Article

Android Application for Tracking and Monitoring W Lan

Pawan R Bhaladhare [1] **, ShohebPinjari** [1] **, Shubham Marathe** [1] **, SaidasSoparkar** [1] **and Akshay Salve** [1]

1   Department of Information Technology, Sandip Institute of Technology and Research Centre, Nashik, India.

*   Correspondence: veekshashetty3@gmail.com;

Abstract: In this Digital Era, A successful functioning of computer networks is important. For that network management systems are very much important. We are going to develop a method by which a LAN network can be controlled by Administrator with the help of android application. As now a day Android phone is secured operating system and widely used by people and also has the bigger market share. So, for monitoring and controlling the various activities going on network, the user-friendly interface must be created so that Administrator should have full access to execute many commands, to control the activities happening on the network. This Application is used to provide all the important details of the network to the admin on their android phone to connect the phone to the LAN Server we use internet connectivity

Keywords: Image Processing; Electronic invoicing; pdftotext; tesseract; tesseract4.

1. Introduction

Initially mobile phones were developed only for voice communication but now-a-days the scenario has changed, voice communication is just one aspect of a mobile phone. There are other aspects which are major focus of interest. Two such major factors are web browser and GPS services. Both of these functionalities are already implemented but are only in the hands of manufacturers not in the hands of users because of proprietary issues, the system does not allow the user to access the mobile hardware directly. But now, after the release of android based open source mobile phone a user can access the hardware directly. He can design customized native applications to develop Web and GPS enabled services and can program the other hardware components like camera etc. This paper describes PocketDroid, an Android application designed to control the Remote Desktops. Technological developments have enabled the creation of mobile devices with the technical features which were previously conceived only in PC architecture. With the advent of PocketDroid, here comes the need to integrate these devices so that interaction between the PC and mobile can be monitored and a better interaction can be accomplished. This paper proposes the implementation of mobile based PC control system using Android software stack [3, 4]. The advancements in 3G technology and wireless communication bring the convenient usage of mobile devices or internet. With the ease to access network, the remote systems

are not limited to network protocols and its features. The communication between the mobile devices and computer can be accomplished using internet.

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.

2. Literature Survey

Wireless sensor networks (WSNs) and environmental monitoring require solutions that present sensor data to the user with efficiency and simplicity. With the dissemination of mobile devices, is now possible to use a mobile device as the center of a WSN platform and provide the user with a clean UI in order to see all the information available in the sensor network. This section presents some available projects regarding ubiquitous solutions for monitoring wireless sensor networks.

Li et al. [7] proposed an approach for mobile users to collect network-wide data using mobile handheld devices. These devices communicate directly with nearby sensor nodes in the network trough IEEE 802.15.4. Unlike static approaches where sensors send data to the sink node, in the presence of user mobility the data collection tree needs to be updated due to the mobility of the user. This functionality reduces the communications delay and provides real-time data collection.

WSN Monitor is a modular solution, presented by Vajsar and Rucka [8], which is able to monitor and manage wireless sensor networks. WSN Monitor is based on database storage, a server software and client applications. The solution is scalable due to its modular architecture build up from modules such as, graphic and sensor modules. The server application accesses data in the database and processes requests from the client. The client application is based on Adobe Air technology, which is supported in some mobile devices but with limitations when compared with a native mobile application. The responsiveness and performance is consistently better in native applications and the user interface has the same look and feel across the system.

A software solution called Sensor Explorer is proposed by [9]. This software is based in a modular design and allows the administration and monitoring of wireless sensor networks. It is capable of presenting a 3D view of the WSN topology. Client applications can run on a large range of platforms including desktops and mobile devices. The data packets collected by sensor nodes are transmitted to the server which provides database storage as well as interfacing to external clients for visualization of collected data and

WSN topology. Parbat et al. [10] presented a survey on data visualization tools used in WSN monitoring. In this study, nineteen data visualization tools are presented and analyzed in terms of their user interface, portability and simplicity. Some of the presented tools are reviewed with detail focusing the system architecture, the communication protocols and the monitoring application itself while the most part are presented in a summarized way. Most of these tools are proprietary software and only offer support for specific hardware manufacturers and none of them was built specifically for a mobile environment.

