iJRASET
International Journal For Research in Applied Science and Engineering Technology



INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 5 **Issue:** II **Month of publication:** February 2017

DOI: http://doi.org/10.22214/ijraset.2017.2045

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Volume 5 Issue II, February 2017
ISSN: 2321-9653
International Journal for Research in Applied Science & Engineering Technology (IJRASET)

Mobile Computing Broadband Networks

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Abstract: ***As more and more people enjoy the various brought by mobile computing, it is becoming a global trend in today's world. at the same time, securing mobile computing has been paid increasing attention. During the last decade in the size of computing machinery, coupled with the increase in their computing power has lend to the development of the concept of mobile computing. It allows mobile users versatile communication with other people and expedient notification of important events, much more flexibility them with cellular phones. The many issues to be dealt with stem from three essential properties of mobile computing: communication, mobility and portability. Mobile Computing defines that a device which permits the flow of transmission of data from one computer to another by never been connected to the Physical link layers. Mobile voice communications which is in demands all over the world is having a great increment of the user subscribers to many networks protocols from last two to three years.***

I. INTRODUCTION

Mobile computing is human–computer interaction by which a computer is expected to be transported during normal usage. The birth of "mobile computing" has signaled a new era in the field of computing and information systems. A technology that allows transmission of data, via a computer, without having to be connected to a fixed physical link. As wireless communication takes place mainly through the radio signals rather than wires, it is easier to intercept or eavesdrop on the communication channels. Therefore, it is important to provide security from all these threats. There are different kinds of issues within security like confidentiality, integrity, availability, legitimacy, and accountability that needs to be individually taken care off (2). A mobile device is a small computing device, typically small enough to be handheld (and hence also commonly known as a handheld computer or simply handheld) having a display screen with touch input and/or a miniature keyboard and weighing less than 2 pounds (0.91 kg)

II. TYPES OF WIRELESS COMPUTER

A. Laptop computers

Laptop computers are personal computers that are easy to carry and use in various locations. Many laptops on the market are designed to offer you all the functionality of a desktop computer, which means you can run the same software and open the same types of files. The laptop has an all-in-one design with built-in touchpad, keyboard, monitor and speakers. Laptops also offer you the option of connecting to a larger monitor, regular mouse and other peripherals.

B. Tablet

Tablets are also designed to offer portability. However, they provide you with a computing experience different from laptops with the biggest difference being that tablets do not have a touchpad or keyboard. Instead, the touch screen offers a virtual keyboard you use to input text, while your finger replaces the mouse as a pointer. Tablets are bigger than a smart phone and smaller than a laptop. Like the smart phone, you can browse the Internet, carry out videoconferences, stay connected through email, read e-books, play games, watch movies, share photos and listen to music with the tablet.

Basic features of tablet computers include:Mobile OS**:** Tablets run on mobile operating systems different from their desktop counter parts. Examples include Windows I OS and Android.

Solid-state drives**:** Tablets use solid-state drives, which are faster and more durable than hard disk drives.

Wi-Fi: Because tablets are optimized for Internet use, they have built-in Wi-Fi.

III. GENERAL ARCHITECTURE OF WIRELESS NETWORKS

Wireless LAN is a traditional LAN architecture extended with a wireless interface to service small low-powered portable terminals capable of wireless access. The wireless LAN is further connected to a more extensive fixed network such as LAN or WAN(2).

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Wireless LANs have limited range and are designed to be used only in local environments. There are two types of wireless LAN architectures: ad-hoc networks and infrastructure networks. The Wide-Area Wireless Networks are special mobile radio networks that provide wide coverage for low bandwidth data services.

IV. CHALLENGES REGARDING WIRELESS NETWORK

Main cause of loss of packets in wired network is congestion because error rates are very low. In wireless network, congestion still remains a problem, but this situation is somewhat reversed. Wired and wireless network require different techniques to achieve reliability and flow control. TCP works is unsuitable for wireless network as it interprets errors as packet loss.

V. SECURITY ISSUES

Many authors have presented classifications of security issues in communication networks. There are five fundamental goals of security in information system.

Confidentiality Preventing unauthorized users from gaining access to critical information of any particular user.

IntegrityEnsures unauthorized modification, destruction or creation of information cannot take place.

AvailabilityEnsuring authorized users getting the access they require.



5.1. wireless networks

VI. MOBILE COMPUTING FEATURE WORKS SUCCEED

A. Multi Networking Features

Increase in Productivity- Mobile devices can be used out in the field of various companies, therefore reducing the time and cost for clients and themselves.

Entertainment- Mobile devices can be used for entertainment purposes, for personal and even for presentations to people and clients.

Portability- this would be one of the main advantages of mobile computing, you are not restricted to one location in order for you to get jobs done or even access email on the server(6). Cloud Computing- This service is available for saving documents on a online server and being able to access them anytimeand anywhere when you have a connection to the internet and can access these files on several mobile devices.

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Fig 6.1 Multi Connection Network

B. Improving Area

Quality of connectivity- as one of the disadvantages, mobile devices will need either Wi-Fi connectivity or mobile network connectivity such as GPRS, 3G and in some countries even 4G connectivity that is why this is a disadvantage because if you are not near any of these connections your access to the internet is very limited.

