

Remote Lab Monitoring

Mr.Vipul Shaha¹, Mr.Amit Arabhavi², Mr.Chetan Barage³, Mr.Suraj Chavan⁴, Mr Yogesh Karande⁵, Mrs.Bhagyashri Kelkar⁶

Student, Computer Science & Engineering, Sanjay Ghodawat Institute, Atigre, Maharashtra, India

⁶Assistant Professor, Dept. of Computer Science & Engineering, Sanjay Ghodawat Institute, Atigre, Maharashtra, India

Abstract – Remote Lab Monitoring is implemented to overcome the problem faced by Administrator/Teacher to monitor client's/student's Activities over a LAN, The aim of this project is to implement Client Server Protocol Implementation to manage the computer network or a LAN by implementing such software to carry out operations which are capable to monitor entire computer lab by sitting on one chair by viewing client's activities, passing messages to client system, file sharing, prevent use of USB Devices and is also able to shut down the clients system by performing remote aborting operations. Whenever user logs-in into the system then his attendance is automatically stored and the connected students desktop will be shown to Teachers machine.

Key Words:- Server,Client, Remote, Monitoring, LAN

1. INTRODUCTION

1.1 Background

In the present situation every college has a computer labs which contains number of computers connected over a LAN but most of the time there is no client server connectivity present to control the LAN. So on such type of system students can do their given work as well as some other work which is not related to their given task.eg internet browsing, downloading etc. Also a single teacher cannot supervise entire lab and control student's activities each and every time like checking practical, solving problems of students, monitoring what they are doing during practical sessions etc.

1.2 Aim & Objective

The project aim is to manage the network or a LAN by implementing such a software that perform operations that

are capable to monitor whole of the network by sitting on one chair and viewing client's/student's desktop, passing messages to remote system and also having facility of shut down the system by performing remote aborting operations.

- I. Get the live desktop of every connected student's machine.
- II. Automatically Maintain Practical attendance record.
- III. Student should send his practical work to teacher.
- IV. Perform remote operations on student's machine.

1.3 Motivation

The existing system presents the monitoring of student machine in a computer lab over a LAN. It is implemented for local host [1]. Means only single machine act as server as well as client.

As there is no monitoring system to manage clients in a particular computer lab, Admin/Teacher is unable to manage entire lab at a time. During the practical sessions students perform their practical as well as some other activities like copying data, access internet etc. which is not necessary many times and also in examination time. 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 without knowing to student.

If any system is infected with virus then by use of USB devices it is spread over the lab and system performance goes down.

To monitor the activities of students by the Admin/Teacher and to maintain the control and discipline while student's practical performance this system will be very helpful.

The proposed system can be used in various organizations, government buildings, schools, colleges etc where computer labs are present. So that one administrator can manage the network by setting at one place. We are making this system just for college use.

2. Literature survey

2.1 Related work

This system is Sensor based monitoring system which uses embedded sensor for monitoring[2]. But Remote Lab Monitoring is implemented without using sensor. it uses concept of socket programming, Remote commands etc.

This system uses JAVA RMI mechanism to monitor the LAN network which pinging every second to get list of running processes on remote machine[3]. But Remote Lab Monitoring will display each Student's desktop live on Teachers machines so it will easy to monitor Lab.

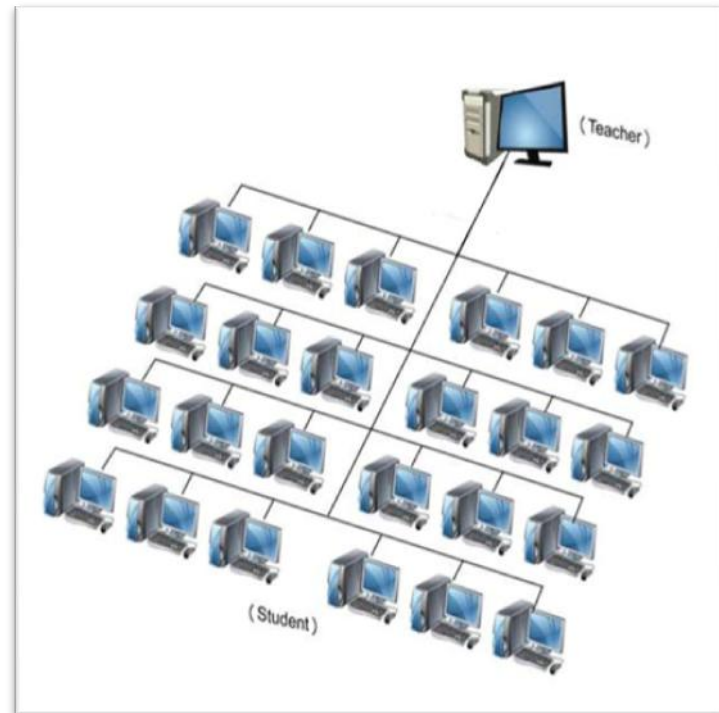
Now days computer labs can be found in schools, colleges, and government offices etc. where the work can be done. Remote Lab Monitoring is implemented for college use only.

