# Workplace Collaboration Using Remote Desktop

### Divyashree Salian, Swati Savaji, Payal Shetty, Ujwala Ravale

*Abstract—* **WORKPLACE COLLABORATION USING REMOTE DESKTOP refers to a software or Operating System feature that allows a PC's desktop environment (client) to be run remotely by another system (server).It is a set of platform for the project leaders and administrator to monitor the activities performed by their team in real time (live) and sends messages to keep constant interaction with the programmers. We aim to provide multiple features through a single platform. It helps to maintain the attendance record in an organization, provides a feature of monitoring all the live activities performed by the employee in real time and block the users from doing any inappropriate/unofficial task during their work hours and to provide communication between the employee within an organization through video chatting and text chatting features along with the file transfer activity as well .This facilitates the user to concentrate more on the project and less on the managing of these tasks. In particular, showing live actions on the Administrator's desktop of a remote employee has great instructional value that must not be overlooked. Similarly, an employee can demonstrate skills and report about the status of the project from time to time that would otherwise need a physical presence in a meeting, rather than a virtual one.**

*Index Terms—* **Remote Desktop, Live Monitoring**

## I. INTRODUCTION

Using the concept of Remote Desktop, you can connect to a computer from another computer that's connected to the same network or to the Internet. For example, you can use all of your work computer's programs, files, and network resources from your home computer, and it's just like you're sitting in front of your computer at work. [1]

- Remote login uses "remote control" for accessing your computer -- and all of its software and hard drive files -- from any Internet-connected device anywhere in the world.

- Easy tracking by the administrator.
- Workers can gain access to their work computers from any Internet-enabled device, including home computers, laptops and even PDAs through remote login.

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- Desktop sharing allows for interactive and real-time collaboration between global co-workers.
- Dry teleconferences can be turned into engaging on line presentations with the help of presentation sharing
- Application sharing makes it easy to test drive software before you buy, download or installing anything

Using this concept of remote desktop, we propose our system **"WORKPLACE COLLABORATION USING REMOTE DESKTOP"** which is an application based on client server architecture wherein administrator on the server side will be able to monitor and supervise its client computer in real time from a centralized position. The proposed system contains many more features which makes it a complete package. This system makes most of the tedious and mundane deskwork to minimize. This user can thus concentrate more on the project and less on the managing of these tasks.

This system will prove to be a beneficial tool for the administrations and higher authority in order to have a watchful look over the computer network.

## II. PURPOSE OF THE PROJECT

The aim of our software design is to transform the way documents and rich media are shared to enable more effective team collaboration, to provide a platform for collaboration among people within an organization and live monitoring. Collaboration seems to have several definitions, with respect to information technology. Understanding the differences in human interactions is necessary to ensure that appropriate technologies are employed to meet interaction needs [6]

Collaboration needs individuals to be working together in a coordinated fashion, towards a common goal. Accomplishment of the goal is the main reason for bringing the team together. Collaborative software facilitates action-oriented teams working together over geographic distances by providing tools that aid communication, interaction and the process of problem solving. Additionally, software support can be provided for project management functions, such as task assignments, management of time.The artefacts, the tangible evidence of the problem solving process, and the final outcome of the team effort, require documentation and may involve archiving project plans, deadlines and deliverables.[2]

**WORKPLACE COLLABORATION USING REMOTE DESKTOP** is an application based on client server architecture wherein administrator on the server side will be able to monitor and supervise its client computer in real time from a centralized position. . It is a platform where a constant interaction with the programmers can be maintained by sending messages by the administrator and project leaders. The central goal of this application is to provide users with a

sense of being there and interact in a digitally created environment other than the one they are in physically.

## III.  PROBLEMS IN EXISTING SYSTEM

In present day scenario, any public domains can be used by an anonymous user and thus it becomes critical to share their information in this type of environment. There are still some organizations who are using manual system and in this manual system the data are stored and transferred using disk drives or paper**.**

Local systems like Ms-Access or MS-Excel etc. contains local data which are used by semi-automated system that are connected through LAN and this local database lacks data security and data integrity.
The following are the features that are lagging in present system:

- There is no automatically recording the login time/logout time of the user.
- No Maintenance on line and offline Messages and Message View.
- No proper Employee monitoring through live streaming of screenshots of desktop.
- There is no frequent interaction between the administrator and the project leaders/programmers through text or video chat.

