

# GROUP 33: Smart Vehicle Sensor

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**SAI - IDEA**

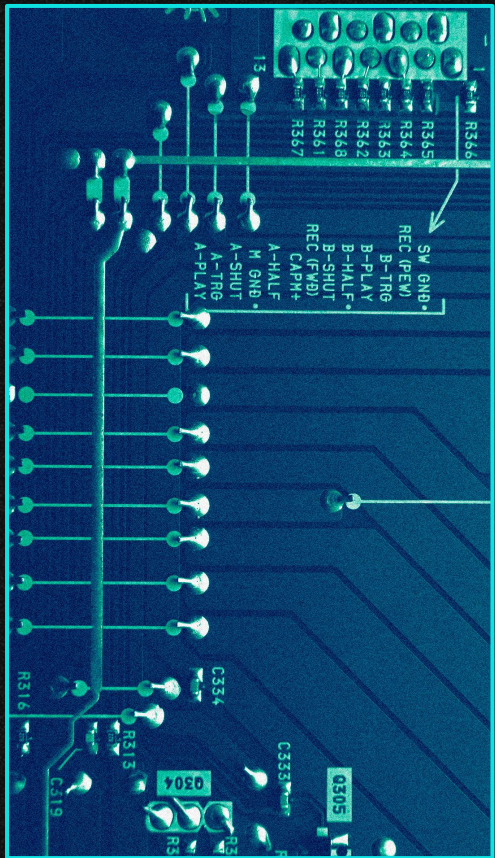
ACCIDENT PREVENTION

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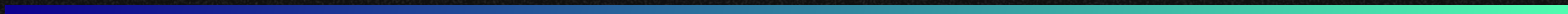


# IDEA

FOGG/SMOG DETECTING CAR SENSOR, INFRARED DISPLAY IN HARSH CONDITIONS & AUTOMATIC BRAKING SYSTEM, VISUAL DATA OF NEARBY SURROUNDING

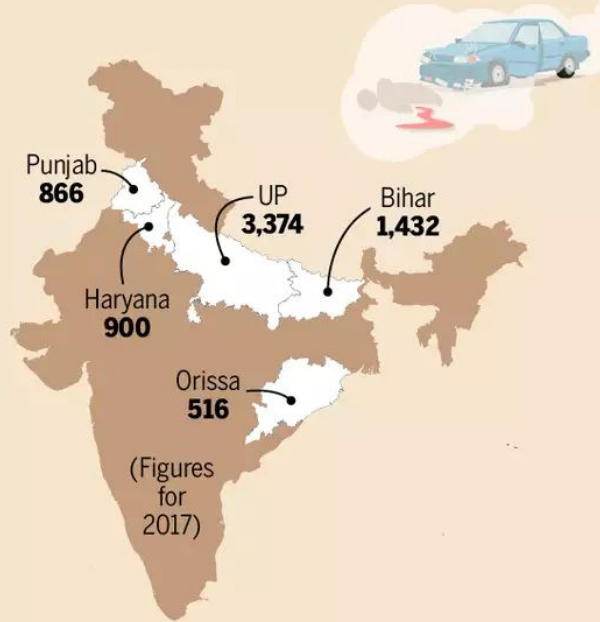
## EMERGENCE

A DECADE BEFORE THERE WASN'T ANY FOG DETECTION IN TRAINS DUE TO WHICH MANY ACCOUNTABLE ACCIDENTS OCCURRED NEVERTHELESS HAVING SCHEDULE , TIMING , COMMUNICATION AND TECHNOLOGY SIMILARLY HAVING ACCOUNTABLE ACCIDENTS ON THE HIGHWAYS NO SUCH TECHNOLOGY HAS BEEN DEVELOPED FOR CAR OR MOTORBIKES.



# NEED & PURPOSE

## WORST 5 STATES IN FOG-RELATED ROAD FATALITIES



Source: Ministry of Road Transport and Highways (MORTH)

## FOG-RELATED ROAD CRASHES GETTING DEADLIER



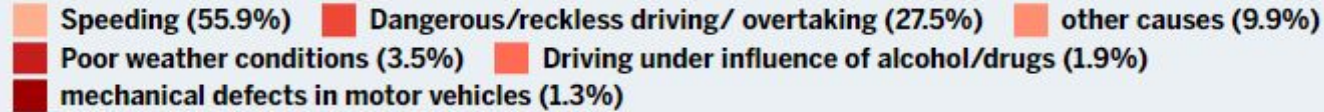


# INFOMERCIAL

## Road accidents in India most fatal

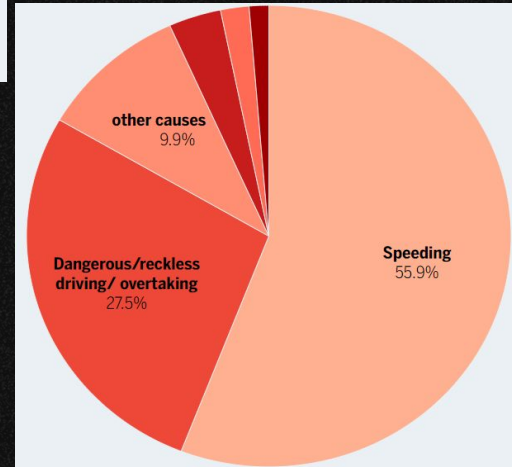
Road Crash Severity is the total road crash deaths per 100 crashes

