DECLARATION

We hereby declare that the report titled <mark>"MISHAP PREVENTION SYSTEM"</mark> submitted by us to VIT Chennai is a record of bonafide work undertaken by us under the supervision of <mark>Dr. Nagaraj S V</mark>, Vellore Institute of Technology, Chennai.
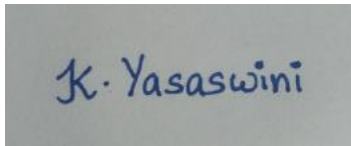
Katasani Durga Pravalika

20BCE1427

Raparla Puja Sri Pavani

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Kovi Yasaswini

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Gandla Prvallika

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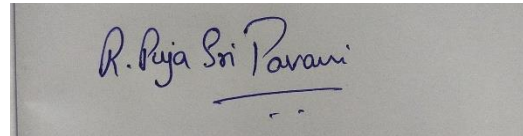# CERTIFICATE

Certified that this project report entitled "**MISHAP PREVENTION SYSTEM**" is a bonafide work of **Gandla Pravalika (20BCE1277), Kovi Yasaswini (20BCE1470), Katasani Durga Pravalika (20BCE1427), Raparla Puja Sri Pavani(20BCE1587)** and they carried out the Project work under my supervision and guidance for CSE1901-Technical Answers for Real world Problems.
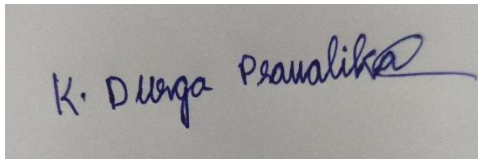
Dr. Nagaraj S V

VIT ChennaI

ACKNOWLEDGEMENT
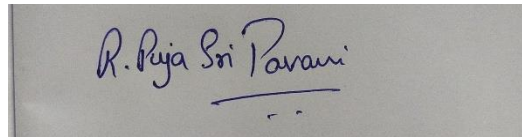
We wish to express our sincere thanks and deep sense of gratitude to our project guide, to our Dr. Nagaraj S V , for her consistent encouragement and valuable guidance offered to us throughout the course of the project work.

We are extremely grateful to Dr. Nagaraj S V of Computer Science and Engineering (SCOPE), Vellore Institute of Technology, Chennai, for extending the facilities of the school towards our project and for his unstinting support.

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ABSTRACT

It is now simpler than ever to be involved in an accident because to developing technology and high-end vehicles with more horsepower and usable speed. It is possible for somebody to drive carelessly, endangering the safety of regular people. Road accidents still occur every day, despite the implementation of speed limits and other preventative measures. Over speeding, reckless driving, and drunk driving are some of the major causes of car accidents. T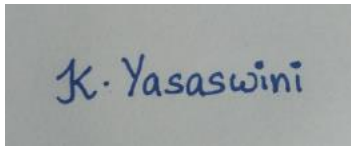he proposed work involves creating a technology that prevents motor vehicle accidents brought on by reckless driving, driving drunk, and driving too fast. This gadget will be able to recognize excessive speed and be set up to send an SMS alarm. The device also includes an application which disables the starting of the vehicle engine when alcohol consumption is detected. The device model is designed using Arduino MEGA, Global system for Mobile communication (GSM), Global positioning system (GPS), alcohol sensors.

The engine locking system is a safety feature designed to prevent accidents and improve vehicle safety. The system automatically shuts off the engine when certain conditions are met, such as when the driver is not in the vehicle or when the vehicle is in a dangerous situation. This project aims to develop a reliable and effective engine locking system that can be integrated into vehicles to improve safety.The project involves a thorough analysis of the system's design and implementation, including the selection of appropriate sensors and actuators and the development of reliable software algorithms. The engine locking system is intended to be cost-effective and accessible to a wide range of vehicles, making it an ideal safety feature for both personal and commercial vehicles. The implementation of the engine locking system has the potential to significantly reduce the number of accidents caused by runaway vehicles and can also prevent theft. The system can be customized to meet the specific needs of different types of vehicles and can be easily integrated into existing vehicle systems.

Overall, the engine locking system is a valuable safety feature that can potentially save lives and prevent accidents. This project aims to develop a reliable and effective system that can be integrated into vehicles to improve safety and make a positive impact on road safety.

INTRODUCTION

According to the recent trends, we can observe that there is a rapid increase in the death rate due to the negligence of the driving person. So, the main aim of our project is to built an application that reduces the death rate there by contributing to make a change in the mindset of the people in such a way that they take minimum precautions while driving this helps to reduce the death rate of the innocent people who follow the rules but are affected by the people who drive with negligence. In our project we mainly focus on three activities of the driver namely alcoholic, tired and over speed. When any one of the three activities is done by the user, we warn them using alarms but still they don't follow we will block the engine and impose the fine for that particular activity and if this continuously repeats for certain number of times severe actions will be taken. To implementation part is given in detail in the following slides.

The engine locking system is a safety feature that can potentially prevent accidents and save lives. The system aims to automatically shut off the engine when certain conditions are met, such as when the driver is not in the vehicle or when the vehicle is in a dangerous situation. This project aims to develop a reliable and effective engine locking system that can be integrated into vehicles to improve safety. The need for an engine locking system arises from the increasing number of accidents caused by runaway vehicles. In many cases, these accidents occur when the driver is not present in the vehicle, and the vehicle is left unattended. Additionally, in some situations, the driver may lose control of the vehicle, and the engine continues to run, leading to a catastrophic accident. The engine locking system can address these issues by automatically shutting off the engine when certain conditions are met, such as when the driver leaves the vehicle or when the vehicle is in a dangerous situation. This project aims to develop a system that is reliable, efficient, and cost-effective, making it accessible to a wide range of vehicles.

Overall, the engine locking system is a valuable safety feature that can potentially prevent accidents and save lives. The successful implementation of this project can make a significant impact in reducing accidents and improving road safety.