Kim et al. [11] proposed an architecture model for WSN's real-time monitoring. The proposed architecture collects data from a TinyOS based WSN and then store the data on a MySQL database that is accessed by the monitoring application. The model uses artificial intelligence algorithms to filter all the collected data before presenting it to the user. A Windows application that communicates with the server over IPv4 was used to visualize the sensed data. There are several approaches and implementations with the same purpose to control and to monitor a wireless sensor network. This paper proposes a robust and reliable model to provide the user with a mobile platform capable of presenting data in a mobility environment. Besides that, the proposal is designed to be independent of client and server implementations since the core of the model is based on platform independent XML messages and REST interfaces.

3. System Objective

1. The main objective is to provide maximum details about the computer in network.
2. to the administrator on their mobile phone, so that he can view and monitor all the machines in the network.
3. It operates PC from mobile device using Internet with key pad inputs of mobile.
4. It allows a power button, as well as a switch or series of buttons to select which device
5. the remote is controlling at the moment.
6. It allows selection of a particular device from available list and also allows user to and
7. one that matches the device to be controlled.
8. It allowing the remote to be programmed to control new devices not already in its list.

4. Technologies to be used

1. Android Software Development Kit (SDK)

The Android SDK is a Java based software development kit that enables the developers to build applications for the Android platform. It includes development tools, source codes for sample projects, an emulator and the necessary libraries to create Android applications. Applications are run on Dalvik which is a custom-built virtual machine that runs on top of a Linux Kernel [10]. The graphical user interface of an Android application is built from the libraries in the SDK using XML and the graphical input. This ensures that the scheme created by the developer is uniform for the application and between applications. In an Android application the user interface is created using View and ViewGroup objects. View objects are the fundamental units of user interface expression on the Android platform.

On Android, permission is required to grant the built application to access to the internet in performing certain tasks. The developer must define it in the configuration file of the application that it would like to use the concerned permission. If a user wants to install an Android application, he or she gets a screen where by the required permission for the application must be confirmed.

2. Testing Component Interfaces

After setting the security for a component interface, you can test the contents and behavior using the component interface tester. You should test the component interface before using it in your external system. This proactive tool helps you discover problems with the underlying component or the component interface itself, including user-defined methods. When you are testing a component interface, real data from the database is used. Therefore, if you save the information that you change by calling the Save method, the information is changed in the database.

With the component interface tester, you can:

1. Test the component interface in interactive mode.
2. Retrieve history items.
3. Test the standard, custom, and collection methods.

5. System Architecture

Now a day's electronic devices and PC's are inevitable parts of one's life. Computer network security of large organization and small firms like colleges can be easily compromised by using banned software products or creating loop holes in the system using pen drives even though use of pen drive is illegal. Also unnecessary use of organizational network can cost more in both time and money to organizations, so needed smart and realistic approach, near to human monitor and control intranets by network administrator or network controller. So the proposed system In wireless monitoring through Wi-Fi using smart phones user connect to any computer having Server Application running on it .It is basically an android based Mobile Application for

controlling a Target PC. User can have full access for the target PC. One can use this application to share files between PC and android device, start and stop the application installed on the target PC, shutdown the target PC and much more.

Consider a LAN setup with the server machine connected to Android phone. The interaction between the clients and the wireless media happens through this server. Remote Visualization This mechanism allows the client to actually view the screen of target PC on Client's screen and actions performed in an e cient way.

Process Description

The following diagram makes it easier to understand how we proceed.
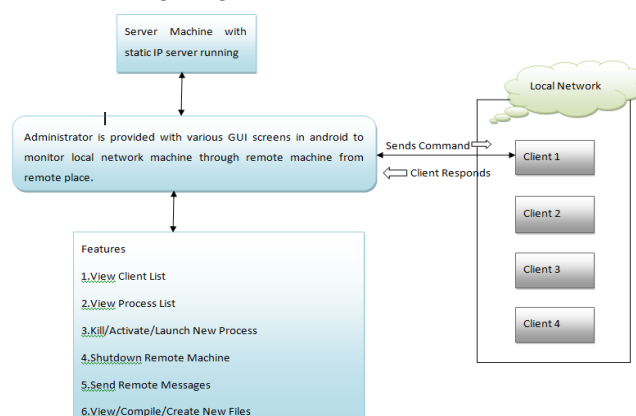

Fig. System Architecture

Network monitoring describes about the use of a system that constantly monitors a computer network for failing or slow components and notifies the network administrator through email or SMS in case of outages[4]. To manage and control the activities of the network from the outside of the office becomes difficult task.Communications must be assured in every place of the facility and this must be done in a more reliable, fast and secure way.Wireless communications offer many advantages as scalability, mobility,reducedcosts,ease of maintenance.

