

In vehicular wireless ad-hoc networks, it is often useful that certain information be made available to all vehicles within a reasonable amount of time. Since traffic can be stalled or disrupted due to many possible occurrences, having knowledge of these events can help in deciding to follow an alternate route. However, motorists who need this information are moving targets, and their unpredictable mobility makes data dissemination a difficult goal. Traffic data is already being collected in many cities and is communicated to motorists through dedicated AM radio stations and display panels on highways. However, dissemination of this information is strictly limited by the infrastructure in place and drivers have to pursue each data item individually. Also, due to large coverage gaps in the infrastructure placement, the information available is sparse and incomplete. The goal of CarChat is to explore the mobility of vehicles in disseminating useful data farther than the reach of current infrastructure. Every vehicle would be equipped with a radio transceiver which can communicate with fixed infrastructure transmitters as well as with radios in other vehicles. Each vehicle would then collect information while in range of the infrastructure transmitters, as well as exchange most up-to-date information with vehicles it encounters outside of this range. It would estimate the mobility of other vehicles to determine which would be good candidates to engage in data transfer. We test the efficiency of this protocol using testbed experiments and simulations, under three different driving behaviors - highway, rural and urban traffic.