

Mobile Based LAN Control

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Abstract This paper demonstrates to control and monitor the LAN network from a wireless handheld device i.e. cell phone from anywhere irrespective of distance. In concern, the computers are grouped together to form a network. To manage and control activities of network while in office is an easy task. While you are outstation/away from office to monitor and control the network, instead of depending on third party information, you can always have your cell phone serve the purpose, login anytime to application and see who is busy with what in the office. This paper provides the maximum details about the network to the administrator on their mobile phone, when administrator is away from office/goes out station.

Keywords Android, Feasibility, UML diagram, Wireless Media, Remote Monitoring & Control, AT Commands, Password Security, Android based Mobile phone

1. Introduction

Our society is more and more pervaded by computer controlled devices. Today the usage of mobile phones has rapidly increased. We can control any activity through the mobile phones. The aim of our project is to control and monitor the network from a wireless handheld device i.e. cell phone from anywhere irrespective of distance. Suppose you have a Local Area Network (LAN) setup at your office. Sitting at home you want to learn the LAN status, you can do so by storing the application in your cell phone and executing the same. In the era of mobile devices, wireless devices are widely used and it has penetrated every part of our life, but remote monitoring of networks through mobile device is still a mirage, this application based project is an effort to make this mirage a reality, and this is where the genesis of this project lies. Consider a LAN setup with server machine and also that all clients are connected to the administrator via mobile phone. Using the mobile phone the administrator monitors and controls the activities of the clients in a LAN; such as a small text file residing in any of the client or server machine can be opened in your mobile phone. It is a cost effective solution that will provide controlled monitoring of LAN network remotely and enable network security against intrusion in the absence of administrator in office.

2. Proposed System

Proposed system providing the following feature:

1. Offers valuable wireless connection
2. There is no need of GSM modem in our application so it is cost effective.
3. The area of covered services is more than current system.
4. It requires lesser time to establish data connection than current system.
5. The maintenance of the product will be less than current system.

3. System Objectives

Features controlled by the proposed system are as follows:

- **User Creation:** Contains user information.
- **Process List:** Get the list of all the processes running on the remote machine.
- **Read:** You can read the drives, folders, files of any of the client machines / the server machine from cell.
- **Open File:** A small text file residing in any of the client or the server machine can be opened in your cell phone.
- **Message Transfer:** Broadcast messages to clients, Server from cell.
- **New File:** Create a new document in the cell phone and save the same in either the server or client machine.
- **Activate Process:** Activate different processes in either the server machine or any of the client's.
- **Forgot Password:** It generates new password and sends to the cell phone.
- **Change Password:** It is used to change the password for the Client.

4. Architectural Diagram

Administrator sends his request through his mobile phone

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to the server. Server then recognizes the client machine which the administrator wants to monitor and control.

Administrator is provided with a Graphical User Interface based application in Android phone to send commands instantly. Server sends the command to the client like start process, shut down process, kill process, create, delete file, Process List.

Through the Android service provider, the communication is done with the mobile phone which communicates with server and server communicates with the clients. All clients are controlled and monitored by administrator. The administrator controls the LAN through his mobile phone even he is at the remote place. The administrator also checks the load on the LAN. If server fails in this model, then Client can communicate to admin through mobile Phones.

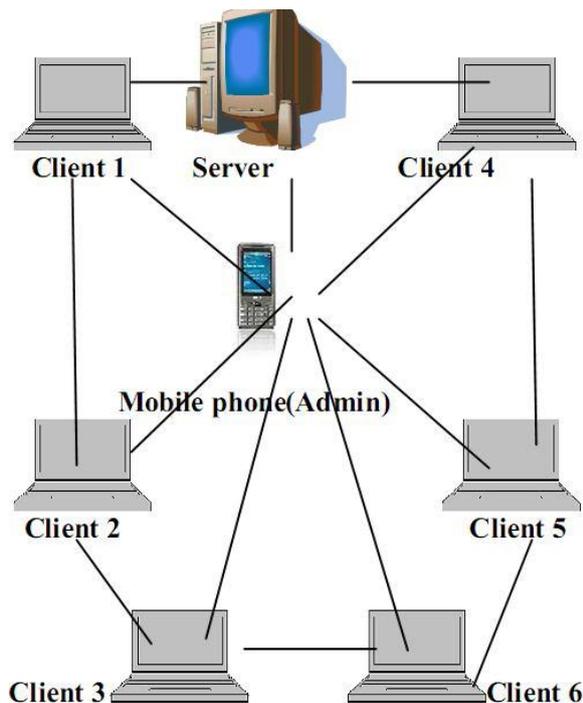


Figure 1. Architecture of proposed system

5. Results & Analysis

5.1. Hardware Interface

5.1.1. Mobile Devices

The external hardware interface will support mobile devices, such as smart phones and LAN network.

