

ABSTRACT

Link scheduling algorithm and radio resource allocation mechanism currently being concerned by researchers as a new potential for increasing the capacity of a wireless communication system, wherein optimal time-slot allocation is one of important criteria for resource allocation in wireless mesh network, beside optimal channel allocation. Wireless mesh network usually use TDMA (*time division multiple access*) protocol access than modified it into STDMA (*spatial time division multiple access*), wherein it makes possibility for utilizing a timeslot together for a number of link that separated geographically.

Specifically, this Final Task presents performance evaluation SINR Graph Link Schedule (SGLS) algorithm, which is one of centralized link scheduling algorithm that used for optimize time slot utilization in STDMA access protocol based on physical interference model. SGLS algorithm then compared to some of mesh link scheduling algorithms with the same network's criteria, that is Greedy Physical Algorithm (GP), Arborical Link Schedule Algorithm (ALS), and basic access protocol TDMA. The performance parameters measured in metric parameters of throughput, spatial reuse, length of scheduling, and fairness as a function of the number of nodes that involved in the wireless mesh network.

In this Final Task's results generally show that STDMA with SGLS has a better performance compared to Greedy algorithm, ALS algorithm, and TDMA. The Improvement by STDMA-SGLS compared to Greedy for throughput is about 7,878% - 39,94%, 70,06% - 415,51% compared to ALS, and 1242,69% - 2043,18% compared to TDMA. For the improvement of spatial reuse is about 6,94% - 33,75% compared to Greedy, 131,87% - 166,51% compared to ALS, and 137,44% - 299,28% compared to TDMA. For the improvement of length of scheduling is about 6,55% - 33,34% compared to Greedy, 3,52% - 188,64% compared to ALS, and 638,57% - 1196,39% compared to TDMA. The results in this study show us that physical interference model has a better performance compared to protocol interference model, furthermore this Final Task's result can be developed as a reference for development and optimization in a various algorithm, specifically in wireless mesh network and generally in multi-hop network.

Keywords : Wireless Mesh Network, STDMA, Spatial Reuse, SINR Graph Link Schedule (SGLS), Physical Interference Model.