Smart Car Accident Prevention (S.C.A.P)

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Introduction

This project is about making cars more intelligent which will notify or resist user under unacceptable conditions, they may provide critical information of real time situations to rescue owner himself. In this paper, we describe a real-time online safety prototype that prevents the starting of the engine in the case of brake failure and warn the user through SMS and buzzer or LED. The main components of the system consist of number of real time sensors like Ultra-Sonic Sensors that can work in any harsh Conditions.

Problem Statement

Cost effective Smart accident alert and Prevention Device and brake failure notification generator .

ROAD ACCIDENTS IN INDIA, 2016

17 deaths on India's roads every hour, Chennai and Delhi most dangerous

Official data show more people died on Indian roads in 2016 than in 2015; UP and Tamil Nadu accounted for the largest numbers of fatalities

BIG NUMBERS

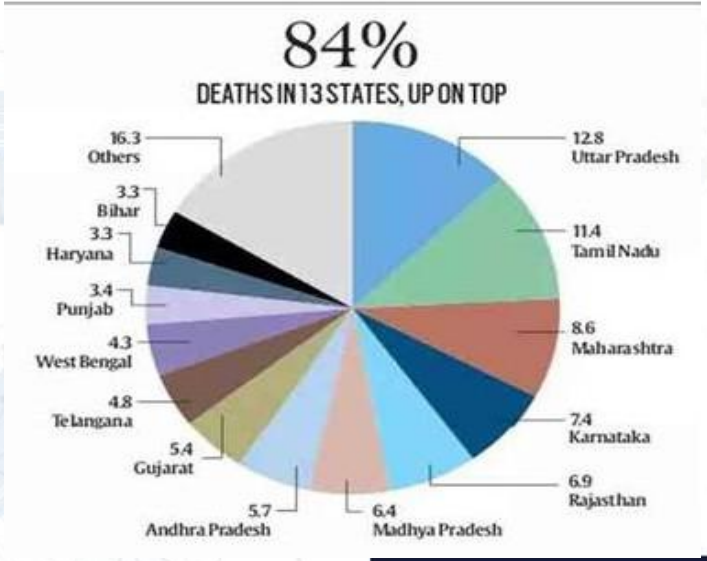
IN THE YEAR		EVERY DAY		EVERY HOUR	
ACCIDENTS	DEATHS	ACCIDENTS	DEATHS	ACCIDENTS	DEATHS
4,80,652	1,50,785	1,317	413	55	17

Largest no of road accidents in India occurs in Chennai over 7,486 .

The most Deaths occurs in Delhi over 1591 due to Unsafe Lane Changes & Reckless Driving.

Road Crash Statistics Nearly 1.3 million people die in road crashes each year.

There are 5.6 million car crashes in America every year, so brake failure accounts for about about 300,000 crashes per year.



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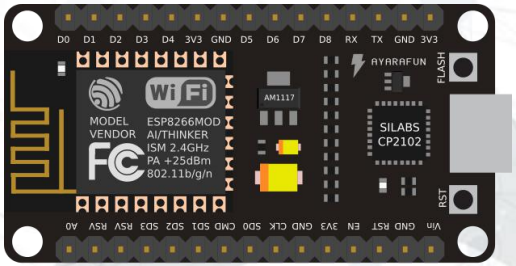
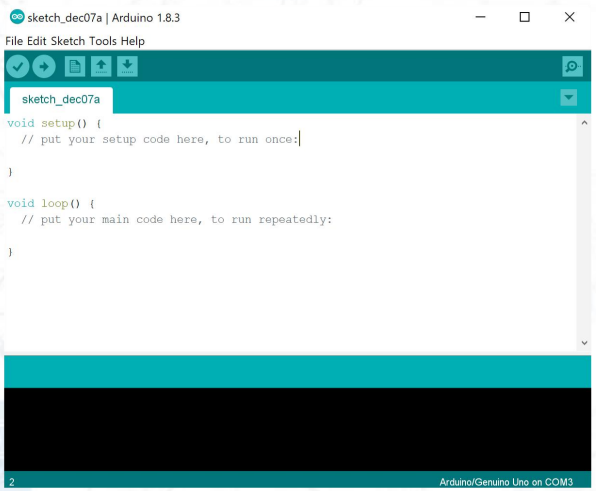
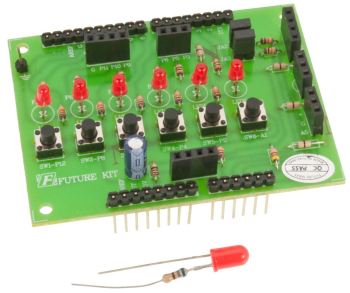
Hardware & Software







