A Coordinate-Based Heuristic Route Search Algorithm for Delivery Truck Routing Problem

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Abstract : Vehicle routing problem is a well-known re-search avenue in computing. Modern vehicle routing is more focused with the GPS-based coordinate system, as the state-of-the-art vehicle, and trucking systems are equipped with digital navigation. In this paper, a new two dimensional coordinate-based algorithm for addressing the vehicle routing problem for a supply chain network is proposed and explored, and the algorithm is compared with other available, and recently devised heuristics. For the algorithms discussed, which includes the pro-posed coordinate-based search heuristic as well, the advantages and the disadvantages associated with the heuristics are explored. The proposed algorithm is studied from the stand point of a small supermarket chain delivery network that supplies to its stores in four different states around the East Coast area, and is trying to optimize its trucking delivery cost. Minimizing the delivery cost for the supply network of a supermarket chain is important to ensure its business success.

Keywords : coordinate-based optimal routing, Hamiltonian Circuit, heuristic algorithm, traveling salesman problem, vehicle routing problem

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