

# Lab Monitoring System

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**Abstract** - Lab Monitoring system is implemented to overcome the problems faced by students and teachers during the practical session. The aim of this project is to manage a computer network or LAN by implementing such a software to carried out the operations like marking an attendance, file sharing, Exam, USB Prevention, Auto Shutdown, etc. It also help us to keeping record of number of user's logs into the system. Once the system (PC) starts, the login page opens directly. After completing his/her work students not shutdown the system properly, so we gave the functionality is auto shutdown i.e. at certain period of time if no activity is perform on a system then PC shutdown automatically by giving a notification.

**Key Words:** LAN, Student, Teacher, System, Connectivity.

## 1. INTRODUCTION

Now days, every college has computer lab, Which contains Number of computers connect through the LAN but there is no client server connectivity. The drawback of existing system is that many users (students) are not login to the software, so the software or system is unused. and after completing a session students (user) did not shutdown system properly so there is a wastage of power and they can also mark fake attendance because of no authenticity and also faces many problems during file sharing.

So to overcome all this problems Lab monitoring system is developed. This software requires a TCP/IP connection between the server and the client, which works on LANs. This system achieves the intelligent management of laboratory

### 1.1 Aim & objective

The project aim is to manage the network or LAN by implementing such software that monitor student activities and maintain control and discipline, by performing following functions.

- sharing a file between user to user or user to admin
- detection of USB when user connect a pen drive to the system, this detection locks the system until user will not remove the pen drive, it also display a message alert to both admin as well as user side
- when students mark an attendance, admin provides authentication and generate final attendance.

-Conduct an Exam and display the result.

-Auto Shutdown.

-Users log in Records.

-Remote desktop connectivity.

- when the system starts, login page of the system opens directly and user will not able to access other application until user logged into the system, User also will not able to close or minimize the log in window.

## 1.2 Motivation

Existing software has remote monitoring, which shutdown the system but not automatically and also there is no compulsion on students to log in to the software. Also there is no authentication for attendance so students also marked fake attendance.

Teacher checks practical work by visiting each student's system, and has to maintain attendance sheet for each practical session.

We implemented our system to monitor entire lab by sending live desktop of student's machine to teacher machine.

## 2. LITERATURE SERVEY

### 2.1 Related Work

This system is based on sensor in which monitoring is done through embedded sensor in system. But we are implementing the system on LAN without using sensor. This including the concept of message sending, giving command, etc. [1]

This system presents an introduction of an embedded processor-based laboratory environment monitor system and its design for hardware and software. This system aims is to monitor a variety of real-time data and also achieves the intelligent management of laboratory. By wired or wireless means, the laboratory monitoring system can communicate with PC.[2]

Computer labs can be found in libraries, schools, government buildings, science labs, community centers, companies with IT departments that require such a place for their employees to do their jobs, and research centers. Printers, scanners, and other peripherals may augment the

lab setup. But we are making this system just for college use.[3]

## 2.2 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. Monitor students activities during practical time is difficult also teacher has to visit each students machine to check his practical work.

## 3. PROPOSED SYSTEM

Lab monitoring project is implemented using client-server model using socket programming where all pc are connected in LAN. In this client machines are student's machines and server or admin machines are teacher's machines. In which performs various functions like Automatic shutdown, compulsory login, USB detection, Remote monitoring, File sharing, conducting Exams, Etc.

## 4. WORKING METHODOLOGY

In Lab Monitoring System, when student start the System Lab Monitoring software starts automatically. We set credentials in such a way that without logging to the software student will not able to operate the system's other application and will not able to shutdown the system. After logging, Students and teachers System get connected to each other.

### 4.1 File Transfer

After completion of practical work, student has facility to submit their work to respective teacher. Then this work is evaluated by teacher.

### 4.2 Attendance

When student logs in to the system the option of attendance will be shown on student screen. When student click on attendance option, a message notification shown on the admin screen. And when admin confirms, his/her attendance will be marked. And a graph of student attendance will be generated

### 4.3 Exam

A teacher (Admin) can conduct an exam by setting up number of questions and answers and after exam get over a report will be generated at admin side, of students with their result

## 4.4 Monitoring Desktop

When student logs in to the software, student gets connected to the teacher. When teacher click on connect tab of the particular student, then student computer screen will show on admin side.

## 4.5 USB Prevent

In the normal scenario, In case pen drive get attached to the system for taking data , the screen will get locked immediately after attaching pen drive to the system and the user will not be able to logged in until the removable device(pen drive) get detached from the system.

