SRS- Software Requirement Specification

Introduction:

Need for this system: To provide connectivity among the mobile nodes in MANET.
Functionality: Routing, Secure communication.
Interoperability: This is an autonomous system and doesn't work with other systems like TCP/IP based fixed networks.

Glossary:

DDOS: Denial of denial of service attack.
Routing: The process of establishing a path between a given source and destination.
IP-address: Globally assigned unique address to identify the mobile nodes in the system.
MANET: Mobile Ad-hoc network.
Firewall: software which selectively permits data across the node.
Packet: The smallest indivisible unit of data that is transferred in the network.

System model:

DFD:
1: user input, simulator and actual code.
2: actual code $\rightarrow nodes, clusterhead$

Object model:
Semantic data model:

Functional Requirements:

The users are provided a secure communication with efficient routing decisions.
Users are free to roam about in the entire system, switching between the clusters without any noticeable intervention in the communication.
Users are free to configure the firewall to prevent unwanted traffic in their environment.

Non Functional Requirements:

Stringent energy requirements -¿ the nodes have very limited energy availability with sources like battery, etc So energy utilization should be minimum. The Time-to-Live field associated with each packet reflects on how fast that node keeps changing its location. If it is too low then traffic density increases because of high number of broadcast messages. If it is too high then there exists inconsistency in the system regarding the representation of that node at various places.

System evolution:

The basic assumption on which this system is based is that this system is autonomous. So there exists no interoperability issue between this Mobile system and preexisting systems.
Nodes equipped with high energy sources are expected with coming years. This would remove the stringent energy requirements leading to highly effective and fast routing process.
Evolution in transmission technologies in wireless media might lead to guaranteed support for bandwidth intensive real-time audio/video applications.

Requirements Specification:

INPUT: The user must be provided the options of specifying the number of nodes, their positions, traffic density, movement pattern of nodes, various constraints like priority of the packets and various other quality of service parameters.
User can specify the target node in DOS attack.
OUTPUT: The display should show the movement of nodes according to the pattern provided by the user or any random movement. It should indicate the loss of packets at each node and a signal on successful transfer of packet. Traffic density at each router should also be displayed. When the user clicks on any moving packet in the system, information(destination, source, etc) on that packet should be shown. A statistical analysis of traffic patterns

at any level in the system (node, entire system, etc) as chosen by the user. CLUSTER as a group of nodes should be displayed.