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SMART BICYCLE USING IOT

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Abstract - This project is generally for protecting bicycles from thefts or unauthorized users. It uses a biometric fingerprint security system so that only authorized persons can start the bicycle. This makes the bicycle protected. As we know that the security of vehicles is necessary all over the world. Use of biometric fingerprints is used widely and it's common in factories, school, building and colleges, etc. This project deals with the protection of bicycles which leads to development of the anti-theft system in a bicycle. A fingerprint sensor which is set on the handle is used to sense the fingerprint. Fingerprint sensor data reading obtained in the bicycle which is analyzed with the pre assigned data. Identifying the person as the bicycle owner or authorized fingerprint user who can take control of the bicycle. The lock of the bicycle will not open till the fingerprints got matched with old obtained data by the biometric system. we have used fingerprints as a security system because fingerprints are more secure than any other security system because it's unique for each person.

1.INTRODUCTION

In the 21st century, the uses of biometric based systems have seen an exponential growth. This is because of tremendous progress in this field making it possible to bring down their prices. Biometrics is becoming a new state of the art method for security systems. Biometrics are used to provide secured access to major functioning systems like ATM, cellular phones, cars, laptops, offices, and other things that need authorized access. Biometric has made significant changes in security systems making them more secure than before, efficient and cheap. The biometric fingerprint security system is widely used. Each person's finger is different so this is more secure. Vehicle security is more important these days. More vehicles are stolen and it cannot be found back. Security systems like fingerprint systems can reduce this theft, especially in cars. Fingerprint sensors and Arduino are combined together. The starting system of the vehicle is modified. The basic connection is from the ignition switch that supply voltage is given to the voltage regulator then to the Arduino to turn it on and off; when input is given in the fingerprint sensor it scans the finger. Fingerprint match which will activate the relay that controls the starter relay. This will crank the engine. Then the fingerprint sensor will turn off. If no finger scanned or finger image do not match then the starting system is disabled and no cranking occurs. Fingerprint sensor will not crank the vehicle engine. It will only activate or deactivate the starter relay to either prevent or allow cranking of the engine.

II.PROBLEM STATEMENT

Looking towards the rises in petrol and diesel has it is limited resource ,electric cycle is going to be a new sensation in market as well as Biometric has made significant changes in security systems making them more secure than before, efficient and cheap.

III. LITERATURE SURVEY

Paper Name:- A Comprehensive Survey on Various Biometric Systems.

Author Name :- T.Sabanayaga m 1 , Dr. V. Prasanna Venkatesan2 and Dr. NK. Senthamaraika nnan3

Description :- It is defined as the technology of analyzing an individual person based on physiological, behavioral or morphological traits such as face, fingerprint, iris, retina, voice, and signature etc.[1]

Paper Name:- Anti theft bicycle Security system with preventive action.

Author Name :- K. A. Mamun

Description :- In this research an Anti Theft Vehicle Security System (ATV2S) has been designed and implemented utilizing a sensor-network system which employs Global Positioning System (GPS) and Global System Mobile Communication (GSM) technology to track the vehicle.[2]

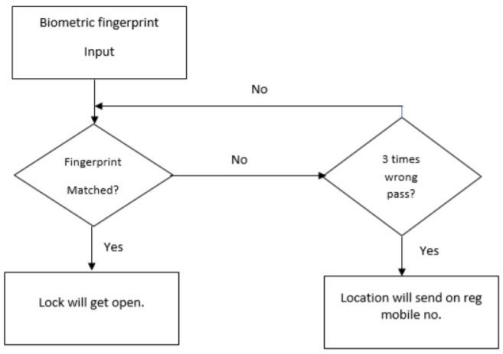
Paper Name:- VEHICLE STARTER USING FINGERPRINT AND FACE TECHNOLOGY.

Author Name :- Dr. K. Vidya.

