Fingerprint based Anti Theft for Two Wheelers Authentication of Vehicle users

Mrs. Maalini Dharmaraj, M.E., (*Author*)
Assistant Professor, Department of Information Technology,
V. S. B. Engineering College, Karur,
Tamilnadu, India.

Mr. Venkatesh Annamuthu, B.Tech.,
Student, Department of Information Technology,
V. S. B. Engineering College, Karur,
Tamilnadu, India.

Mr. Mohanraj Seetharam, B.Tech.,
Student, Department of Information Technology,
V. S. B. Engineering College, Karur,
Tamilnadu, India.

Mr. Rajesh Veerasamy, B.Tech.,
Student, Department of Information Technology,
V. S. B. Engineering College, Karur,
Tamilnadu, India.

***Abstract* – This project is titled "FINGERPRINT BASED ANTI THEFT FOR TWO WHEELERS" with Arduino C. From the past years, the Vehicle theft has been increased double the time. Hence, there is a fearness can be created to the people. The study of automated identification, by use of physical or behavioural traits used to find out the authenticated owner of the vehicle to reduce the theft of Two-Wheelers. This project used to propose a system which describes the concept of controlling vehicle thefting by using the method of fingerprint based authentication and which alerts the user by providing the notification to the user. This proposes a system which identify the authenticated person for the vehicle and starts up the vehicle when the person is approved by the Finger Print Module. If any unauthorized access of vehicle is to be applied then the system fully locked and there is no way to move the vehicle from the place of parking. The capability to start- ups the vehicle is initiated by the Positive Charge from the Finger Print Module. Hence, the Ignition System control is based on the authentication. The existing system which provides the security but there is no locking system. The proposed system which describes the security to the vehicle as well as locking the whole Vehicle system by the way of authentication basis.**

Keywords – Finger Print Module; GSM technique; Arduino UNO; LCD Display; Security Alertness; KEAS Algorithm

I. INTRODUCTION

Vehicle safety and security has been a subject of nice analysis over the years, thanks to the escalating vehicle stealing cases reportable everywhere the planet. Ancient lock and key has perpetually been less reliable thanks to security concern. A 2 wheeler will solely be started once it detects distinctive Phone identity and fingerprint apportion to that and notifying owner by SMS regarding the stealing try of the vehicle, permitting user to manage the system. Even with improved security systems and exaggerated awareness among vehicle house owners, vehicle stealing has not nevertheless been checked right down to a major live. As a result of the pricey nature of motorcars, house owner's square measure currently being forced to pay additional and extra money on insurance and different policies. Currently, {the solely the sole} style of safety product wide obtainable for motorcycles square measure physical locks only like padlock, wheel lock, chain lock and different physical lock.

II. EXISTING SYSTEM

A system that was designed such there was no want of any lock. Their projected Security System was entirely supported the arcanum approach during which if arcanum was correct then mechanically got started and prepared to drive however if arcanum is inaccurate then it absolutely was not possible to start out motorbike. This automatic theme was utilized by any motorbike and provides ample incentive for petty thieves. With this tremendous increase within the range of vehicles on the road, there has been a rise within the range of crimes involving vehicle thieving. Within the capital town of Delhi alone there was a vehicle taken each thirty six minutes that amounts to around forty thefts per day. Whereas there square measure thieving alarm systems, remote keys obtainable within the marketplace for 2 wheelers.

III. DISADVANTAGES OF EXISTING SYSTEM

- [8]The development of Keyless ignition system which does not ensure the security of vehicle and the system does not access by authenticated users.
- The system broken the vehicle easily and also which doesn't alerts the authorized user of vehicle.
- The forgotten of PIN number and Passwords may be happened in the existing system.
- [9]Existing based systems are easily getting stolen by the unauthenticated person.