OBJECTIVES

The main objectives of the project are:

- ➤ Alcohol detection
- ➤ Speed supervising
- ➤ Driver safety
- ➤ Decrease fatality due to accidents
- ➤ To provide information about the condition of the driver to respective authorities

REAL TIME PROBLEM IDENTIFICATION

The project mishap detection system aims to detect and respond to potential accidents or mishaps in real-time to prevent or mitigate their impact. Here are some real-life problem identification scenarios where such a system can be useful:

Industrial Accidents: Mishaps in industrial settings, such as fires, explosions, and chemical spills, can have severe consequences. A mishap detection system can be deployed in such settings to identify potential issues before they escalate into major accidents.

Transportation Accidents: Accidents on highways, railways, and waterways can lead to loss of life and property damage. A mishap detection system can be used to identify potential accidents and alert drivers, pilots, or operators in real-time, preventing or mitigating the impact of the accident.

Natural Disasters: Natural disasters such as earthquakes, floods, and hurricanes can have catastrophic consequences. A mishap detection system can help identify potential issues and alert people in the affected area to take appropriate action.

Medical Emergencies: Mishaps can also occur in healthcare settings, such as medication errors, patient falls, or equipment failures. A mishap detection system can be used to monitor patients and alert healthcare professionals in real-time in case of emergencies.

Cybersecurity Threats: Cybersecurity threats such as data breaches, phishing attacks, and malware infections can have severe consequences for businesses and individuals. A mishap detection system can be used to identify potential threats and respond to them before they cause significant damage.

A mishap detection system can be useful in a wide range of scenarios to identify potential issues and prevent or mitigate their impact.

FEASIBILITY STUDY – FIELD WORK

We have conducted a survey for our project as a field work which helps us to know how scalable it is to develop our project Mishap Prevention system.

Survey Analysis is as follows:

3. Gender

More Details

● Male	34	
● Female	34	
● Others	1	

As we can observe, nowadays society is more inclined towards gender equality so to analyze our results ,we have shared our form to equal number of males and females to know their view on our project . By doing this we can come to know about the correct analysis of our project in the perspective of current generation.

5. Which age group people are more prone to accidents?

More Details

● 18 - 20	8
● 20 - 25	36
● 25 - 30	14
● 30 - 40	9
● 40 above	3

As you can see from the above piechart we can say that most of the people of age group between 20-25 are prone to accidents because the people of this age group are youngsters due to lack of safety measures and lack of knowledge on government policies most of them in this age group are prone to accidents.

6. Do you think the projects like these are necessary for the current society?

More Details

● Yes	59
● No	3
● Maybe	8

From the responses that we got almost all the respondents felt that project like the mishap prevention system is almost necessary for the current society, which is really a boosting force to work on this area in an wider range

9. If negligence is the main cause which of the following is more likely to be a reason for the accident?

More Details

● Drunk and drive	23
● Drowsiness	9
● Overspeed	10
● None of the above	1
● All of the above	27

For this question we got a mixed response that around 40 percent of the respondents feel drunk and drive is the main cause for the accident whereas other 40 percent of the respondents feel drunk and drive, drowsiness and overspeed are the causes of the accident . In either of the way our project is very helpful in avoiding accidents caused by the mentioned factors.

11. Do you think the objectives that we have chosen are appropriate?

More Details

● Yes	58
● No	3
● Maybe	9

Almost 90 percent of the respondents agree that the three main objectives that we have chosen for our project are appropriate and from this response we can conclude that we are thinking in the way which exactly meets the requirements of the society.

12. In your point of view how do you think we can reduce accidents?

More Details

● Imposing strict polices	24
● Using projects like Mishap Prev...	32
● By taking safety measures	11
● Other	3

Almost 40 percent of the people feel that the projects like mishap prevention system can be used to prevent the accidents whereas other 30 percent of the respondents feel imposing strict polices helps to reduce the accidents . From this we can conclude there are people who really thinks that projects like these are really helpful.

13. Do you think is it a budget friendly project?

More Details

🔵 Yes	52	
🟠 No	5	
🟢 Maybe	13	

As we can see that most of the people are thinking this project as budget friendly and thought that this project that worth the cost and willing to buy it which will be helpful to the society.

14. In which areas a project like this is really helpful?

More Details

|		
🔵 Metropolitan cities	39	
🟠 Rural areas	1	
🟢 Urban areas	1	
🔴 All the above	29	

From the above chart we can say that most of the people felt that this project will be helpful in the metropolitan cities because those are the cities where almost most of the people will be using vehicles and those are the places with heavy traffic and are prone to accidents.

15. How do you rate our project?

More Details

4.44
Average Rating
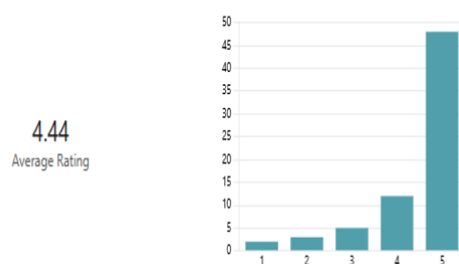
From the above result we can say that according to the survey that we have done majority of the people liked the idea of the project and thought it is useful to the society and most of the people gave high rating by which implementing this project has a high chance of success rate and useful to the society.