The problem of existing system is that it is manual system. It needs to be converted into automated system.

- Risk of mismanagement of data.

- Less Security.

- Lack of coordination between different Applications and Users.

- Fewer Users - Friendly.

- Accuracy not guaranteed.

- Not in reach of distant users.

- Users communicate with each other through phone or manually.

In existing system application, Microsoft live meeting we can't see multiple desktops screens and also web server machine can't lock and unlock the client machine. Hence to overcome the above drawbacks our system application is being designed. For the purpose of communication, the existing system users are using third party public mail services as using public domains are not supposed for the communication of employee.

## IV.  PROPOSED SYSTEM

Below given are some specific scenarios in which our project can be used

- **At the office**, productivity can be improved as this system will allow **manager** to keep an eye on employees who are suspected for violating the daily routine.
- In a **computer class**, when the **teacher** is out of the class, she can see what the students are doing on their computers and thus can keep track on the flow and completeness of students' tasks.

- At a **Cyber-Cafe** or in a computer-gaming room, using the system, the **administrator** can have a look of what the users are doing, and can help them without even the need to leave the work place.

However, we are developing this project with respect to the office scenario.

The admin who is in the server side of the client server architecture logs in his system using his ID and password.

The admin can register a employee in the employee registration form. After the registration an 8 digits ID and password is automatically generated and sent to the employee email id specified in the registration form for security. The employee can login in to the network then using this ID and password. If the employee feels that the eight digit ID and password is a bit difficult for him to remember he can ask the admin to change the password for him in the database and set the required ID and password. However for this he has to present the admin the auto generated ID and password for authentication.

After the employee (client) logins in his system, the admin can monitor his screen. Only an authenticated user can login to the system. The admin can monitor the screens of multiple employees thus.

When a employee wants directly to communicate with the admin, he/she can use this service. In the large organization there are a set of Project head, programmers and Administrator and various groups in the organization have these programmers. Project heads constantly need to interact with the programmer's in-groups present in the organization. Sending messages to each and every programmer in personal is difficult. So the proposed system also has a feature of group chat where a message can be passed to everyone in the group.

The proposed system also has a feature of file transfer and video conferencing which helps in workplace collaboration in an efficient manner.[4]

One more novel feature of this system is that of Project status reporting. The project undertaken by the company is first registered by the admin. After that, the employee can enter the number of modules completed by him. At the server side, the admin can then view the project status which is depicted to him in the form of a bar chart. The admin can thus keep a check on the progress of the projects and compare the progress of different projects.

Socket programming is used to establish the connection between the client and the server.
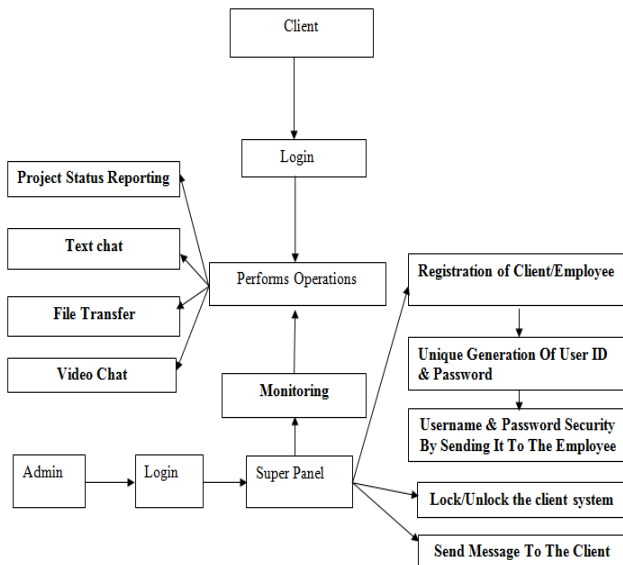
## V.  FEATURES OF OUR PROJECT

