SIMULATION OF WIRELESS LAN MAC PROTOCOL,

PROCEDURE USING C OR C++ PROGRAMMING

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ABSTRACT

In competition based protocols, the channel is shared among many neighboring users each of which tries to get to access to. The user that has got the channel first disables the others from using the channel during transmission. This project describes the Multiple Access Control (MAC) layer in a competition based environment only. MAC layer's inherent problems in wireless environments, performance criterions of MAC layer are explained. Some of the most common MAC protocols are illustrated are Carrier Sense Multiple Access with Collision Avoidances (CSMA-CA), Multiple Access with Collision Avoidances (MACA) and Multiple Access Collision Avoidances By Invitation (MACA-BI) [2]. This project will focus on the simulation programming for MACA and MACA-BI procedure in MAC layer. The simulation of protocol procedure on MACA and MACA-BI are written in C. This thesis presented on the Wireless Local Area Network (WLAN) and MAC protocol situation and condition and finally presented on the programming procedures.

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CHAPTER 1

INTRODUCTION

1.1   Project Overview

The IEEE 802 reference model has defined a sub layer called Medium access control (MAC) layer, in order to distinguish bandwidth medium access functionally and other data link layer [6]. The broadcast nature of wireless networks makes it a challenge to design MAC protocols for ad hoc networks [1]. The location depended share channel introduces some typical problems of ad hoc network, such as hidden terminal and exposed terminal problems. For its simplicity and efficiency, collision avoidance handshake is a widely used scheme to reduce the prevalent collision in MAC protocols for ad hoc networks.

In ad hoc networks, transmitters use radio signals for communication and all mobile station are generated asynchronous data traffic with the same intensity. Commonly, each node can only be a transmitter (TX) or a receiver (RX) one at a time. Communication among mobile nodes is limited within a certain transmission range. To communicate all the nodes are share the same frequency domain [2].

Wireless local area networks, providing high speed data services in limited geographical areas with reasonable performance for mobility and multi access characteristic. The MAC protocol is one of the main factors which determine the performance of wireless LANs. A good MAC protocol for wireless LANs should provide an efficient mechanism to share limited spectrum resources together with simplicity of implementation [10]. Wireless MAC protocol research based on distributed contention resolution algorithms in wireless network. The MAC protocol can illustrate in Carrier Sense Multiple Access with Collision Avoidance

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