IV. PROPSED SYSTEM

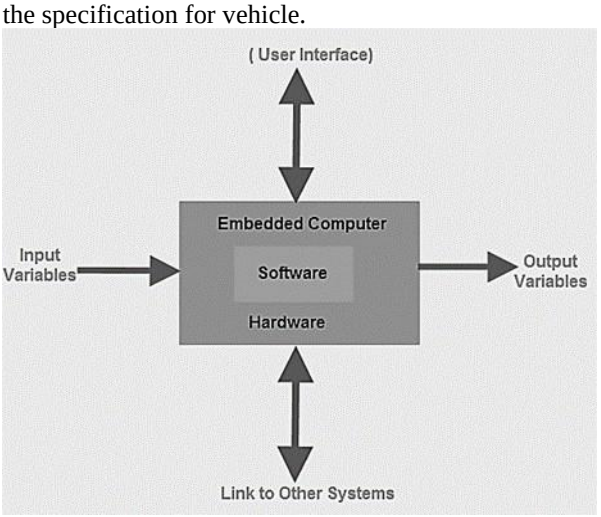
The proposed system the two wheeler's system is implemented using finger print. A system which describes the concept of controlling vehicle thefting by using the method of fingerprint based authentication. This system provides the more accurate scheme recognition system. KEAS provide keyless ignition as well as alert through SMS via GSM. Based on the proposed system, the vehicle can be start-ups using the finger print authentication of the vehicle user. Hence, the restriction of startup the vehicle is implemented. Due to that, the unauthorized person doesn't start-ups the vehicle directly. The system ensures the finger print of vehicle owner and analyze the finger print whenever the system should be ready to start. The ignition system should proceed the vehicle movement when the result is positive from the fingerprint module or else it should lock the vehicle. The system which includes the embedded systematic way of designing to configure the vehicle.

V. ADVANTAGES OF PROPOSED SYSTEM

- The vehicle which can be start-ups without any physical key present for starting the vehicle.
- The automatic lock of vehicle which provides the potential safety of vehicle concerns through the authentication of the user.
- It reduces the vehicle thefting and also provides the security to vehicle, due to that the vehicle owner doesn't afraid of loss of vehicle owned.
- It provides the alert to the vehicle owner for any unwanted actions happened in the vehicle.
- SMS message will be sent to the authorized person regarding any action performed in the vehicle while start-ups.

VI. EMBEDDED SYSTEM

An embedded system is integration of hardware and package, the package employed in the embedded system is ready of directions that are termed as a program. It should want connected peripherals to connect input & output devices. Hence, the vehicle dominant system uses the embedded conception for providing the configuration with input and output of the system with the specification for vehicle.



The microprocessors or microcontrollers utilized in the hardware circuits of embedded systems square measure programmed to perform specific tasks by following the set of directions. These programs square measure primarily written mistreatment any programming package like Proteus or Lab-view mistreatment any programming languages like C or C++ or embedded C. Then, the program is drop into the microprocessors or microcontrollers that square measure utilized in the embedded system circuits. Hardware of the embedded system is assembled with a microprocessor/microcontroller. It's the weather like input/output interfaces, memory, computer program and also the show unit. The package of Associate in Nursing embedded system is written to execute a specific perform. It usually written during a high-level setup and so compiled right down to provide code that may be stuck among a non-volatile memory within the hardware. Here, the embedded system package programs square measure written in Arduino C language to execute the practicality of the Arduino board and process the input specifications, therefore provides the output within the variety of actions.

VII. PRACTICABLENESS STUDY

The practicableness study deals with all the analysis that takes up in developing the project. Every structure has got to be thought of within the developing of the project, because it has got to serve the tip user during a user-friendly manner. One should recognize the sort of data to be gathered and therefore the system analysis include collection, Organizing and evaluating facts a couple of system and its setting. The main objective of the system analysis is to check the prevailing operation and to be told and achieve the process activities. Conniving cloud space standing at a given refresh amount through windows application must be analyzed well. Cloud areas should be classified supported their process ability. In keeping with their process and storage power, the partial job must assign to them. The small print area unit processed through cryptography themselves. It'll be controlled by the programs alone.

A) ECONOMIC PRACTICABLENESS

The organization has got to obtain a private pc with a keyboard and a mouse, this can be an immediate price. There are a unit several direct edges of covering the manual system to processed system. The user may be given responses on asking queries, justification of any capital outlay is that it'll scale back expenditure or improve the standard of service or merchandise that successively is also expected to supply the exaggerated profits.

