JD COLLEGE OF ENGINEERING & MANAGEMENT

An Autonomous College, Affiliated to DBATU, Lonere

At: Khandala, Post- Valni, Kalmeshwar Road, Near Fetri, Nagpur

Education to Eternity

॥ज्ञानम् सर्वार्थ साधनम्॥

Design of Biometric Authentication and Theft Alert System for Motorbikes Using IOT

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INTRODUCTION

01

Nowadays vehicle security has become an important issue in society due to the increase in theft cases. . As generally we see keys of any vehicle can be used to unlock different.

02

We can tackle this problem by using a Biometric fingerprint authenticated vehicle starter system which will also have the option to start the motorbike with OTP.

03

The project consist of two parts

1. The hardware (the smart vehicle)

2. The software (the digital Smart App)

04

The vehicle can be turned OFF by the owner remotely from any location, in case of emergency.

PROBLEM STATEMENT

keys to any vehicle can be used to unlock the different vehicles or some people use to create duplicate keys to steal the vehicle which increases the theft cases in the city, and hence causes loss to the owners. if serious actions could not be taken against them this increases their dare to repeat such actions.in some cases the thieves can steal a vehicle by lifting the it via some heavy machines if an unknown person is taking our vehicle it can not be located.

LITERATURE SURVEY

Paper Name	Published Year	Findng
Fingerprint Based Smart Bike.	May-June-2020	proposed a system for motorbikes which have real-time GPS tracking system along with accident detection with anti-theft alarm and if the vehicle has met with an accident 5 friends of the owner will get alert message with location.
A Study of Biometric Approach for Vehicle Security System Using Fingerprint Recognition	October 2014	Proposed a Global System for Mobile (GSM) and Fingerprint Recognition system .Three trials will be given to the user if scan matches then the access will be given to user. Else if all three trials are failed then alert message will be sent to the owner's vehicle.
Advanced Fingerprint Authentication System in Two Wheelers	March 2016	Proposed a fingerprint authentication system based on a fingerprint to start the ignition and matching strategy of an individual. when a correct fingerprint is obtained, the vehicle will be ignited.

Paper Name	Published Year	Findng
An Anti-Theft System for Two Wheelers	December 2019	The device contains a GPS Module that sends the location of the cycle to the cloud, highly sensitive vibration sensor and a processor. Users can search for the secured parking locations through the cloud. The vibration sensor installed in the device helps users to get informed if someone attempts to steal the bicycle.
Two Wheeler Security System	March 2017	Security and tracking the vehicle by using Advanced GSM and GPS. Some features are added in addition to the engine immobilizer and sound alarm system which will be alerting owner through an SMS.

METHODOLOGY

STEP 01

The owner of the vehicle first needs to register with the required credentials. Which will be stored in the cloud-hosted No-SQL database.

STEP 02

User will also have the option to start the motorbike with OTP which will be received from the owner of the vehicle.

STEP 03

fingerprint sensor will then compare the received data within the firebase and if it matches then access is granted and if not access is denied.

STEP 04

We will be developing an Android app that will be easily available on any smartphone and through which we can monitor our vehicle remotely.