Description :- Biometrics consists of the Greek words ' BIO-METRIC' which means' Bio' means' life' and' Metrics' means' to measure.' The major methods in use in Biometric data are: forearm, thumbprint, iris, singing style, etc. Of any of these types of authentication awareness are special processes and

the recognition of biometric data is the worst and most frequently used because of biometrics of every person on the earth is unique and can provide good reliability and also the implementation of the fingerprint recognition system is easy and cheap than the other ones when compare to the face detector.[3]

FLOW DIAGRAM



The Data Flow Diagram of the proposed efficient Bicycle security system is given above which consists of the fingerprint module,GPS and GSM module and a vibration sensor Bicycle is unauthorised.The four cases such as enrolling of fingerprint, identifying fingerprint, deleting, deleting all are carried out and the fingerprint is verified. If the fingerprint matches with the stored fingerprint then the user can access the vehicle. If the fingerprint does not match with the stored fingerprint then the user cannot access the Bicycle.

IV. DESIGN AND METHODOLOGY

Algorithm Steps:

1. First open the application of smart bicycle.
2. Register new user if not register earlier.
3. After register login with the same information.
4. For tracking ,connect Bluetooth with hardware.
5. take a set of fingerprint of authorized users.also give the RFID system lock
6. Fetch store information
7. If information match with stored data then automatically lock will open.
8. If match not found then it take 3 more attempts for unlocking the bicycle.

V. PROPOSED METHODOLOGY

A. Architecture:-

1.when any person's Biometric fingerprint gives input after that fingerprint match. Then the lock will open.

2. If any person scans the biometric scanner and the fingerprint.

3 times does not match automatically, location will be sent to the user register mobile no.

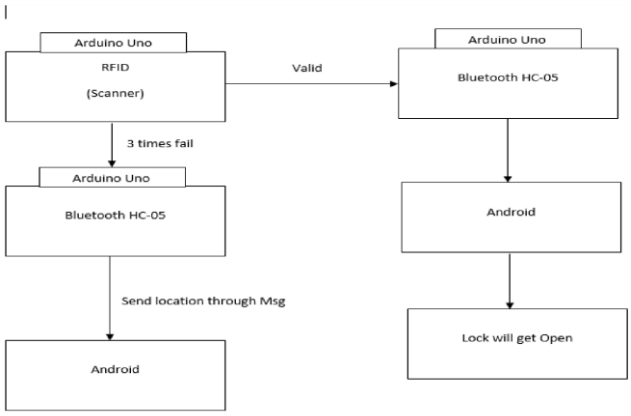


Fig 1. System architecture

Fig 2. Sample Satellite image

B.Mathematical Model

Let X be the whole system i.e X= input, process, output Where ,

-Input is RFID card values

-Process is step or techniques applied to the system

-Output is Lock Open

Inputs:

Input = RFID Card number

Where ,

-X be the user

-y=set of Heart rate and pulse rate value

-ID= Identify if the RFID Card number is Match or Not. then match the open lock. Otherwise Not.

Advantages:-

- The system specification with its corresponding function limits.
- The Bicycles situation is monitored easily.
- Able to prevent future investigation using data analysis.

VI. RERULTS

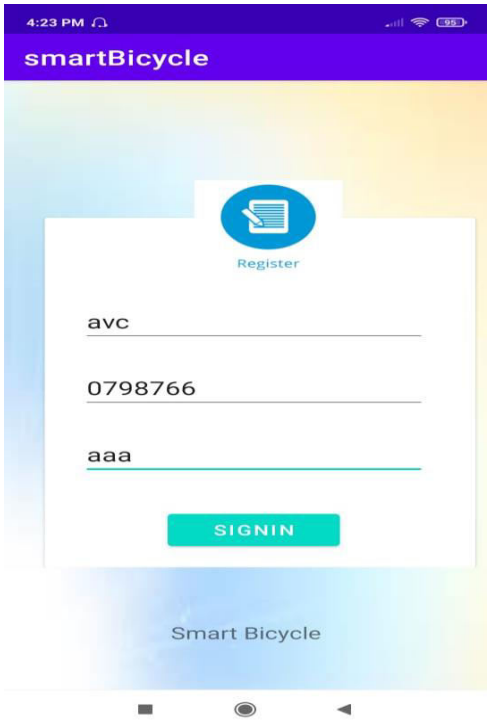


Fig.[1] Registration Page

Above Fig shows If a user is new then first of all registration is compulsory enter all details and register.