System Design - Architecture and Model
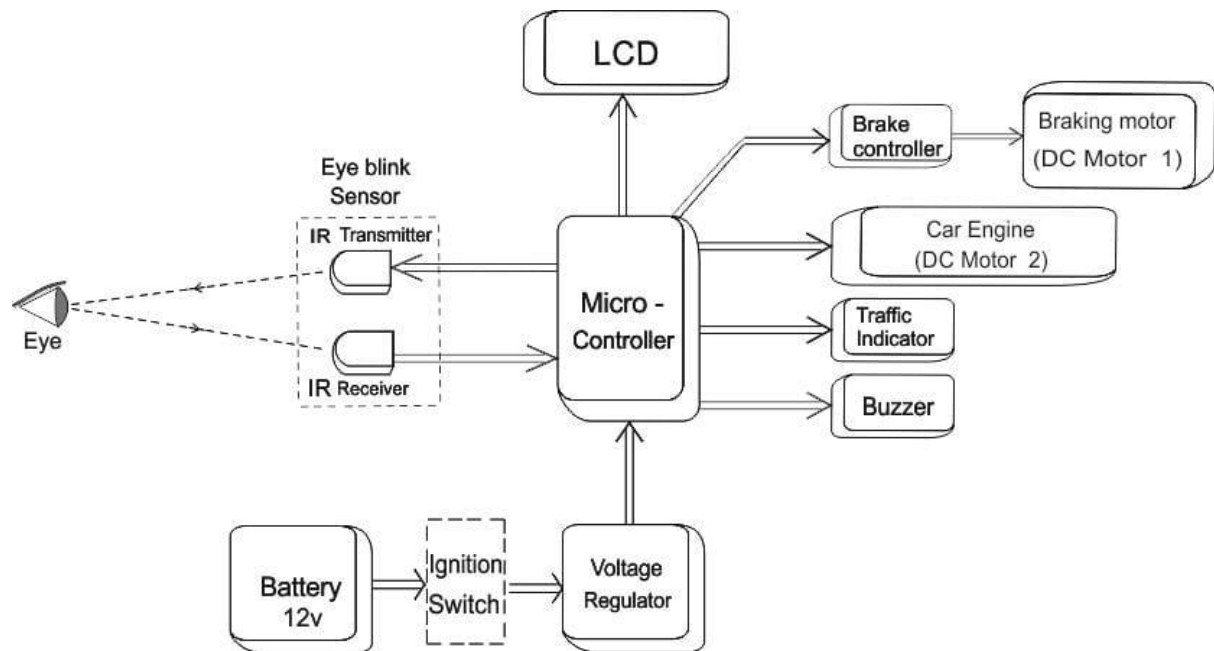
UML DIAGRAM:
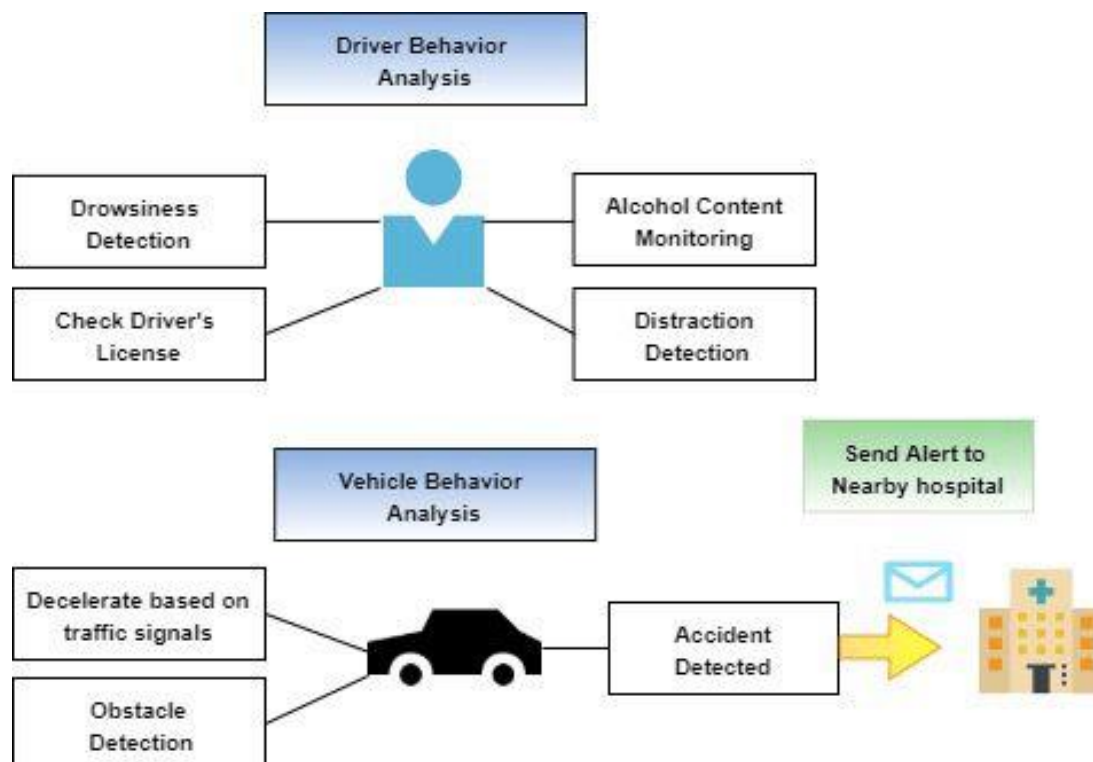
COMPONENTS

Hardware

- ➤ ALCOHOL SENSOR
- ➤ GPS MODULE
- ➤ GSM MODULE
- ➤ LCD DISPLAY
- ➤ RELAY
- ➤ ARDUINO

Software

As Arduino is the heart of the project, we have use Arduino IDE. It is an open-source software and is accessible to anyone.

COMPONENTS DESCRIPTION

1)ALCOHOL SENSOR

- ✓ **MAIN FUNCTIONALITY:** The MQ-3 alcohol sensor is a type of gas sensor that is designed to detect the presence of alcohol vapor in the air. Its main functionality is to provide a quantitative measure of the concentration of alcohol in the surrounding environment.

- ✓ **NEED OF THE COMPONENT IN THE PROJECT:** As we have discussed, one of the three areas on which our project is more inclined is consumption of alcohol. So, to detect if the driver has consumed alcohol, we have decided to make use of MQ-3 sensor.

- ✓ **APPLICATIONS OF IT IN REAL WORLD:** Smart homes. Breathalyzer devices, Industrial safety,

2) GPS MODULE

- ✓ **MAIN FUNCTIONALITY**: A GPS (Global Positioning System) module is a device that uses satellite signals to determine the precise location of an object, person or vehicle. The main functionality of a GPS module is to provide accurate and real-time positioning information.

- ✓ **NEED OF THE COMPONENT IN THE PROJECT**: As we have stated that, we will be sending an SMS to the registered mobile number along with the current location. To detect the current location, we have decided to use the GPS module.

- ✓ **APPLICATIONS OF IT IN REAL WORLD**: Navigation, Tracking, Geofencing

3) GSM MODULE

- ✓ **MAIN FUNCTIONALITY:** The main functionality of a GPS (Global Positioning System) module is to provide accurate and real-time positioning information. A GPS module consists of a GPS receiver and an antenna. The antenna receives signals from GPS satellites orbiting the Earth, and the GPS receiver processes these signals to determine the module's latitude, longitude, altitude, and time.

