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Due Diligence for Theft and Control of Tractions in Mines

V. Pandiyan*, P. R. Rajeev, M. Seenivasan and A. Archana

Department of Electronics and Electronics Engineering, Kuppam Engineering College, Kuppam - 517425, Andhra Pradesh, India; pandiyan100992@gmail.com

Abstract

These days' security system for a vehicle is mandatory preferably in mines because to avoid unauthorized operation of traction vehicles and automobiles which is available because it is essential. When the burglar steals the vehicle, locating of the lost vehicle is not possible and identifying the thief is also not easy. So, in this article by introducing a security system which can locate and identify the thief by proposing face recognition technique for an auto safety system is used to recognize the true motivation face and compare it to a predefined face using face detection and identification technique. The suggested vehicle safety system performs real-time user authentication with computational assistance. Once the image from the activated camera becomes available, the person's face is recognized using the HAAR cascade method, and the extracted face is compared to the trained image. If someone's visage is recognized as an unknown individual this integrated. The system will send a picture of the individual to the driver via email utilizing the Internet Message Access connection and also, the mechanism remains lock by using electromechanical relay.

Keywords: *Camera, Face Recognition, IMAP Protocol, Mines, NANO Microcontroller*

1.0 Introduction

The use of automobiles grows crucial all across the world, and it is necessary to prevent theft. Particularly to prevent vehicle thefts and mis-operation in mines, automakers add safety features by implementing some biometric technologies to their vehicles. Facial recognition and finding technologies are becoming increasingly sophisticated in design, simple to use, and connect other individuals without their knowledge[1]. Biometric systems are current and use point recognition techniques[2]. In current era everyone and every assiduity like to keep up with the pace of technological innovation[3]. Moreover, assiduity is not falling behind in this area. Currently the majority has a car because acquiring a car can be a costly venture.[4] People are very worried about advanced technologies in assiduity[5,6]. As a result machine firms have seen a significant improvement in their technological capabilities thanks to the introduction of robotization in the vehicles to provide its visitors with stoner-friendly and cutting-edge features[7].

In terms of vehicle security is bothered numerous alternatives are available. In accordance with technology that was offered. Many vehicle theft admonitions and bias are installed in buses. Face recognition grounded auto/ vehicle security system is one in all the technology that could be used results and several organizations work together to locate the vehicle after purchasing it[8].

2.0 Literature Review

A paper on vehicle anti-theft detection using facial recognition and IOT application They explain the vehicle anti-theft security system that uses a Raspberry Pi and

*Author for correspondence

a face recognition technique[9]. When anyone other than the vehicle owner attempts to access the vehicle, it will notify the location coordinates to the owner via an IOT application.

A paper on Raspberry Pi-based vehicle anti-theft face recognition system explains that the Raspberry Pi circuit with a camera is used in the system. If someone tries to unlock the car, the system scans the person's face and compares it to the database with a pre-defined face if the face does not match, the system will not unlock the ignition[10].

3.0 System Design

Block diagram of the system shown in Figure 1. The initial images are captured from real-time video using a recording device. The amount of images from the video that can be turned into one frame image is limitless. The color image will then be turned into a picture in grayscale, which will be translated into pixels for detecting the person's face and storing each pixel value. Following that, the hear cascade predictor algorithm will compare the person's face. By using training data set photos, this algorithm will determine whether the person is authorized or not. If the face of the person matches with trained data set, then this information will give to the Nano processing board and this microcontroller will unlock the ignition through electromechanical relay or else the microcontroller will not unlock the ignition and it will give the mail alert to the vehicle owner by using IMAP Protocol.

4.0 Circuit Diagram

Table 1. Components of proposed system

S. NO	Components	Quantity/Range
1.	Nano microcontroller	1
2.	Relays	2
3.	LCD display	1
4.	Wi-Fi device	1
5.	Voltage regulator	1
6.	Motor	12V
7.	Camera	16MP