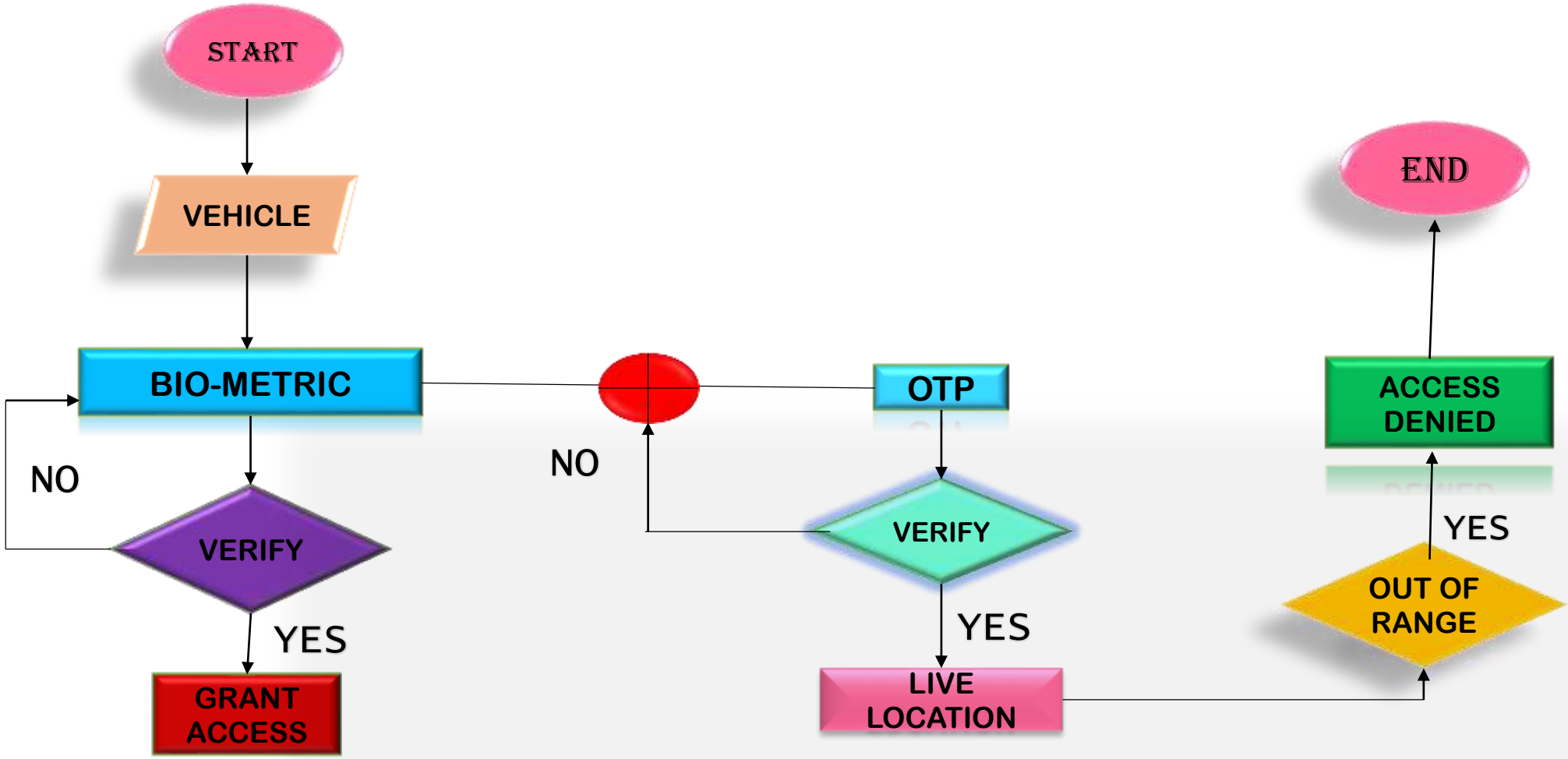
STEP 05

The app will get the live location of the vehicle using the GPS and GSM module and the owner will get the option for setting the range to the vehicle.

STEP 06

In case if the owner finds that the vehicle is getting beyond the pre-set range then he can Turn OFF the vehicle remotely and hene the vehicle will not start until the OTP is resend by the user.

BLOCK DIAGRAM



INTERFACE

Interface of Software App Named VehicleSecurity

COMPONENTS

I2C LCD

01

- I2C LCD, also known as I2C (Inter-Integrated Circuit) or TWI (Two-Wire Interface) LCD, is a type of liquid crystal display (LCD) that is equipped with an I2C interface for communication.
- This interface module allows the LCD to be controlled and updated with data through I2C commands sent from a microcontroller, such as an Arduino.
- I2C LCD will help us to show status of our vehicle such as whether the device Is ON or OFF.

TTP229 4x4 TOUCHPAD

02

- The TTP229 is a capacitive touchpad, which means it uses capacitive touch technology to detect when a conductive object, like a finger, comes into contact with it.
- Capacitive touchpads work by measuring changes in capacitance when touched. When a user touches a key on the touchpad, the capacitance changes, and the module can detect this change, thereby registering a touch event.
- So, when the third person will try to access the vehicle he/she will be using this touchpad to enter the OTP.

ULTRASONIC SENSOR

03

- An ultrasonic sensor is a device that uses ultrasonic sound waves to detect the distance or presence of objects in its vicinity.
- Ultrasonic sensors typically consist of a transmitter and a receiver. The transmitter emits a short burst of ultrasonic sound waves in the air. When these waves encounter an object in their path, they bounce back toward the sensor.
- This will help us to detect whether our vehicle is lifted above the specific height or not.

FINGERPRINT SENSOR

04

- A fingerprint sensor, also known as a fingerprint reader or fingerprint scanner, is a biometric device designed to capture and analyze a person's unique fingerprint patterns.
- This biometric technology relies on the distinct features found on the ridges and valleys of a person's fingertip. The sensor captures this information and converts it into a digital representation known as a fingerprint template.
- This sensor will help us to authenticate the user who will be trying to access the vehicle.

