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Topic of Research : Development of Safety Performance Model for Urban Intersection

Finding

Road accidents have become a menace all over the world, particularly in developing countries such as India. Accidents involving pedestrians have become frequent at urban signalised intersections. The focus of this study is to understand pedestrian road crossing behaviors and improve their safety at urban signalized intersections using an integrated technique consisting of proactive and perception based approaches. Data is collected by means of road inventory survey, video recordings and questionnaire survey. Several conventional statistical and soft computing (ANN) techniques are used to analyze and model pedestrian behaviour. Pedestrian signal compliance is found to be more than crosswalk compliance but overall safe crossing behaviour is considerably less. The ANN model performance is at par with the statistical model and in some cases the former significantly outperformed the latter. A host of factors, such as age group, education level, employment status, trip purpose, transport mode and road crossing frequency are significantly affecting pedestrians' perceived crossing behaviors. The overall mean perception scores suggest that the majority of pedestrians feel safe, do not experience much difficulty and are mostly satisfied with the facilities, while crossing the road at signalized intersections. Analysis of preferences for road crossing facilities concludes that underpass (UP) is the most whereas crosswalk at signalized intersections (CSI) is the least preferred choice to cross the road. Save time and personal convenience is perceived to be the most important reason for showing non compliant behavior. Finally, there exist a gap between what people say and what they actually practice. The findings from this study would enhance the understanding of pedestrians' behaviors and assist engineers, city planners and policy makers to take proactive safety measures while designing pedestrian facilities. This would ultimately improve pedestrians' safety at urban signalized intersections.