Hardware:
Node MCU, Ultrasonic Sensor, Buzzer, Jumper Wires, Basic Shield, 3 IR Sensor

Software:
Arduino IDE

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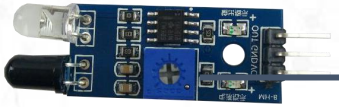
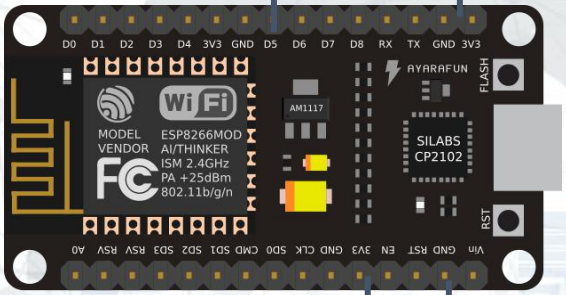
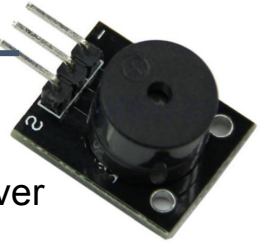
Proposed Circuit Diagram



3 IR Sensor to detect vehicle from sideways and Back



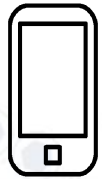


Buzzer To Warn the Driver

LED To warn about status of Brake

HC05 To Detect vehicle aproarching from the front.

Notification to User About Brake Failure



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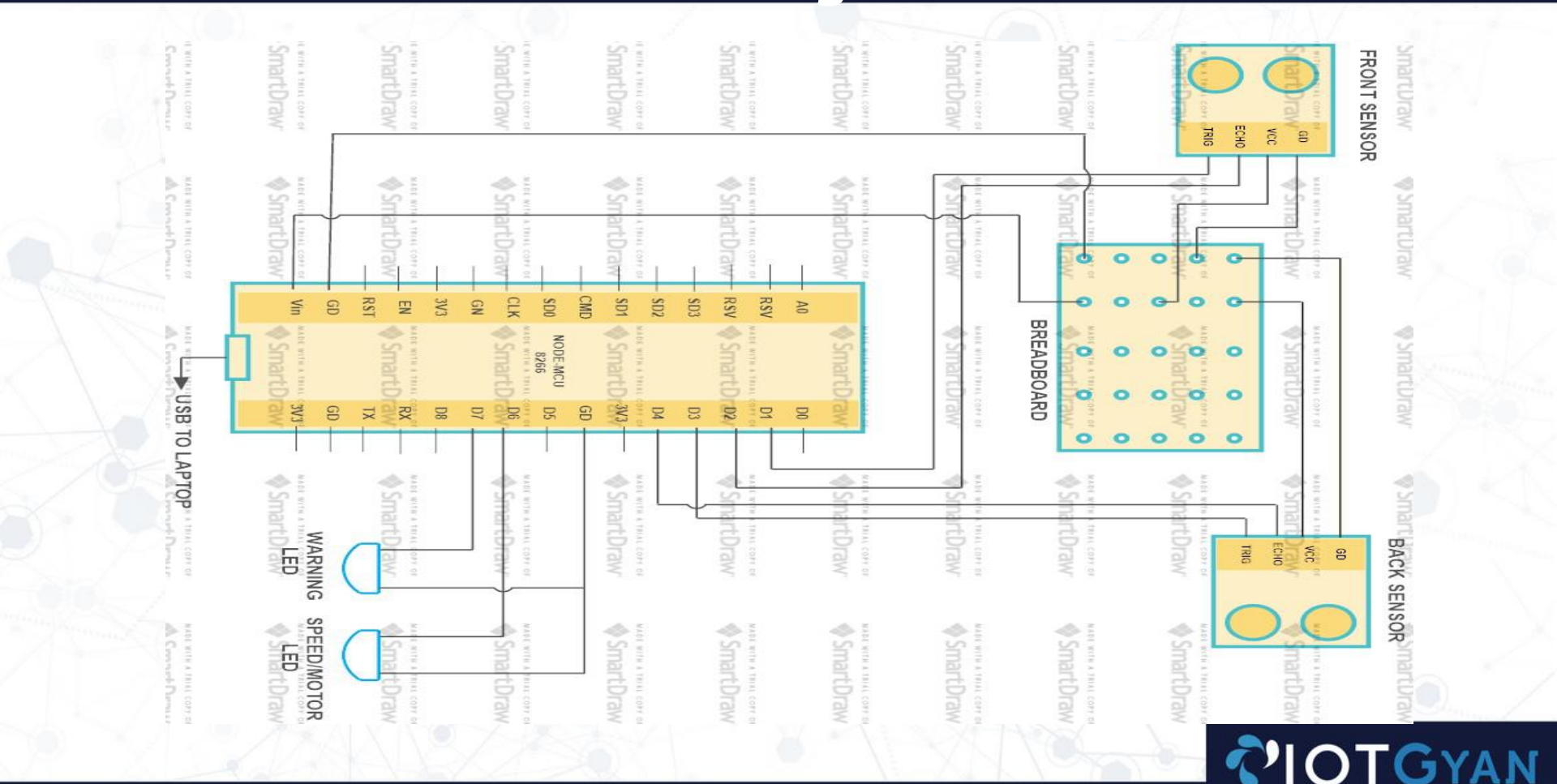
Block Diagram



