

Android Based LAN Monitoring

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Abstract—Today for real time applications it is important to monitor system in efficient way which puts limit in terms of accuracy and repeatability if a human is employed on plant to do this task. The proposed system describes an intelligent Monitoring System which is based on android platform. The necessity of such a system arises when the user is unavailable at the actual site of the network. In such a case, to monitor and control the various activities of the network, a wireless and user friendly interface needs to be created through which the user can execute different commands to control the various activities of the network.

Keywords—Internet, Android, Remote Monitoring & Control, SHA, Password Security, Mobile phone, Remote Monitoring System with Android, Data Acquisition with Android.

I. INTRODUCTION

Our society is more and more dependent on computer controlled devices. Everything from the simplest toaster to luxury cars has one, or often several, micro-computers embedded. Today, those micro-computers are mostly used to enhance the performance of the devices. However, the use of embedded micro-computers gives the ability to add completely new services and features too many devices.

We are going to develop system so that user can easily monitor his system or network process using mobile phones and able to kill the process. Thus our project aims at developing a system wherein the user can execute various commands to control the activities of the network even when he is not present at the actual site of the network using a mobile based application (Running on ANDROID O.S.). The user would enter the commands through the ANDROID application which would be sent to a remote server which would carry out the further functions. The administrator of the network would be authenticated using SHA (Secure Hash Algorithm) and then would gain the rights to monitor the network. The commands would be forwarded to the server through the internet.^[1]

• II. LITERATURE SURVEY

This project proposed a monitoring scheme prototype based on android smart phone terminal. By collecting and processing data at server, sending data to smart phone terminal via Web Services, it reaches the purpose of monitoring the target site anywhere and anytime under the coverage of wireless network and enhances the flexibility of surveillance system greatly.

We have studied IEEE papers related to our project as follows:

Android Based Network Monitor:

Developing a system where in the user can execute various commands to control the activities of the network even when he is not present at the actual site of the network using a mobile based application (running on ANDROID O.S.). The user would enter the commands through the ANDROID application which would be sent to a remote server which would carry out the further functions. The administrator of the network would be authenticated Using SHA (Secure Hash Algorithm) and then would gain the rights to monitor the network. The commands would be forwarded to the server through the internet.

LAN Monitoring and Controlling using Android:

The interaction between the clients and the remote administrator is achieved via a central monitoring server. Using cell phone, we can monitor and control the network using SMS service and see who is busy with what in the office. It aims to develop an integrated software solution that allows a network administrator to remotely monitor his LAN by his cell. The interaction between the clients and the wireless media happens through this server. The primary goal of the paper is to remotely handle the request of the clients and to install the software is on their machine remotely. Remote Software Installation and LAN Controlled uses some of the existing+services that may already be deployed and in use within an organization, as well as adds some additional services. Remote LAN Controlled can be used to handle Remote processes and remote operation of clients. [6]

III. THE PROPOSED SYSTEM

Proposed system providing the following feature:

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

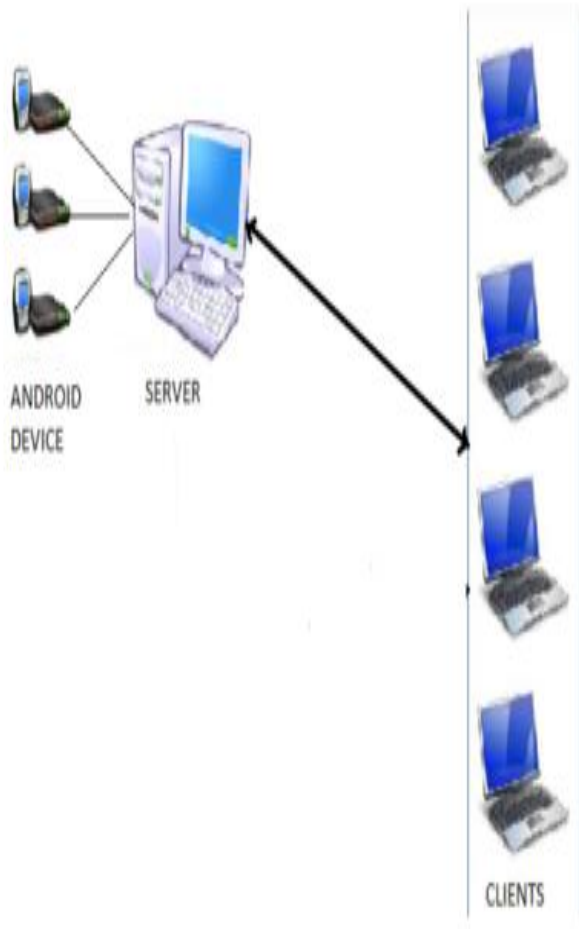


Fig 1. BLOCK DIGRAM

IV. SYSTEM OBJECTIVE

Features controlled by the proposed system are as follows:

- NetView: Get in your cell phone, the list of entire client's in LAN. Keep pinging every time to check the latest status of the PC's. Anytime, the PC goes offline, its name is removed from the list.

- 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.
- OpenFile: A small text file residing in any of the client or the server machine can be opened in your cell phone.
- Broadcast messages: Broadcast messages to clients, Server from cell.
- NewFile: Create a new document in the cell phone.
- Activate Process: Activate different processes in either the server machine or any of the client's.
- Kill Process: Kill the desired processes on either the server or clients.
- Shut Down: The client machines from mobile.