## 4.6 Auto Shutdown

When no action is performed on the machine at some time period, PC gets Shutdown automatically. And also teacher have access to remotely shutdown the student machine

## 4. MODULE IMPLEMENTATION

### 4.1 Client Wall:-

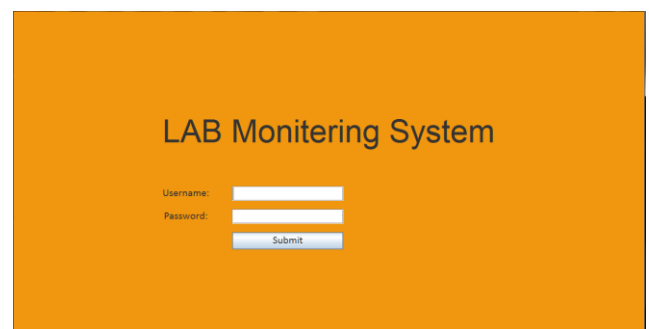


Fig-4.1 Student login

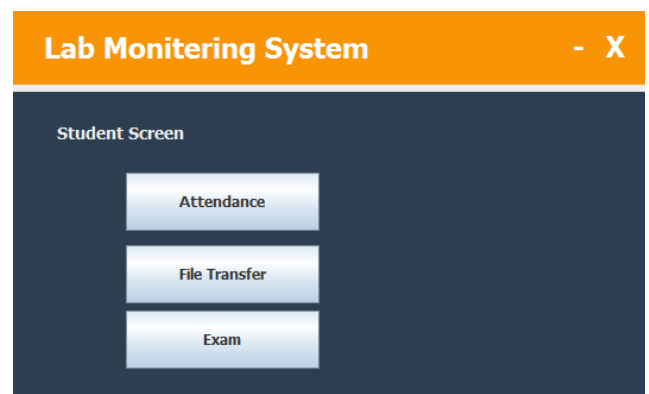


Fig-4.2 Student screen

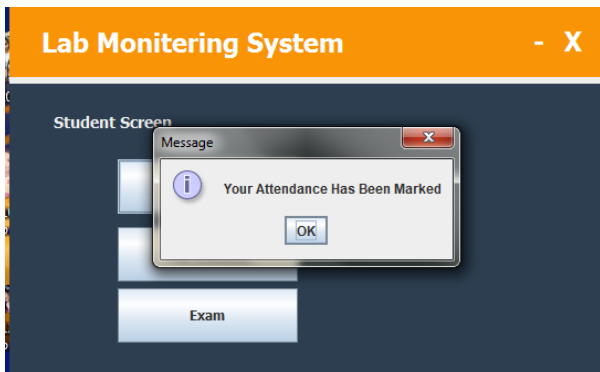


Fig 4.3 Attendance mark

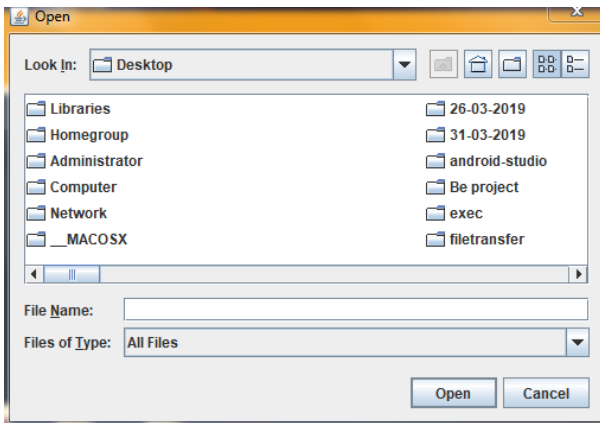


Fig 4.4 File Transfer

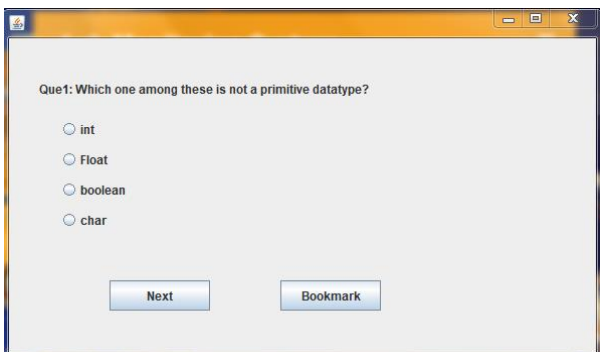


Fig 4.5 Exam module

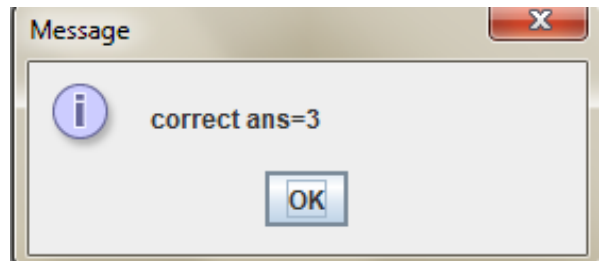


Fig 4.6 Result of Exam

## 4.2 Server Module

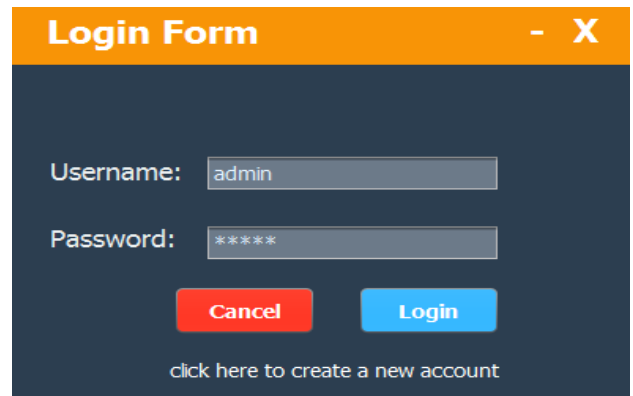


Fig 4.7 Teacher login

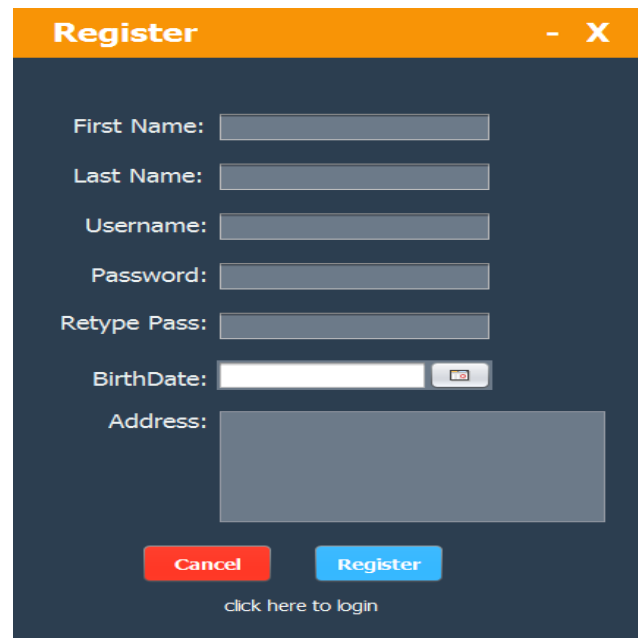


Fig 4.8 Registration

Student List							
ID	FirstN...	LastN...	UserN...	IpAddr...	Graph	Desktop	Action
6	raina	raina	raina	192.16...	Graph	Connect	Disco...

Fig 4.8 Connected Students

