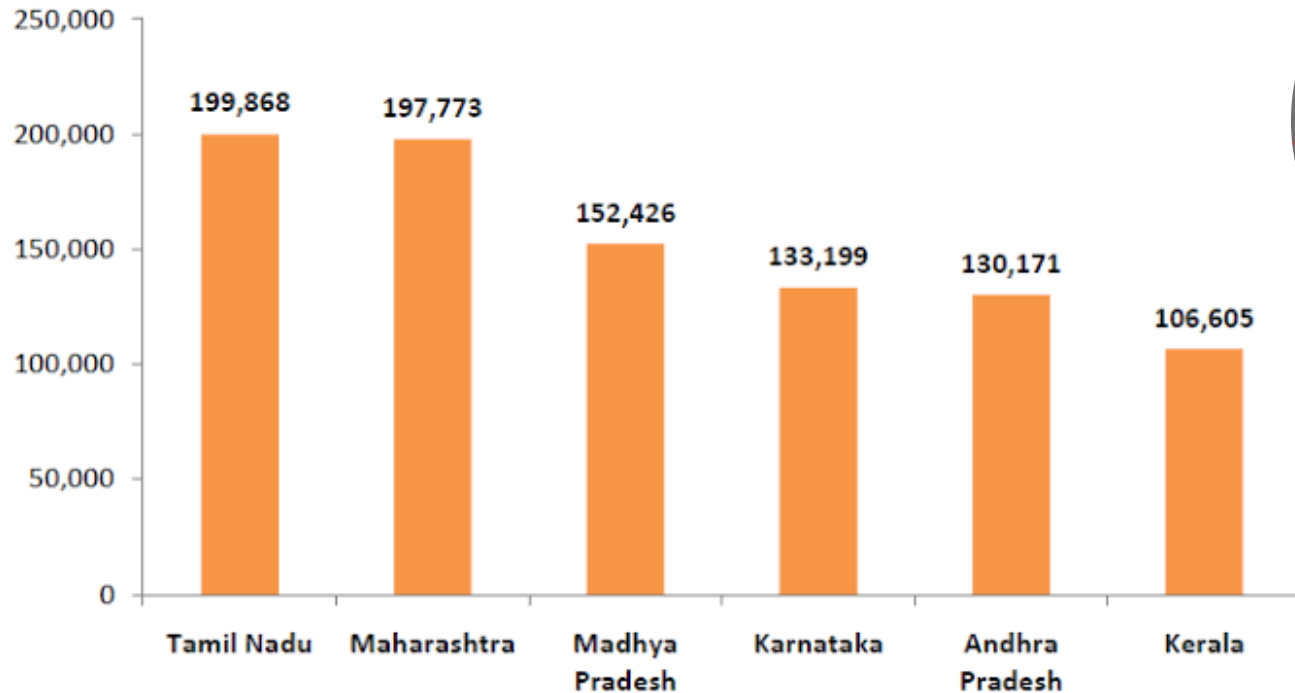
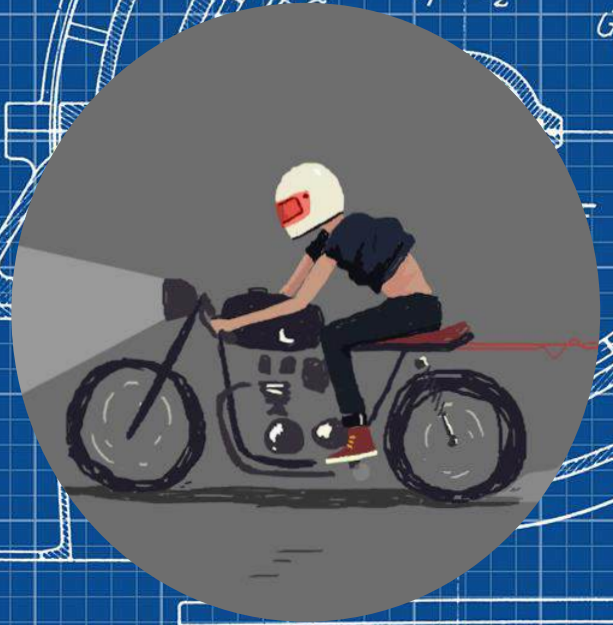


ROAD Accident in INDIA

Number of Road Accidents (2011 to 2013)



S.A.S and Compact Bump Integrator



VEHICLES WITH ACCIDENT ALERT SYSTEM :

