A typical text on Mobile Ad hoc NETworks (MANETS) defines such networks as “temporal networks in which mobile nodes with wireless interface dynamically establish connection without pre-existing communication infrastructure”. Hence routing of data becomes complex, which provokes researchers to invent new protocols and methodologies.

A mobile ad hoc network has several base station (BS) nodes and mobile station (MS) nodes. The base station nodes are fixed while the mobile station nodes are movable which keep switching between base stations dynamically. Each node, whether it belongs to base station or mobile station has its own range of communication. A mobile station node can communicate with the base station only if it is present within the range of the base station. The nodes of MANET always perform cooperative transmission. Any node can receive and forward data packet to be delivered, to any of the destinations.

Power consumption and routing are the two major setbacks of MANET. Each communication between the nodes utilizes some power which hugely affects the lives of both the base and mobile stations. As mobile ad hoc network has no persistent or fixed topology, routing of data becomes a complicated task. To overcome such issues, the nano integrated routing mechanism has been designed, which considers that each node can be named as nano node and has enough memory to store information with embedded routing program.

There are various techniques for routing data packets efficiently. Among them, the standard Ad hoc On Demand Distance Vector (AODV) routing protocol is popular due to its accuracy and performance. Nanotechnology can be incorporated with AODV to achieve better quality of service.
To achieve the above mentioned scope, the proposals of different methods to support routing in MANET have been adapted.

First, a new routing algorithm NAODV (Nano AODV) with the help of Nanotechnology focusing on finding the network performance has to be developed. This technology consists of nano machines; they integrate the AODV routing technique for their routing. This increases the throughput and reduces the packet delay of the network with the help of TN (Transmitter Nano machine) and RN (Receiver Nano machine).

Secondly, an improvised performance of NAODV, the new optimized nano ad hoc on demand distance vector routing protocol (ONAODV), which uses the residual energy of mobile nodes while selecting a route, is taken into consideration. Optimized NAODV analyzes the node density and the residual energy parameters, while implementing route discovery, to avoid the unnecessary rebroadcast.

Thirdly, a new routing protocol called Enhanced NAODV (ENAODV) is proposed. In ONAODV all source nodes send information to the base station which takes more time and data loss on that network, in the new ENAODV routing protocol, the clustering tree is used. The cluster head collects data from mobile nodes belonging to the cluster and sends the data to the sink node after data aggregation process.

Finally, “Lifetime Maximization Technique Using Light Weight Memory Sharing Scheme” of Nano Machines for Data Transmission in MANET is proposed. In this a new memory sharing scheme between nano machines is introduced, where, the route computed between source and destination is shared between nodes to reduce the overall latency and to increase the throughput of the network.