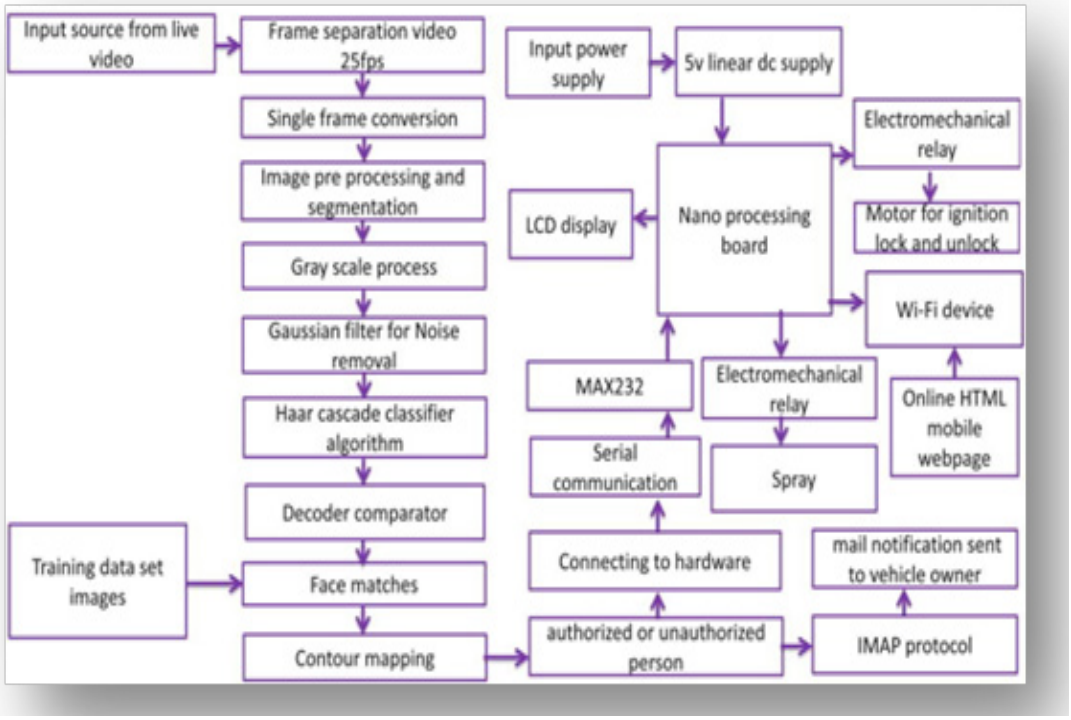


Figure 1. Block diagram of the system.

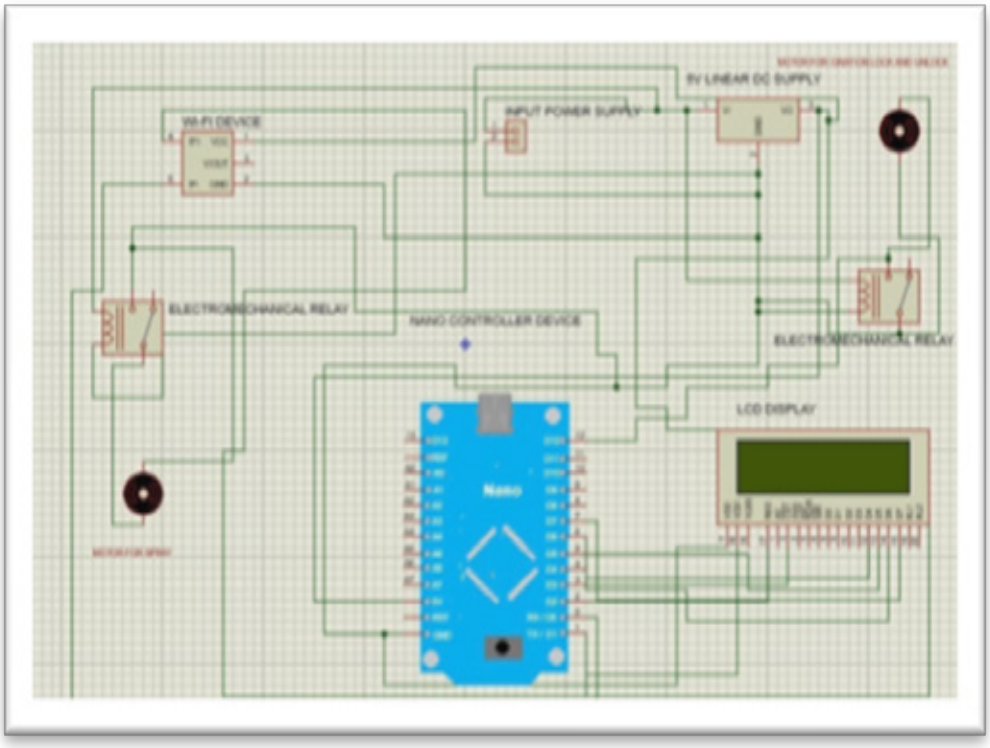


Figure 2. Circuit diagram of the system.

