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Android Based LAN Monitoring System

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Abstract:-The increasing demands and use of computers in universities and research labs generated the need to provide high speed interconnections between computer systems. **This paper represents how a computer or multiple computers connected in a network i.e. LAN can be monitored from remote place with smart phone device i.e. Android phone with the help of Internet (GPRS/WiFi). It is basically an Android based Mobile Application for keeping an eye on a Targeted PC. All the applications running on the computers will be monitored by the handheld device. Also admin can see the log files of targeted PC from anywhere provided that the WiFi/GPRS is enabled. This paper describes how the application can be used in various sectors such as colleges, government sectors, industries etc. and also gives the overview of client server architecture.**

Keywords:-.LAN, Android, WIFI, GPRS, Admin, handheld device.

I. INTRODUCTION

Generally LAN is a computer network which interconnects computers within a limited area. These computers are connected to the server. This is nothing but client server mechanism. The computers connected in LAN are monitored by server. When admin wants to see the details of computers in LAN, he have to present in that area. But through our application admin will see the details from remote place. We developed the system on android platform. In this system the server is connected to the android phone which monitors the computer connected in LAN from remote place. An android phone will be held by admin. The application in the android phone will be secured with user name and password so that only admin can handle it. Thus the information is secured. The server is connected to android phone through JSON parsing. Through JSON parsing objects are send, received and the information is achieved. As admin can access the system from anywhere, the system must have internet access. Main purpose of the system is to provide the detail information of LAN to admin. The features provided by the system are to get the available client list, to get the online/offline status of the targeted system and to get the history.

II. LITERATURE SURVEY

From literature survey we came to various research papers that provide remote access to computers connected in LAN. Till now there are various systems for monitoring LAN from remote place. By referring research papers we came to the following research categories.

A. Email based LAN Monitoring.

B. GSM-SMS protocols using GSM module individually or in combination with Internet Technologies.

C. Remote Monitoring using Wireless Sensor Networks (WSN), Bluetooth, WiFi, Zigbee technologies.

D. Applications have varied widely like Home Automation, Security Systems, Bio-medical applications, Agriculture, Environment, Reservoir, Bridge health monitoring etc[13].

"A Survey on Network Monitoring and Administration Using Email and Android Phone", paper states that using email we can develop various network utilities which are required to effectively monitor a LAN network. It aims to develop an integrated software solution that allows a network administrator to remotely monitor his LAN network by his email account. But there are lots of disadvantages to monitor and control the network using email and SMS. Cost of SMS matters a lot and there can be connection problem in email [3].

"GSM Based LAN Monitoring System", paper demonstrates a method which enables users to control their LAN network from remote place using a cell phone-based interface. To manage and monitor the control activities of network, the user should send an authentication SMS along with the required/desired function/action SMS to his/her server system via Global System for Mobile communication (GSM). Upon being properly authenticated, the cell phone-based interface would relay the commands to a server system that would perform the required function/action, and return a function completion SMS that would be sent to the administrator (user's cell phone) [6].

Many Wireless Technologies like RF, Wi-Fi, Bluetooth and Zigbee have been developed and remote monitoring systems using these technologies are popular due to flexibility, low operating charges, etc. Today Wireless Sensor Network are used into an increasing number of commercial solutions, aimed at implementing distributed monitoring and control system in a great number of different application areas[13]. Wireless monitoring using Bluetooth is also helps to monitor the LAN. But there is problem of Bluetooth range. Through this system the admin cannot monitor the LAN from remote place.

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On referring research papers on above topics we come to know that most of the remote monitoring systems are based on the web based system, hardware and embedded system and GSM based system. In our project, we developed Android Based LAN Monitoring system through which the administrator can monitor LAN from his android phone which is feasible and user friendly.

III. EXISTING SYSTEM

A. *GSM Based LAN Monitoring*

GSM/SMS Based LAN monitoring can monitored network by sending messages from anywhere using GSM modem. Admin sends his request to the server via GSM modem. GSM modem is the middleware between admin and sever. Sever identifies client. It sends request to the client and get response back from client. Then server will send response to admin. The SMS consists mobile no. of admin, client name and operation to be performed. But there are various drawbacks of GSM based LAN monitoring system. These may be cost of SMS is high and failure may occur due to low balance also due to the unavailability of SMS service.