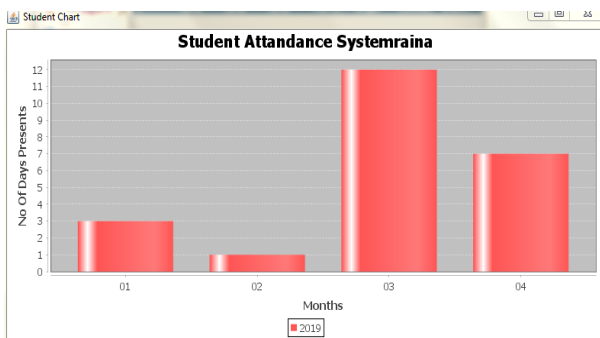


Fig 4.9 Attendance Graph

### 3. CONCLUSION

This paper explains concept of Remote lab monitoring which is helpful for monitoring computer labs during practical sessions. This system monitors the student machines connected to server machine. It also performs remote operations to control student machine and also perform various other functions.

### REFERENCES

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[3][http://en.wikipedia.org/wiki/Computer\\_lab](http://en.wikipedia.org/wiki/Computer_lab)

[4][http://ieeexplore.ieee.org/xpl/login.jsp?tp=&arnumber=5228366&url=http%3A%2F%2Fieeexplore.ieee.org%2Fxppls%2Fabs\\_all.jsp%3Farnumber%3D5228366](http://ieeexplore.ieee.org/xpl/login.jsp?tp=&arnumber=5228366&url=http%3A%2F%2Fieeexplore.ieee.org%2Fxppls%2Fabs_all.jsp%3Farnumber%3D5228366)

[5][http://en.wikipedia.org/wiki/Laboratory\\_information\\_management\\_system](http://en.wikipedia.org/wiki/Laboratory_information_management_system)