IMPLEMENTING REAL TIME APPLICATION OF VEHICLE ANTI THEFT DETECTION AND PROTECTION WITH SHOCK USING FACIAL RECOGNITION

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Abstract: The strengthening in vehicle technology system is obtaining increased research popularity and adding a vehicle theft security system in order to avoid vehicle theft in the parking and sometimes driving in unsecured places. In this developing world where technology is growing day by day and scientific researchers are presenting new era of discoveries, the need of security is also increasing in all areas. At now, the vehicle practice is basic fundamental for populace. Concurrently, preserving the vehicle against theft is also prime. When the vehicle is filched no more feedback or preference could be accessible to help the owner of vehicle to find it back. The main objective of this method is to find the vehicle from unauthorized access, using fast, easy-to-use, clear, reliable and inexpensive. The advanced system provide surveillance and better robbery control using profile recognition and giving shock treatment to unauthorized person trying to run the vehicle and will be notified to vehicle holder.

KEYWORDS: Microcontroller, WebCamera,Ic 7805,Electric Shock.

I　INTRODUCTION

Now a day's everywhere in the world jalopy robbery is increasing day by day. The jalopy builders are trying to improve the surveillance features of their products by introducing advanced technologies to avoid the thefts specially in the case of cars. Generally, biometric and non - biometric methods are used to give security. In non–biometric method, password and personal ID are used to recognise the authorized person, but still the possibility of robbery persists. But in biometric methods no such possibilities involve, because they employ techniques such as voice recognition, finger print recognition, signature recognition, eye retina recognition, iris recognition and face recognition. Among of these, face recognition and detection system is more sophisticated. In this project, we are dealing with design and development of a real time face recognition system using HAAR cascade algorithm. This surveillance system can admit the person who enters in the car and it will check whether he/she is authorized person or not. When an unauthorized person tries to run the car, the relay will provide trauma.

II　RELATED WORK

The latest car anti theft system are Car alarm, flashing light manners which makes use of different kind of sensors which can be pressure, tilt and shock & door sensors, but the shortcomings are cost and it only averts the vehicles from theft but can't be used to trace the thief. Customary car security systems rely on many sensors. When firstly 'Car Alarm System' is initiated, this system consists of mostly electromechanical devices. As automation advanced they unfolding into fully integrated microprocessor positioned system using diversed electronics sensors.In , the hardware and software of the GPS and GSM grid were advanced.[1]

In, a vehicle tracing system is an electronic device, installed in a vehicle to authorise the owner or a third party to track the vehicle's place. This advanced to Design a vehicle tracing system that works using GPS and GSM technology. This process is set up based on embedded system, used for tracking and positioning of any vehicle by using Global Positioning System (GPS) and Global system for mobile communication (GSM). This pattern will continuously watch a Motion Vehicle and rank the status of the Vehicle on request.[3]

Rashed et al. paper describes a GPS based tracking system that keeps track of the locus of a vehicle and its pace based on a mobile phone text messaging system. The system is able to give real-time text alerts for pace and locus. The current location can be latched and the system will alert the owner if the vehicle is moved from its present locked location.[6]

Pethakar et al. paper on RFID, GPS and GSM based Vehicle Tracking and Employee Security System consolidate the establishment of an electronic gadget in a vehicle, with reason planned machine programming to empower the organization to track the vehicle's area. At the point when the vehicle pics the worker; he/she needs to swap the RFID card. The micro controller matches the RFID card no. with its database records and sends the representative's id, taxi id & the taxicab position co-ordinates to the organization unit by means of GSM module. The GSM Modem will get the message through GSM in the organization unit. On the off chance that worker ends up/herself in an issue, he/she will press the catch. Microcontroller will distinguish the activity and sends a sign to the GSM which will arrange with to the organization unit and police.[4]

III   EXISTING SYSTEM

The existing vehicle anti theft system are alarm, flashing light automation which makes apply of different kind of sensors which can be force, slope & door sensors, but the shortcomings are cost and it only blocks the vehicles from the robbery but can't be used to trace the thief. Traditional vehicle security system hangs on many sensors and fetch is also towering.

IV   PROPOSED SYSTEM

The real time extensile distress system with desktop (or) laptop incorporate image processing control unit and microcontroller to prevent the parked
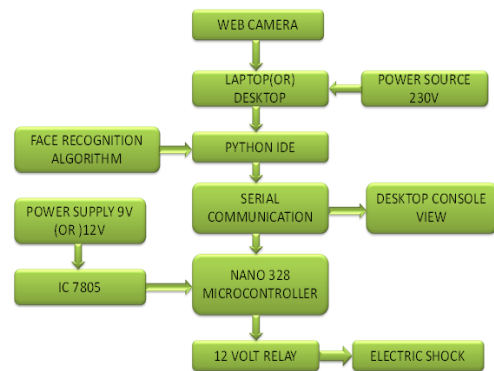

Fig 4.1: Proposed System Block Diagram

Vehicle from theft. Face detection and recognition system use increased algorithm for evidence

The desktop (or) laptop which contains the image processing unit embedded within it performs the face detection and authorizes the person. The acquired image is processed to detect the face using the haar cascade classifier algorithm which effectively uses the cascade object detection.

The cascade detector detects the face of the acquired image and the face region is extracted. The authentication based security system has the database which stores the face images of the authorized persons under different environments. When the image processing unit classifier the person as unknown the unauthenticated face detected.

