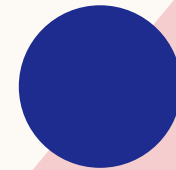


TECHNOMAX 2024

Project Visum

IDEA TITLE

Advanced Accident Prevention
System for Fatigue-Induced
Incidents



INTRODUCTION



In response to the alarming rise in road accidents attributed to driver fatigue, our team has conceived an advanced accident prevention device designed to detect and mitigate the risks associated with drowsy four-wheeler and truck drivers. Recognizing the critical need for enhanced road safety, our solution employs cutting-edge & economical technology to monitor driver behaviour and identify signs of drowsiness in real-time.

40% of highway accidents occur due to drivers dozing off

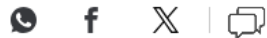
Exhausted drivers who doze off at the wheel are responsible for about 40% of road accidents, says a study by the Central Road Research Institute (CRRRI) on the 300-km Agra-Lucknow Expressway.

'Sleep-deprived' truck driver crashes into another vehicle, 10 dead

The Prime Minister has announced compensation of Rs 2 lakh each for the families of deceased

By: [Express News Service](#)

Ahmedabad | August 12, 2023 00:27 IST



According to data provided by the Yamuna Expressway Industrial Development Authority, over the last 12 years from Jan 2012 to March 2023, more than 44% of accidents on the 165.5 km long and six-lane wide Yamuna Expressway occurred due to drivers dozing off at the wheel, while speeding accounted for around 18% of the accidents. A total of 488 people died and 3,873 were

Deepak Lavania / TNN / Updated: Jun 10, 2023, 09:19 IST

CASE STUDY

Chart 2.11: Road Accidents and Fatalities on different categories of NH by Traffic Rule Violations in 2022

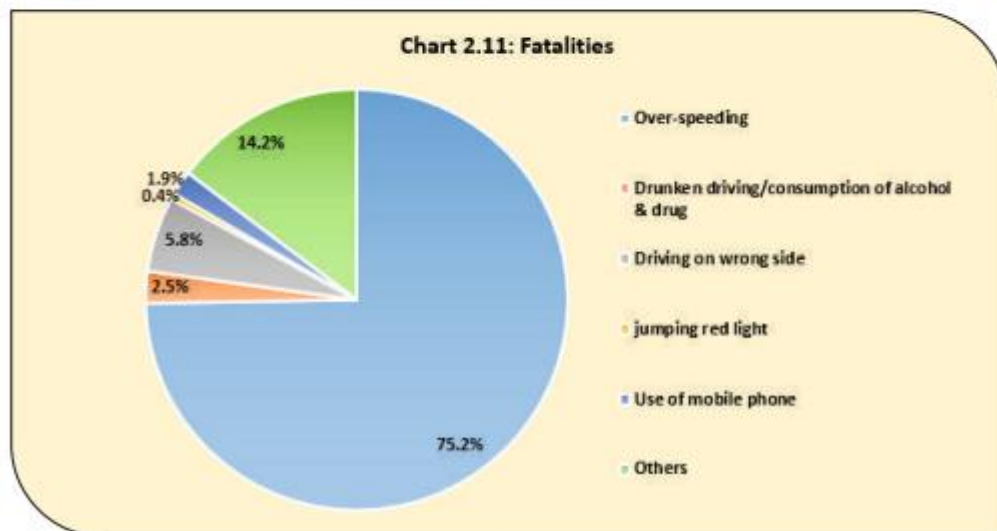
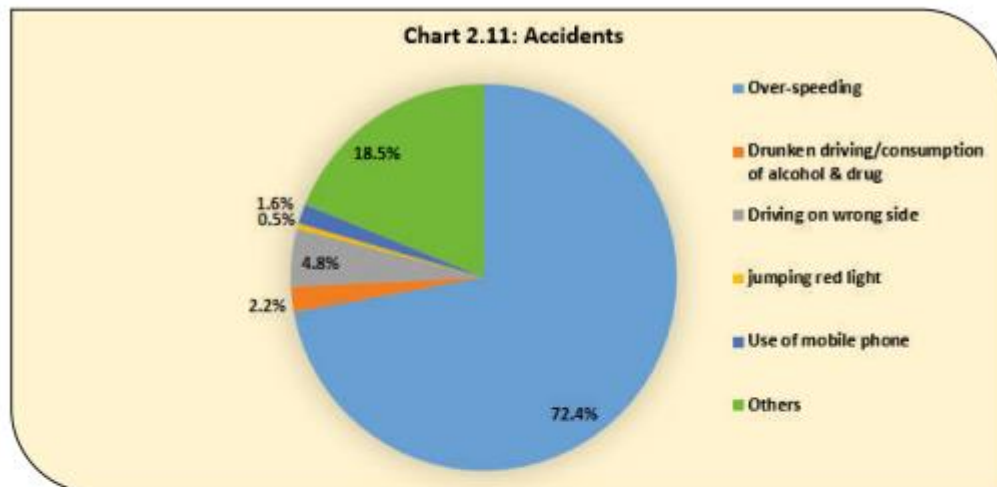
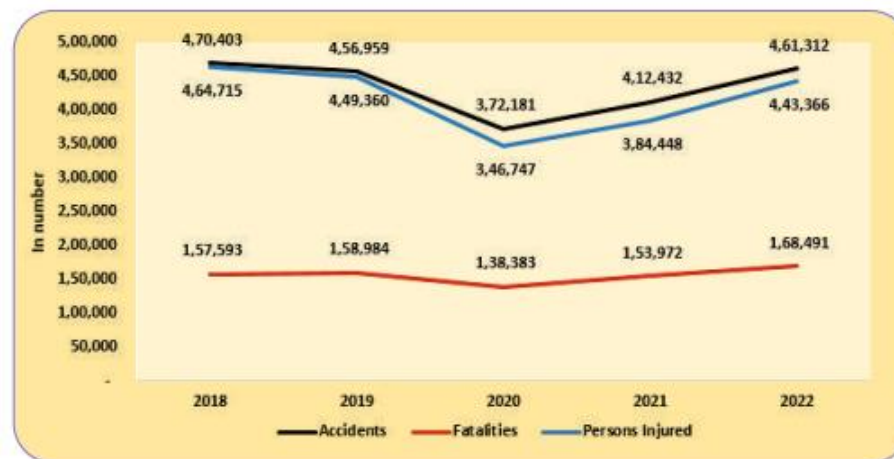
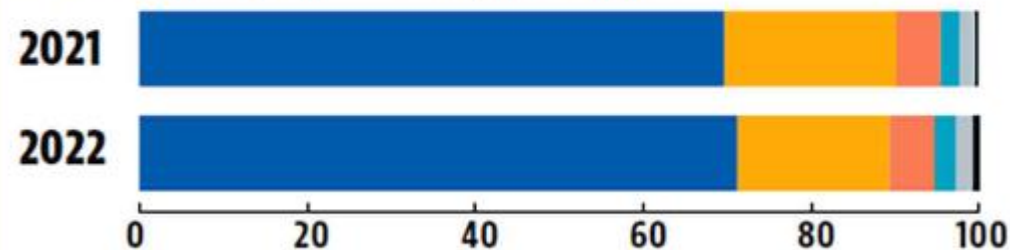


