

Fingerprint Vehicle Starter

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Abstract- Vehicle theft has become a major concern with the increasing number of automobiles. Traditional key-based ignition systems are prone to theft and unauthorized usage. To overcome these limitations, a Fingerprint Vehicle Starter system is proposed to enhance vehicle security using biometric authentication. In this system, a fingerprint sensor is used to capture and verify the user's fingerprint with pre-stored authorized data. A microcontroller processes the fingerprint information and, upon successful authentication, activates a relay to start the vehicle's ignition system. If the fingerprint does not match, the ignition remains disabled, preventing unauthorized access.

I. INTRODUCTION

A Fingerprint Vehicle Starter is an advanced security system that uses fingerprint recognition to control the vehicle's ignition. Since fingerprints are unique to each individual, this method ensures that only authorized users can start the vehicle. The system consists of a fingerprint sensor, a microcontroller, and a relay mechanism connected to the ignition system. When a registered fingerprint

is detected, the microcontroller enables the ignition circuit, allowing the vehicle to start.

II. METHODOLOGY

A Fingerprint Vehicle Starter is a biometric security system designed to enhance vehicle safety by allowing the vehicle to start only when an authorized fingerprint is detected. It replaces or supplements traditional key-based ignition systems, reducing the risk of theft and unauthorized access.

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III. MODELING AND ANALYSIS

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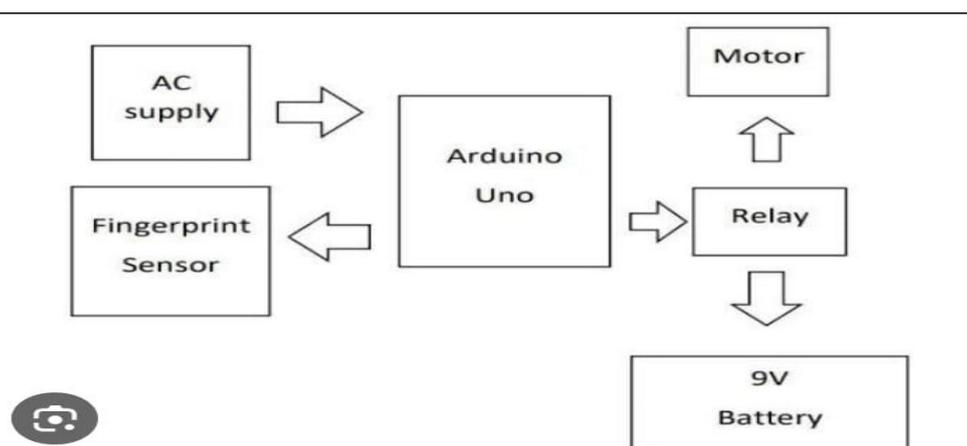


Figure no.1:-Finger print vehicle starter Procedure.

IV. RESULTS AND DISCUSSION

In this Section results and discussion of the study is written. They may also be broken into subsets with

short, revealing captions. This section should be typed in character size 10pt Times New Roman.

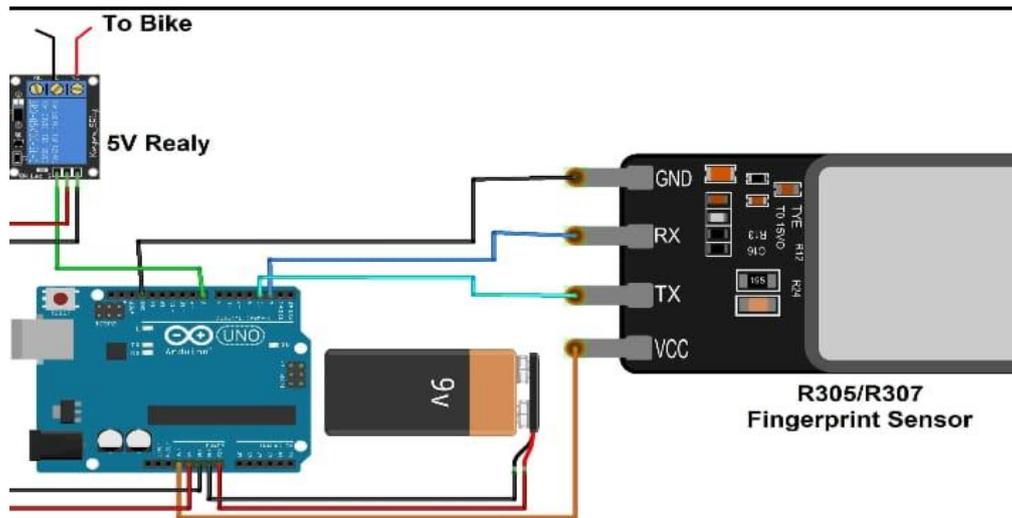


Figure 2:

The diagram shows a circuit connecting an Arduino Uno, a fingerprint sensor (R305/R307), a 5V relay, and a bike (load).

1. Power Supply: The Arduino Uno is powered by a 9V battery connected to its Vin and GND pins.

2. Fingerprint Sensor Connection: The fingerprint sensor is connected to the Arduino Uno via serial communication (TX/RX pins) and powered by the Arduino's 5V and GND.

- VCC (sensor) → 5V (Arduino)

- GND (sensor) → GND (Arduino)

- TX (sensor) → RX (Arduino)

- RX (sensor) → TX (Arduino)

3. Relay Connection: The 5V relay is connected to the Arduino Uno to control the bike (load).

- The relay's input is connected to an Arduino digital pin (not shown in the diagram).

- The relay's output controls the bike's power supply.

4. System Operation: When a fingerprint is scanned and verified by the sensor, the Arduino processes the input and sends a signal to the relay to switch the bike's power on or off

V. CONCLUSION

The Fingerprint Vehicle Starter project provides a secure and convenient way to start vehicles using biometric authentication. By integrating a fingerprint sensor with an Arduino Uno and a relay, this system ensures that only authorized individuals can start the vehicle.

REFERENCES

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- [3] Fingerprint Vehicle Starter Project PDF (2022) – Student project download. FINGERPRINT VEHICLE STARTER – IJSREM PDF
- [4] Fingerprint & RFID Based Bike/Car Access Project (includes access + ignition logic) – PDF Download. Fingerprint and RFID Based Bike & Car Access (PDF)