Abstract

Computer System and Method for Determining Reliable Vehicle Control Instructions

Computer system (100), computer-implemented method and computer program product are provided for providing SPaT messages to a vehicle (501) wherein the SPaT messages include reliable timing parameters to influence the operation of the vehicle,. The system has an interface component (110) configured to receive switching state data from one or more traffic lights wherein switching state data (SD1) of a particular traffic light includes signal states comprising at least a pass-state (SD1p) and a stop-state (SD1s) of the particular traffic light at respective sampling time points, and further configured to provide a SPaT message (402) to the vehicle. Further, a signal analyzer component (140) of the system is configured to perform a sequence of analysis steps for predefined prediction intervals having the same length as the sampling intervals by: identifying the current signal state (SD1s, SD1p) of the one or more traffic lights (S1 to S4); deriving, from a statistical model (130) trained on the basis of historic state transitions of the one or more traffic lights, probabilities for future state transitions from the current state into a different state for one or more future prediction intervals; and determining a minimum end time for a state transition from the current state to the different state as the start of the nearest future prediction interval where the probability of the current state falls below a predefined first threshold value. A message composer component (150) of the system is configured to compose the SPaT message including the determined minimum end time.

Figure 1