2.2 Problem statement

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

3. PROPOSED SYSTEM

The project "Remote Lab Monitoring" is implemented using the client server model using socket programming where one PC on the LAN which will be designated as Server. Through this server, Admin/Teacher can monitor the work of each student during practical sessions also teacher can mark the attendance of Students & prevent use of USB to make the system secure.this system will help to improve students practical performance.



3.1 Proposed Architecture

The fig 1 shows basic connection for the system where one PC designated as Teacher and all other are students PC which are connected to teachers PC over a LAN

Fig -1: Basic Architecture model of System

4. WORKING METHODOLOGY

In Remote Lab Monitoring System students login to the system and connect to teachers machine. When students logon to the system his desktop will be displayed to Teachers machine without knowing him. After the practical session students have facility to send worked file to teacher. Also teacher can communicate with students as well as perform remote operations like restart, shutdown etc.

4.1 Remote Monitoring

Monitor each and every Clients/Students system from the Server/Teacher machine, Teacher can easily judge that if there is anything illegal or out of the range activities of Student's privilege are running on the student's desktop Then Teacher will send warning message to student.

4.2 Mark Attendance

When Student logs to the system his attendance is automatically stored into database. It will helpful to prevent proxy attendance of absent students. after practical session it has facility to export the attendance to excel sheet.

4.3 File Sharing

After completion of practical work student has facility to submit their work to respective teacher. which is evaluated by respective subject teacher.

4.4 Remote Operations

Teacher has facility to select a particular students system and perform remote operations like restart, shutdown, abort etc.

5. MODULE IMPLEMENTATIONS

5.1 Client Module:-



Fig-5.1: Client/Student login

The above module is to connect students to server machine. as it's implemented for college practical purpose the student can login using his Roll No, Class, Div, Server IP etc. after login successfully student pc is connected to server and his attendance is recorded.

5.2 Admin Module:-



Fig-5.2: Admin/Teacher Login

Admin login module is used to start the server to listen incoming client requests and process it. Tacher can login to server by entering Name, Subject, Year, Batch etc. admin/Teacher will click on "start server" then it will start listening client/student requests. Also it verify the students and marks his attendance.