5.1.2. External Storages

The product will support transparent connections with external hard drives in order to support automatic archiving capability.

5.2. Software Interface

5.2.1. Operating System

The product will work with Android 2.1 and above.

5.2.2. Integrated Commercial Components

The system will interact with web Application Programming Interfaces (API) of third party services, such as HTML5.

6. Flow of the Application

On entering the application the welcome screen would be displayed. This screen would simply have the application name and logo. Then user can control LAN network via AT command or using menu driven commands.

Suppose we are considering the File transfer function. In this client wants any file from the server then he sends request to the administrator. Then admin will check for that requested file and allows server to send that file. Then server will send the file to the respective client.

If administrator notices that any user or client is performing unauthorised access to the system, then he wants to shut down that client's machine. He simply does that by Shut down AT command. On receiving that command from admin, the client's machine will be automatically turned off. We can perform or implement various operations like file transferring, process view and message transferring.

The SQLite Database is used for the storage purpose. In this, it has the clients as well as administrator details. Any unauthorised person cannot handle a LAN.

The Following Figure 2 shows the flow of the application.

7. Applications of Proposed System

- LAN monitoring at the University/college level can be used for monitoring, logging and retention of network packets that traverse university networks. The goal of this project is to maintain confidentiality, integrity, availability of the university network infrastructure and information assets.
- LAN monitoring at the office level can be used to monitor the office LAN by the administrator at any time if at a particular point he/she cannot be present there. He/she does not have to depend on any third party information regarding the LAN and can instead check the LAN status himself using his mobile. LAN monitoring at the malls is used to monitor all information of malls by administrator at any time if at particular time he/she cannot be present there.

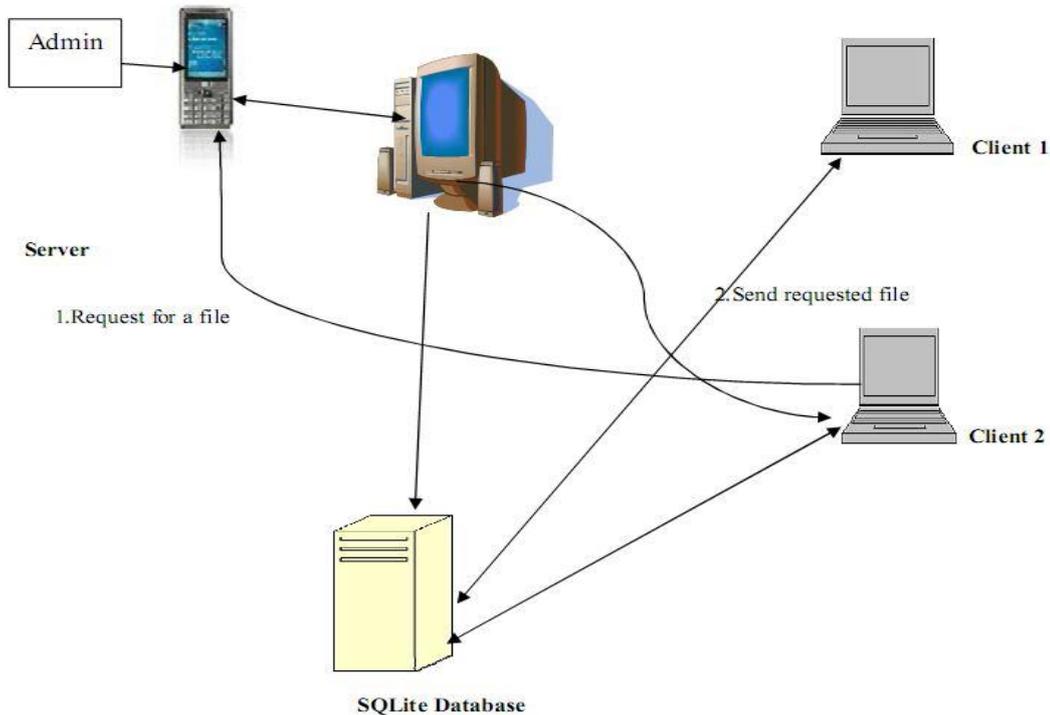


Figure 2. Flow of the application

8. Conclusions

A detailed survey on existing systems has been done. From that survey we conclude that existing systems are not convenient. Thus a new application on android platform was developed because android provides easy user interface.

The Android Based LAN Monitoring System will monitor the LAN from a remote place. It gives detail information of the network to admin. Also the log files of running processes will be maintained. Using log files we can get statistical analysis. Using this data, we can also determine the power consumption, work load of computers in LAN.

9. Future Scope

The future enhancements in the system include LAN monitoring and control whenever the administrator is not present at station. This application decreases the time as well as efforts of administrator.

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