Security concerns Mobile VPNs are unsafe to connect to, and also syncing devices might also lead to security concerns. accessing Wi-Fi network can also be risky because WPA and WEP security can be bypassed easily.

\ Power Consumption- due to the use of batteries in these devices, these do not tend to last long, if in a situation where there is no source of power for charging then that will certainly be a let down.

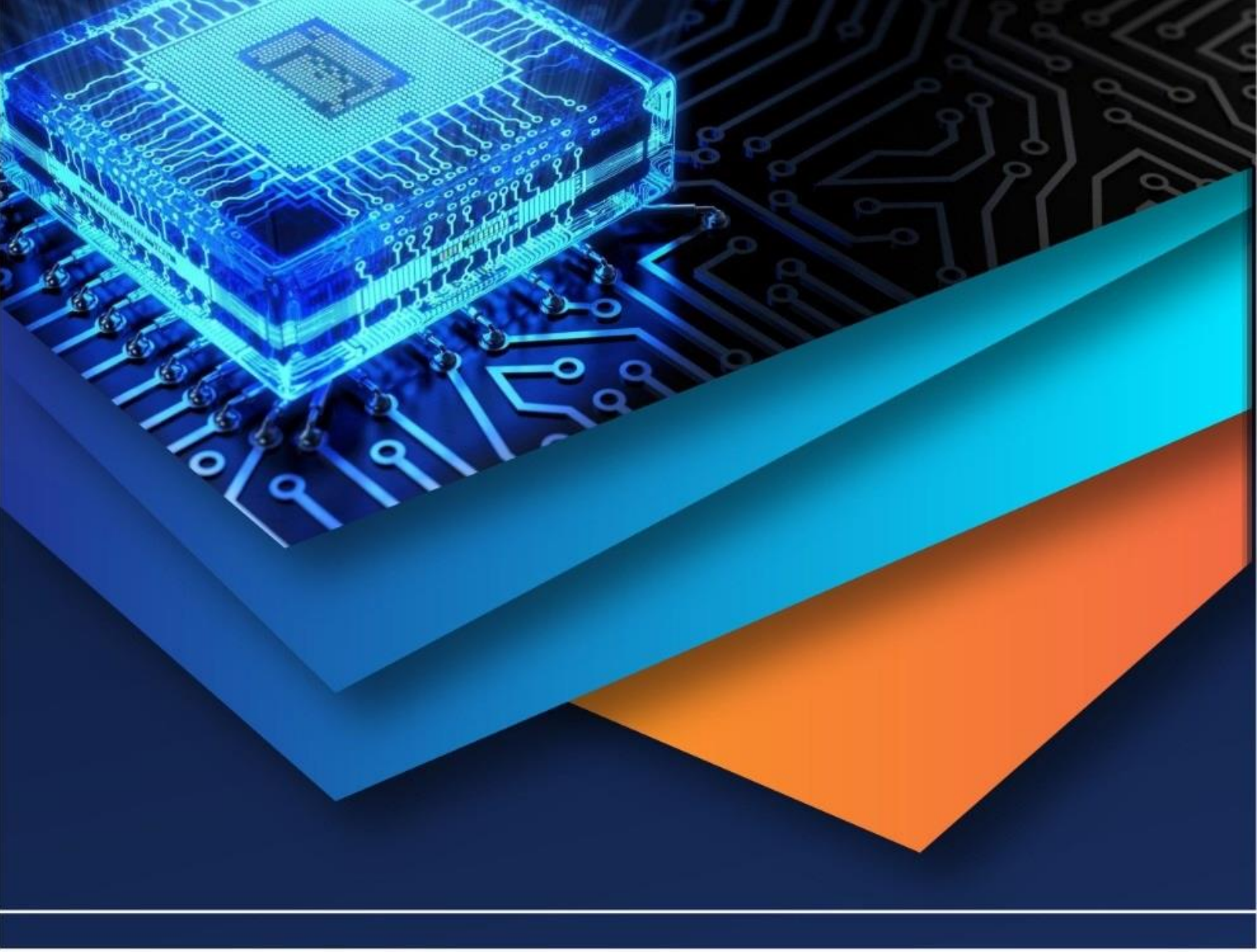
VII. CONCLUSION

Mobile computing is an important, evolving technology. It enables mobile personnel to effectively communicate and interact with the fixed organizational information system while remaining unconstrained by Physical location. Mobile computing may be implemented using many combinations of hardware, software, and communications technologies. For security to effective, it must be deployed proportional to risk. WLANs present a security risk to organizations but providing security for WLANs is not an insurmountable challenge. There are security solutions available for WLANs to mitigate those most conceivable risks we think securing ad hoc networks is a great challenge that includes many opened problems of research, and receives more and more attention among ad hoc networks community. Then, under the assumption of a frequency selective time invariant channel, we determine the optimum combination of the modulation scheme, the detection scheme, the repetition coding parameter, the combining scheme, the packet length, and the number of RAKE fingers at the receiver to minimize energy consumption per information bit.

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10.22214/IJRASET

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