

## Abstract

Planning your trip in advance to maximize transport efficiency requires traffic information from various sources. As traffic condition constantly changes, it is not sufficient to plan your journey using only present traffic information. This research uses the KNN method for predicting traffic speed as it has been proven to be simple and efficient. The most important part of KNN algorithm is the traffic speed similarity measure. The well-known and highly accurate similarity measure method is called Dynamic Time Warping (DTW). However, this method is time-consuming. This research presents a method to measure the similarity of traffic speed by transforming the traffic speed in the form of time series into sequence form of speed level. After that, redundancy of speed level are combined to form new elements that compose of start time, duration, and speed in order to reduce the length of the element in the sequence to be used in the similarity calculation.

The results of experiment based on the traffic speed data on Chalerm Maha Nakhon Expressway show that the Mean Absolute Percentage Error (MAPE) from the proposed method is smaller than using the raw traffic speed data with DTW when predicting for the traffic speed in the next 10 minutes. In addition, the proposed method also reduces the size of the data used in the similarity calculation to about 40% of the length of the original data.