5. Algorithm Used

1. **NaivesBayesianAlgorithm**

This method is based on Na¨ıve bayes classifier and the objective is to know what students may acquire in their end results of semester. They can be benefitted from prediction of results of students in several ways. Teachers and students take essential steps to develop the outcomes of those students whose prediction result is not fulfilled and a training set of student's data is taken to construct the model of na¨ıve bayes and then it is applied on test data to find the results of students end semester. Makhtar et al. [17] examines student's performance using na¨ıve bayes classifier which is one of the methods of classification in data mining to recognize the hidden data between subjects that influenced student's performance in Sijil Pelajaran Malaysia. The na¨ıve bayes algorithm can be employed for classification of performance of students in early stage of

2nd semester with 74% accuracy. Students choosing engineering as their discipline is developing rapidly but due to different factors and improper education in India the rates of dropout are greater. Students are not capable to shine in the subjects of engineering which are mathematical and complex hence mostly keep term or get drop out in that subject. With the use of data mining techniques the students performance can be predicted in terms of drop out and grade for a subject. Naives bayes algorithm is used in this research and based on the rules acquired from the developed method the system can derive the major factors impacting the performance of students. Razaque et al. [19] described the method of classification which was based on the algorithm of na¨ıve bayes and use for mining academic data. It was used for students along with teachers for academic performance evaluation. It was cautionary approach for students to develop their study performance. This research was an effort to recognize students who need special attention in reducing the failure and take appropriate steps for upcoming semester exams. Divyabharathi and Someswari [20] constructed a predictive model for academic performance of students. As there are several classification methods available this research used na¨ıve bayes classification technique. By using this model timely decisions can be taken to avoid student's academic risk. The instructor can know how poorly or how well students in class will perform. This study concentrated on validating and developing mathematical models that can be used to predict the academic performance of students in educational institutions.

7. Results

7.1   Snapshots

1.   Application on smart phone

"Network Buddy" is the android application for monitoring the LAN PC's connected to the server. Select the application icon for further processing.


2.   Network Buddy Application

After clicking on the "Network Buddy" apps icon we got authentication window in which admin will insert the IP address and port number for connecting with the server to which number of PC's are connected and admin want to monitor the machines.

3.   Connection establishment

The IP address and port Number are correct one then it will show the success message that "Connection established with the Main server" .Otherwise it will give the connectivity error as shown in fig 8.3 with wrong IP address and port number.
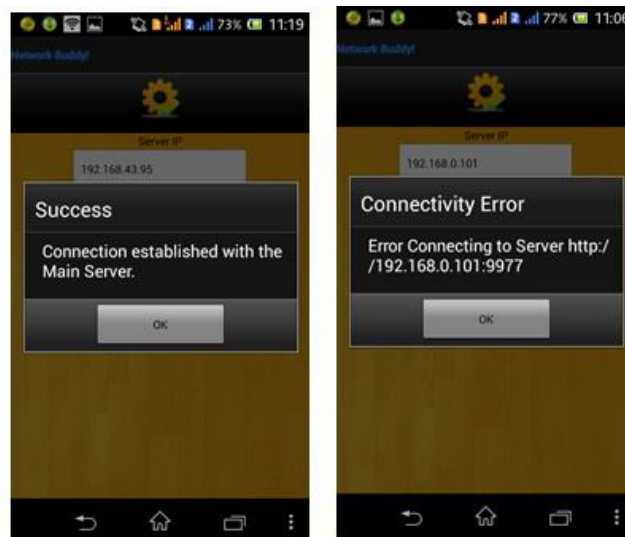
4.   PC lists

After successful connection with Main server , it shows the window as shown in fig 8.4 and start to capture the Names and IP address of the connected PC's to that Main server by taking the timeout constant for scanning the connected PC's.
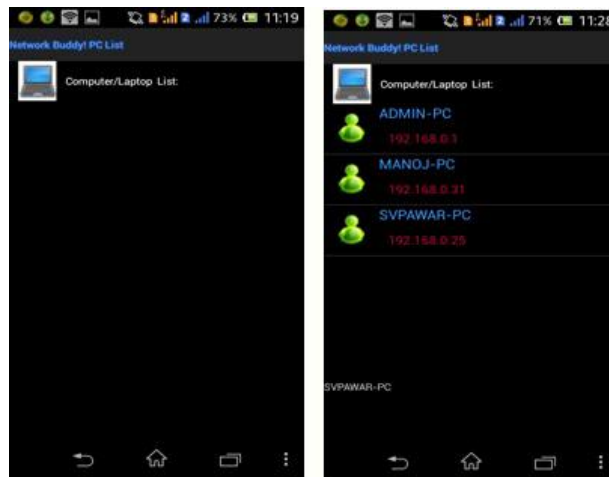
5.   Performing Function on targeted PC

