

# Collecting Realtime Vehicle Information for Emergency Vehicle

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## 1. Introduction

Vehicle ad-hoc networks are expected to use as one of alternative communication methods in a large-scale disaster. When a natural disaster such as earthquake strikes, people go away to safety area by cars and emergency vehicles such as ambulance cars are activated. However, some roads are broken or are crowded by cars. Furthermore, the road crowdedness is dynamically changed. An emergency vehicle has to avoid the broken roads and find an adequate route to its destination. To achieve this problem, real-time data collection method to maximize the number of collected vehicle data is required.

In this paper, we propose a method to collect vehicle information such as the other vehicles' travel history in order to find faster route for an emergency vehicle. In our method, at first, an emergency vehicle decides its traveling route by using only distance and sends its route to the other vehicles. The other vehicles receive it and send their vehicle information to emergency vehicle along the traveling route of emergency vehicle.

## 2. Evaluation

We evaluated the amount of vehicle information collected to an emergency vehicle every 5 seconds. 800 cars are in the 420×300[m]map(Figure 2).

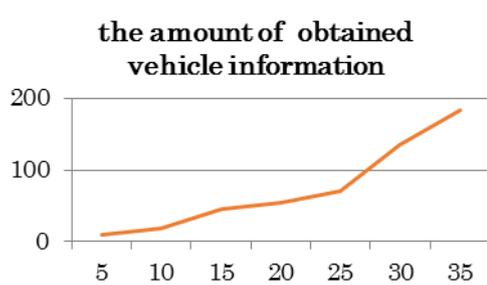


Figure 1. The amount of obtained vehicle information



Figure 2. Area map used in this simulation(Kyoto, Japan)

An emergency vehicle can get information about 25% after 35 seconds. The target area has many one-way traffic roads. If it has many two-way traffic roads, the amount of vehicle information may increase more. We will conduct the additional simulation and compare a proposed method with Geocast method(Young and Nitin 1999).

## References

- Young-B, K., and Nitin, H.V.: Geocasting in mobile ad hoc networks:location-based multicast algorithms, Proc. of IEEE Workshop on Mobile Computing Systems and Applications (WMACSA'99), pp.101-110, 1999.