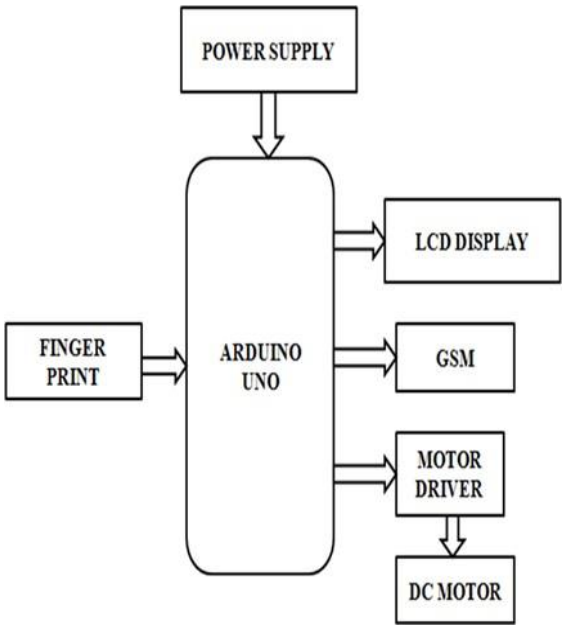
B) OPERATIONAL PRACTICABLENESS

The planned system accessing method to solves issues what occurred in existing system. This daily operations of the organization may be match into this technique. Principally operational practicableness ought to embody on analysis of however the planned system can affects the structure structures and procedures.

C) TECHNICAL PRACTICABLENESS

The cost and profit analysis is also all over that processed system is favorable in today's fast-paced world. The assessment of technical practicableness should be supported a top level view style of the system necessities in terms of input, output, files, programs and procedure. The project aims to assign multiple nodes when the duty is split in keeping with the nodes to beat the issues of the prevailing system. This system is to cut back the technical ability necessities so additional range of users will access the applying.

VIII. SYSTEM ARCHITECTURE



In this system, which gets the input as a finger print who wants to start-ups the vehicle. Based on that, the Arduino UNO board work on verification process of the finger print matching and finding the result of matching. Hence, the matches found in the finger print then the board drives the motor and sent the SMS to the authorized person or else the system alerts the authorized person for unauthenticated access of vehicle. GSM module which is used to proceed the alert process of vehicle starter and which holds the SIM for providing the notification to the vehicle owner. The motor driver is the setup likely the ignition of the vehicle because of start-ups the vehicle which shows the resultant of the system. LCD display which shows the actions performed on the system and also LCD specifically display the system movements while it is on running state. Power supply is necessity to run the entire system, due to setup the vehicle module as a sample system. The sample system definitely need the power supply source for running the modules which gets the input as a finger print and puts the output as a mechanical energy on the DC motor driven.

IX. PROJECT DESCRIPTION

Module

- Software
- Hardware

SOFTWARE DESCRIPTION

1) ARDUINO IDE

[5]The Arduino IDE provides a package library from the Wiring project that provides several common input and output procedures. User-written code solely needs 2 basic functions, for beginning the sketch and also the main program loop, that are compiled associate degreed coupled with a program stub main() into a practicable cyclic computer programme with the wildebeest tool chain, additionally enclosed with the IDE distribution.

2) PROTEUS

[3]Proteus is often used for digital simulations like microcontrollers and microprocessors. It will simulate junction rectifier, LDR and USB Communication. The Proteus style Suite could be a Windows application for schematic capture, simulation, and PCB (Printed Circuit Board) layout style. It is purchased in several configurations, reckoning on the scale of styles being made and also the needs for microcontroller simulation.

HARDWARE DESCRIPTION

1) ARDUINO UNO

[2]The Arduino UNO is associate degree ASCII text file microcontroller board supported the silicon chip ATmega328P microcontroller and developed by Arduino.cc. The board is supplied with sets of digital and analog input/output (I/O) pins which will be interfaced to varied growth boards (shields) and alternative circuits. The board has fourteen Digital pins, half dozen Analog pins, and programmable with the Arduino IDE (Integrated Development Environment) via a sort B USB cable. It is steam-powered by a USB cable or by associate degree external nine V battery, although it accepts voltages between seven and twenty volts.

2) POWER SUPPLY CIRCUIT

Power provide could be a relevancy a supply of power. a tool or system that provides electrical or alternative styles of energy to associate degree output load or cluster of hundreds is named an influence provide unit or PSU. Associate degree AC steam-powered linear power provide typically uses an electrical device to convert the voltage from the wall outlet (mains) to a special, typically a lower voltage. If it's accustomed manufacture DC, a rectifier is employed. An electrical condenser is employed to sleek the rhythmical current from the rectifier. Finally, the current regenerate into energy within the variety of rotating the motor within the mean of start-ups the vehicle mechanism.

3) LIQUID CRYSTAL DISPLAY

A liquid show (LCD) could be a flat panel show, electronic visual show, or monitor that uses the sunshine modulating properties of liquid crystals. Liquid crystals don't emit light-weight directly. LCDs ar accessible to show capricious pictures (as in an exceedingly general pc display) or mounted pictures which might be displayed or hidden, like predetermined words, digits, and 7-segment displays as in an exceedingly digital clock. Here, it's accustomed show the actions performed within the system.

