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An Improved System for Hardware Theft Detection using Hardware.

Prof. K. V. Ugale[1], Shivprasad Shinde[2], Aniket Sonawane[3], Shubham Jadhav[4], LokitaGotral[5]

[1,2,3,4,5]Department of Computer Engineering, Samarth Group of Institutions COE, Belhe, Pune.

ABSTRACT-.

The biggest danger to the security of the property has always been theft, which renders the owner completely helpless. Theft is a plague, even in institutes of higher learning where the loss of any hardware peripherals or equipment often produces turmoil for the other students. Because of this, the suggested approach suggests offering two-way security, where students' attendance is documented at the lab to confirm that they are authorized to use the system, and successfully subsequently theft detection is conducted together with face detection.

Keywords- *OpenCV, Voice Manager, Instant Shutdown.*

I. INTRODUCTION

Theft recognition framework is any tool or tactic used to prevent or halt the unauthorized distribution of items deemed significant. Robbery is perhaps one of the most well-known and established criminal behaviors. In order to keep up with the introduction of new innovations to society and the following burglary by others, anti-robbery frameworks have progressed from the creation of the primary lock and key to the presentation of RFID labels and biometric distinguishing proof. Robbery is mostly prevented under normal circumstances by the implementation and societal acceptance of property control. Visual inspection typically reveals the existence of the greatest anti-robbery device (tags, informal IDs).

At the point when clear proprietor recognizable proof is preposterous and when there is an absence of social recognition, individuals might be leaned to claim things to their own advantage to the detriment of the first proprietor.

II. IPROBLEM TATEMENT

To enhance the security of the computer hardware like mouse, USB and keyboard proposed methodology provides a two-way security by providing the face detection and recognition using convolution neural network.

III. PROJECT SCOPE

This particular application is used in the colleges or the cyber cafes to detect the hardware theft that occurs in colleges .Using this application the colleges will ensure that the hardware components or the devices that are connected to the computer system will not be stolen by the some mischievous students. It will also ensure that the USB devices should not be connected by the unauthorized users in the computer lab premises. It will assure the college that the hardware components like mouse and keyboard are safe and will not be stolen

Minimum Hardware Specification:

- CPU : 2.9 Ghz (C2D)
- RAM : DDR 4 GB
- HDD : 100 GB
- Motherboard : Intel 945 GLX
- Web cam : Logitech, webcam
- Monitor, Key Board, Mouse, UPS, DVD Writer

Software Specification:

- Coding Language : Java,

- Development Kit : JDK 1.8or higher, JRE.
- Front End : Java Swing
- Development IDE : Netbeans 6.9.1or higher,
- Data Base : My SQL 5.0 or higher
- External API : Mysql Connector, openCV, Freets,

IV. MODULE DESCRIPTION

The proposed strategy for equipment and hardware theft from the lab is portrayed. All the modules for the hardware theft detection system are listed below.

Module 1: Student registration and Picture Capturing

When the student has the need of the computer he must register on the computer system, he or she must fill the information like name, year, branch, mobile number , email id , password these must be filled in before using the computer system and also he or she must be register their faces . All the fields in the registration form are mandatory and must not be remain empty.

Step 2: Picture Standardization

During the registration process of the student he or she must register with their faces so, the registration completes. For the face capturing module the openCV model is used. This is responsible for brightness enhancement and the enhancing the quality of the picture.

The cascadeclassifier is an xml file in the openCV which is used to detect the faces in the in the picture and then draws the rectangle.

The converTo function in the openCV library is used to enhance or increase the brightness of the picture which is captured using the system camera. We can manipulate the brightness values in the function according to our need

Also the Gaussian Blur method in the opencv library is used to enhance the quality of the picture , it uses the alpha and the beta values of the pixels to increase the quality and of the captured image.

Step 3:Student and Admin Login-

After the successful student registration the data will be saved in the database and the login screen for student will automatically popup. Student will be able to login on the system using credentials or the name and password that he used during the registration. After the login the welcome frame will pop-up and will have the all the information about student like his name branch, year, semester whether he is authorized user to plugin the usb drive .

Module 4 Client Module:-

In this module the client will be the student computer system which will be connected to the server application using the server socket programming in the java.

Module 5:-Server Module:-

In this server module the admin will be the server computer and will connected to all the computer system which are allotted to the students and admin has to observe them, it is done by the server socket programming in the java . In this module multi-threading will be used to connect all the client system to the server machine of the particular admin for the hardware vigilance.

Step 6:-USB Detection:-

This module will be responsible for the detection of all the USB devices like USB drive, Pen Drive or other storage devices . Using the listroots method one can easily identify the number of storage disk that are connected to the device .

Module 5:-Mouse and the keyboard Detection:-

Mouse and keyboard are the essential hardware components which are required to interact with the computer.