Chart 1.1: Trends in number of Accidents, Fatalities and Persons Injured: 2018 to 2022



Road accident deaths by type of traffic violation (%)

■ Over-speeding
 ■ Others
 ■ Driving on wrong side/lane indiscipline
 ■ Drunken driving/consumption of alcohol & drug
 ■ Use of mobile phone
 ■ Jumping red light



Source: Road Accidents in India 2022, Ministry of Road Transport and Highways

WHAT ARE WE TRYING TO BUILD?

The core functionality of our device involves utilizing sensors and **AI algorithms** to analyse various parameters, such as **eye movement**, **facial expressions**. By constantly assessing these factors, the system can accurately determine a driver's level of alertness and promptly issue warnings or intervention measures when signs of fatigue are detected.

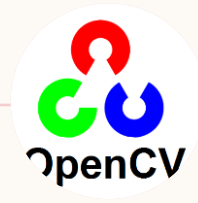
HOW TO GET THERE ?

7



MICRO CONTROLLER

- A microcontroller or microcontroller unit is a small computer on a single integrated circuit. A microcontroller contains one or more CPUs along with memory and programmable input/output peripherals.



OPEN C V

- OpenCV is a library of programming functions mainly for real-time computer vision.
- Implementation in python



SENSORS

- We will get data from sensor to analyse data through Machine learning , then actively using the results to detect.

ROADMAP TO BUILD THE SOLUTION



PHASE 1

Try to detect
eye movement
using sensors



PHASE 2

Using the data
received from the
sensors to
Actually do the
stuff



PHASE 3

Debugging the
simple
application,
making it
accurate



FINISHING

Giving it
Finishing
Touches



UPDATING

Making
Algorithms more
Advanced to
detect & solve
upon Causes

The background features a vertical line that divides the space. To the left of this line, there are concentric white circles on a light green background in the upper left, and a light pink triangle in the lower left. To the right of the line, there is a light blue semi-circle in the upper right and a light red triangle in the lower right.

**“YOU CAN’T SAVE ALL THE BIRDS, BUT
THE ONES YOU SAVE MAKE A
DIFFERENCE.”**

- Randy Pausch

THANK YOU

Aditya Raj

Harsh Raj Shukla

Harsh Kumar

Gyanesh Kumar

Vishnu Shankar Updhayay