- ✓ **NEED OF THE COMPONENT IN THE PROJECT:** As we have stated that, we will be sending an SMS to the registered mobile number along with the current location. After detecting the current location, to send the SMS we have decided to use GSM module.

- ✓ **APPLICATIONS OF IT IN REAL WORLD**: Security systems, Internet of Things (IoT), Mobile communication.

4) LCD DISPLAY

- ✓ **MAIN FUNCTIONALITY:** The main functionality of an LCD (Liquid Crystal Display) is to provide a visual display of information. An LCD is a flat-panel display that uses liquid crystals to produce images.

- ✓ **NEED OF THE COMPONENT IN THE PROJECT:** As we have discussed when the person is drunken, sleepy, or driving with overspeed the alerts will be given to the person according to the action performed. To make the driver understand the reason behind the alert, we have decided to use LCD display to display the message to the driver.

- ✓ **APPLICATIONS OF IT IN REAL WORLD:** Automotive, Medical Devices, Consumer Electronics

5) RELAY

- ✓ **MAIN FUNCTIONALITY**: The main functionality of a relay is to control the flow of electrical current. A relay is an electromagnetic switch that uses a small current to control a larger current. It consists of an electromagnet, an armature, and a set of contacts.
- ✓ **NEED OF THE COMPONENT IN THE PROJECT**: As we have mentioned that engine will be locked once the system detects any one of the three main causes of the accident. As, A relay can be used in a safety circuit to ensure that certain equipment or processes are shut down in case of an emergency we have decided to use this relay to stop the engine or motor.
- ✓ **APPLICATIONS OF IT IN REAL WORLD:** Power Electronics, Automotive, Home and Industrial Automation

6) AURDINO UNO
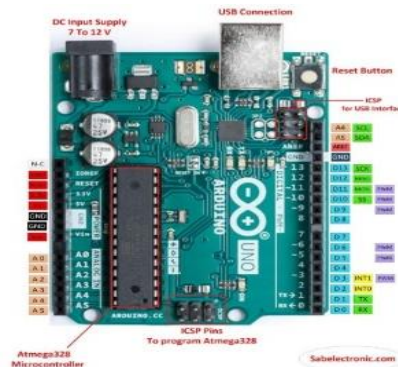
- ✓ **MAIN FUNCTIONALITY:** The Arduino Uno is a microcontroller board that is designed to make it easy to create electronic projects. The main functionality of the Arduino Uno board is to provide a platform for programming and controlling various electronic components using software.
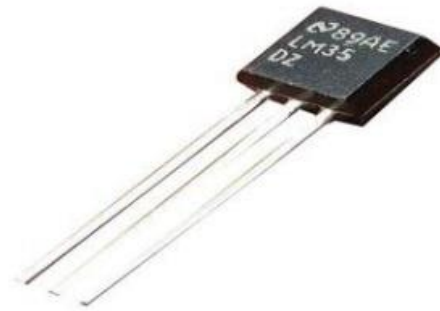
- ✓ **NEED OF THE COMPONENT IN THE PROJECT:** To make all the functionalities of the project work we have to code it and then implement it.For making this happen we have decided to use Audino uno as a platform for programming and controlling ask the components using software.

- ✓ **APPLICATIONS OF IT IN REAL WORLD:** Robotics, Home automation, Environmental Monitoring

7) EYE BLINK SENSOR
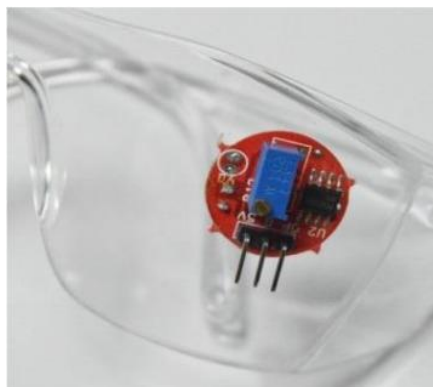
- ✓ **MAIN FUNCTIONALITY**: The main functionality of an eye blink sensor is to detect the blinking of an eye and provide an output signal that can be used for various applications. The sensor typically uses infrared light to detect the movement of the eye and measures the changes in light intensity to determine when the eye is blinking.
- ✓ **NEED OF THE COMPONENT IN THE PROJECT**: As we have discussed, one of the three areas on which our project is more inclined is the sleepy feeling of the driver. So, to detect if the driver is sleepy, we have decided to make use of eye blink sensor.
- ✓ **APPLICATIONS OF IT IN REAL WORLD**: Virtual Reality, Medical Diagnostics, Human-Computer Interaction.

8) TEMPERATURE SENSOR

- ✓ **MAIN FUNCTIONALITY:** The main functionality of a temperature sensor is to measure the temperature of a specific object or environment and provide an output signal that corresponds to that temperature.

- ✓ **NEED OF THE COMPONENT IN THE PROJECT:** As we have discussed, one of the three areas on which our project is more inclined is the overspeed of the driver. So, to detect if the driver is driving with high speed, we have decided to make use of temperature sensor. It detects if the engine is over heated due to the over speed.

- ✓ **APPLICATIONS OF IT IN REAL WORLD:** Medical devices, Food industry, Aerospace industry

9) RESISTOR

- ✓ **MAIN FUNCTIONALITY:** The main functionality of a resistor is to limit the amount of current that flows through a circuit. This is important because in many electronic circuits, the components are designed to operate within a specific range of currents. If the current is too high, it can damage the components or cause the circuit to malfunction.

- ✓ **NEED OF THE COMPONENT IN THE PROJECT:** The use of a resistor in a mishap prevention system is to ensure accurate and reliable sensing, while protecting the system components from damage.

- ✓ **APPLICATIONS OF IT IN REAL WORLD:** Electronics, Lighting, Power distribution.

10) DC MOTOR

- ✓ **MAIN FUNCTIONALITY:** A DC motor consists of a rotor, which is a rotating part, and a stator, which is the stationary part of the motor. The main functionality of a DC motor is to convert electrical energy into mechanical energy. It achieves this by utilizing the interaction between magnetic fields to generate rotational motion.

