

Decision-based routing for unmanned aerial vehicles and internet of things networks

ABSTRACT

New technologies and communication standards have changed traditional network processes. Internet of Things (IoT) is one of the emerging technologies where devices are connected to facilitate the users. When the networks are more congested due to a large number of users then the existing routing protocol and communication channels suffer from congestion, disconnection, overhead, and packet drop issues. Unmanned Aerial Vehicles (UAVs) are adopted to support the ground networks for more feasible data communication. These networks provide coverage facilities to IoT networks and provide smooth data dissemination services. Through the use of relay and cooperative communication technologies, UAVs could enlarge the communication space for IoT networks. Traditional network routing protocols have been adopted for data communication in these networks. However, the adopted protocols are not able to handle mobility and uncertain network conditions. This paper proposes a Decision-based Routing for Unmanned Aerial Vehicles and Internet of Things (DR-UAVIoT) network. The proposed protocol is useful for UAV-to-IoT and UAV-to- UAV data communication. The performance of the proposed solution is evaluated with the existing protocols in terms of data delivery, delay, and network overhead. The experimental results indicate the better performance of the proposed protocol in terms of less delay, less overhead, and better data delivery ratio as compared with existing routing protocols.