Potential Research Topic:

Framework for generating and mapping safe routes for children in urban areas

Research stream (suggestive): Active mobility, transport modeling, pedestrian infrastructure, safety, and security

Research Brief:

According to World Road Statistics 2018, India has the maximum number of road accidents and accounts for 11% of the world's road accident-related deaths. India also reported a total of 17.4% pedestrian and cyclists' deaths in 2018. Other concerns like transport-related air pollution and greenhouse gas emissions continue to mar Indian cities. This emphasizes the need for availability of *safe walking infrastructure for all, especially children.*

To envision a city where walking and cycling is an accessible mobility option for children, it is important to map networks that are safe and connected to activity centres such as schools, parks, playgrounds etc. Hence, this research is based on formulating an effective framework/tool in modelling the safest routes for children that can be used to assess walkability and cyclability around neighbourhoods. The framework may provide information on how to acquire data, pre-process data for network analysis, analyze the data and help in modelling routes that have the least amount of impedance.

This research may aim to close the gap for safe route finding for children by using tools to provide route maps of safe pedestrian and cycling infrastructure. The pedestrian routing algorithm may identify the environmental factors and infrastructural parameters that make a route safe and walkable and assign safety scores based on individual attributes to determine route safety and generate suggested safe routes. Parameters for routing algorithm may use data inputs and should be calibrated based on local data. The algorithm developed may be applied to case study areas and the study area may be suggested as a pilot area in the research proposal. Route maps developed through this mechanism may inform children about their options for travel and encourage them to try walking and cycling.

The tool may also be able to effectively drive and influence policies and safety measures for improving walkability and cyclability by using existing data to strategically identify areas that need infrastructure enhancements and investments. The route mapping process may also use simulations for testing and validating various street safety interventions and improve safety and comfort, with special emphasis on identifying safe walking routes to schools, parks, playgrounds etc.

The framework/ tool may also consider the different approaches to mitigate the lack of data by embracing a data-driven approach and leveraging mapping (GIS) tools, to develop a set of technological solutions designed to coordinate, improve, and increase safety on public roads and provide support in increasing the share of walk and cycle trips by children.