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Intruder Detector System

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Abstract: Nowadays, every different organization face security problem in the form of malicious insider or other people trying to steal organization sensitive information. So, it is necessary to provide security to this sensitive data. To overcome the problem faced by lab managing staff, and to improve the management of computers in a lab, Intruder Detector System was developed. The monitor port of the switch is connected to monitoring server to monitor a LAN when multiple switches are installed, the monitoring server should be connected to them all. This connection can either be a LAN specifically configured for monitoring traffic or it can be a physical cable. Our project aims to provide a solution to the lab managing staff by altering them if anyone tries to connect an external device/s.

Keywords: Java, My SQL 5.5, JSP, HTML.

I. INTRODUCTION

Data Security means protecting the data from destructive forces, and also from unwanted actions of unauthorized users. The International Standard ISO 27001 covers data and information security. Information security is the practice of defending information from unauthorized access.

In the present situation, numbers of systems which are present in lab are connected in LAN. But in every LAN there is no such client server connectivity present. On these system students can complete their task and they can also do some other work which is not related to their given task. This is the main problem of the current Intruder Detector System. The other problem of the present existing Intruder Detector System is that the lecturer cannot supervise the student activities. The existing system presents an introduction of an implant processor based laboratory environment monitor system and its design for hardware and software. The aim of this system is to completely monitor a variety of data.

This system achieves the intelligent management of laboratory. The laboratory monitoring system can communicate with PC by either wired or wireless means. This system will include some more features like from system. The student will not be able to retrieve data through Pen Drives. They will not be able to access any data from the systems, etc. Intruder detector system is developed using JAVA. It is basically a crime detector system with some advanced feature. This system is designed in such a way to fulfil the needs of the enterprise, IT company, government office and can be used anywhere, where security is important. This application helps organization to detect the thefts who try to attach any external devices which can result in loss of useful data of the organization. Our project deals with the functionalities of the terminal system connected through a network.

II. LITERATURE SURVEY

A. Related Work

[1] This is based on sensor in which monitoring is done through implant sensor in system. But we are Implementing the system on LAN without using sensor. We are including the concept of message sending, screen recording etc.

[2] This system presents an introduction of an implant processor based laboratory environment monitor system design for hardware and software. This system aims at completing monitoring a variety of data. The intelligent management of laboratory is reached by this system. The laboratory monitoring system can communicate with PC by wired or wireless.

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[3] Computer labs can be found in libraries, schools, government buildings, science labs, companies that require such a place for their employees to do their jobs, and research centers. Printers, scanners, and other outermost may augment the lab setup.

[4] The problems faced in computer laboratories is lacking responsiveness for service and standardized management, lacking means for executing and maintaining, no standardized process, no record for software and hardware configuration and change as well, and also changing configuration randomly. Our project will help in reducing these problems.

[5] This tells the organization about computers in computer lab. We learn about arranging computers and managing them.

B. Problem Statement

It is observed that students access a lot more functions/software of the system (computer) other than the one which is required for the practical performance in the practical slot. It was also observed that it is difficult for the faculty to supervise each and every student all the time.

III. PROPOSED SYSTEM

A. Proposed Approach

This system is developed to overcome the existing problem. In this system there is Server and Client connected with each other in the LAN of which it will provide the good It will help lecturers to monitor individual student's activity and interface for performing practical to the student their system. On the basis of that performance the lecturer can give marks on every practical and can view the performed practical of the individual student.

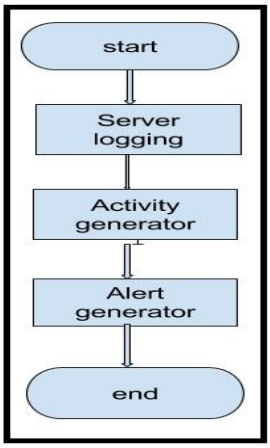

Fig1: Flow-chart of proposed system

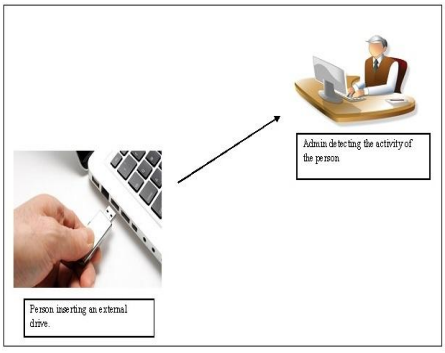

Fig 2: Connectivity between client and server

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In this system when client attaching any external device like USB, Pen-drive, CD/DVD to PC. Webcam will take picture of the attacker. Video file will be created on the admin machine so that he can identify the activity done by the user. Both the system client and server have their own software and hardware.

B. Features

- The Intruder Detector System program is able to records screen activities and sound whenever Pen-Drive, CD/DVD, hard-disk is inserted.
- It produces video files.
- It takes the picture of the user who is trying to attach USB devices.
- After the detection of the external drive, SMS will be send to the admin's mobile.
- If admin is not available, and does not give any response to the detection , a message will go to the detector's PC that to not access the computer. If he does , we eject the drive.
- The screen recording program can be used to create high quality security in college and organization.

C. Feature scope

- We will send video file to mobile of an admin.
- We will add cloud storage to store videos.
- The Screen Recording program can be used to create high quality security in colleges, school and organization.

D. Goals

- To effectively detect security incidents, our project develop auditing policies and procedures that organization's needs.
- To simplify video management, we stored video on centralized system.
- Smaller organizations may not be able to make a big investment. Keeping this in mind we will create low cost project.
- Our project will allow an organization to do better audit on USB devices.