## Major causes of road accident deaths in 2021



## National highways most dangerous

## Two-wheelers accounted for most fatal road accidents





# IMPACT

SAVES LIVES & RESOURCES

TARGET MULTIPLE SHORTCOMINGS AT ONCE

## SHORTCOMINGS

> TIMELY EMERGENCY SERVICES

> ROAD BLOCK

> TRUCK AND CAR COLLISION

Weather Condition	No of Accidents			Persons killed			Persons injured		
	2019	2020	%age change in 2020 over 2019	2019	2020	%age change in 2020 over 2019	2019	2020	%age change in 2020 over 2019
Rainy	39,825	36,161	-9.2	14,240	13,283	-6.7	39,573	34,552	-12.7
Foggy & misty	33,602	26,541	-21.0	13,405	12,084	-9.9	30,776	23,111	-24.9
Hail/ sleet	4,043	4,752	17.5	2,036	2,095	2.9	3,945	4,074	3.3
Others	41,237	37,638	-8.7	17,667	16,013	-9.4	37,431	33,121	-11.5
Total	4,49,002	3,66,138	-18.5	1,51,113	1,31,714	-12.8	4,51,361	3,48,279	-22.8



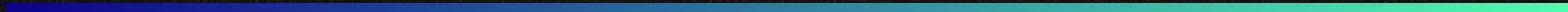


# APPLICATION

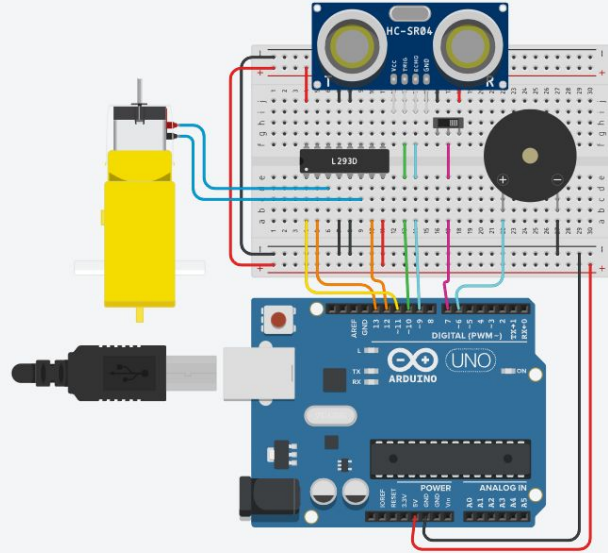
- HARDWARE - INFRARED CAMERA & ULTRASONIC SENSOR
- INTEGRATED APP FOR DISPLAY SUPPORT ON CAR OR PHONE.

**CALCULATED ROOM FOR RESTRICTED BREAKING SYSTEM**

**THERE ARE 24 MILLION CARS RUNNING ON ROAD, WHICH WE CAN MODIFY AND PREVENT ACCIDENTS**



# Electronic Circuit



**Sensors - ultrasonic  
sensor  
Blink sensor  
Alert - Buzzer  
Solution - Auto-break  
system with warnings**



# AI [Integration of artificial intelligence]

## Semantic Foggy Scene Understanding with Synthetic Data

Improve performance of state-of-the-art convolutional nets in real fog via partially synthetic images

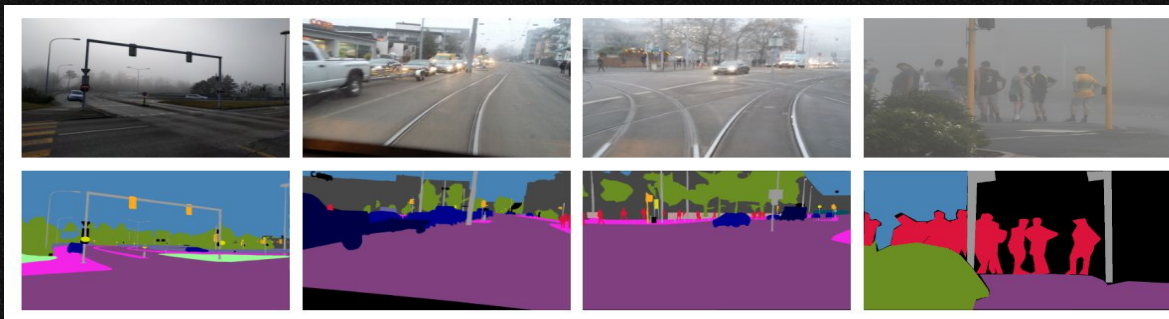


a) Fog Simulation




b) Training with Synthetic Fog

c) Foggy Scene Understanding



[illegible]





# GROUP MEMBERS

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# THANK YOU

