Face Recognition Based Driver Authentication Using Helmet

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ABSTRACT: The cases of car theft these days are greater than ever, so with only reliable anti-theft systems, the vehicle needs excellent security. The vehicle locking device ensures the strongest assurance to protect your vehicle from various forms of theft. It is a protective device for helmets that gives the motorcycle excellent protection. In the real time world, the key purpose of the project is to build up an automated vehicle locking mechanism. The user can submit a status message from his mobile phone and look for user authentication as soon as the vehicle module receives the order.

KEY WORDS: MEMS Sensor, HaarCascade Algorithm, Image Processing, Helmet Detection, Alcohol Detection, Accident Detection, Voice recognition.

I.INTRODUCTION

There is a rapid increase in the number of vehicles in this current era and so is the number of attempts at car theft, respectively international and local. Owners are worried about having their vehicles stolen from the common parking area or from outside their home with the invention of strong stealing strategies. The protection of vehicles from theft is indeed important because of the unsafe area. A solution to this issue is offered by a real-time vehicle security system based on computer vision. The proposed vehicle security system performs real-time user authentication based on image processing using face detection and recognition techniques and a microprocessor-based control system fixed with the vehicle on board.

II. SIGNIFICANCE OF THE SYSTEM

The significance of this system is Helmet Detection and Alcohol Detection. If the helmet is not detected and even alcohol level is less then only system goes for face authentication .Accident detection using MEMS Sensor. If MEMS sensor detects accident then intimation will be send to nearest hospital.

III. LITERATURE SURVEY

Passwords are the weakest part of many critical authentication schemes, but there is an interrelated push towards passwords with less accommodating security initiatives from multiple directions. While pushing it has some implications, it has failed to replace passwords, notably in situations that require more protection. Passwords are also used by the predominant mainstream of machine users.On a frequent basis, as the password haven relies primarily on user actions, analyses that empirically scrutinize password generation trends and use the remaining essential in testing different security policies. The ultimate focus of the production of this anti-theft vehicle system was to simulate the above traits fairly. The most critical part is the vehicle defense against thefts and it has been ensured by having some layers of anti-theft protection.

IV. METHODOLOGY

The main objective of this project is to create a security locking device based on face recognition. In this project, microcontroller accompanied by an interface circuit is used for opening and closing lock based on face recognition that will enter the vehicle. If the mask is not identified and the amount of alcohol is much smaller, then only the face authentication device is used. If the face matches the face of the database, then the ignition flips on. If face recognition fails OTP request will be sent to owner and owner has to submit the OTP. Detection of injuries using the MEMS sensor (Micro-Electromechanical System). If the accident is detected by MEMS sensor, intimation will be sent to the nearest hospital.
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A. Dataset Description

Data assortment is also a compilation assortment data (or dataset). most usually, set refers to the contents of 1 data table or maths knowledge matrix, where each column of the table represents a particular variable and each row corresponds to the knowledge set in question. for each data set member, the knowledge set lists values for each variable, just like the peak and weight of the article. each value shall be said as data. set may includes knowledge matching the quantity of rows of one or further members. a whole of 8858 spammers and 17646 non-spammers square measure labeled . Since the tactic of user labeling is heavily obsessed with human judgment, this can be able to directly lead to potential human error. Therefore, exclusively concerning eighty per cent of spammers and non-spammers unit every which way selected from the classified dataset as our employment data array.

Raspberrry Pi-3:

Raspberry PI3 is sort of a single board pc series that was free with a one.24 gigacycle per second 64-bit quad core ARM cortex-A53 processor by Raspberry Pi-3. there's one tomcat of RAM on the Raspberry Pi-3. And UNIX system} and Raspbian square measure the operating systems. programing language cryptography is that the Python Language.

Raspberry Pi NOIR Module with Camera :

The camera module integrates the dedicated CSI interface accessible on the Raspberry Pi3 behind the LAN port. The NOIR Pi Camera Module has associate degree 8MP CMOS camera with a settled concentrate of focus that is ideal for still image capture and video of superior quality. Stills unit of measurement shot absolutely HD, whereas the video is supported at thirty Federal Protective Service at 1080p, sixty Federal Protective Service at 720p and sixty or ninety Federal Protective Service at 640x480. This makes it applicable for assignments, like Hidden investigation cameras, tests for high-height growth.

Open CV:

