On-site hydrogen refueling station shows its highest prospect of offering a sustainable and smart fuel for Bangladesh.

OP-B8

Performance evaluation and analysis of traffic and pedestrian flow at Chittagong export processing zone intersection in Bangladesh

Md Omar Al Fahad*, Md Nahid Mahfuz Kiron and Mahmood Omar Imam

Department of Civil Engineering, Chittagong University of Engineering and Technology

**Corresponding author email: omaralfahad.ce@gmail.com*

Traffic congestion poses a significant challenge to mixed traffic flow in intersections within developing countries. This study focuses on the bustling Chittagong export processing zone (CEPZ) intersection in Chittagong City, Bangladesh. Before, it had a central island, but recently, it has been removed, and a median has been constructed to divide the opposing direction of traffic. This unsignalized intersection operates as a two-way stop-controlled (TWSC) intersection. The Highway Capacity Manual (HCM 2000) and gap acceptance method were employed to evaluate its performance. Traffic volume and pedestrian counts during peak and off-peak hours were recorded, allowing for capacity calculations across different traffic movements on approach roads. The volume-capacity ratio was determined, and control delay per vehicle was computed using the HCM guidelines. These findings established the level of service (LOS), indicating severe congestion (LOS F) for vehicles and pedestrians during peak hours.

OP-B9

Development of a marine traffic simulator on google maps: Vision towards Smart and safe navigation of ships in Bangladesh

Md. Rahat Uddin, Rashidul Azim Liman and Zobair Ibn Awal*

Department of Naval Architecture and Marine Engineering, Bangladesh University of Engineering and Technology

**Corresponding author email: zobair@name.buet.ac.bd*

The Google Maps application is an excellent tool for many navigational purposes. Recognizing the global prevalence of Google Maps, this study shows the development of a Marine Traffic Simulator by harnessing the capabilities of the Google Maps Application Programming Interface (API) in conjunction with the ship manoeuvring model, namely Nomoto's K-T Model. The aim is to facilitate the real-time analysis of a ship's manoeuvering motion, making it universally applicable to waterbodies worldwide. The research endeavours to develop a sophisticated web-based computer application that simulates a ship's planar motion and dynamically controls the virtual ship in real-time. While Nomoto's K-T Model is fundamental for assessing a ship's manoeuvering motion, the study recognizes its limitation in offering an essential estimation. This acknowledgement leads to a detailed exploration of the model's strengths and weaknesses, deepening the understanding of its relevance in various maritime scenarios. Furthermore, this research acts as a springboard to lay the groundwork for integrating more precise and intricate models of ship motion directly into the robust framework of the Google Maps platform. This research aspires to advance the capabilities of marine traffic simulation by seamlessly blending the Google Maps API's technological prowess with sophisticated ship motion models. The study seeks to contribute to the evolution of this intelligent tool with potential implications for navigation training, safety assessments, and route optimization for smart and safe navigation of ships in Bangladesh and the world.