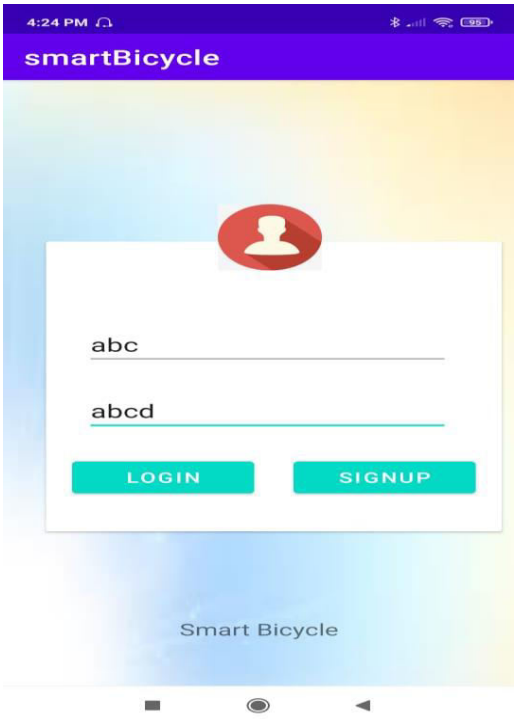


Fig.[2] Login Page

Above Fig shows after registration user login to use this application. enter all the details then click on login.

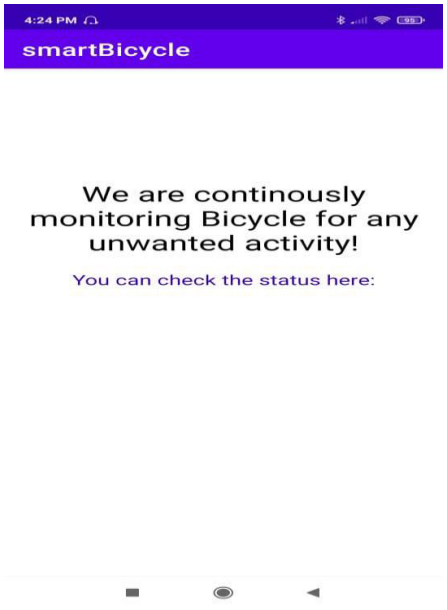
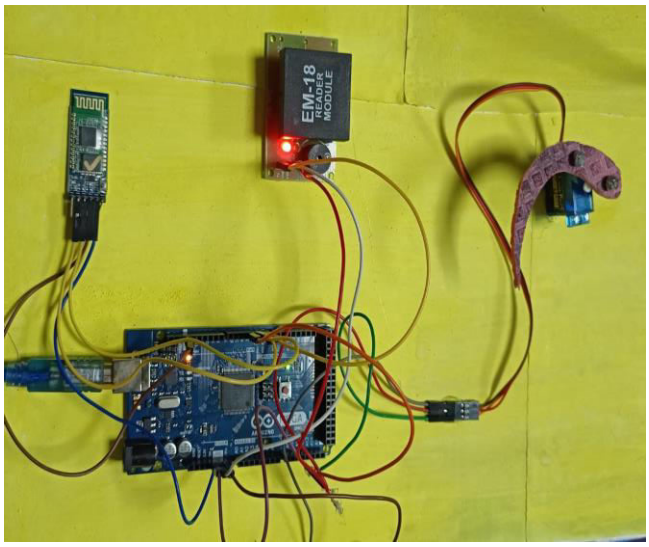


Fig.[3] Status Screen

Above Fig shows status of bicycle .We are continuously monitoring Bicycle for any unwanted activity.

Fig.[4] Device List which already paired

Above Fig all already paired devices in mobiles. show all device in this screen .then click on connected devices. After that this application connects with hardware devices.



Fig[5].Hardware

VII. CONCLUSION

Fingerprint is unique for every person and allows only selected users to access the Bicycles, the expected result by implementing on Bicycles that only the authorized person will be able Bicycles. Not every person with a key will be able to start a Bicycle. There will be matching of the person's data with the stored one and only in the case of a match the Bicycles will start otherwise not. Thus by implementing this relatively cheap and easily available system on a bicycle one can ensure much greater security and exclusivity than that offered by a conventional lock and key.

VIII. REFERENCE

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