road wash is good for its aesthetics and durability. So for maintaining road wash works, road rivet can be very useful at the divider preventing it from breaking from vehicles due to its advantages in use.

The purpose of this project is to clean up roads in colleges, hospitals, auditoriums, shopping malls and workshops. The goal of this project was to design and develop a road cleaning process. It is useful to clean the road and ground. Nowadays, interior decoration becomes important in our life. Road cleaning is very important for our health and road cleaners reduce the effort required for cleaning. This project is therefore very useful in our daily lives [5]. It is very simple in structure and easy to operate and a little cheap, anyone can use this machine easily. The road cleaner includes a brush and a cleaning time reducer.



IV. CONCLUSION

The road cleaning project automatically finds solutions to road and street problems. In this project, let's install automatic cleaning system on roads to maintain temperature and reduce pavement damage and the system creates clean roads and an attractive environment as well as power generation. water washing and drying systems have a wide impact on road cleaning and maintenance. The overall price of this machine is also cheap. This type of machine is widely used for this purpose, but they work on different principles and the cost is very high. In recent years, floor cleaners have become increasingly popular for cleaning large areas in minimal time. However, in India, a developing country, a large number of such machines are needed to meet the cleaning needs.

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