**Related Literature**

**Current Classifications of Routing Protocols**

Routing protocols dictates where and how the router distributes packets. There are a lot of different routing protocols currently available and each of them has its own design and serves different purposes (Cisco Networking Academy, 2014).  
The key considerations that raised the need for efficient routing when implementing mesh networks are the overhead of ID per hop jumped, maintenance of nodes, send/receive overhead, power consumption, and interference. It is also important to consider that table based protocols grows bigger as nodes increase and packet header grows bigger as more nodes are included when choosing the proper routing protocol for your network ().

**Dynamic Routing Protocols –** According to Cisco Networking Academy (2014), this “…allow routers to dynamically share information about remote networks and automatically add this information to their own routing tables”. Because of this sharing of information, the network automatically adapt with its topology. This also allows routers to discover new networks and repair broken ones.

**I.** External Gateway Protocols (EGP) **–** Used for routing systems that are handled by different organizations.

**II.** Interior Gateway Protocols (IGP) **–** Used for routing routers that are handled by a single organization.

**a.** Distance Vector Routing Protocols –Routers that use this routing protocol are not aware of the entire map of its network. The router only knows the distance and the vector to a device. Vector is the direction of the next hop and distance is how many hop counts or bandwidth or some other metrics, it will take to reach a destination.

**i.** Ad-hoc On-Demand Distance Vector Routing (AODV) **-** a routing protocol specifically designed for mobile ad-hoc networks. Nodes only search for a route when it needs to transmit/retransmit a message, hence on-demand. It does not need periodic advertisements and only uses connection when needed; this means that there is less traffic in the network allowing it to have a bandwidth that is significantly higher than other routing protocols (Perkins & Royer 2003).

**b.** Link-state Routing Protocols – Routers that use this routing protocol is aware and “has a complete view” of all the connections in its network.

**References**

1. Kozierok C., 2005, The TCP/IP Guide, <http://www.tcpipguide.com/free/t_OverviewOfKeyRoutingProtocolConceptsArchitecturesP.htm>

2. Perkins & Royer, 2003, <https://www.cs.cornell.edu/people/egs/615/aodv.pdf>

3. Cisco Networking Academy/ 2014 <http://www.ciscopress.com/articles/article.asp?p=2180210&seqNum=4>

4.