**Live Monitoring**
Wrappers are used around WIN32 API to capture the actual bitmaps of the screen and cursor .The Screen method keeps the previously captured screenshot for comparison."GetBoundingBoxForChanges" method used to determine the minimal rectangle that encompasses all the changed pixels. We access the bitmap data using pointers. Each pixel has 4 bytes that provide the red, green, blue, and alpha channel values (RGBA). The algorithm reads all 4 bytes at once by using intpointers. . To determine the bounding box, the algorithm uses a two pass approach**.** The first pass searches from the top to the bottom while scanning from left to right for changed pixels. The second pass searches from bottom to the top while scanning from right to left for changed pixels.[1]

**Lock-Unlock and send warning to the client**
While live monitoring if the admin sees that the client is doing some unwanted activities then the admin can send the client a warning message which will be displayed on his screen. If the client still continues doing the unwanted activities then the admin can lock his machine and unlock his machine too.

**Text Chat**
The basic logic behind the chat module is:
  ● User first accesses a page, and then a new Chatter object is initialized.
  ● Chats that are available in the current application context on the server are determined by page class.
  ● The Chatter's Join method is called by the page class to associate the Chatter with the appropriate Chat object.
  ● To post new messages, the Chatter begins calling the Chat's SendMessage method.

**File Transfer**
Using C#.NET socket application, we've written code to transfer a file from client to server .The code is using TCP protocol to send file that can run in LAN and WAN (Internet). It can send a small file from client to server, we have tested it with 1 MB. Here, there are two applications; one is Server and another is Client. The server will open a port and will wait for a request from the client. The client will try to connect to the server. The server will accept it after getting a connection request and will make a successful connection. After this, the client will send data in byte array and the server will catch and hold it and save these bytes. After this successful file transfer, the server will display a successful file transfer message and close the connection.

**Unique random generation of username and password for every employee.**
We use the CryptGenRandom API, which is accessible through the RNGCryptoServiceProviderclass. The RNG stands for random number generator. The Random type is a class in the base class library. The System namespace System.Security.Cryptography should be included in programs to access this class.

**Username & password security by sending it to the employee e-mail id.**
On filling Name, Email Id, Address and Contact Number fields, the information will be stored in the Sql server database table where a field "Is_Approved" is set to 0 i.e. false by default. Also email id, and the user id based on email id is set in the query string parameters and sent to the email address of the newly registered user as an activation link.

**Videoconference**
Connect with a camera and/or microphone. Firstly, we need to code it into a compressed format such as G.711 ,GSM or speex since the size of the returned data (Raw Format) would be too large. Secondly, we can integrate the video/voice together using a special standard such as H.263 or H.264. This application is developed using a .NET open source library, Jabber.net. This library contains a set of .NET controls for sending and receiving extensible messaging and presence protocol (XMPP), also known as the Jabber. Now we can see the list of controls (Jabber.Net) in the Visual Studio toolbox. Then we assign the user name and password after adding the JabberClient controls to the form. [3][5].

## VI.  ADVANTAGES

  • Boosts enterprise accessibility
  • Document collaboration
  • Strengthens privacy
  • Easy file sharing
  • Maximizes real-time sessions
  • Desktop monitor simultaneously for multiple systems
  • Video conferencing

## VII.  CONCLUSION

The advances made in remote desktop solutions over the years have brought functionality to the users, and credentials to the remote machine.
It has been a great pleasure for us to work on this exciting and challenging project. This project proved good for us as it provided practical knowledge of not only programming in ASP.NET and VB.NET/C#.NET web based application and to some extent Windows Application and SQL Server, but also about all handling procedure related with **"Workplace Collaboration using Remote Desktop".** It also provides knowledge about the latest technology used in developing web enabled application and client server technology that will be great demand in future. This will provide better

opportunities and guidance in future in developing projects independently.

## ACKNOWLEDGEMENT

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