V. METHODOLOGY

The network can be controlled in two ways. One way is to enter the commands through the mobile device while the other way is to control the network directly through the server which is a part of the network.

So the complete system can be briefed up into three major parts:

A. Server:

It receives the requests or control commands from the user (administrator). These commands are then processed by the server for performing the desired functions on the network. It also communicates with all the other client destinations on the network and monitors the activities carried out by them.[5]

B. 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.[5]

B. 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 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 any client in network.

[A] MODULEWISEDETAILS:

This tool would be installed on the server machine where commands from the user would be received and accordingly various functions would be carried out. These commands would be received at 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. [7]

Administrator is provided with a GUI based application in J2ME to send command message instantly without the need to retype message every time.

Server sends command to the clients like start process, shutdown process, kill process, create, delete, send task list, compile code. Through the GPRS service provider the communication is done with the ISP server which communicates with the server and the server communicates with the client. All clients are controlled and monitored by administrator via a series of messages.

The administrator control the LAN through his mobile even he is at the remote place. The clients cannot send back or communicate to the administrator the communication is unidirectional it is not two way. Only the administrator can give command to the clients. Client on machine network. [5]

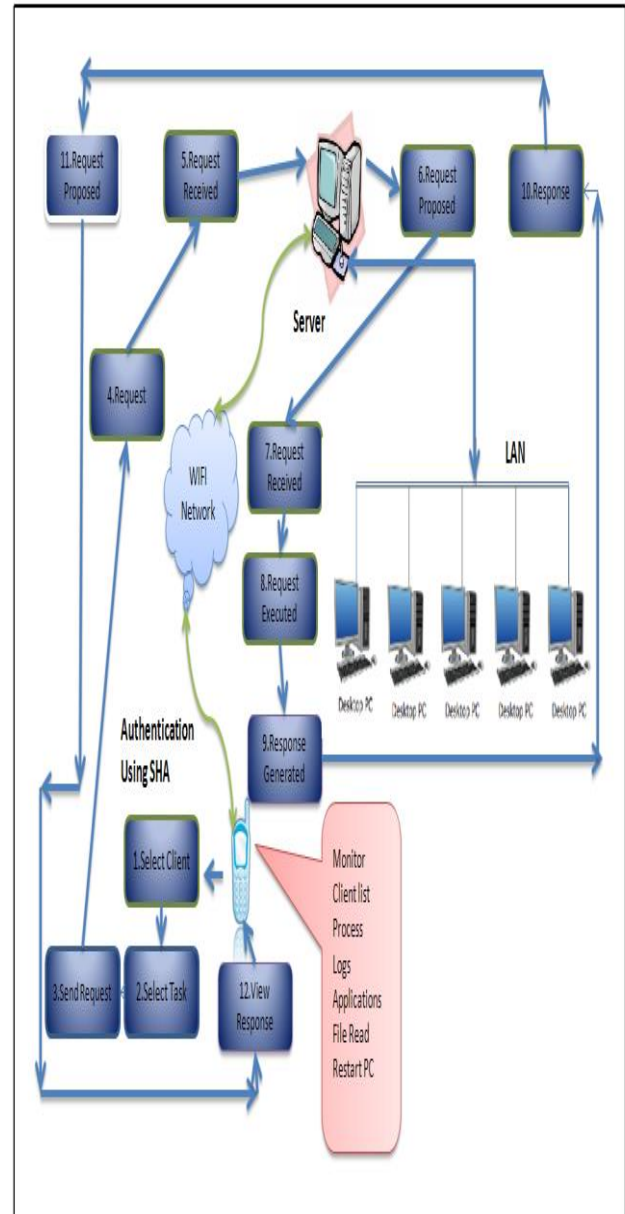


Fig.2: Architecture of proposed system

The mobile used can be any mobile which has an Android operating system in it. Also the administrator can check the network load on the LAN by typing only a command. [7]

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The software developed is a server based software application that provides ability to send and receive commands through the network and communicates through standard TCP/IP protocol. The software is capable of sending the notification to the network administrator on his mobile device and thereafter the corrective action can be taken by the network administrator by sending a notification in a prescribed format. [7]

Hardware Interface

1. Mobile Devices

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

Software Interface

1. Operating System

The product will work with Android 2.1 and above.

2. Integrated Commercial Components

The system will interact with web application

VI. FUTURE SCOPE

The future enhancements in the application include LAN monitoring and control whenever the administrator is out of station. This application reduces the time as well as the effort of administrator.

VII. APPLICATIONS

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. LAN monitoring at the mall is used to monitor all information of malls by administrator at any time if at a particular time he/she cannot be present there.

VII. CONCLUSION

In this paper a smart Remote Monitoring system is explained which does data acquisition from various channels in analog form digitizes it in high 10-bit resolution. Thereafter stores into database server.

This paper puts forward an innovative idea of making GUI in android application which can access data stored in dedicated web server anywhere from the world just by touch of ones. A build application is user friendly and more importantly a complete monitoring system is portable that one can carry in mobile phone. A proposed system can be expanded for applications such as Healthcare or Industrial plant monitoring system where real time monitoring is required. With 3G and forthcoming 4G technology it is also possible to monitor the plant LIVE in Video form due to increased bandwidth and faster data rates.

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