

R & D PROJECT

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Name of the Project:

An Energy-Efficient Approach Towards Network Intelligence in Cooperative Communication in Vehicular Environment.

Name of the Mentor:

Prof Jetendra Joshi

Summary of the Project:

Vehicular Adhoc Networks (VANETs) have been attracted a lot of research recent years. Although VANETs are deployed in reality offering several services, the current architecture has been facing many difficulties in deployment and management because of poor connectivity, less scalability, less flexibility and less intelligence. Integration of new emerging such as Software-defined Networking and fog computing have solved many challenges faced in VANET architecture. SDN-based architecture provides flexibility, scalability, programmability and global knowledge while Fog Computing offers delay-sensitive and location-awareness services which could be satisfy the demands of future VANETs scenario. Due to increase in the demand of the cloud services have led to the increase in consumption of energy in order to satisfy these demands. Hence energy optimization has become an emergent issue. Since the SDN relies on centralized network management, it adds to administrators' worries regarding server (controller) security. If by any means server gets hacked, then whole network becomes more prone to be attacked. Hence security is another major challenge in VANET architecture. By keeping the above challenges in mind, we proposed an energy-efficient network management strategy which reduces the consumption of energy which satisfying the demand of the cloud services and we implemented various security measures such ARP spoofing, DDOS attack mitigation and hybrid cryptography in SDN architecture. Several simulation experiments were conducted using tools such as Floodlight and Mininet in order to evaluation the results. Various simulation-based results prove the efficiency and effectiveness of the proposed model.