  Once admin will get the connected PC

list to the Main server he can select one of the PC from given list and can perform the following operations on selected PC as shown in fig 8.5
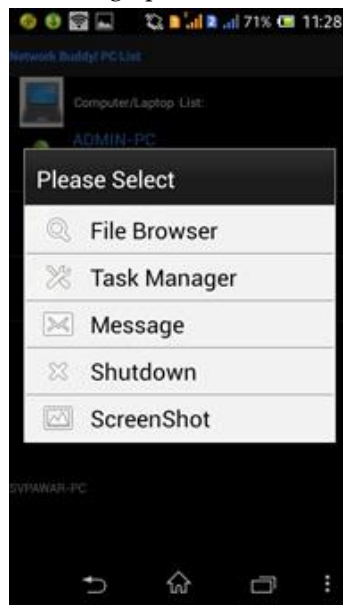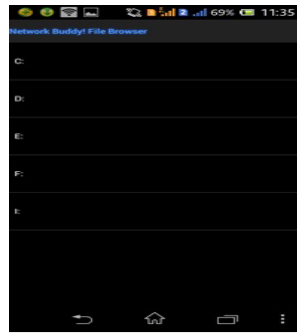

Figure 8.5: Popup list of task on selected PC

6.   File Browser

  If admin choose the "File Browsing" operation then he can browse any file of selected PC from the drive available on that PC. There are 5 drives available on the selected PC as shown in fig 8.6

7. Send notification or massage

If the person sitted on selected PC is doing illegal work then admin can send message to that PC for stop the illegal work. Below fig first shows the two text and 2 buttons.Text used for from where the message came and that mseeage. Fig second is the window that will appear on that selected PC.


8. Task manager

If the admin choose the" Task Manager" operation then he canactivate any process on selected PC or kill the pro cess that are already running on PC.After clicking on the "Activate Process" shown in fig we got window as shown in fig then we can give the input as notepad then we get notepad window on selected PC .
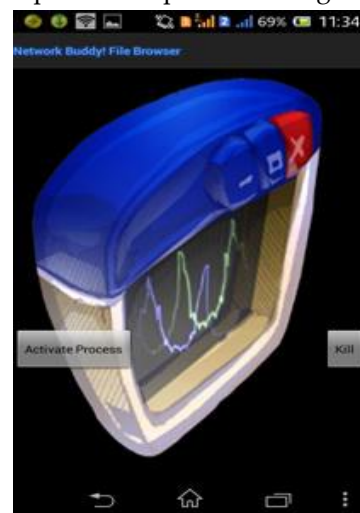
9. Activate process and kill process

As a figure show we can Activate new pro cess from the mobile to a remote machine also we can kill the existing running pro cess from the list of Active process.
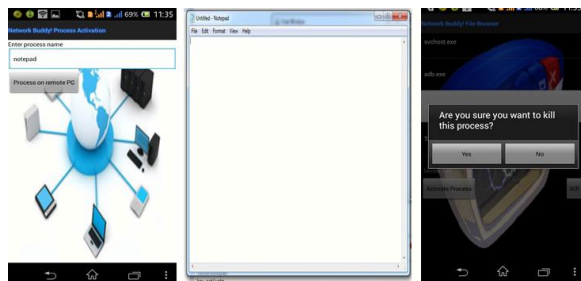
10. Shutdown

on "shut down" operation we got the window as shown on android phone and on client If admin want to shut down the selected PC then he can shut down it. After clicking PC we got the message as shown in fig 8.10
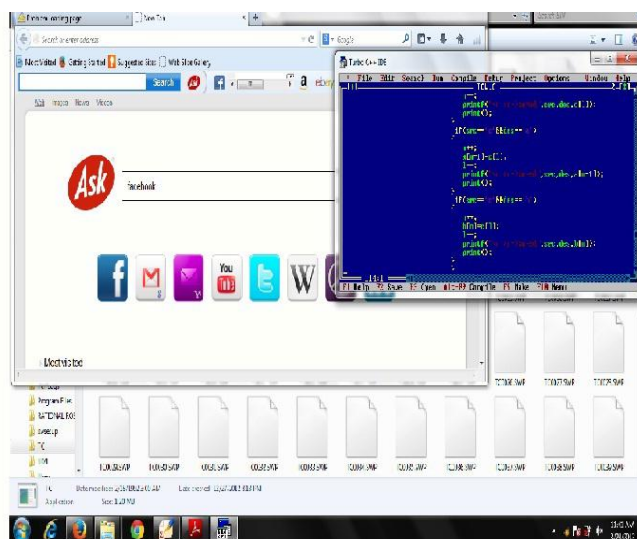
11. Screenshot

If admin want to see all the processes going on selected PC then he can take screenshot of that PC.

