073

AI/ML BASED TRAIN ARRIVALS AND DELAYS PREDICTION AT RAILWAY-HIGHWAY GRADE CROSSINGS

Railway transportation in the U.S. is paramount to the development of the country and the general public. The railway infrastructure, however, intersects with the roads at many points. This affects the way other public road users perform their transportation activities, delays being the most observable outcome of these at times when trains cross the roads. Therefore, this work aims at devising an implementable solution that will help counter the delay effects, hence long queue lengths in traffic during such times. It proposes the use of real time prediction of how long a train would take to pass through intersections. With the use of Long Short-Term Memory (LSTM) algorithm for time series data prediction, it is expected to use the sensor data readily available from the train sensors to predict the relative train positions against its length and moving speed that would determine how long it may take to cross an intersection. Consequently, with the relative prediction of the crossing times, the prediction algorithm integration with the current posted changeable message signs (CMS) and in-vehicle driver alerts will help keep the road users informed of the anticipated delays and suggest alternative routes in order to reduce delay times and long queues at intersections. Should this work be a success, the public will be informed at all times of the available and/or alternative routes to help counter delays and long queues at the intersections.