

Access And Monitoring WLAN Using Mobile Application

Vaibhav Jori, Pratik Gagare, Amol Gore, Swapnil Gawari, Atul Pawar

Abstract: Now a days successful functioning of computer networks is important. For that network management systems are very much important. This paper describes the method by using which a LAN network can be controlled by a user with the help of android application. For monitoring and controlling of the various activities of the network, the user friendly interface must be created so user should be able to execute many commands to control the activities happening on the network. To connect the phone to the server. Wi-Fi can be used as internet connectivity tool.

Index Terms: Wireless communication, Mobile Device, WLAN, Android, LAN Monitoring, LAN Control, Mobile phone.

1 INTRODUCTION

“Access and Monitoring WLAN Using Mobile Application” is developed to monitor the LAN network from our smart phone. In recent years the world is pervaded by computer operated devices. Use of mobile phone is frequent in day to day life. The objective of the project is to give the details about the computers in network to the administrator, so he will be able to view and monitor all the machines in the network. In our project a network of computers connected together is formed. This network is monitored by a central server. This is identical to the typical client-server architecture. This server is connected to an android based smart phone. The machines connected in the network will act as client and the mobile phone will act as administrator of the network. All the monitoring will be done through the android app installed in mobile only. Administrator will monitor all the ongoing activities in the network with the help of server only.

2 SYSTEM IMPLEMENTATION

Management of the network can be done either by entering the commands through phone or controlling the network directly through the server which is part of network. The user will enter command through the ANDROID application which would be sent to a server which would carry out the further functioning. The admin of the network will be authenticated using SHA and then would gain the rights to monitor the network. Admin have to give login id and password to gain the access of the network. If the credentials provided by the user are valid then only authentication will be done. And user will monitor the network.

2.1 Component Details

The tool will be installed on server where all the commands given by the user should be received and then only further functioning would be carried out. Then commands would be forwarded to the client machine to perform the required activity and provide necessary feedback to the server. The mobile device (Android application) can be used to monitor the server application by the user from a remote place. So system is divided into three parts:

1. Server:

It will receive the requests and control commands from the administrator. Then server processes these commands for performing the desired functions on the network. It also communicates with all other client destinations on the network and monitors the activities carried out by them.

2. Client:

A client is the primary unit of any network. A number of clients (controlled by the main Server) work in co-ordination to complete the task as assigned to it by the server. Every client is installed with a client Demon tool which continuously keeps track of all the processes running on the client and performs the activities as instructed by the server.

3. Mobile application (based on Android):

It is an application which is installed on the administrator's Android based mobile phone. The basic use of this application is to allow the user to control the activities of the network from any remote location. The user enters the commands through an Android based graphical user interface which are received by the server for further processing. This application can also be used to monitor the status of any client machine on the network.

3 SYSTEM ARCHITECTURE

As Administrator use the application installed on his phone to send the request through ISP to the server. After receiving request Server recognizes a client machine which administrator is going to monitor. Server tries to extract the data from local buffer cache. Data of every machine is being updated periodically and it is stored in local cache. Then as a response this information is shared with administrator. The UI application is for providing administrator to send command message immediately without retyping message again. Server sends different commands to clients such as starting new process, shutdown of process, killing process, net view, External media detection. Administrator controls all clients with the help of Server via a series of messages. The clients cant communicate back with the administrator as communication is not two way i.e. it is unidirectional.

- Vaibhav Jori, Pratik Gagare, Amol Gore, Swapnil Gawari, Atul Pawar
- Pimpri Chinchwad College of Engineering Pune

