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# Smart – Intelligent Street Light to Reduce Accident Rate.

Ankit Tyagi[1], Ashish Sharma[2], Rahul khatri[3]
[1, 2,3]*Maharishi Arvind International Institute of Technology, Kota, Rajasthan*

***Abstract:** This describes about the mechanism that switches the street lights on detecting vehicle movement and remains off and on after fixed time interval. Intelligent street light system consists of many features. It automatically controls the street light i.e., off during day time and on during night time using LDR sensor. It controls the intensity of street light by dimming and provides brightening the intensity on detection of any object using PIR sensor. It has camera for security purpose. Automatic fault detection i.e., on failure of LED light it automatically sends the message to the authorities using GSM sensing Technology. Manual switching on/off of street light using GSM.Led street light glow the road but smart do more than that. Smart – Street light perform few task like: Enabled with camera to detect whether vehicle crossing speed limit. Every 10th light will blink for a second to prevent mid night accident. QR code & voice assistance which contain direction & information of nearest restaurant, petrol pump, etc.Solar power panel to charge itself.Charging point for Smartphone & small electronic devices. At night driver are in state of half sleep, by blinking light they get back attention on driving. While travelling highway people come with common problem like food & petrol which makes journey difficult. Aim of this concept is to reduce accident, & make journey easier, comfortable.*

***Key words:** Solar power panel, Voice assistance, Camera etc.*

## I. INTRODUCTION

### *A. Smart switch system*

When sun light fall on LDR sensor it detects light it will brake circuit & light switch off. Advantage is that even is day time when in cloudy weather there is darkness, light automatically switch on.

As charge by solar power panel it will be independent, no need of electricity board. As it battery full charge between day time it will donate power to other uses, like for charging Smartphone or other less power consuming devices.

### *B. Tracking vehicle speed*

In street light there will camera two installed in opposite direction. Which not only surveillance traffic, but also information of vehicle crossing speed limit.

There will be pair of motion sensor installed in roads opposite to each other in a fixed distance, which track speed of vehicle. When a vehicle crossesboth sensorsit will calculate the time taken by vehicle to reach first to second sensor.

As we know speed = Distance/time, by this formula we can calculate speed of vehicle.

After it takes the data it will capture image of that vehicle which crosses speed limit and send to nearest toalnaka and police station.

Not only it will prevent from accident, it also makes citizen more responsible for driving vehicle.

### *C. Easy & smooth travelling*

Every street light has its unique id number which can be seen by QR code inscribed on it, on scanning QR code traveller get the information of nearest restaurant, petrol pump etc. There name, direction & other details to help traveller for a smooth journey.

Not only it QR code, it also has voice assistance which tell the information pressing switch placed near QR code.

It has charging point for charging Smartphone or other low power consuming devices but it will only possible it has extra battery to donate power, collected by solar power panel.

### *D. Mid-night accident*

Mostly in night vehicle occurrence is less,due to which roads are almost empty & driver mind relaxes, starts losing concentration, his brain gone in state where he is half sleep position. This creates chances of accident.

For preventing that accident we can make a changes in street light, every 10th street light will blink for a second. By this driver's eye sense a small change in its environment and brain get back the concentration on road.
If every street light starts blinking, it will create problem in driving. So every 10th street light in 30 minutes will blink for a second.