If unknown person is detected, the control unit activates the relay for provide electric shock and prevent the theft of vehicle.
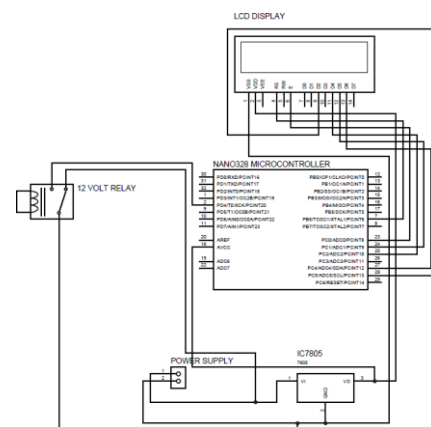

Fig 4.2: Circuit Diagram for Proposed System

HAAR CASCADE CLASSIFIER (ALGORITHM)

Haar Cascade classifiers are an effective way for object detection. This method was proposed by Paul Viola and Michael Jones in their paper Rapid Object Detection using a Boosted Cascade of Simple Features .Haar Cascade is a machine learningbased approach where a lot of positive and negative images are used to train the classifier. Positive images – These images contain the images which we want our classifier to identify. Negative Images – Images of everything else, which do not contain the object we want to detect.
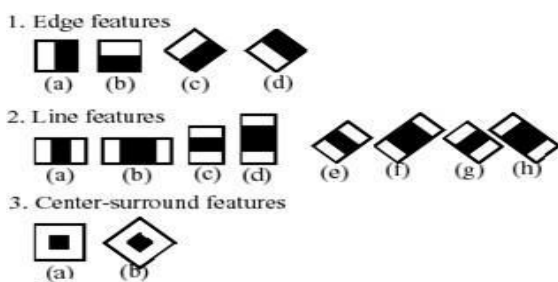

Fig 4.3: Haar Cascade Classifier

FACIAL LANDMARK (ALGORITHM)

Facial landmarks is a technique which can be applied to applications like face alignment, head pose estimation, face swapping, blink detection, drowsiness detection, etc. In this context of facial landmarks, our vital aim is to detect facial structures on the person's face using a method called shape prediction. Facial Landmarks Detection has 2 steps:

1. To detect the key facial structures on the person's face.

2. It involves localizing the face in the image.

User do Face detection in a number of ways. It's use OpenVMS built-in Hear Cascade XML files or even Tensor Flow or using Keas. Over here especially, We need to apply a HOG (Histogram of Gradients) and Linear SVM (Support Vector Machines) object detector specifically for the task of face detection. It also do it using Deep Learning-based algorithms which are built for face localization. Also, the algorithm will be used for the detection of the faces in the image.

SYSTEM SOFTWARE

PyCharm is the most popular IDE used for Python scripting language. This chapter will give you an introduction to PyCharm and explains its features. PyCharm offers some of the best features to its users and developers in the following aspects

· Code completion and inspection
· Advanced debugging
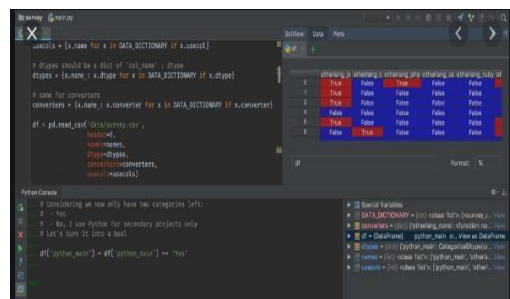· Support for web programming and frameworks such as Django and Flask.

Fig 4.4: Coding Window

V   EXPERIMENTAL RESULTS

This is the result of our Project where the unknown person unlock door of the Vehicle ,it will not open and gives the Electric Shock to that person incase the owener of default person's face detects while opening the door, it will open
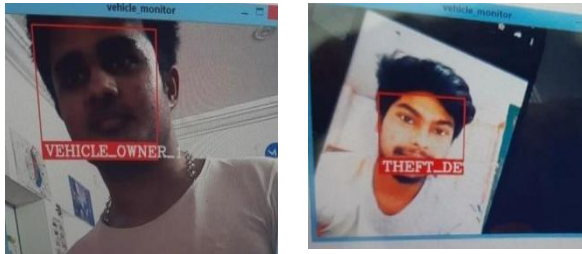
This will provide Antitheft Detection and also provides the

Fig 5.1: Experimental Setup

solution for the theft kind of Activities in the vehicle with the help of DIP and gives best Security System to authorized person.

The above figure shows the experimental set up of our method wherein a circuit board is present to process the data

(a) (b)

And a laptop device to display results

Fig 5.2: (a) Vehicle Owner(b)Theft Detection

(a) By the figure we come to a conclusion that the owner of the vehicle is the true identity person.

(b) By this figure we could form a conclusion that the owner of the vehicle is not the true identity person but someone with the intention of theft.

VI   CONCLUSION

The advanced structure will be more well planned by executing the GSM of high baud rate and also together with GPS module for the arranges and it is evident that the decision of this face recognition system is worthy but there is range for forthcoming growth.. Because of time constraints we were not ready to execute a few objective that ought to have better the study work a charge. The principle change will seek after the exhibitions, perceives the ongoing face acknowledgment. I might want to enhance my code for face picture acknowledgment and also tidy up the code keeping in mind the end goal to enhance execution. Numerous challenges has been confronted when perceived face pictures from database, for example, lighting varieties, expression varieties, age varieties, and facial impediments. In future to enhance the posture remedy, quality based edge determination, maturing correction, and stamp based coordinating procedures can be joined to manufacture a unified framework for video based face acknowledgment.

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