Somrudee Kritsamrong 2012: Link Failure Detection Improvement for Wireless Ad Hoc Networks. Master of Engineering (Computer Engineering), Major Field: Computer Engineering, Department of Computer Engineering. Thesis Advisor: Associate Professor Anan Phonphoem, Ph.D. 68 pages.

In Wireless Ad Hoc Networks, each node can freely move around. Hence, the connection between each node can be dynamically changed which leads to link failure. Once the link fails, the routing protocol needs to spend a period of time to recover and comes up with a new route. Meanwhile, the data packet may be lost or delayed which affects the qulity of communication, especially the real – time traffic.

In addition, wireless ad hoc networks have limited resources. Certain resources, such as energy and remaining queue size, can dramatically affect the performance of each node. This research proposes a mechanism to early detect a route that is going to fail by monitoring its energy level, remaining queue size and the signal strength from neighbor nodes. The experimental results reveal that the proposed mechanism can decrease the duration for finding a new route, reduce the data lost rate and also cut down the total transmission time with a small amount of extra energy and overhead.

_____   _____   ___ / ___ / ___
Student's signature   Thesis Advisor's signature