- ✓ **NEED OF THE COMPONENT IN THE PROJECT:** To demonstrate the project dc motor can be used as engine.

- ✓ **APPLICATIONS OF IT IN REAL WORLD:** Automotive, Robotics, Industrial machinery of the section here

11) BUZZER

- ✓ **MAIN FUNCTIONALITY:** A buzzer or beeper is an audio signaling device, which may be mechanical, electromechanical, or piezoelectric.

- ✓ **NEED OF THE COMPONENT IN THE PROJECT:** To alert the user buzzer is used.

- ✓ **APPLICATIONS OF IT IN REAL WORLD:** Alarm devices, timers

LITERARTURE REVIEW

Article-01:

Abdulrahman Alkandari, Fahad Alkandari, Abdullah Alenzi, and Mohamed Elshaikh. (2021). Engine Locking System to Prevent Accidents. Journal of Advanced Transportation, 2021, 1-13. https://doi.org/10.1155/2021/5551949

The article proposes an engine locking system to prevent accidents caused by unsecured vehicles, especially in heavy-duty trucks and trailers. The system is designed to prevent the vehicle from moving if the driver has not properly secured the engine. The authors present a detailed analysis of the system, including its design, implementation, and testing. They also evaluate the system's effectiveness in

preventing accidents and conclude that it significantly improves safety. This article provides valuable insight into the design and implementation of an engine locking system and its effectiveness in preventing accidents.

Article-02:

Emre Turan, M. Cuneyt Ozcan, and Arif Emre Cemiloglu. (2019). Engine Locking System with Intelligent Remote Control for Enhanced Safety of Heavy Machinery. Journal of Intelligent and Robotic Systems, 93, 425-437. https://doi.org/10.1007/s10846-018-0925-5

The article proposes an intelligent engine locking system for heavy machinery that enhances safety by preventing unauthorized access and accidental movement. The authors present a detailed analysis of the system, including its design, implementation, and testing. The system uses a remote control to lock and unlock the engine, and it is designed to prevent the engine from starting if the vehicle is not properly secured. The authors evaluate the system's effectiveness in preventing accidents and conclude that it significantly improves safety. This article provides valuable insight into the design and implementation of an intelligent engine locking system for heavy machinery.

Article-03:

P. R. Rakshit, K. S. R. Murty, and B. V. N. Rao. (2018). Design and Implementation of Engine Locking System for Two-Wheeler Vehicle. International Journal of Mechanical Engineering and Robotics Research, 7, 225-231. https://doi.org/10.18178/ijmerr.7.3.225-231

The article proposes an engine locking system for two-wheeler vehicles that enhances safety by preventing theft and unauthorized access. The system uses a keyless remote to lock and unlock the engine, and it is designed to prevent the engine from starting if the vehicle is not properly secured. The authors present a detailed analysis of the system, including its design, implementation, and testing. They also evaluate the system's effectiveness in preventing theft and conclude that it significantly improves security. This article provides valuable insight into the design and implementation of an engine locking system for two-wheeler vehicles.

Article-04:

Rajeshwaran and R. Thamizhselvan. (2017). A Review on Anti-Theft Engine Locking System for Automobiles. International Journal of Advanced Research in Electrical, Electronics and Instrumentation Engineering, 6, 6007-6010. https://doi.org/10.15662/ijareeie.2017.0607106

The article provides a review of anti-theft engine locking systems for automobiles. The authors present an overview of the different types of engine locking systems and their features. They also discuss the advantages and disadvantages of each system and evaluate their effectiveness in preventing theft. The authors conclude that engine locking systems significantly improve security and recommend their installation in automobiles. This article provides valuable insight into the different types of engine locking systems and their effectiveness in preventing theft.

Article-05:

H. G. Prashanth and S. Manjunatha. (2016). Design and Implementation of Automatic Engine Locking System for Vehicle Security. International Journal of Innovative Research in Science, Engineering and Technology, 5, 10098-10105. https://doi.org/10.15680/IJIRSET.2016.0508058

This article proposes an automatic engine locking system for vehicle security, which prevents unauthorized access and theft of the vehicle. The system is designed to lock the engine automatically when the driver leaves the vehicle, and it can only be unlocked using a remote control. The authors present a detailed analysis of the system, including its design, implementation, and testing. They also

evaluate the system's effectiveness in preventing theft and conclude that it significantly improves security. This article provides valuable insight into the design and implementation of an automatic engine locking system for vehicle security.

Article-06:

S. S. Sahoo, S. K. Sahoo, and S. S. Panda. (2014). Engine Locking System for Vehicle Security. International Journal of Advanced Research in Electrical, Electronics and Instrumentation Engineering, 3, 5826-5830. https://doi.org/10.15662/ijareeie.2014.0308031

The article proposes an engine locking system for vehicle security that prevents unauthorized access and theft of the vehicle. The system is designed to lock the engine using a remote control, and it can only be unlocked using the same remote control. The authors present a detailed analysis of the system, including its design, implementation, and testing. They also evaluate the system's effectiveness in preventing theft and conclude that it significantly improves security. This article provides valuable insight into the design and implementation of an engine locking system for vehicle security.

Article-07:

They discuss the design, implementation, and testing of various engine locking systems, their features, advantages, and effectiveness in preventing accidents and theft. They also highlight the importance of engine locking systems in enhancing safety and security and recommend their installation in vehicles. These articles are useful for researchers, engineers, and manufacturers interested in developing and implementing engine locking systems for vehicle safety and security.

