VEHICLE THEFT DETECTION/NOTIFICATION WITH REMOTE ENGINE LOCKING

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ABSTRACT

The rise in vehicle thefts necessitates the development of advanced security solutions that not only deter theft but also enhance vehicle recovery. This paper presents the design and implementation of a Vehicle Theft Notification System with Engine Lock Loop, a robust security model combining IoT technology, GPS tracking, and a remote immobilization mechanism. It detects unauthorized access or movement of the vehicle and relay this information in real-time to the owner through a mobile device or any other means of communication. Once a theft signal has been confirmed, a car owner can remotely initiate an engine immobilizer circuit to immobilize the car, stopping further unauthorized use of the vehicle

The integration of GPS tracking ensures real-time location updates, facilitating quicker recovery of stolen vehicles. The proposed model also incorporates tamper detection to notify the owner of any attempts to disable the system. This paper discusses the architecture, functionality, and performance evaluation of the model, highlighting its potential to significantly reduce vehicle theft rates. The results demonstrate that the system provides a cost-effective and reliable solution for modern vehicle security needs.

I.   INTRODUCTION

Vehicle theft has always been a problem worldwide because it brings about immense costs both monetarily and time-wise to individuals and businesses. In the face of the most sophisticated techniques being used in vehicle theft, all the traditional security measures of using locks and alarms keep proving futile. It is with this rapidly growing area of concern that the paper introduces a Smart Vehicle Theft Detection and Notification System with Engine Lock. This is a secure and intelligent solution for modern vehicle security which is reliable.

The proposed system integrates real-time theft detection, instant notifications, and remote immobilization capabilities to prevent unauthorized vehicle access and operation. By combining Internet of Things (Iota) technology, GPS tracking, and a remote engine lock mechanism, the system ensures robust protection against theft while providing convenience and control to vehicle owners.

Key Components of the System

1. **IoT Sensors:**

Detect unauthorized access, ignition attempts, or vehicle movement using vibration, motion, and door sensors.

2. **Microcontroller**

Serves as the central control unit, processing data from sensors and executing commands such as sending notifications or activating the engine lock.

3. **GPS Module:**

Tracks the vehicle's real-time location, enabling quick recovery in case of theft.

4. **GSM Module:**

Sends alerts to the owner via SMS or a mobile application, ensuring instant communication in theft scenarios.
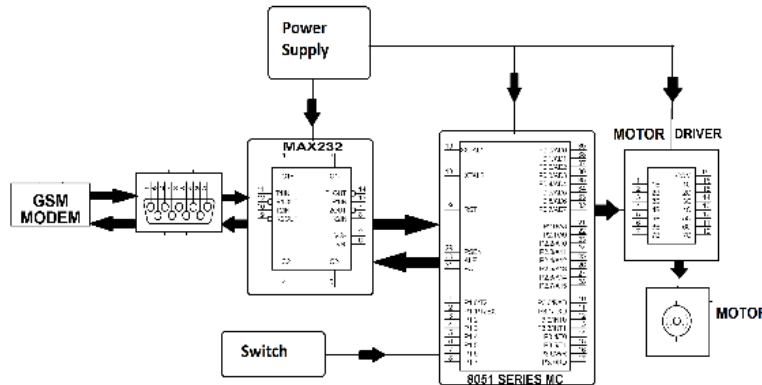
5. **Engine Lock Mechanism:**

Disables the vehicle's ignition or fuel supply system remotely, preventing unauthorized operation.

6. **Power Supply:**

A dedicated power source ensures the system operates independently, even if the vehicle's main power is tampered with.

7. **Mobile Application:**

Provides a user-friendly interface for monitoring vehicle status, receiving alerts, and controlling the engine lock.

Objectives

To provide real-time theft detection and notification to vehicle owners.

To enable owners to immobilize the vehicle remotely through a secure engine lock mechanism.

To integrate GPS tracking for accurate and efficient vehicle recovery.

To enhance the security of vehicles through tamper-resistant and cost-effective technology.

By combining these components, the system aims to address the limitations of existing vehicle security measures and provide a robust, user-friendly, and scalable solution. This paper details the design, functionality, and implementation of the proposed model and evaluates its effectiveness in real-world scenarios

Advantages of Vehicle Theft Detection Notification with Engine Lock

1. Enhanced Vehicle Security:
2. Remote Immobilization:
3. Immediate Notifications:
4. Cost-Effective Solution:
5. User-Friendly Interface:
6. Scalability:
7. 24/7 Protection:
8. Deterrence for Thieves:
9. Reduced Insurance Premiums:
10. Customizable Features

Future Scope for Vehicle Theft Detection Notification with Engine Locking

1. Advanced Integration
2. Integration with smart Ecosystems
3. Advanced Engine Locking Mechanisms
4. Customization for Electric Vehicles (EVs)
5. Enhanced User experience
6. Scalability for Fleet Management
7 Renewable and Sustainable Power
8. Global Compliance and Scalability
9. Collaboration with Law Enforcement

II.   CONCLUSION

Vechile theft detection notification is an system which adapt itself according to user need same technology can be implemented at various places such as for safety purpose it can be implement in door lock and also can be used in protection of machines at industry

III.   REFERENCES

[1]   https://en.wikipedia.org/wiki/Electronic_component
[2]   https://www.circuitlab.com/