



<b>Research Title</b>	" QoS-enabled Routing in MANETs Based on ACO and SNMP"
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### Abstract

Mobile ad hoc wireless networks (MANETs) are increasing in popularity, because of the increasing number of mobile electronic devices such as laptops, smartphones, and sensor devices. These devices have the ability to provide real-time multimedia applications such as digital video and audio, which require a stringent quality of service (QoS). Thus, the realization of this type of service with high quality is really difficult in MANETs. This is due to the highly dynamic topology, limited resource availability, and energy constraints. QoS routing for Mobile Ad hoc Networks (MANETs) is the biggest challenge because of the limitation of available resources and the node mobility. Nevertheless, it is hard or even impossible to identify the routing information accurately in MANETs due to the rapid dynamic changes in the routing statuses. In addition, the routing problem with two or more additive or multiplicative QoS parameters to be optimized is NP-complete [1]. Ant Colony Optimization algorithms (ACO) tend to provide properties such as adaptivity and robustness, which are essential to cope with the challenges of MANETs. The Ant Colony based solution for MANET routing is appealing because it easily fits into the dynamic nature of MANETs [2]. On the other hand, optimized parameters for Quality of Service (QoS) routing protocol can be obtained using management and monitoring of topology changes, link characteristics, node activity, and node resources. These parameters can result in a stable perceived mechanism and lower control traffic as well as less overhead. The Simple Network Management Protocol (SNMP) [3] is considered as an application level protocol, which is a part of the TCP/IP protocol structure to work efficiently over the User Datagram Protocol (UDP). The SNMP agent at a node contains a collection of information that reflects the status of the managed resources on the node.