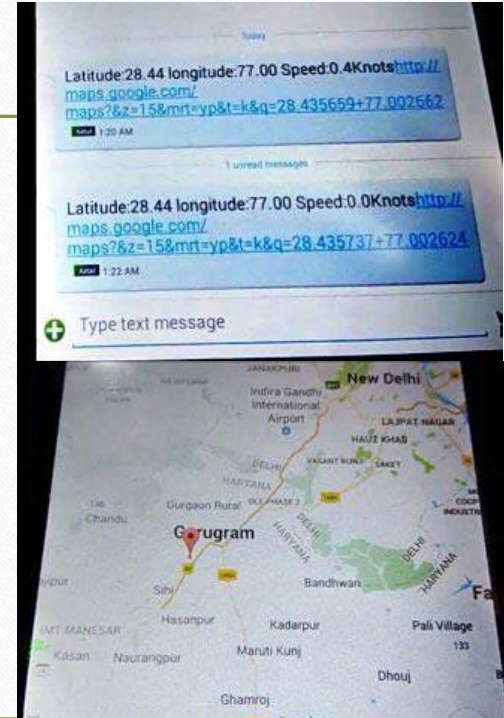
- **Google Pixel's Car Crash Detection Feature:**

Available in Google Pixel Phone starting from Pixel 4A.

Price to this phone is Rs. 99,900

- **On-Board Units in Vehicles:**

The price of an on-board unit (OBU) that can detect accidents can vary depending on the manufacturer, the features of the OBU, and the quantity purchased. However, they typically range in price from 10k to 40k per unit.



Problem Statement

The challenge involves strengthening of Security Alert System (SAS) and creating a cost-effective, compact version of the bump integrator, a road quality assessment machine. The IOT-based prototype will send real-time WhatsApp alerts to enhance passenger safety by notifying family members and hospitals in case of accidents or road hazards.

Our Device is in under 800₹



Bump Integrator

₹ 3,00,000 / Unit

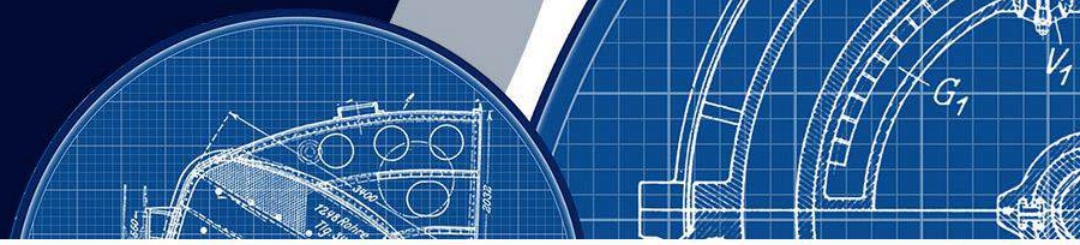
Jaisa Scientific Instruments

📍 Bawana, Delhi

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Unique Idea



This solution innovatively differentiates itself from traditional road quality checking machines, which rely on expensive mechanical systems, by adopting a cost-effective electronic and sensor-based IOT approach. Moreover, it stands out by introducing an accident alert system not commonly found in regular vehicles, effectively transforming any vehicle into a smart one. The system's ability to detect accidents through sudden jerk or acceleration changes on the x-axis is another unique feature.



Effects of Unevenness

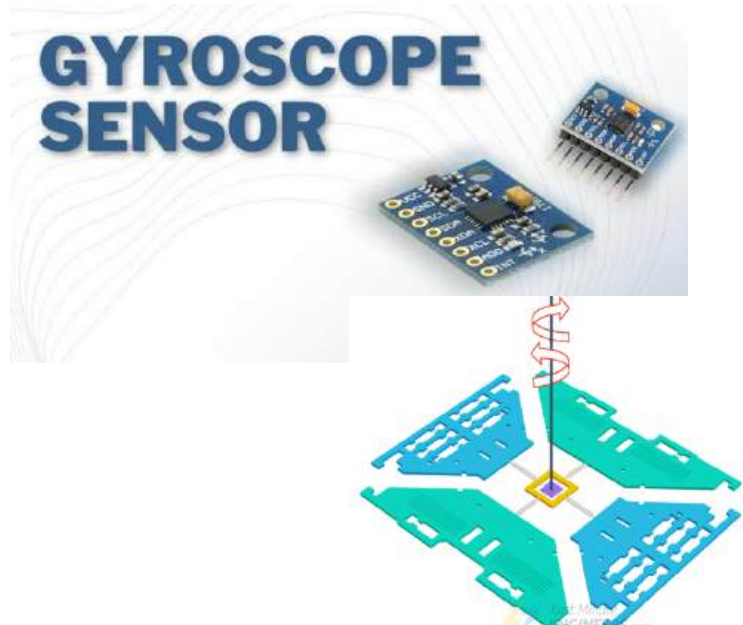
- **Physical Impact on Body**
- **Mentally Impact**
- **Effects on Vehicle**

Pain
Fatigue
Vehicle Damage
Mental stress
Fuel consumption
Exceed Time



Methods and Technology

Accelerometer sensor to determine the Roughness of road



We can find the comfortability index by measuring the jerk during the ride .

