This experiment is dealing with the sharing of time-sensitive and reliable information in dynamic networks. With a focus on vehicular applications, the main objective is to get real-time traffic volume and validated information about road incidents. An ad-hoc network formation scheme is discovered, which also controls cost-efficiency in data exchange by creating clusters. The topology among vehicular nodes of this scheme enables distributed computation of traffic volume in a geographical region.

After collecting traffic volume information, this thesis deals with the additional challenge of validating information about road-incidents. Such validation can be performed by vehicles present in that incident's visibility. Hence enumerated information about this incident is shared initially only within a cluster. When there are multiple incident categories reported by a cluster's member vehicles, a consensus needs to be established by exchanging such incident information among those vehicles. The topology of nodes within a cluster may not allow a vehicle to communicate with all other vehicles using direct edges; hence an overlay is established using additional shortcut edges. The execution time required for overlay construction and then reaching consensus is expected to have support from the vehicular clustering scheme by providing stability.

After establishing a minimal interface between the clustering scheme and plurality consensus, an experiment is simulated to validate the effects of consensus mechanism on the overlay graph, which is not a regular expander. Theoretical bounds of such an expander may not hold true on this overlay; hence results produced by simulation are analysed on multiple metrics. By trying various values of majority alert category and number of randomly exchanged messages, performance of the time required to reach consensus is observed.

Keywords: vehicular ad-hoc network (VANET), clustering scheme, hybrid network, communication cost optimization, plurality consensus, overlay construction, shortcut edges, cluster stability