*E. Safety point of view*

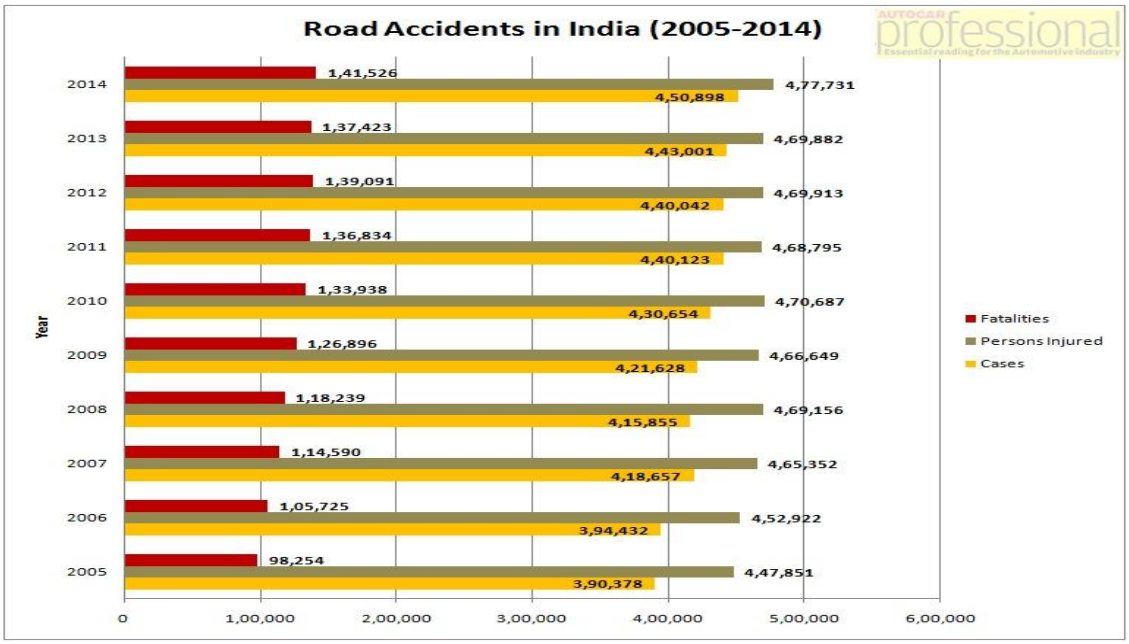
From safety point of view few street light will have first aid kit & a switch which on pressing will send signal to nearest police station, by which police will come to know there is emergency, like accident has happened.
This stret light will have small transparent box inside them with first aid equipment.

## II. METHODOLOGY

Every minute 16 person die in road accident.
28.8% of accidents are caused by two-wheelers.
23.6% of accidents are caused by four-wheelers.
1, 46,133 people killed & 5, 00,279 injured in 2015 on road accident.
37, 458 people killed & 92, 174 injured in heavy vehicle accident.
36, 803 people killed & 1, 35,343 injured in two-wheeler road accident.
28, 610 people killed & 1, 19,037 injured in four-wheeler road accident.

| Road accidents in India 2015 based on Vehicle type | | No. of road accidents | | No. of persons | |
|---|---|---|---|---|---|
| | | Fatal | Total | Killed | Injured |
| Two-wheelers | | 34,057 (25.9%)** | 1,44,391 (28.8%) | 36,803 (25.2%) | 1,35,343 (27.1%) |
| Auto-rickshaws | | 5,430 (4.1%) | 30,340 (6.1%) | 6,155 (4.2%) | 38,820 (7.8%) |
| Passenger Vehicles (Cars, Jeeps, Taxis) | | 25,308 (19.2%) | 1,18,438 (23.6%) | 28,610 (19.6%) | 1,19,037 (23.8%) |
| Commercial Vehicles | Buses | 10,450 (7.9%) | 41,832 (8.3%) | 12,133 (8.3%) | 55,083 (11%) |
| | Trucks, Tempos, Tractors & Articulated vehicles | 33,710 (25.6%) | 98,897 (19.7%) | 37,458 (25.6%) | 92,174 (18.4%) |
| Other Motor Vehicles | | 14,930 (11.3%) | 44,786 (9%) | 16,167 (11.1%) | 40,202 (8%) |
| Other Non-motorised vehicles/ objects* | | 7,841 (6%) | 22,739 (4.5%) | 8,807 (6%) | 19,620 (3.9%) |

**Non-Motorized Vehicles/Objects include cycles, cycle rickshaws, hand-drawn vehicles, pedestrians, animals, trees, level-crossings and other fixed objects.*
***Figures in brackets include percentage share of respective categories*



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## III. CONCLUSION

Smart – Intelligent Street Light systemis designed to reduce accident & make travelling easier, comfortable. An advanced system which has aim to provide innovation in services relating to different modes of transport. Independent Street lights no need of electricity board,advanced features likeSmart switch on/off system, tracking vehicle speed.