This sensor can be further integrated to measure the vertical jerks to check quality of roads and horizontal jerks in case road accidents.

DEMO



LOLIN(WeMos) D1 R1

Serial Monitor

cor_WhatsappBot.ino

```
373  
374   sendMessage("MODERATE road surface");  
375   delay(50);  
376 }  
377  
378  
379 if (AvgZaxisAcc > 201) {  
380   Serial.println("POOR ");  
381  
382  
383   sendMessage("POOR ");  
384   delay(50);  
385  
386  
387 }  
388 /*  
389 else {
```

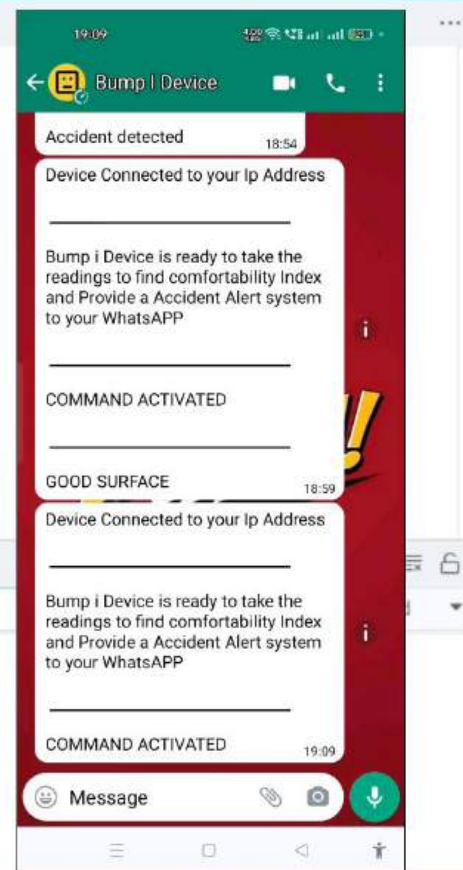


Output Serial Monitor x

Message (Enter to send message to 'LOLIN(WeMos) D1 R1' on 'COM5')

1.75 m/s^2

1.12 m/s^2



Ln 1, Col 1 LOLIN(WeMos) D1 R1 on COM5

19:09

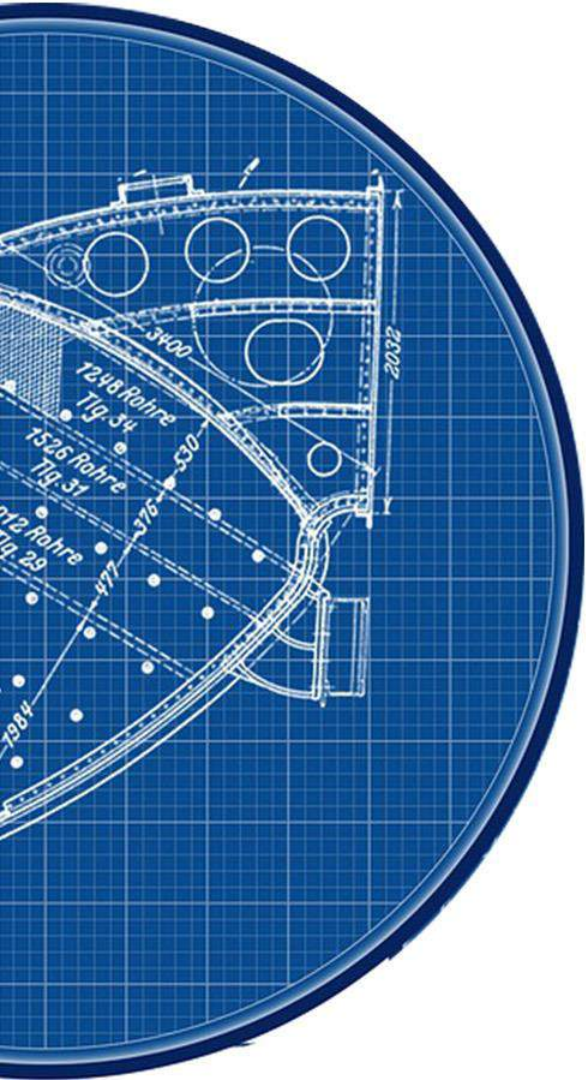
05-11-2023

Solution

The solution offers a triple benefit:

1. It stimulates economic growth by reducing accident-related costs, strengthens national development through enhanced road infrastructure.
2. lowers accident death rates, resulting in a healthier and more productive workforce.
3. This multifaceted approach can lead to a more prosperous and thriving country.





Thank you