 It is primarily a library of programming capabilities for constant laptop vision. at first developed by Intel, it had been powerfully followed by Willow Garage but is commonly defined by Itseez.OpenCV consists of C++ and its essential interface is C++, but it is a less complete but broader, tried and true C interface. Wrappers in varied dialects, such as C#, Perl, Haskell and Ruby, area unit developed to facilitate reception by a wider community of onlookers.Wrappers in varied dialects, such as C#, Perl, Haskell and Ruby, are developed to facilitate reception by a wider community of onlookers.
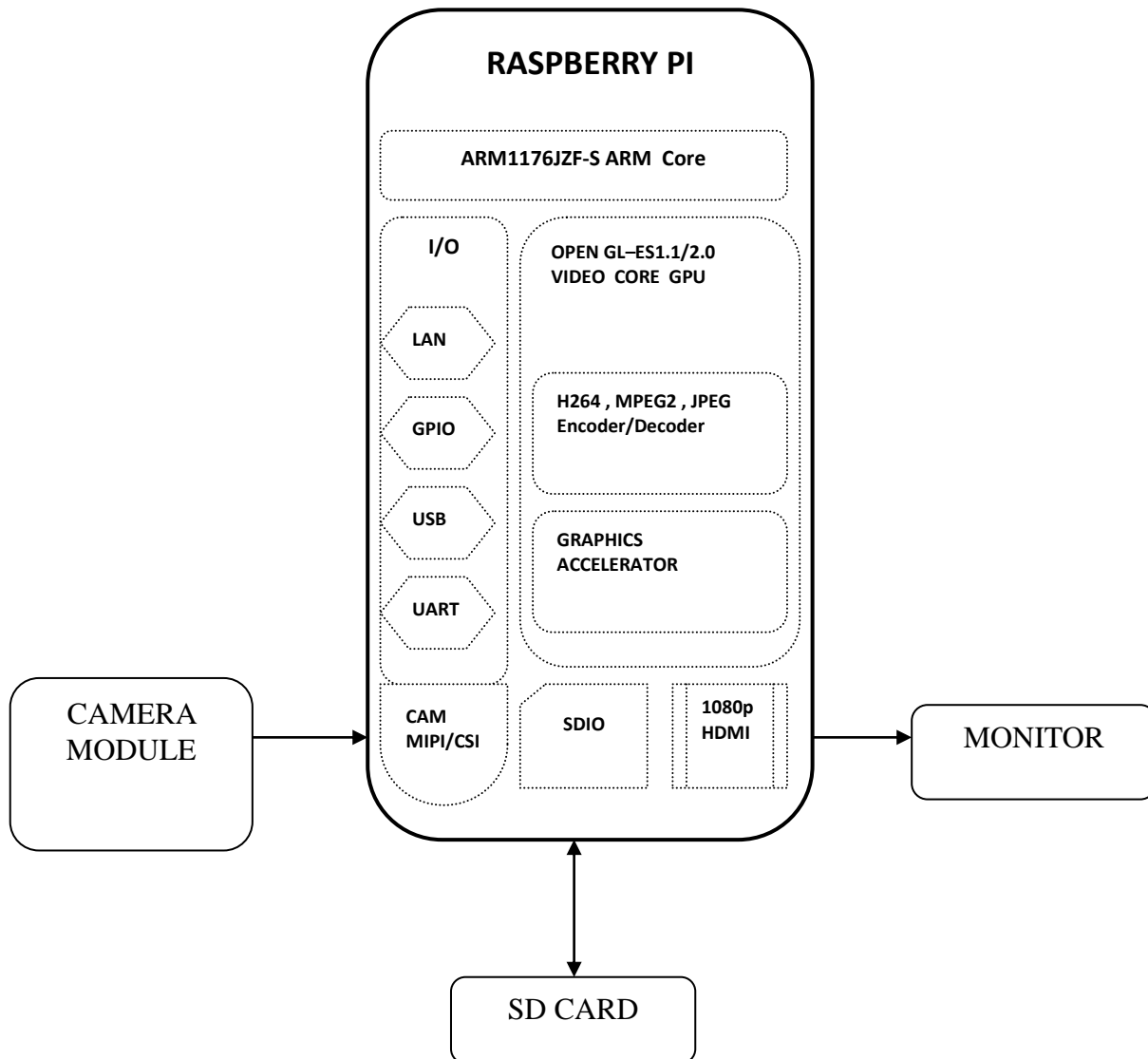
System Design

Fig 1: System Design

V. EXPERIMENTAL RESULTS

We are coming up with a haar cascade helmet detection in our system victimization the Viola Jones formula. Then our system captures the image supply in continuous iterator frame format and en-rectangle the helmet contained especially image. for correct helmet detection, one can have to be compelled to change multiplier. And additionally to spot the face and acknowledge and analyse it with respect to the information, and within the case of recent face detection that's not within the information, OTP can mechanically be sent to the vehicle owner and also the vehicle ignition can activate when the OTP is confirmed by the new user.
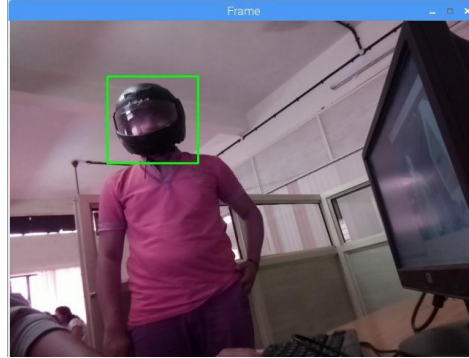
VI.CONCLUSION AND FUTURE WORK

The scope of this project could also be a motorbike rider that they care regarding their safety whereas riding. As we know, the bike riders unit of measurement presently less concerned regarding their safety whereas riding, then the creation of this helmet safety rates are increased and rate of road accidents are reduced. The accident rates for motorcyclists unit of measurement increasing, a wise System on vehicle victimization Raspberry Pi that in future will inspire safety choices for motorcyclists. sensible Vehicle Detection Systems.
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