**ABSTRACT**

Mobile Wireless Sensor Networks (MWSNs) are newly evolving smaller field of research area which needs to be given more importance. In MWSNs, nodes can self-propel via springs, wheels, or they might be connected to transporters, for example vehicles. Sensors have restricted energy supply and the sensor network is required to be functional for a long time, so enhancing the energy utilization to extend the network lifetime becomes a significant issue. An important property that distinguishes mobile wireless sensor networks from other distributed systems is their requirement for energy efficiency because sensors have limited energy saves. Since there is no static organization or centralized control in WSN, a connected dominating set (CDS) has been proposed as a virtual backbone. The CDS performs a main role in routing, broadcasting, coverage and movement planning. To decrease the activity during communication and extend the network lifetime, it is desirable to build a minimum CDS (MCDS). The main challenges faced by the mobile sensor network are link breakage, due to mobility or the energy depletion of the nodes. In this paper, we propose a new backbone formation algorithm based on link stability and energy.