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## **Green vehicle routing problem: A systematic review of literature**

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Among the key supply chain functions, logistics plays a prominent role in delivering products and services to the customers. The process accounts for a larger portion of the supply chain cost. Hence, it has forced organizations to move towards cost reduction strategies. Vehicle routing optimization is one such strategy and depending on the organizational focus it has been derived to achieve multiple objectives along with the main objective of reducing the costs. Over the past decade, the concern on environmental sustainability has increased among world population, thus forcing the industries to move towards sustainable operations. Transportation has been identified as a supply chain operation with a high impact on the environmental sustainability. The impact of transportation on the environmental sustainability is multifaceted, such as the amount of greenhouse gas (GHG) emissions, air pollutants, environmental impacts from the transportation of toxic chemicals etc. A new branch of Vehicle Routing Problem (VRP) known as Green VRP (GVRP) has been emerged to satisfy the need of ensuring the sustainability in transportation. GVRP consists of several categories that focus on different sustainability requirements resulting from transportation. Literature review has been carried out with ten articles selected through a three step filtering process; preliminary search based on key words, primary filtering of articles based on title and abstract and secondary filtering of articles based on relevance to the topic. Based on the literature reviewed on GVRP, it has identified the features and classification of GVRP along with the limitations and the predictable future developments. The reviewed literature has also been analyzed to identify the algorithms used for problem solving. Hence, this study presents the results of a systematic review of literature on GVRP. The article will stand as a guide in understanding the current state of the practices in relation to GVRP and will provide guidance for future research as well.

**Keywords:** Green transportation, GVRP, sustainable transportation, vehicle routing problem