From Figure 2 the circuit diagram of the proposing system, need a connection as a flow from Pin1of the power supply is connected to Vo of the regulator which regulates the supply voltage (12V) to 5V. Pin 2 of the power supply and regulator is grounded. Pin 3(Vo) of the regulator is connected to themicrocontroller to give 5V input power to thecontroller. Relay has 3 pins, one is positive (Vcc), two is negative (grounded), and third pin output is connected to the microcontroller digital 8 and 9. Wifi device has 4 pins in which one is positive



Figure 3. System model.

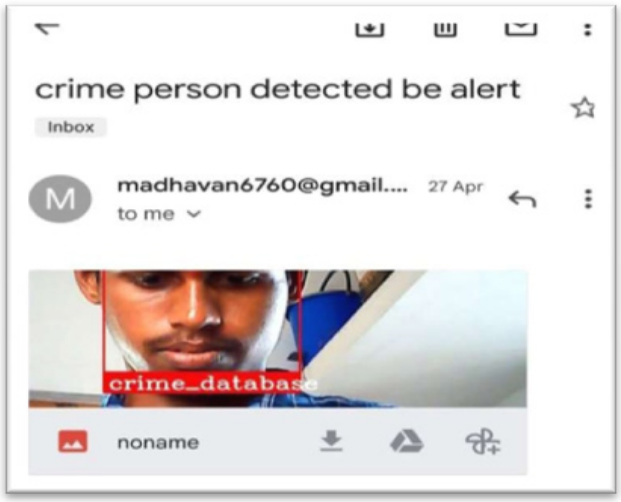


Figure 4. Mail alert to the vehicle owner.

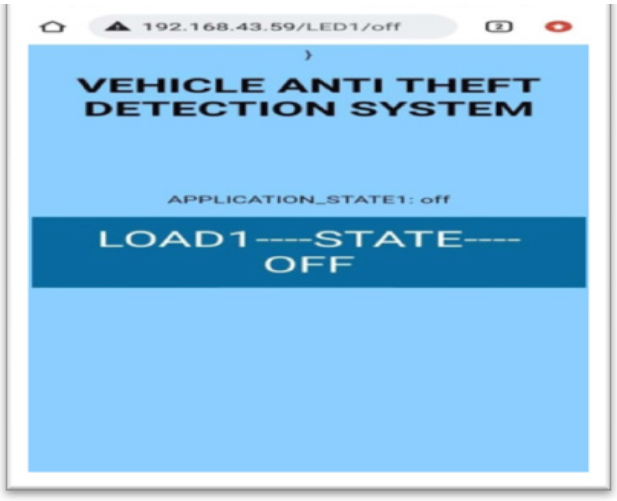


Figure 5. Vehicle ignition locks control by using IOT application.

(Vcc), and two is negative (grounded) and the remaining two pins are transmitter and receiver pins which are connected to transmitter (Tx) and receiver (Rx) pins of the microcontroller respectively. LCD Display has 8pins in which pin1is+Vcc, pin 2 is grounded (-ve) and the remaining 6 digital pins are connected to do, d1, d2, d3, d4, d5 (6 digitalpins) of the micro controller respectively.

5.0 Result Analysis

The above statistics demonstrate how effective this gadget is at protecting vehicles against vehicle theft by using facial recognition technology, which only unlocks the ignition when it identifies the authorized person's face. If any unauthorized person detects means the ignition will not unlock and the face of the person will send to vehicle owner's mail by using IMAP protocol as shown in Figure 3, so the vehicle can be protected from the thief. In this system another application also there, that is lock control by using IOT application. as shown in Figure 4. If known stranger want to unlock the ignition but he is unauthorized person then by using IOT application the ignition of the vehicles can be unlocked and locked, which gives the full control on vehicle (Figure 5).

6.0 Conclusion

In this design, picture recognition techniques are used that can provide crucial machine security features, prevent theft and mis-operation of traction vehicles in mines, and hide the use of unreliable drug users. Safe and safe terrain systems for machine drug users as well as key locations where investigators can easily deduce the stolen image. With this in our daily lives, easily forecast the theft. This design is considerably simpler, more secure, and more cost-effective than conventional ones. It will also assist to simplify things and improve security.

7.0 References

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