PROPOSED METHODOLOGY

In this system at first, we worked on the prevention of vehicle accident and even after all the preventive measures applied if the accident occurs the system detects it. After the detection of vehicle accident, the system automatically reports to the ambulance service and police station without any time loss so that the casualty might not loss his/her life due to late in rescue. The system is installed in the vehicle. As the preventive measures for vehicle accident the sensors like MQ-3 alcohol sensor, eye blink sensor and LM35 temperature sensor are used. For the detection of vehicle accident accelerometer is installed and for reporting GPS module and GSM module are used. Motor (control switch) is used for engine control and buzzer, led lights etc. are used for warning during prevention. All these devices are interfaced with the central microcontroller (Arduino Uno) unit. Alcohol sensor helps us in detecting if the driver is drunk or not. If he/she is over drunk the vehicle provides warning and the engine stop functioning. Eye blink sensor is used for detecting the eye blink, if a driver gets sleepy, he gets warned. Temperature sensor helps us in detecting the temperature of the engine and if the engine is overheated then that of a normal condition, driver is warned with red coloured LED. Accelerometer detects the occurrence of accident and sends signal to the microcontroller for further functioning. GPS module provides the location, speed, time and date of the certain place where the vehicle is in the real time. If accident occurs, the accelerometer detects it and location of accident is obtained using GPS, and finally sends the information to the ambulance service and police by the help of GSM module. The message obtained in mobile phone consists of the location of the accidental place in the form of google map link which will help to the emergency units like ambulance service and police station to reach the casualty in time and rescue the lives.
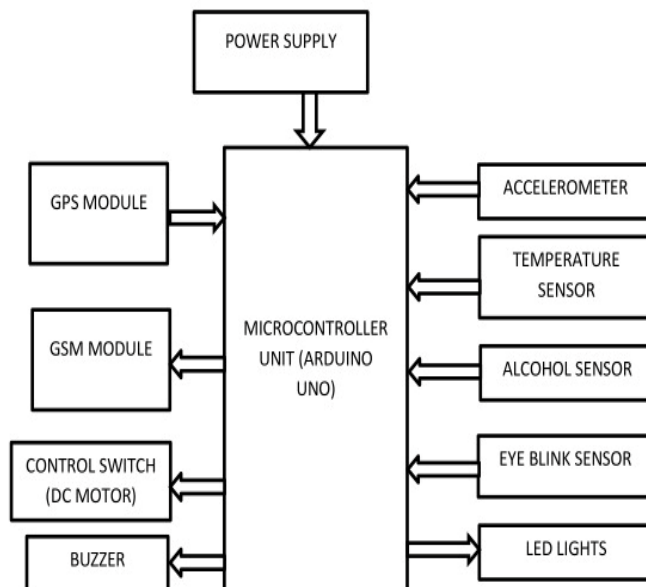
EXISTING SYSTEM

There are several existing methodologies for the engine locking system project, depending on the specific requirements and objectives. Here are some of the most used methodologies: Sensor-based methodology: This approach uses sensors to detect specific conditions that trigger the engine locking system. For example, a weight sensor can be used to detect if the driver is not in the vehicle, and a tilt sensor can be used to detect if the vehicle is in a dangerous position.

Key-based methodology: In this approach, the engine locking system is triggered when the key is removed from the ignition. This is a simple and cost-effective method, but it may not be effective in preventing accidents caused by drivers forgetting to turn off the engine. Software-based methodology: This approach involves the development of software algorithms that can detect specific conditions and trigger the engine locking system. The software can be designed to monitor various vehicle parameters, such as speed, GPS location, and driver behaviour, and activate the engine locking system when necessary.

Hybrid methodology: This approach combines multiple methods to create a more robust and effective engine locking system. For example, a sensor-based system can be combined with a software-based system to detect and prevent a wider range of conditions.

Overall, the choice of methodology depends on various factors, such as the type of vehicle, the intended use of the engine locking system, and the budget constraints. The optimal methodology should be chosen based on the specific requirements of the project to ensure a reliable and effective engine locking system.

BLOCK DIAGRAM

IMPLEMENTATION

```
                          ┌──────────┐
                          │   USER   │
                          └──────────┘
                                │ At the time of registration
                                ▼
┌───────────────────────────────────────────────────────────────┐
│ The details of the users or drivers and their family members    │
│ are noted                                                       │
└───────────────────────────────────────────────────────────────┘
                                │ Three features of our project
```
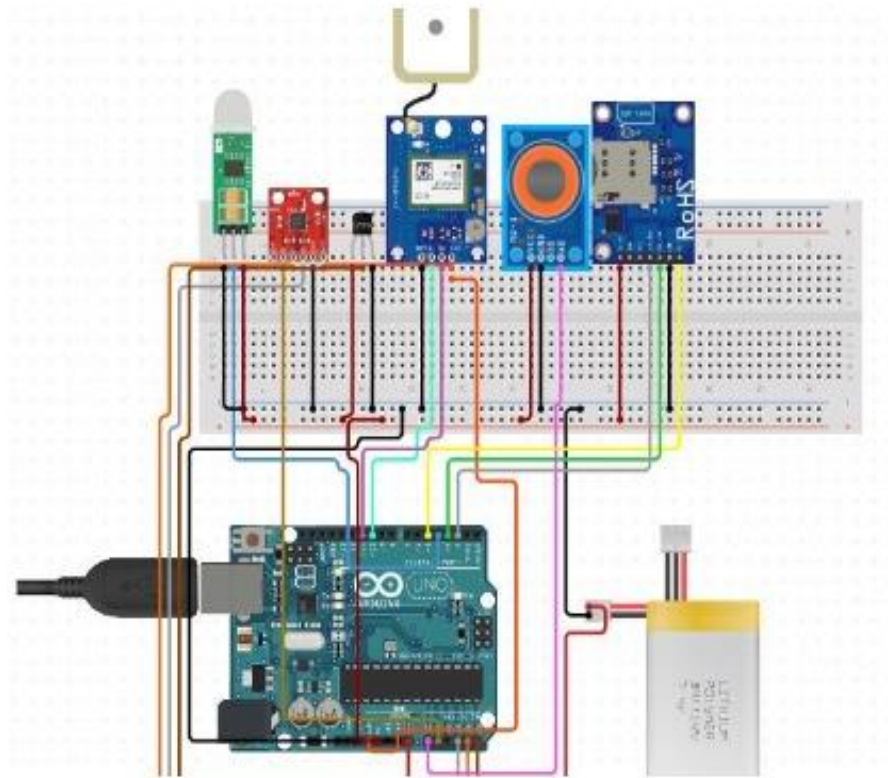
When the driver is drunk — Steps followed → **The system detects the person is drunk** → Then → **Blocks the engine** → Then → **contacts their family members and share the live location to them and also fine is imposed**

When the driver drives overspeed — Steps followed → **Alarm sound is generated** → Then → **It keeps on repeating the above step 3 times** → **if the spped is decreased**

