INVESTIGATION OF THROUGHPUT AND PACKET DROP FOR HATA MODEL ON VANET USING NCTUNS SIMULATION SOFTWARE FOR OPEN AREA AND SUBURBAN AREA

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ABSTRACT

Vehicular Ad-hoc Network (VANET) is a special case of MANET. Their resemblance is the rapidly moving car as nodes and incessantly changing network topologies. The purpose of this project is to run VANET using National Chiao Tung University network simulator (NCTUns). Simulation is the research tools of choice to obtain throughput and packet dropped at each node at different speed. Simulation will be accomplish the modification by investigating the variation in vehicular mobility model between the measured and predict values, according to the Hata propagation model for open area and suburban area. The investigation was done from 5 to up 20 VANET nodes. The algorithms considered are Ad-hoc On-demand Distance Vector (AODV) protocol. The performance measurements are based on the various parameters of in-out throughput and number of packet dropped.

Keywords- Ad Hoc Network, Simulation, VANET, MANET, Vehicular Network, AODV, Throughput, Packet dropped

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CHAPTER 1

INTRODUCTION

1.1 OVERVIEW

Vehicular Ad-Hoc network (VANET) communication has recently become increasingly popular research topic in the area wireless networking. VANETs represent a rapidly emerging, particularly challenging class of mobile ad-hoc networks (MANETs) [1].

Vehicular ad-hoc network (VANETs) [2] design nodes to be distributed, self – organizing communication network built up from travelling vehicles and are thus characterized by very high speed motion and limited degree of freedom in nodes movement pattern. VANET can operate without any centralized management, so that, the nodes can organizing the network themselves. A critical part and aspect in this simulation study in VANETs, is the need of mobility model which reflects, as close as possible, in the real behavior of vehicular topology test done to evaluate how VANET nodes will performed.

In this paper, will introduce a kernel based Linux simulation package called National Chiau Tung University network simulator (NCTUns) [16] to run the modeling of VANETs. This simulation are free software that be design to create more new application by choosing a different conditions and scenario by this open sources code facilities.