**ABSTRACT**

In the recent trends, wireless networks and Mobile Ad-hoc Network (MANET) have yielded tremendous opportunity and popularity. This opportunity and popularity insisted on many kinds of research to focus on it. This highly flexible nature of the MANET also creates many network performance-related and security related issues. Various security vulnerabilities threaten the process in MANET in various ways. Sequence number attacks such as grey hole and black hole attacks are such dangerous attacks that significantly weaken the functioning and performance of the network in different situations. The proposed approach generates a fusion outline and that organizes with the Ad hoc on-demand distance vector (AODV) routing protocol to moderate these attacks. The new and modified protocol is named as SRD-AODV (Secure Route Discovery-Adhoc On-Demand Distance Vector) protocol. This protocol contains different components and methods to provide both proactive and reactive solutions by deploying effective authentication using the Elliptic Curve Diffie-Hellman algorithm (ECDHA) methods. This also aims to secure the data packets and routing table information and finally the incursion detection and prevention from sequential attacks in MANET. The performance of this protocol is measured with the help of performance parameters such as packet delivery ratio, and delay. The SRD-AODV protocol also compares with attacked AODV and other existing protocols.