B. *Email Based LAN Monitoring System*

By considering drawbacks of GSM based LAN monitoring system, email based LAN monitoring system was developed. This system provides maximum details about the network to the administrator on their email account, when administrator is away from office or goes out station. Also using email we can develop various network utilities which are required to effectively monitor a LAN network. It aims to develop an integrated software solution that allows a network administrator to remotely monitor his LAN network by his email account. But there are lots of disadvantages to monitor and control the network using email. There can be connection problem in email. In the era of internet services, email are widely used and it has penetrated every part of our life, but remote monitoring of networks through email is still mirage[3].

IV. PROPOSED SYSTEM

The system is broadly divided into clients, server and android phone. The computers are connected in LAN. The clients are connected to the server and server is further connected to android phone through JSON parsing. When admin requests to getting information through his android phone, the request will be send to the server. The server will fetch information from clients and sends it to the android phone. We are implementing the system using android. Because android provides easy user interface and helps to make interactive GUI's. The features covered by system are view client list, view process list and view logs. When admin will select the first feature i.e. view client list, all clients available in the LAN will be displayed on android. If admin wants to see process list of any client, then he will select the second feature. If admin is unable to see the updates on users PC due to unavailability of internet, in such cases admin will see the log later by selecting third feature.
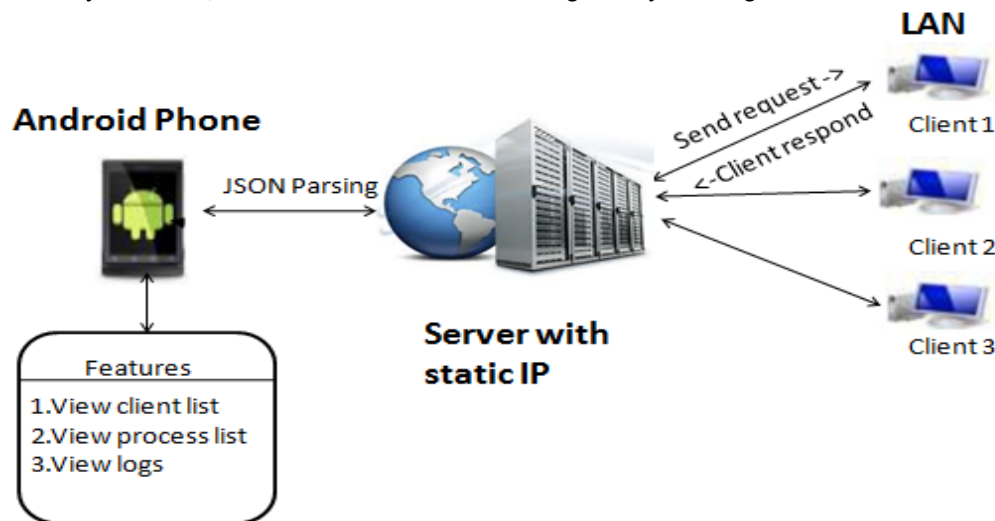

Fig. 1: Proposed System

A. *Connectivity Assesment*

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We are using JSON Parsing between Android phone and server. JSON is nothing but JavaScript Object Notation. When admin will select a feature on phone, the HTTP request is sent in URL form and received by the server. This same HTTP request is read, encoded by server and sent further to the client. This URL message is read by client and gets the command name and other required parameters and command is executed on the particular machine. The URL consists the IP address and port no. of server . URL from phone to server is written in the java code which is at the server side. The client side will only have the client-server connection code.

B. *Request Execution-*

The http components consists -

httpClient- The most essential function of httpClient is to execute http methods. Execution of an http method involves one or several http request / http response exchanges, usually handled internally by httpClient. The user is expected to provide a request object to execute and httpClient is expected to transmit the request to the target server return a corresponding response object, or throw an exception if execution was unsuccessful.

httpPost- This request is used to submit data (e.g. for to be used in html forms).

httpResponse- http response is a message sent by the server back to the client after having received and interpreted a request message.

httpEntity- http messages can carry a content entity associated with the request or response. Entities can be found in some requests and in some responses, as they are optional. Requests that use entities are referred to as entity enclosing requests. The http specification defines two entity enclosing request methods: POST and PUT. Responses are usually expected to enclose a content entity.

V. CONCLUSION

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

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

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