8. Conclusion

The wireless monitoring system using smart phone application will provide the system administrator to monitor the tasks. Currently the scope of this system is within Wi-Fi area. Due to wide use of android devices, this system will be developed for tablets and other handheld devices. This system will provide mobility for users for controlling their computer desktops over internet. User can control the targeted PC using android mobile phones. Smart phones are used worldwide and provide much better facilities than previously available cellular phones. It describe the system which can provide access to remote computer system within the Wi-Fi network and provide, shutdown the target PC and more Such as terminate process, send message to warn user, shutdown or logo ,take snap shots etc. Our project can be extended to extreme level to monitor whole

intranet of an organization along with full control over any PC in intranet. One can use this application to share les between PC and android device, start and stop the application installed on the target PC, shutdown the target PC and more Such as terminate process,send message to warn user, shutdown or logout ,take snap shots. This mechanism allows the client to actually view the screen of target PC on Client`s screen and actions performed in an e cient way.

References

1. Wu Ting, Hu Jun-da, Gao Chenjie, Zhao Jia, Ye Weil, \Wireless Monitoring System Based on Bluetooth smart phone", International Conference on Networking and Digital Society,2010.
2. Harish Katti1, Disha Choudhury,\Remote Desktop Connection UsingHandheld Devices", International Research Journal of Computer Science Engineering and Applications, vol 2,1 Jan 2013
3. Amol Poman et al,\GSM Based LAN Monitoring System" ,(IJCSIT) International Journal of Computer Science and Information Technologies, Vol. 3 (3) , 2012,3848-3851 .
4. Andr G. F. Elias1, Joel J. P. C. Rodrigues1, Lus M. L Oliveira1, Bruno B. Zarpelo2, \A Ubiquitous Model for Wireless Sensor Networks Monitoring", IEEE Sixth International Conference on Innovative Mobile and Internet Services in Ubiquitous Computin ,2012 .
5. Chaitali Navasare, Deepa Nagdev\PocketDroid - A PC Remote Control", vol 37,ICINT 2012
6. Jihwang Yeo, Moustafa Youssef, Ashok Agrawala,\A Framework for Wireless LAN Monitoring and Its Applications ", IEEE , 1October 2011,
7. Z. Li, M. Li, J. Wang, and Z. Cao, "Ubiquitous data collection for mobile users in wireless sensor networks", IEEE INFOCOM 2011, April 10-15, 2011.
8. P. Vajsar and L. Rucka, "Monitoring and management system for wireless sensor networks", 34th International Conference on Telecommunications and Signal Processing (TSP 2011), Aug. 18-20, 2011
9. R. ElHakim, A. Orfy, and M. ElHelw, "Monitoring and visualization of large WSN deployments", Sensors, IEEE, pp.1377-1381, Nov. 1-4, 2010.
10. B. Parbat, A.K. Dwivedi, and O.P. Vyas, "Data Visualization Tools for WSNs: A Glimpse", International Journal of Computer Applications (IJCA), Vol 2, No 1, May 14-20, 2010.
11. D. Kim, B. An, and N. Kim, "Architecture Model of Real-time Monitoring Service Based on Wireless Sensor Networks", 10th International Conference on Advanced Communication Technology (ICACT 2008), Feb. 17-20, 2008.
12. F. Belqasmi, R. Glitho, and C. Fu, "RESTful web services for service provisioning in next-generation networks: a survey", Communications Magazine, IEEE , Vol 49, No 12, pp. 66-73, December 2011.
13. B. da Silva Campos, J.J.P.C. Rodrigues, L.D.P. Mendes, E.F. Nakamura and C.M.S. Figueiredo, "Design and Construction of Wireless Sensor Network Gateway with IPv4/IPv6 Support", International Conference on Communications (IEEE ICC 2011), pp. 1-5, June 5-9, 2011.
14. Jersey Project", Oct. 2011. [Online]. Available: http://jersey.java.net