Abstract

Mobile Ad hoc Networks (MANETs) are made up of mobile nodes that are interconnected wirelessly, while topology changes as mobile nodes join and leave the network. MANETs do not depend on fixed infrastructure. Due to their dynamism and low cost (no infrastructure is needed), MANETs have been proposed as a mechanism suitable for carrying out mobile learning (m-Leaning) in developing countries. However, systematic literature review indicates that the existing MANETs-based m-Learning models are disadvantaged because they fail to identify possible routing protocols able to support such models. As a result, it becomes very difficult to implement the existing MANET-based m-Learning models. This paper characterizes MANETs-based m-Learning proposed by [1]. Thereafter, it uses area, nodes, and data packets information as basic scalar parameters on Zone Routing Protocol (ZRP) simulated on NS-2 and ZRP code supplemented with positional and directional information of nodes in the Intrazonal Routing Protocol (IARP) on OMNET++. According to simulation results, a directional-positional enhanced ZRP outperforms regular ZRP on packet delivery ratio, delay and overall data packet throughput. Results from the simulation suggests that a supplemented ZRP is a feasible routing protocol for supporting m-Learning in a typical university campus based on the identified basic scalar parameters and characterization of [1].