IV. ARCHITECTURE

The system architecture is as shown in Figure 1. The proposed automated Intruder Detector system is based on face recognition algorithm. When a person enters the pen drive to system his image is captured by the camera at the starting. Face region is then extracted and pre-processed for further processing. Face Recognition proves to be advantageous than other systems. When the person's face is recognized it is fed to post-processing. The System algorithm is discussed.
The stages in the proposed Intruder Detector System are as shown in the Figure 3.

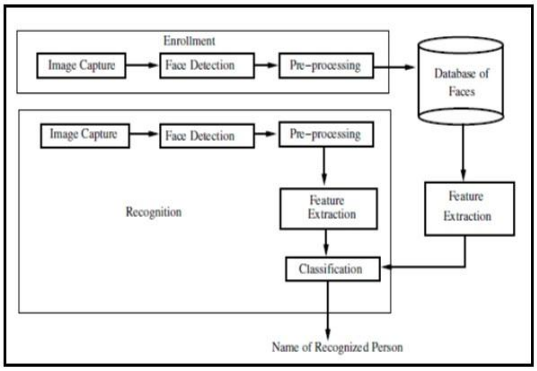

Fig 3: System Architecture

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Step 1: Image Capture

The Camera is mounted at a distance from the entrance to capture the frontal images of the students. The captured image is preferred to be of the size 640x480 to avoid resizing of the image in the back-end as we observed resizing may sometimes results in poor performance.

Step 2: Face Detection

A proper and efficient face detection algorithm always enhances the performance of face recognition systems. Various algorithms are proposed for face detection such as Face geometry based methods, Feature Invariant methods, Machine learning based methods. Out of all these methods Viola and Jones proposed a framework which gives a high detection rate and is also fast. Viola-Jones detection algorithm is efficient for real time application as it is fast and robust. Hence we chose Viola-Jones face detection algorithm which makes use of Integral Image and AdaBoost learning algorithm as classifier. We observed that this algorithm gives better results in different lighting conditions and we combined multiple classifiers to achieve a better detection rates up to an angle of 30 degrees.

Step 3: Pre-processing

The detected face is extracted and subjected to preprocessing. This pre-processing step involves with histogram equalization of the extracted face image and is resized to 100x100. Histogram Equalization is the most common Histogram Normalization technique. This improves the the contrast of the image as it stretches the range of the intensities in an image by making it more clear.

Step 4: Database Development

As we chose biometric based system enrollment of every individual is required. This database development phase consists of image capture of every individual and extracting the bio-metric feature, in our case it is face, and later it is enhanced using pre-processing techniques and stored in the database. In our project we have taken the images of individuals in different angles, different expressions and also in different lighting conditions. A database of 80 individuals (NITW-database) with 20 images of each has been collected for this project.

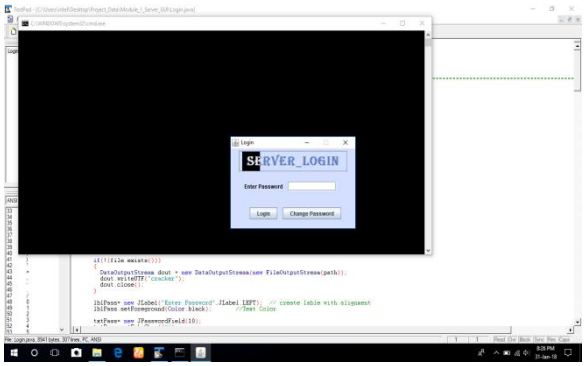

Fig 4: Server Login

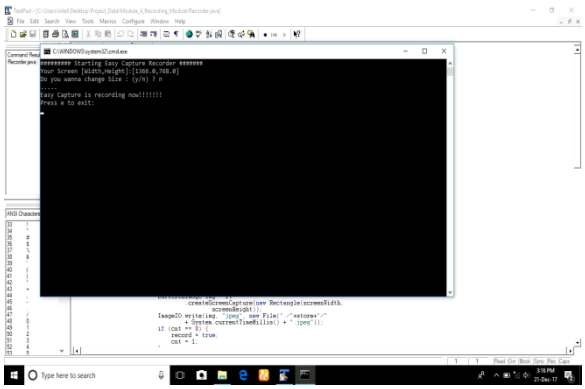

Fig 5: Screen Recording

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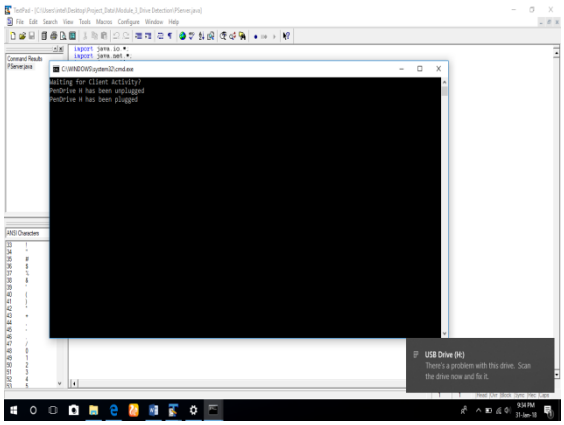

Fig 6: Detection of the drive

V. CONCLUSION

Nowadays, every different organization faces security problem in the form of malicious insider or other people trying to steal organization sensitive information. So, it is necessary to provide security to the sensitive data. Our project improves security for the PC's in the computer labs. The main limitation in automation of lab tasks is allowing only authenticated users to use the services. This system provides high security by given access rights. It is successfully implemented to keep data secured. This will also help the student to improve their practical knowledge. Because of this system student will only perform the given task.

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