To detect the mouse and the keyboard which are connected to the computer using the USB cable there are special library in the java programming language . usb4Java is used to detect the mouse and the keyboard which are connected to the system.

Module 6:- Alert generation module:-

Whenever the current count of the mouse and keyboard connected to the computer system becomes less than the previous count then the following sub modules will take the appropriate action

Sub Module 1:- Image Capturing of the culprit:-

After the mouse removal first thing is image capturing, the image is captured without knowing of the person with the help of the opencv library. Whoever is in front of the system the image will be captured and the saved in the file system of the computer.

Sub Module 2:- Voice Alert:-

After the mouse removal the voice alert on the system is generated using the text-to-speech module. This will draw the attention of someone who is in the lab towards that particular system and it will easily find the main culprit behind the theft.

Sub Module 3:- Email Alert:-

The email is used to send the data of the logged person as well as the captured image of the student during the registration as well as captured image of the culprit during the theft is added as the attachment to the email and send to the particular admin of the computer library. It will justify whether it was logged in student or the someone other who stole the hardware of the system.

Sub Module 4:-Server and Client Module:-

In this particular sub module the multiple client system will be connected to the server machine using multi-threading in the java programming language.

After the mouse removal on the specific client computer it will generate the voice alert using the text-to-speech module on the server side which is the admins computer system. Which willeventually help to detect the theft on the particular system

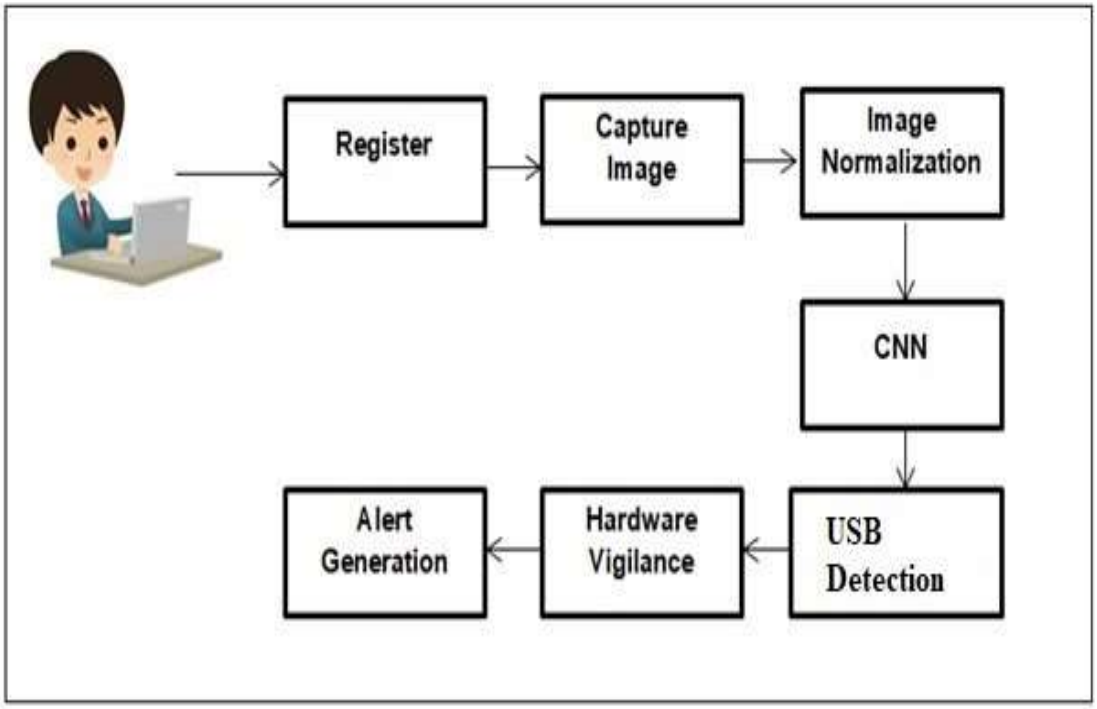
Module 7:- Shut Down Module:-

If the student on some particular computer system tries to add the USB drive to copy the data and the files on the hard drive, he or she will be authenticated. If he or she will be authorized to copy the data from the computer system by the admin nothing will happen after copying the data.

If that particular student is not allowed or authorized to copy the data from the computer system then the system will be automatically shut down and he or she will not be able to copy the data from the system.

Authorized students can only be added from the admin panel of the hardware theft detection system.

SYSTEM ARCHITECTURE:-



V. CONCLUSION

The model of hardware and software theft detection is deployed in the college laboratory for the theft of some software via USB storage device through injection technique. Whereas hardware thefts of some devices like the mouse and other USB devices are detected and alarm are raised using the port listening techniques.

VI. REFERENCES

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