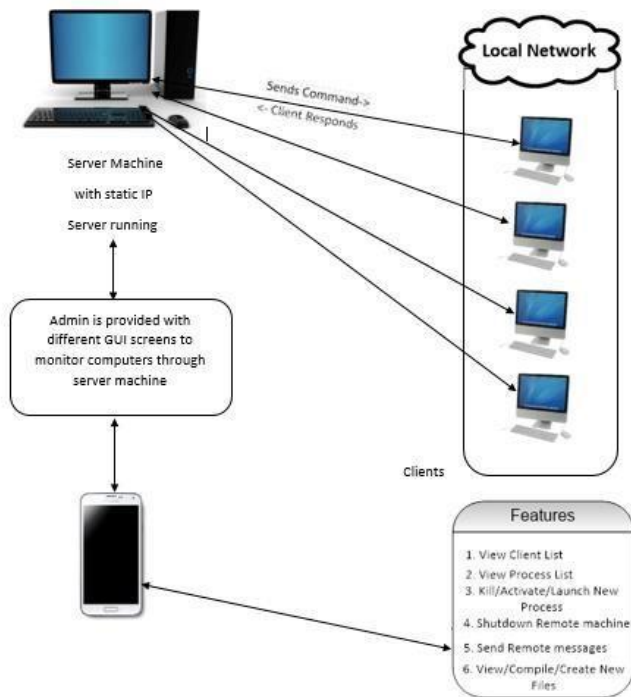


Figure 1: System Block Diagram

Only requirement is that the phone must have Android as Operating System. Also the network traffic can be checked with the help of command. The software is a server dependent application. It is having ability to sending and receiving commands. Also Notification can be sent on mobile and administrator will take relative action by sending a notification in a specific format.

4 FEATURES PROVIDED BY APPLICATION

Net View: It will give the list of all connected clients in the LAN network. Check current status of clients by pinging .When any client goes offline its name is removed instantly from the list.

List of Processes: Get the current status of all on going processes on client machine.

Start New Process: It is possible to s tart various processes either on server or client computer.

Kill Process: Terminates the undesirable processes on the client machine.

Access files: You can read the drives, folders, files of any of the client machines / the server machine from mobile android app.

Open File: A small text file residing in any of the client or the server machine can be display in your mobile phone.

Send messages: Sending messages to clients, Server from Mobile phone.

Broadcast messages: Broadcast message over the whole network.

New File: Creates a new document in the mobile phone and save the same in either the server or client machine.

Shut Down: To shut down the desired client machine through android app.

Pen Drive Detection: External hard drive such as pen drive can be detected.

5 TECHNOLOGY INFORMATION

Android (Google): An operating system supplied by Google designed for mobile devices. Architecture is built on top of a Linux kernel and using Java and C++ API's. Open source Operating system for android application development. Android is open source operating system which is Linux based on with a Java programming interface. The Android SDK provides all the tools required to develop Android applications. It comprises of debugger, compiler and a device emulator also Dalvik virtual machine to run Android programs. Android is primarily developed by Google. It allows background processing, also provides user interface library, supports 2-D and 3- D graphics using the OpenGL. Access to the file system provides an embedded SQLite database. Android applications consist of different reusable components of other applications.

Emulator: A software package that increases the hardware functionality of a given platform. It is for testing and development of solution applications.

SDK: This is a set of development tools which enable a developer to create applications from a pre-designed software framework.

WAP: This refers to Monitoring and Control Using Mobile App Embedded Wireless Information WAP (Wireless Applications Protocol) was designed for remedy of the problems with using web servers in wireless networks and embedded environments. It builds on the same concepts like the Web and reuses most of techniques and standards for the Web. The WAP standard calls for three different servers to be involved in WAP communication. An ISP (Internet Service Provider), WAP gateway, and a web server. When we are building embedded information servers, these three can be effectively combined into a single entity, thus it reduces the complexity of implementation of WAP, but still gaining its benefits. We call such a combination as a WAP server.

JAVA: Java is a set of several software products and specifications from Sun microsystem that together provide a system for application development and deploying it in a computing environment. Java is used in a wide variety of platforms from embedded devices and mobile phones on the low end, to enterprise servers and computers on the high end. Some common platforms are sometimes used to provide improved and secure functions while browsing.

SQLite: SQLite, the popular Open Source SQL database. SQLite is RDMS consist of small C programming library To refer other database management systems, SQLite is not a separate process can be accessed from the client application, but it is an integral part of it.

6 IMPLEMENTATION AND TESTING

6.1 Work Flow

The **Activity diagram** is a graphical representation of workflows of stepwise activities and actions with support for choice, iteration and concurrency in Mobile Based LAN Monitoring. The activity diagram above shows the overall flow of control in our Mobile Based LAN Monitoring and Control.