Prevent mid-night accident which makes travelling in night safer.

Traffic management and enable various users to be better informed and make safer, more coordinated, and 'smarter' use of transport networks.

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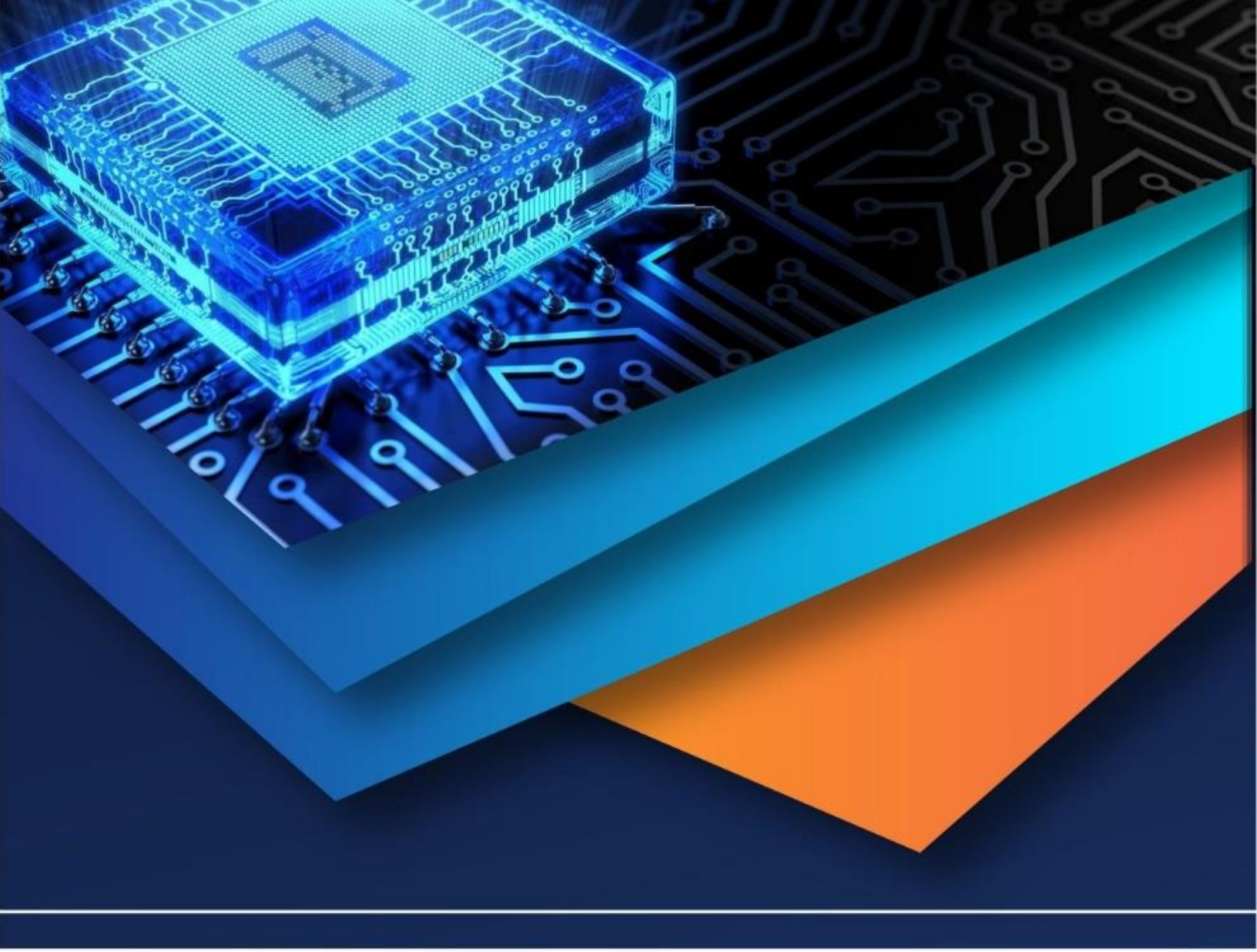

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