5.3 Client Dashboard & File Share:-

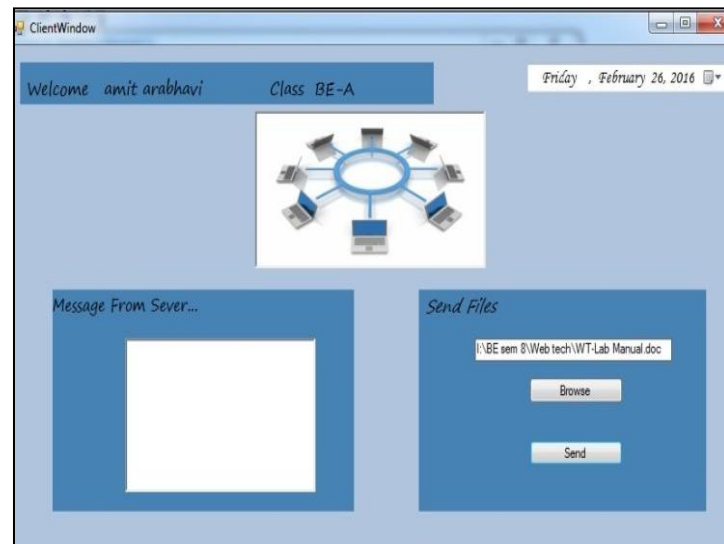
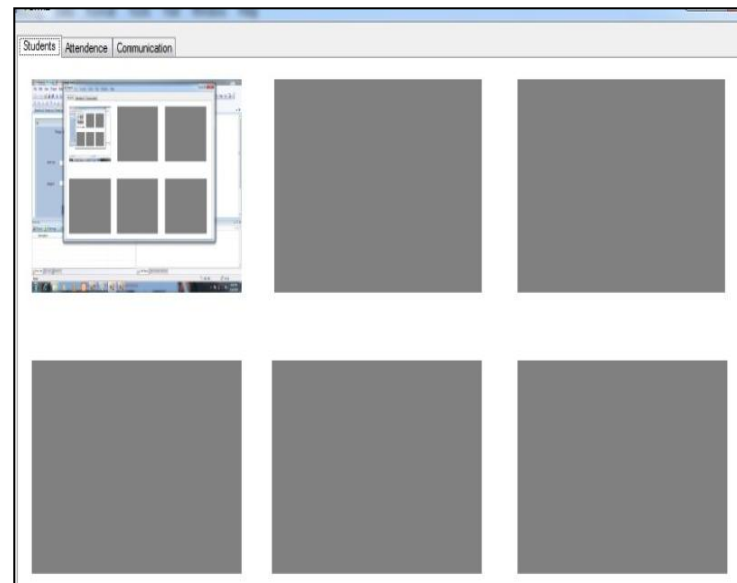


Fig-5.3: Client Dashboard & file share

After login to the system student can perform his task and after performing assigned task student is able to send his worked file to server machine. The file is stored into server machine. students will read the message coming from server/Teacher.



5.4 Remote Capture:-

Fig-5.4: Screen Capture

Whenever new Student is connected to server machine his desktop status is displayed to server machine so that admin/Teacher can view every connected student machine's desktop from server machine. Teacher can view the desktop of student and if any student doing other activities then teacher can send warning message to student to stop his activity and perform given task.

5.5 Attendance:-

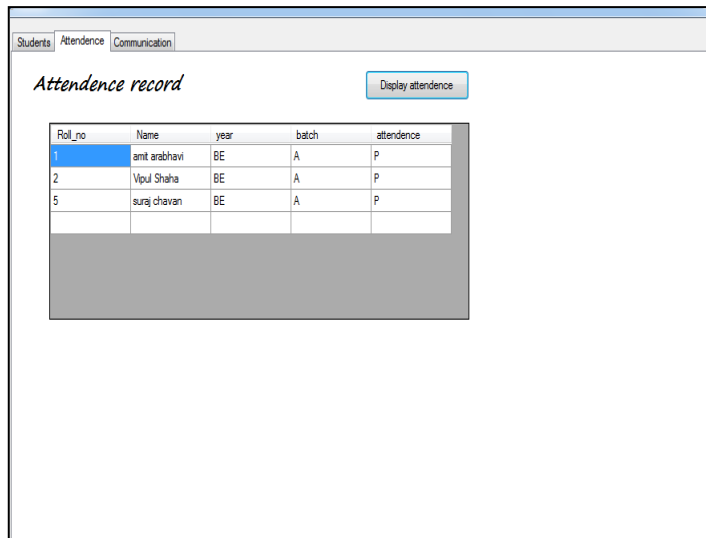


Fig-5.5: Attendance of students

When Student login to system his attendance is automatically stored into database with respective date and subject.

6. 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.

7. REFERENCES

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8. BIOGRAPHIES



Mr.Vipul Vijaykumar Shaha. final year student of Computer science and Engineering at Sanjay Ghodawat institute,atigre.



Mr.Amit Vijay Arabhavi. final year student of Computer science and Engineering at Sanjay Ghodawat institute,atigre.



Mr.Chetan Suresh Barage. final year student of Computer science and Engineering at Sanjay Ghodawat institute,atigre



Mr.Yogesh Bhimrao Karande. final year student of Computer science and Engineering at Sanjay Ghodawat institute,atigre



Mr.Suraj Shrikant Chavan. final year student of Computer science and Engineering at Sanjay Ghodawat institute,atigre



Mrs. Bhagyashri Abhay Kelkar Assistant Professor, Dept. of computer science and engineering , Sanjay Ghodawat institute,atigre.