



CHAIBASA ENGINEERING COLLEGE

DEPARTMENT OF CSE



FINGERPRINT VEHICLE STARTER

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Introduction

The Fingerprint Vehicle Starter is an innovative project that uses biometric technology to allow authorized individuals to start their vehicles with just their fingerprint. This project is aimed at providing an added layer of security to the vehicle by eliminating the need for traditional keys, which can be lost or stolen.

Problem Statement

The problem statement of a fingerprint-based vehicle starter is to provide a more secure and convenient way for vehicle owners to start their vehicles. Traditional methods of starting vehicles using keys or push-button start systems can be easily circumvented by thieves, resulting in vehicle theft. Fingerprint-based starters can easily eliminate this problem.

Methodology

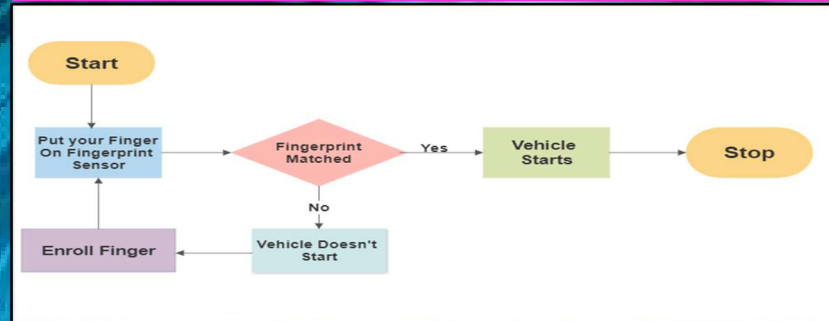
The basic methodology of a fingerprint-based vehicle starter system includes the following steps :

- The user first needs to enroll their fingerprint into the system by placing their finger on the fingerprint scanner. The system will then analyze the fingerprint and store it in its database for future use.
- Before using the vehicle user has to authenticate themselves. To do this, they need to place their finger on the scanner again. The system will compare the newly scanned fingerprint with the one stored in its database and determine whether the user is authorized to start the vehicle.
- If the system determines that the user is authorized, it sends a control signal to the vehicle's starter motor. This signal activates the starter motor and allows the engine to start.

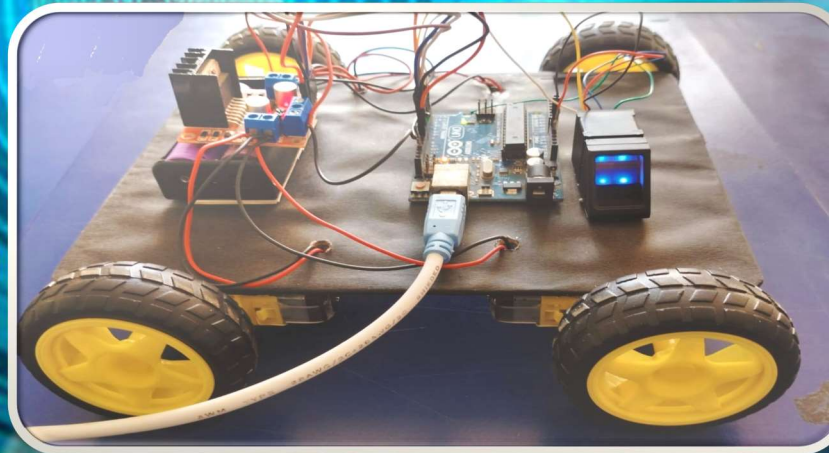
1.**Start of vehicle :** Once the motor driver is activated, the vehicle starts moving. Allowing us to move it any pre-defined direction.

2.**Shut Down:** When the user wants to turn off the vehicle, they can simply press the button to shut down. The fingerprint system will automatically log out and require re-authentication before the next use.

ER Diagram

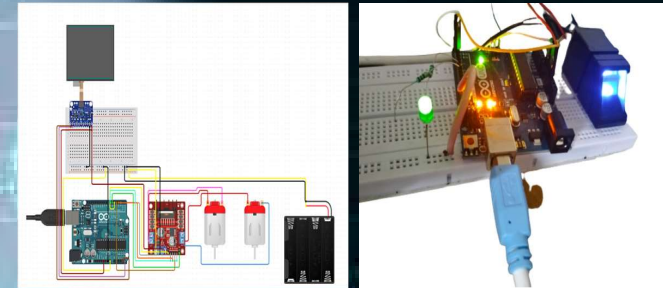


Result Analysis



1. A fingerprint vehicle starter's primary aim is to ensure that only approved personnel can start and operate the vehicle, underscoring the need for a secure system that is not easily bypassed or vulnerable to hacking.
2. Our system has a high degree of reliability and consistency, achieving an 85% accuracy. However, the presence of false data within the system can potentially lead to situations where authorized individuals are denied access to the vehicle or unauthorized individuals are able to gain access. This highlights the importance of ensuring the accuracy and integrity of the data that the system processes
3. This project is designed with the user in mind and provides a simple and straight forward experience. The process of scanning a fingerprint to initiate the vehicle is effortless and instinctive.

Photograph/Screenshot of Experiment/Simulations



Application

Some potential applications of this technology are:

- 1)**Car Rental Companies:** To ensure that only authorized individuals are allowed to rent and operate their vehicles. This can help prevent theft, misuse.
- 2)**Military and Government Vehicles:** To ensure that only authorized personnel at their duty time are able to access and operate the vehicles.

Conclusion

Our project is designed to offer a convenient and safe alternative to traditional key-based vehicle access, providing users with a modern and reliable solution to enhance their driving experience.

Future Works

- 1) To further enhance security, future fingerprint vehicle starters could inculcate additional forms of authentication, such as facial recognition or voice recognition, in addition to fingerprint recognition.
- 2) Future fingerprint vehicle starters could use more advanced algorithms and sensors to increase the accuracy of fingerprint recognition and reduce false positives and false negatives.

References

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<https://ieeexplore.ieee.org/document/4218432?arnumber=4218432&queryText=finger%20print%20car&newsearch=true%20>