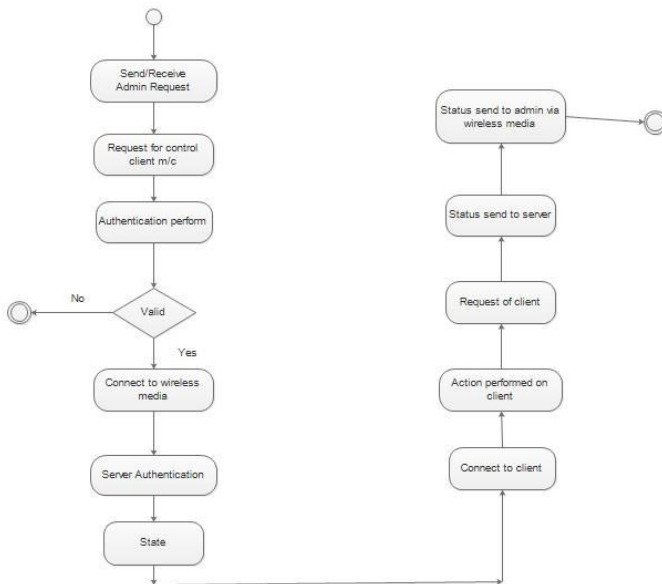


Figure 2 Activity Diagram.

6.2 Implementation

Implementation is most important stage in the project where the theoretical design of the project is turned into a working system. In this project the implementation techniques of controlling and monitoring LAN through Cell phone. Access and monitoring WLAN Using Mobile application is implemented by using android based platform itself. The system is developed in a way that targeted LAN in Network is controlled by the server machine and then server can control all other machine in network. The Mobile Based LAN Monitoring and Control is a tool used to monitor a LAN through a mobile device by the administrator. This application tool is installed on the node which has two independent parts. There are two main application .One is server application which works as a important process on the machine and offer the services to administrator for control and monitor the LAN. Administration has all privileges to monitor LAN in network. Second is the client application which is the secondary process on the machine and controls all the activities of the client. The server application can control through mobile device that are registered on device. Using the mobile the administrator can perform following actions-

- 1) Kill Process
- 2) Net view
- 3) Shut down
- 4) Start Process
- 5) Send Message.

The server keeps the record of list updated to check the live hosts working in the network. The server can contact with the particular client using his ID. And also send message to client.

The basic flow of the system is given below:

1. The Client submits login request to Android Activity.
2. Android Activity acts as controller.
3. Activity requests DB to verify whether the database is having the user name and password are same the login operation is successful.
4. Controller then gives response back to Android Activity which displays the Android XML file on Mobile.
5. It prepares presentation response on to the Mobile.

7 END SECTIONS

7.1 Results

Whatever the objective of our project was mentioned in our abstract was followed in following sequence to get the specified result. The different steps followed are as follows:

- To monitor and control the LAN through mobile phone of administrator which is connected to the server through wireless media.
- To provide access to the client in a LAN through Wi-Fi.
- This is achieved using *WAP Protocol*.
- To provide easy searching of clients have stored their details (Name with IP Address) in Database
- Provided GUI should be User Friendly.

After overall implementation of the proposed system it will be possible to test the complete overview of the idea of the users and then we have specific control and monitor LAN. Further through some investigation can also be performed on implementing an effective mechanism to the working system. This can be give result through the monitor and control LAN.

7.2 Future Scope

Networks in the different organizations are growing so fast .So for the control of the Clients in the Client-Server Network will be a very important Task. It will give following features:

- Provide more security
- Provide scalability.
- Provide parallelism.
- Integration with schools and colleges.

7.3 Conclusion

The available techniques for monitoring and controlling are perfect in themselves. But to improve the accuracy, more efforts need to be taken. In the proposed technique, we have used the Wi-Fi network and LAN. The application will provided with a minimum cost, availability and accessible, remotely monitored and controlled solution for LAN monitoring using wireless media has been introduced. The use of a mobile, wireless media, Server provides exciting possibilities. As far as the industrial applications are considered this can be viewed as a low cost, customized wireless LAN monitor system. This solution can be suit by any other industrial requirement related to monitoring and controlling LAN network. The target to control LAN network remotely using the wireless media for satisfying user needs and requirements. The WLAN technology has capable to provide the solution to be controlled remotely, provide security and is cost as compared to the previously existing systems. Hence we can said that the our required goals and the objectives of the system achieved successfully, by working system.

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