Hussain Ahmed Al-Harthei

Thesis
A Framework For The Study Of Traffic Collisions At Intersections In The City Of Abu Dhabi (UAE)

Abstract
Signalized intersections in the City of Abu Dhabi experience high collision occurrence. An investigation was carried out based on data collection about intersection characteristics, accident data (from the 1999, 2000, and 2001 police database) and the results of survey involving experts’ opinions about safety of intersections. The collected data were analyzed and utilized to identify the causes and variables most contributing to safety at urban intersections at Abu Dhabi. The results were used to develop a tool to measure safety at 48 intersections, Safety Index. The developed approach utilizes expert’s opinions and it employs artificial intelligence techniques (AI) to estimate safety index (SI) for signalized intersections. Using accident data the algorithm is calibrated and the correlation between the algorithm results (Safety Index) and accident rates in 48 selected signalized intersections is performed. The results of the thesis present a framework to analyze safety of urban intersections in Abu Dhabi. It can also be used to evaluate the effect of intersection improvements on the safety of the intersection.

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