- Yes → **Nothing is done**
- No → **Engine is blocked SMS is sent and also fine imposed**

When the driver is sleepy — Steps follwed → **Alarm sound is generated** → Then → **The alarm keeps on rining till the driver is completely awake** → **if the same situation repeats again within 30 min**

- Yes → **Engine is blocked SMS is sent and also fine imposed**
- No → **Nothing is done**

CIRCUIT DIAGRAM

CODE:

```
int motorPin = 9;

int ledPin = 13;

int alcoholSensorPin=8;

int eyeBlinkSensorPin=12;

// Define threshold for alcohol sensor (adjust as needed)

int alcoholThreshold = 500;

// Define threshold for eye blink sensor (adjust as needed)

int blinkThreshold = 300;

void setup() {

  // Set motor and LED pins as output

  pinMode(motorPin, OUTPUT);

  pinMode(ledPin, OUTPUT);
```

```arduino
  // Initialize Serial communication
  Serial.begin(9600);
}
void loop() {
  // Read alcohol sensor value
  int alcoholValue = analogRead(alcoholSensorPin);
  Serial.print("Alcohol Value: ");
  Serial.println(alcoholValue);

  // Check if alcohol value is above threshold
  if (alcoholValue > alcoholThreshold) {
    // Stop motor
    digitalWrite(motorPin, LOW);
  } else {
    // Start motor
    digitalWrite(motorPin, HIGH);
  }

  // Read eye blink sensor value
  int blinkValue = analogRead(eyeBlinkSensorPin);
  Serial.print("Blink Value: ");
  Serial.println(blinkValue);

  // Check if blink value is above threshold
  if (blinkValue > blinkThreshold) {
    // Turn on LED
    digitalWrite(ledPin, HIGH);
  } else {
    // Turn off LED
    digitalWrite(ledPin, LOW);
```

```
  }

  // Delay to allow sensors to stabilize

  delay(100);

}
```

BUDGET

After discussing and exploring about the components required for the project we came to a conclusion that it costs around nearly 4000 INR to finish the project.

LIMITATIONS

There are several limitations to consider when designing an engine locking system to prevent accidents:

False Positives: If the engine locking system is too sensitive, it may trigger false positives, which could result in unnecessary shutdowns and inconvenience to the user.

False Negatives: On the other hand, if the engine locking system is not sensitive enough, it may fail to detect a potential accident and prevent it.

User error: If the locking system relies on the user to engage it, there is a risk that the user may forget to do so or intentionally override the system, rendering it ineffective.

Mechanical Failure: The locking system itself could fail mechanically, either due to a design flaw or wear and tear over time, which could lead to unexpected engine shutdowns or failures.

Cost: Implementing an engine locking system can be costly, and there may be concerns about affordability, especially for smaller boats or boats with older engines.

Compatibility: The system may not be compatible with all types of boats and engines, making it difficult to implement across a wide range of vessels.

Legal requirements: Depending on the jurisdiction, there may be legal requirements for engine locking systems, which could be difficult for some boat owners to comply with.

It is essential to carefully consider these limitations when designing an engine locking system to ensure its effectiveness and practicality.