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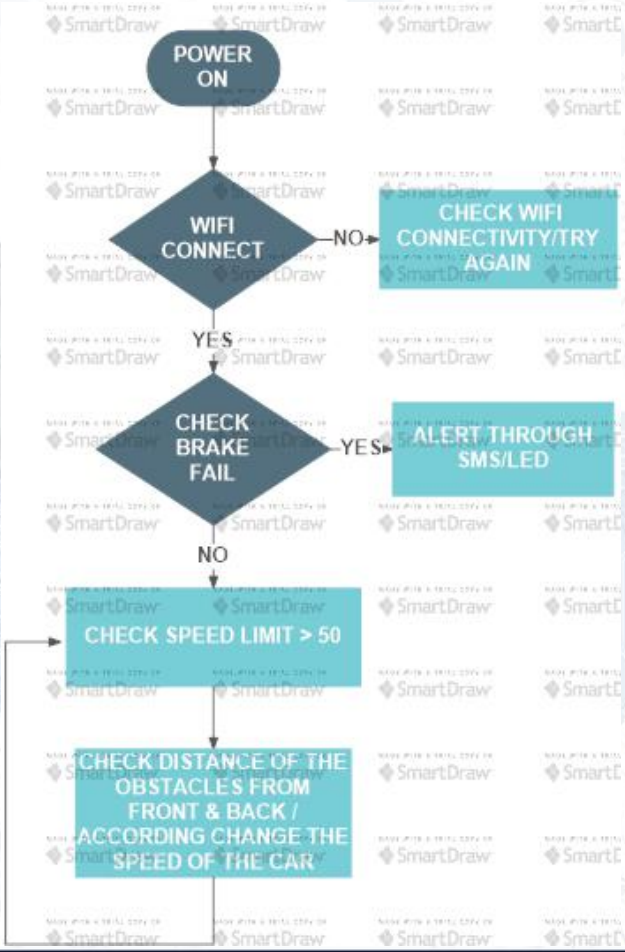
Flow Diagram