4) GLOBAL SYSTEM FOR MOBILE COMMUNICATION (GSM)

The GSM network authenticates the identity of the subscriber through the employment of a challenge-response mechanism. The SIM contains the ciphering key generating algorithmic program (A8) that's accustomed manufacture the 64-bit ciphering key (Kc). This key's computed by applying an equivalent random range (RAND) utilized in the authentication method to ciphering key generating algorithmic program (A8) with the individual subscriber authentication key (Ki). And also the SIM that alerts the genuine person through the SMS causation formation. As just in case of the authentication method, the computation of the ciphering key (Kc) takes place internally among the SIM.

5) DC MOTOR

A DC motor could be a automatically commutated motor steam-powered from electrical energy (DC).The stator coil is stationary in area by definition and thus this within the rotor is switched by the electric switch to even be stationary in area. An electrical DC motor could be a machine that converts electric energy into energy. The operating of DC motor relies on the principle that once a current-carrying conductor is placed in an exceedingly field, it experiences a mechanical force. The direction of mechanical force is given by Fleming's Left-hand Rule and its magnitude is given by F = BIL Newton.

X. CONCLUSION

During this project we've our own security system with our own distinctive hardware that additionally can't be cracked by a felon simply. Input system victimization the most recent technology that's close to field communication (NFC) on automaton good phone. The good phone has KEAS application that verifies the RFID and IMEI variety of the automaton device. Through 2 step verification method it enhances the protection system of two wheeler such solely the registered user will begin the mechanism. Through GPS with GSM for vehicle following and to send alert on repetitive unauthorized unlatched request and area unit interfaced with the microcontroller and GPS device sends the worth to the microcontroller oft. The system output is change on the ignition in conjunction with the self- begin button and therefore the bike is prepared to begin.

XI. REFERENCES

[1] Avadhoot R.Telepatil, Amit N.Hambar, Pushkar S.Terwardhar, "Home automation with MATLAB and Arduino interface", International Journal of Innovative Research and Communication Engineering,Vol.5, Issue 3, 2017.

[2] Vasudhevan.V, S.Abishek, S.Dharanikumar, R.Suraj, "Human hand tracking using MATLAB to control Arduino based robotic arm", International Conference on Pervasive Computing, Vol.3, Issue 3, 2015.

[3] Hardik Chhatbar, Janak Trivedi, Rahul Chauhan, Dharshan Bhatt, "Secured speech controlled robot using MATLAB and Arduino", International Journal of Modern Trends in Engineering and Research,Vol.2, Issue 4,2015.

[4] H. Sakoe and S. Chiba, "Dynamic programming algorithm optimization for spoken word recognition", IEEE Trans. Acoust., Speech, Signal processing, vol. ASSP-26, pp. 43- 49, Feb, 1978.

[5] Yixiong Pan, Peipei, Shen and Liping Shen, "Speech emotion recognition using support vector machine", International journal of smart home vol.6, no.2, April, 2012.

[6] R.Arun Thilak, Mrs.R.Madharaci, "Speech recognizer for Tamil Language", Tamil Internet 2004, Singapore.

[7] A.N. Sigappi and S.Palanivel, "Spoken word recognition strategy for Tamil language", International journal of computer science issues, vol.9, issue.5, pp- 3406-3414, Sep-Oct, 2012.

[8] Thiang and Suryo Wijoyo, "Speech recognition using linear predictive coding and artificial neural network for controlling movement of mobile robot", International conference on information and Electronics engineering IPCSIT, vol.6, 2011.

[9] M.Chanderasekar, M.Ponnavaiko, "Tamil speech recognition a complete model", Electronic journal, Technical Acoustics, 2008.

[10] G. Michau, A. Nantes, A. Bhaskar, E. Chung, P.Abry, and P.Borgnat, "Bluetooth data in an urban context: Retrieving vehicle trajectories," IEEE Trans. Intell. Transp. Syst., vol. 18, no. 9, pp. 2377–2386, Sep. 2017.

[11] D. Nallaperuma, D. D. Silva, D. Alahakoon, and X. Yu, "A cognitive data stream mining technique for context-aware IoT systems," in Proc. 43rd Annu. Conf. IEEE Ind. Electron. Soc., Nov. 2017, pp.4777–4782.

[12] D. D. Silva and D. Alahakoon, "Incremental knowledge acquisition and self-learning from text," in Proc. Int. Joint Conf. Neural Newt. (IJCNN), Jul. 2010, pp. 1–8.