# Ideation Phase
# Literature Survey

Team Id : PNT2022TMID52636

Project Name : Signs with smart connectivity for better road safety

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Paper : Development and Testing of Road Signs Alert System Using a Smart Mobile Phone(2022)
Authors : Eric M. Masatu , Ramadhani Sinde , and Anael Sam

| Parameters considered | Methodology used | Components used | Advantages |
|---|---|---|---|
| Data from sensors like, light detection and ranging(LIDAR), video image detectors, ultrasonic sensors, acoustic sensors, microwave sensors and On-board transponder units | The vehicles are connected with one another and are called as connected vehicles, which communicate the signal location with one another and also the extent of any vehicle collision if any. | LIDAR<br>video image detectors, ultrasonic sensors<br>Inductive magnetic loops<br>Capacitive sensor<br>vibratory sensor, accelerometer, infrared etc | Mobility efficiency improvement and environmental performance improvement. Advanced traffic control strategies implementation. Life-cycle analysis of construction and maintenance costs and energy inputs examination.safety and security performance improvements<br>Long term validity. |

Paper : Smart Road Safety and Accident Prevention System.(2022)
Authors : Pramod Mali , Aditya Pachpunde , Rohit Ballal , Yash Kulkarni

| Parameters considered | Methodology used | Components used | Advantages |
|---|---|---|---|
| The distance between the vehicles approaching the curve and the ultrasonic sensor placed at the curve | Ultrasonic sensors present will detect the approaching vehicles and send the signal to the LED lights, whether the vehicle is coming in the correct direction(Green) or not(Red) | • AT mega 328p<br>• Ultrasonic sensor<br>• LDR<br>• Metal Oxide Semiconductor Field Effect Transistor(MOSFET)<br>• Solar Panel | 1. The goal of the project is to reduce the number of accidents<br>2. This system helps people to drive day and night carefully<br>3. With the help of this system we can save thousands of lives. |

Paper : Smart roads: A state of the art of highways innovations in the Smart Age(2021)
Authors : Andrea Pompigna , Raffaele Mauro

| Parameters considered | Methodology used | Components used | Advantages |
|---|---|---|---|
| Vehicle speed, location of the road sign, distance between the road sign and the vehicle | When the vehicle is in the vicinity of the road sign, an alert sign is sent to the vehicle to alert the driver so that the driver has a prior knowledge about the upcoming road sign | GPS sensor<br>Inertia measure unit<br>IDE for android studio and google map API | Accidents can be reduced and since the driver is aware of the road sign, there is very less chance that he will be fined for not following the rules |

Paper:Smart Real-Time Tracking and Controlling System During Health Emergency for Improved Road Safety(2021)
Authors :Nithish M, Thippesha J, Yathishgowda H R, Nagaraju J N , Yaswanth Kumar B

| Parameters considered | Methodology used | Components used | Advantages |
|---|---|---|---|
| This paper takes into consideration the inputs like the vehicle details, the family information, driver's health, road condition, location of the vehicle | To effectively communicate the message between driver and the signal. Since the system is activated only during emergency situations, main control and sub control units are used with sub control under the control of main control unit. | Infra red sensor<br>Motion sensor<br>Ultrasonic sensor<br>Permanent magnetic stepper motor<br>GPS and GSM module<br>Arduino sub-control unit<br>Raspberry Pi main control unit<br>DC motor | The emergency vehicles will be able to travel with ease since the communication is effective<br>The parking system considers all the possible obstacles that will occur during a parking |

Paper : Application of IoT and Artificial Intelligence in Road Safety (2022)
Authors : Srimantini Bhattacharya, Harsh Jha , Radhikesh P. Nanda

| Parameters considered | Methodology used | Components used | Advantages |
|---|---|---|---|
| Real time traffic details and other details about the vehicles and the trip details, speed limit, GPS. Driver and pedestrian's behaviours also taken into consideration. | With the help of artificial intelligence and IOT to get the details, the model predicts the likelihood of any actions that may cause accident and alerts the driver to take the necessary precautions | PI camera<br>Alcohol sensor<br>Gas sensor<br>Cloud storage device | Detecting human behaviour to take actions in case of negligence<br>Detecting the conditions of the path of travel and alerting the driver and the upcoming vehicles during any event that damaged the road. |

Paper : IoT Based Smart Road Safety and Vehicle Accident Prevention System for Mountain Roads (2021)
Authors : Kailas Shinde , Pranjal Shinde , Shivani Valhvankar , Swapnil Narkhede

| Parameters considered | Methodology used | Components used | Advantages |
|---|---|---|---|
| Light from the vehicles, the vehicle details, distance from the vehicle and sensors, and other basic requirements like speed, location and inputs form GSM module are considered | The model is placed at the curves and bends of the mountain region and gets the input from the proximity sensors. The proximity sensors will the show the number of vehicles approaching to the vehicles to the other end. | Ultrasonic sensor<br>Arduino Uno<br>LED<br>Accelerometer<br>SIM 808 | Accidents occurring at the curves and bends are reduced.<br>If at all any accidents do happen, the system will inform the same to their family members<br>The location of the place of accident is also shared with the family member and to the emergency services for immediate assist |

Paper : IoT Based: Smart Traffic Light Controller
Authors : Faisal Al Kalbani, Nada Al Bulushi, Syed Imran

| Parameters considered | Methodology used | Components used | Advantages |
|---|---|---|---|
| Vehicle type,Calling the system using GSM technology,number of vehicles passing,traffic congestion | • The traffic density is measured b IR sensors.<br>• RFID technology is used for ambulance vehicles to give a green path.<br>• The system uses cameras for detecting traffic congestions and controlling signals.<br>• There is one camera for each direction fixed alongside the traffic light. | • Arduino UNO<br>• RFID<br>• IR sensors | • The system detects how long is the congestion in one direction and will give the traffic light a suitable time to let all vehicles passing the congestion smoothly.<br>• The system gives priority for passing for emergency vehicles. |

Paper : Priority Based Traffic Management System
Authors : Deepika G, Kowsalya S, Prathushalaxmi B

| Parameters considered | Methodology used | Components used | Advantages |
|---|---|---|---|
| Region of interest of vehicles in that locality, which also time dependent and location dependent.Traffic congestion, types of vehicle. | The Blynk application is integrated with the traffic signal using ESP8266 wifi module.This application will be controlled by the ambulance driver to change the traffic signal. The light changes to blue when he does so. | • ESP8266<br>• Transformer | This system will make less complexity for the ambulance to cross the traffic signal. |

Paper : Android Controlled Smart Notice Board Using IoT
Authors : Akasha J, Avinasha N , Chaitra M , Mnu D K ,Yogeesha G

| Parameters considered | Methodology used | Components used | Advantages |
|---|---|---|---|
| • Information in the form of image, text, pdf etc.,<br>• the user data is collected and it's fed to the memory of the system | The client here is the authorized user, and the server is Raspberry Pi. The message sent to the client is stored in a text file on Raspberry Pi and hard disk. The message is displayed on the LCD screen. The proposed system also implemented with a web application. | • Raspberry pi<br>• LCD display<br>• HDMI cable | • Information dissemination is much easier in a paperless community.<br>• Here the authorized user can control notice board through internet.<br>• So information can be sent anywhere in the world and can be displayed within seconds |