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Abstract

This paper implements a threaded scan engine for the $O(n!)$ search space and measures its performance, aiming at providing a responsive tour recommendation and scheduling service. As a preliminary step of integrating POI ontology, mobile object database, and personalization profile for the development of new vehicular telematics services, this implementation can give a useful guideline to design a challenging and computation-intensive vehicular telematics service. The implemented engine allocates the subtree to the respective threads and makes them run concurrently exploiting the primitives provided by the operating system and the underlying multiprocessor architecture. It also makes it easy to add a variety of constraints, for example, the search tree is pruned if the cost of partial allocation already exceeds the current best. The performance measurement result shows that the service can run even in the low-power telematics device when the number of destinations does not exceed 15, with an appropriate constraint processing.

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Design and Implementation of a Threaded Search Engine for Tour Recommendation Systems

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Abstract. This paper implements a threaded scan engine for the O(n) search space and measures its performance, aiming at providing a responsive tour recommendation and scheduling service. As a preliminary step of integrating PDF ontology, mobile object database, and personalization profile for the development of new vehicular telematics services, this implementation can give a useful guideline to design a challenging and computation-intensive vehicular telematics service. The implemented engine allocates the subtree to the respective threads and makes them run concurrently exploiting the primitives provided by the operating system and the underlying multiprocessor architecture. It also makes it easy to add a variety of constraints, for example, the search tree is pruned if the cost of partial allocation already exceeds the current best. The performance measurement result shows that the service can run even in the low-power telematics device when the number of destinations does not exceed 15, with an appropriate constraint processing.

1 Introduction

With the development of vehicular telematics networks, many new services can be types provided to drivers according to their vehicle types. For example, a rent-a-car driver can retrieve a bunch of real-time information on the traffic condition as well as the tourist attraction he wants to visit. In addition, a taxi driver can pick up a passenger according to the dispatch system [1]. Such telematics services will evolve along with the development of new vehicular communication technologies and the performance upgrade of telematics devices. With the ever-growing communication speed and the efficient computing power, more

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