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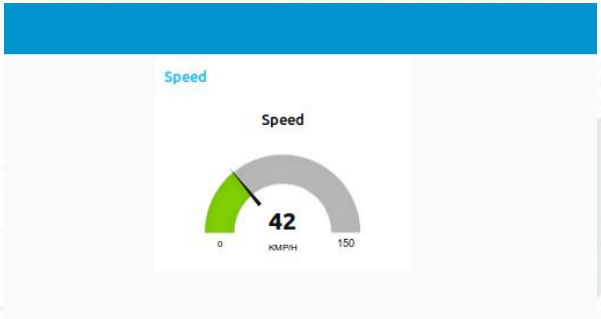
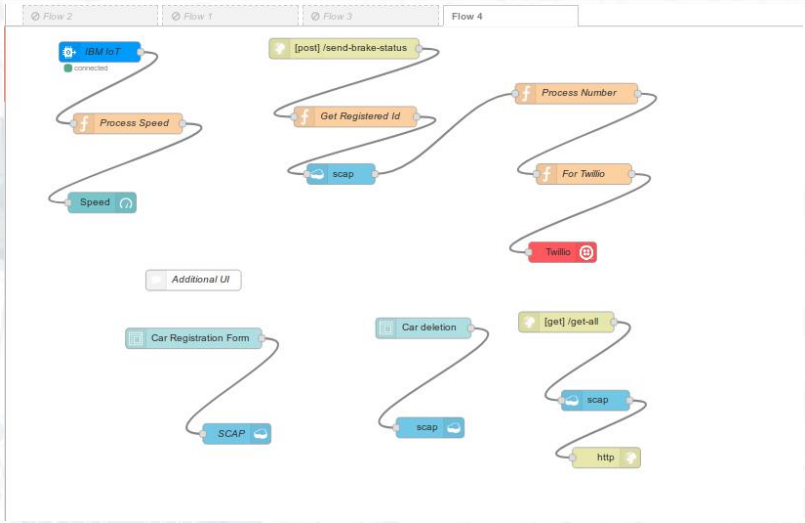
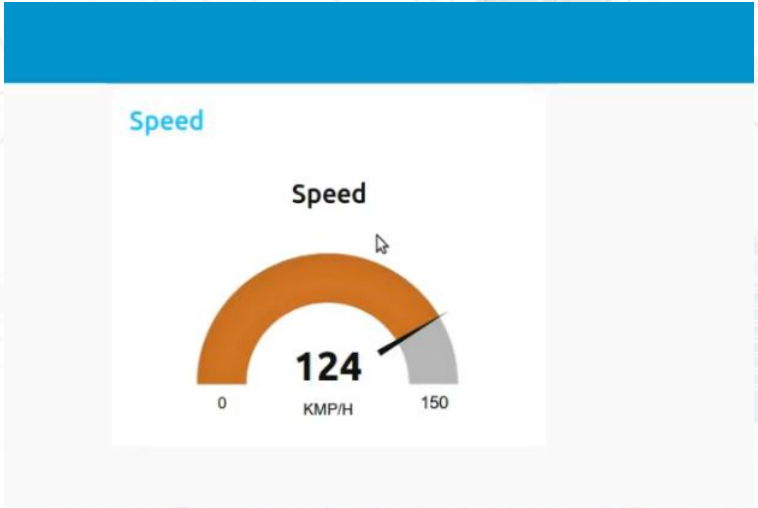
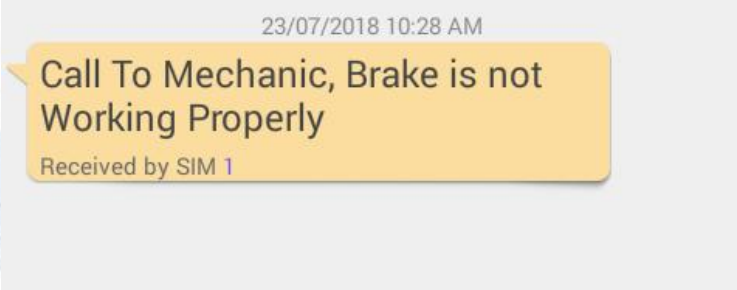
Results









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Advantages & Disadvantages

Advantages

- Our main motive to make this project is to reduce road accidents and **save life not only the mankind but also the stray animals** which accidentally come on the way.
- This will also **reduce the accidents in bad environmental conditions like fog, smog**.
- **Alerts** will be helping in **gaining the drivers attention** back on the road
- Medical and other helps can reach the spot better

Advantages & Disadvantages

Disadvantages

Drivers may show negligence while driving by over relying on the sensors

Sudden brakes may lead to internal injuries.

Failure of sensors may lead to accidents

Any Queries??

DCoders are thankful for your valuable time