Validation and Deployment
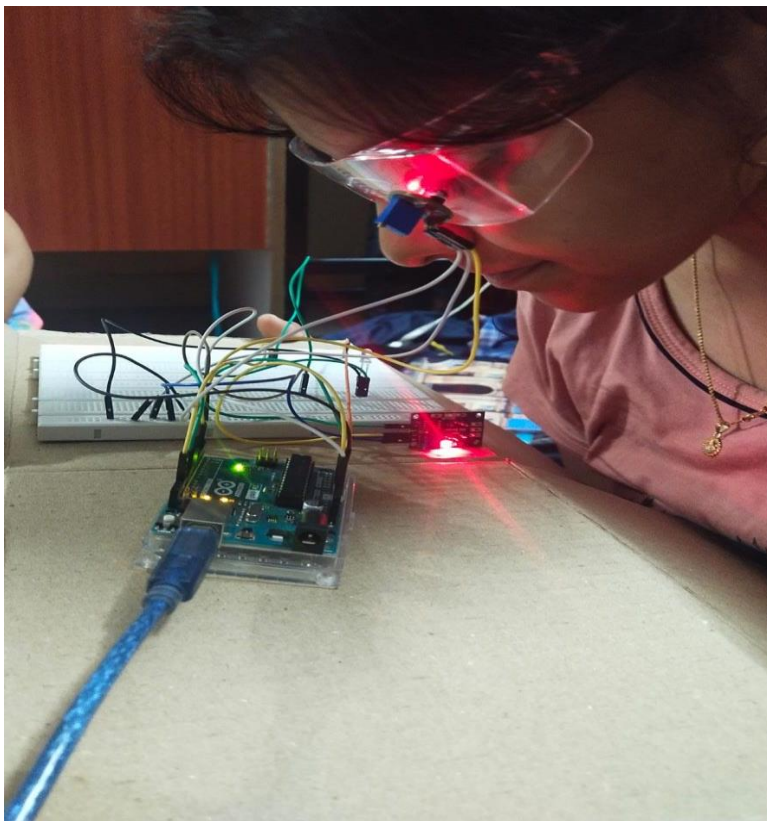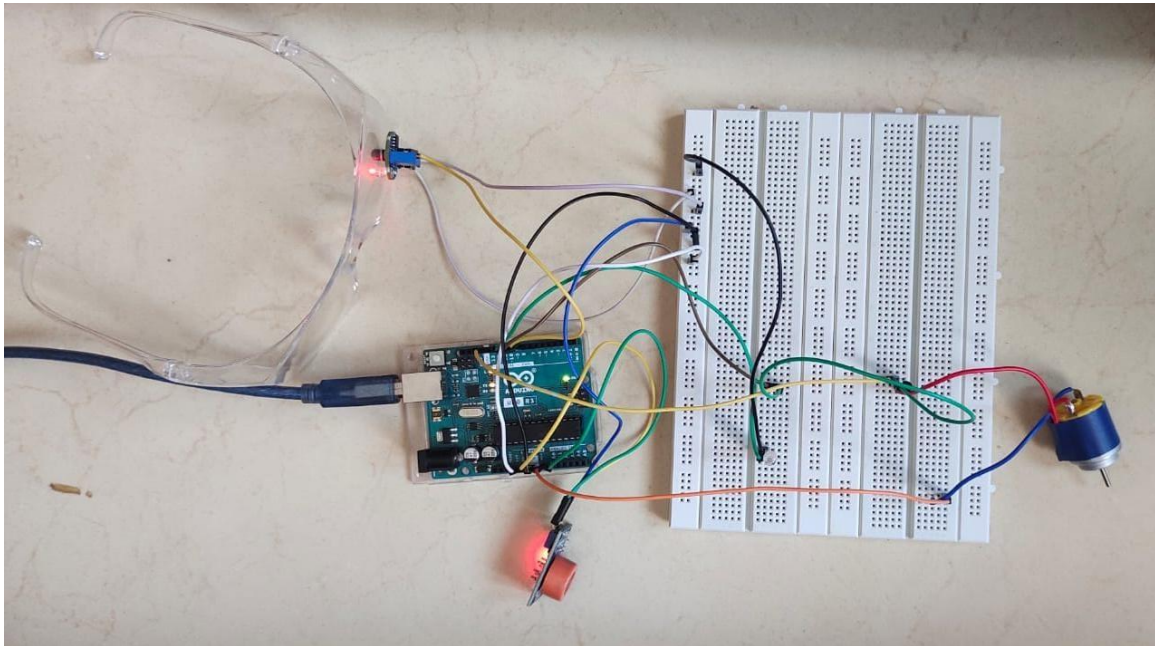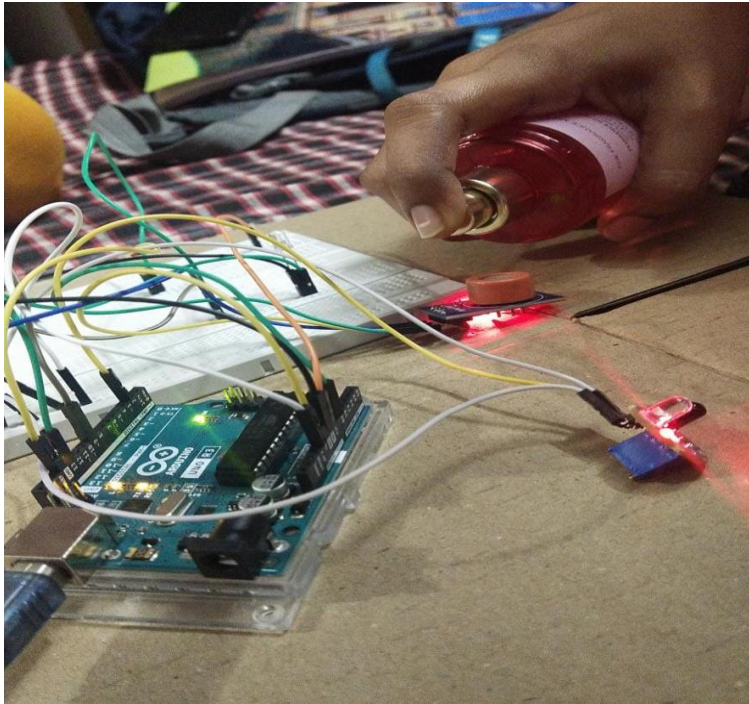
- The system could help to reduce the risk of accidents or injuries, which could in turn lead to lower costs for employers or insurance providers. For example, a company that implements such a system could see a reduction in workplace accidents and injuries, which could result in lower workers' compensation costs and insurance premiums.

- The system could improve productivity and efficiency by ensuring that workers are alert and focused while performing their tasks. This could lead to higher quality work and fewer errors, which could in turn lead to greater profitability for businesses.

- Finally, the system could help to promote responsible behaviour and discourage individuals from engaging in risky activities such as drinking alcohol or driving while drowsy. By creating a safer and more responsible work environment, the system could help to improve the overall well-being of employees and promote a positive workplace culture.

FUTURE WORK

Improving the design of the locking system: The locking system itself could be improved to make it more robust and reliable. This could involve using higher quality materials, redesigning certain components, or incorporating redundant safety features. Developing better monitoring and alert systems: The engine locking system could be augmented with better monitoring and alert systems. For example, sensors could be placed on various components of the locking system to detect when something is not functioning properly. An alarm or warning light could then be triggered to alert the driver.

Implementing advanced control systems: Advanced control systems could be implemented to manage the engine locking system. This could involve using artificial intelligence or machine learning algorithms to detect patterns in the system's behaviour and identify potential issues before they become serious problems. Conducting more rigorous testing and evaluation: More extensive testing and evaluation of the locking system could be conducted to identify potential failure modes and weaknesses. This could involve testing the system under different environmental conditions, such as extreme temperatures or vibrations.

Providing better training for drivers: Drivers could be provided with more comprehensive training on how the locking system works and what to do in the event of a malfunction. This could include simulated scenarios where the locking system fails and drivers must respond quickly and appropriately. Developing a backup locking system: A backup locking system could be developed to provide an additional layer of safety in the event that the primary locking system fails. This could involve using a different type of locking mechanism or incorporating redundant components into the system.

CONCLUSION

In conclusion, the engine locking system is a crucial safety feature that can prevent accidents and save lives. The project aims to develop an engine locking system that can automatically shut off the engine when certain conditions are met, such as when the driver is not in the vehicle or when the vehicle is in a dangerous situation. The implementation of this system can significantly reduce the number of accidents caused by runaway vehicles and can also prevent theft. The project requires a thorough analysis of the system's design and implementation, including the selection of appropriate sensors and actuators, as well as the development of reliable software algorithms.

Overall, the engine locking system is a valuable addition to vehicle safety, and the successful implementation of this project can make a significant impact in reducing accidents and saving lives. As we have mentioned, the main aim of our project is to reduce the mishaps and ensure safe riding. We wish that the accidents will be reduced and all the citizens will develop the minimum precautions and ensure that they follow all the rules and do not create any trouble to others.

The goal of our project is to make the people understand that these rules are meant for their welfare. We hope that the death rate of the people caused due to the road accidents decreases at least to some extent by implementing our project.

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