GPS Sensor

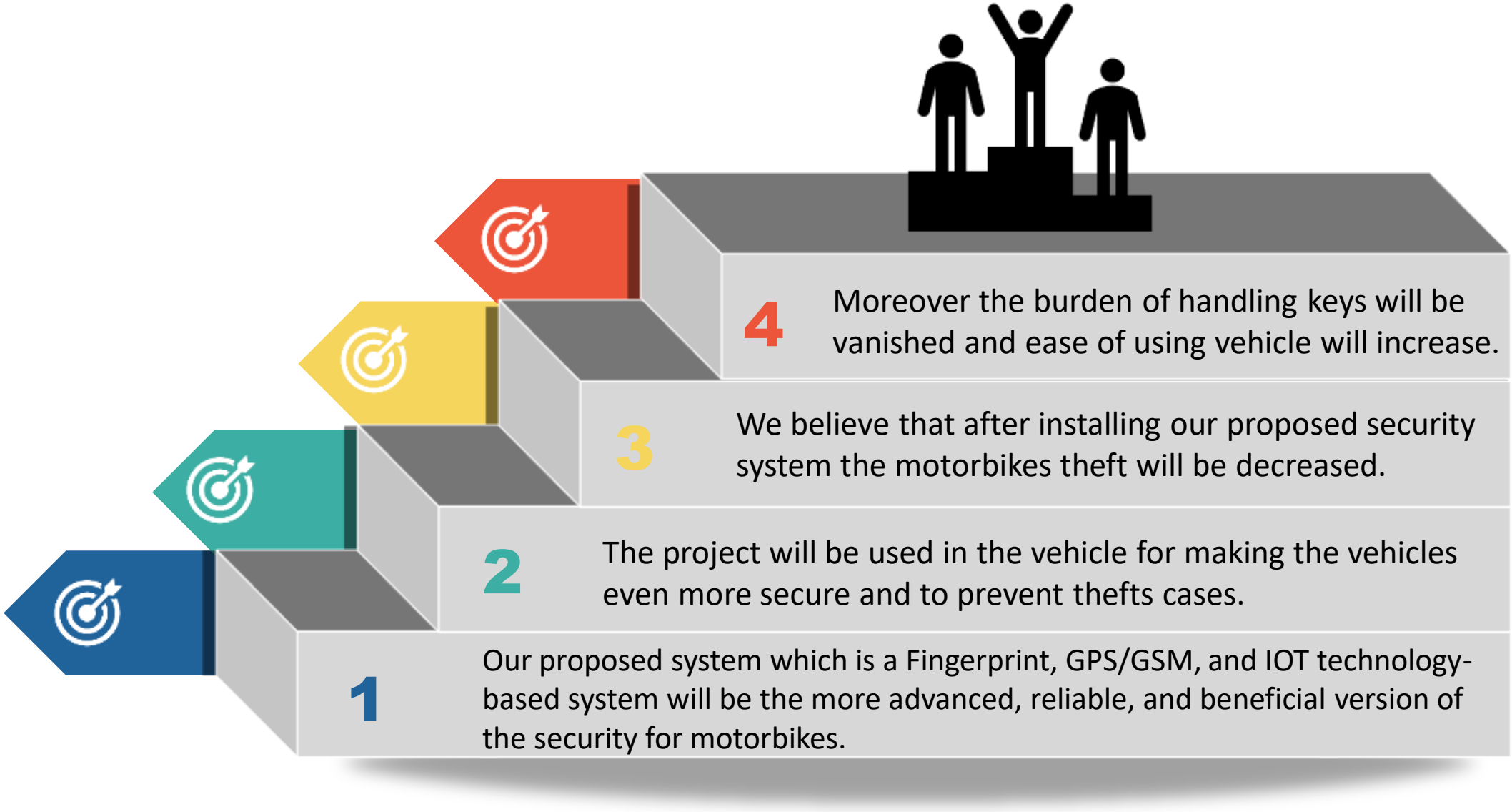
05

A GPS sensor, or Global Positioning System sensor, is a device designed to receive and process signals from a network of orbiting GPS satellites.

These sensors use a process called triangulation to calculate their precise geographical location by measuring the time it takes for signals to travel from multiple GPS satellites and using this data to pinpoint their position.

This sensor will help us to locate the vehicle by constantly sending the live location to the registered mobile.

CONCLUSION


4
Moreover the burden of handling keys will be vanished and ease of using vehicle will increase.
3
We believe that after installing our proposed security system the motorbikes theft will be decreased.
2
The project will be used in the vehicle for making the vehicles even more secure and to prevent thefts cases.
1
Our proposed system which is a Fingerprint, GPS/GSM, and IOT technology-based system will be the more advanced, reliable, and beneficial version of the security for motorbikes.

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THANK YOU