ISSN(Online): 2320-9801
ISSN (Print): 2320-9798

International Journal of Innovative Research in Computer and Communication Engineering

(An ISO 3297: 2007 Certified Organization)

Vol. 4, Issue 9, September 2016

A Survey on Transportation portal

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ABSTRACT: Technology of autonomous vehicles (AVs) is becoming mature, and many AVs will appear on roads in the near future. AVs become connected with the support of various vehicular communication technologies, and they possess a high degree of control to respond to instantaneous situations cooperatively with high efficiency and flexibility. In this paper, we propose a new public transportation system based on AVs. It manages a fleet of AVs to accommodate transportation requests, offering point-to-point services with ride sharing. We focus on the two major problems of the system: scheduling and admission control. The former is to configure the most economical schedules and routes for the AVs to satisfy the admissible requests, whereas the latter is to determine the set of admissible requests among all requests to produce maximum profit. The scheduling problem is formulated as a mixed-integer linear program, and the admission control problem is cast as a bilevel optimization, which embeds the scheduling problem as the major constraint. By utilizing the analytical properties of the problem, we develop an effective genetic-algorithm-based method to tackle the admission control problem. We validate the performance of the algorithm with real-world transportation service data.

KEYWORDS: Autonomous vehicles, Bi-level optimization.

I. INTRODUCTION

Human mobility is largely supported by public transport. Many people rely on public transport to move from one place to another when the destinations of their journeys are not within walkable distances. To transform a city with limited room for large-scale infrastructure into a smart city, its public transportation system may need to be further upgraded mainly from the existing road networks. Representatives of road-based public transport are buses and taxis, each type of which has its pros and cons. In general, buses follow fixed routes offering shared ride so that more passengers can be served on each single journey. On the other hand, taxis offer private services and run on flexible dedicated routes based on the passengers' requests. Nevertheless, no single one type can support high throughput and flexibility at the same time. The efficiency and capacity of the whole public transportation system may be enhanced if there exists a new public transport which can accommodate many people in a short period of time and concur high mobility. It may maintain flexibility by offering point-to-point services while enhancing efficiency by supporting shared ride. Such kind of public transport requires several characteristics which may not be possessed by a typical public transport. To develop such a public transport, the vehicles need to cooperate to take up customers' requests instead of cruising around the city forrandom offers.

To enhance the efficiency and cooperativeness, a control center can be employed to coordinate all the vehicles, manage all the service requests, and assign the vehicles to serve the requests. Moreover, the vehicles should follow the routes and carry out the travel plans instructed so as to achieve system-wise objectives. Recently, autonomous vehicles (AVs) have been undergone active research and we can expect many AVs running on the roads in the near future. AVs can be adopted to construct a new smart public transportation system with high efficiency and flexibility.

Sometimes we have to have a long journey on a train, bus or any other kind of transportation. This situation will make us bore specially if there is no something to read or you don't have any companion to talk to.Our work gives the passengers change to have more pleasant journey by providing them a server that contain information which can they access wirelessly by their mobile devices. The information provided might include today news, entertainment news, chat room etc and are represented in a web site. Fortrain passengers, in Indonesia case, we can also include food ordering application so we don't have to wait the attendant toarrive to our seat to make the order. Passengers can access food ordering menu by using their mobile devices, and their order will be sent to restaurant wagon by the server and it will show up on computer monitor in restaurant wagon. Because the server can be placed in any kind of

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transportation and it can provide web-based information, wecall it Mobile Portal. To provide wireless access, our Mobile Portal equipped with WiFi and Bluetooth interface. There will be more people that have Bluetooth equipped mobile devices than people that have WiFi equipped mobile devices. By using Bluetooth interface, we expect more people can access the server content.

II. EXISTING SYSTEM

In existing system,Ithas presented a formulation to optimize transit priority at the network level and a GA (geneticAlgorithm) approach to find the optimum solution. The problem is modeled in the form of a bi-level optimization program where, at the upper level, transport system managers would set the combination of transit exclusive lanes and, at the lower level, users choose to maximize their own benefit. A detailed objective function at the upper level has represented the impacts of a transit priority scheme. At the lower level, a mode choice, traffic assignment, and a transit assignment model have been considered. Then, a GA approach has been adopted, which enables the method to solve this formulation for problems of any size. To show the applicability of the method, a medium-sized example network has been analysed, and the optimal combination of exclusive lanes has been identified. To show the scalability of the solution algorithm, a parallel GA approach has also been implemented, which enables the method to optimize large-scale networks. The parallel GA approach has been developed using a multithreading technique that can significantly reduce execution time. Furthermore, a sensitivity analysis on model parameters has been carried out, which provides insights on the effect of population size, number of generations, crossover probability, mutation probability, and weighting factors of the objective function.

Drawback of Existing system:

- The existing system not provides public transportation details.
- Searching of particular information related to public transportation is very critical where it takes lot of time.
- In the manual system not provides easy access to get information aboutRoad work and traffic related data etc.
- It's does not provides citizen's feedback or suggestion.

III. PROPOSED SYSTEM

In this approach, Provide an application which allows residents and visitors of a city to find out more about transportation-related aspects about the city. Aspects include information about public transportation options, schedules, fares, money-handling policies, and so forth (education). The site might alsoprovide real-time information about bus and other public transportationcurrent locations .The application could also provide information about traffic-relatedstudies and/or projects that the city is working on. Anything from newtraffic lights to new road improvement projects, to traffic analysis andanalytics about traffic flow. The site could also recommend best means oftransportation from point A to point B, given the time of day that thetraveller is expecting to travel. Support resident and visitor feedback for a variety of items: current trafficconditions, report unusual congestion, report a road safety issue (pothole,obstruction, etc.), submit a suggestion for improvement.

Scheduling involves determining the following**:**

- The assignment of AVs to the requests.
- The routes of AVs to accomplish the assigned requests.
- The times by which the AVs should reach particular locations.

Here we assume that all requests being scheduled are admissible ,where they admit ability of a request is handled by admission control. Thus all requests will be served by appropriate vehicles after scheduling.

Pricing Process

The system operates in an interval basis, where the pricing process takes place in the duty assignment sub-interval, following the scheduling and admission control processes. After collecting the proposed charges from all potential

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service providing operators, the control center performs the pricing process and determines the winner(s) of the competition with a set of settled prices for the service.

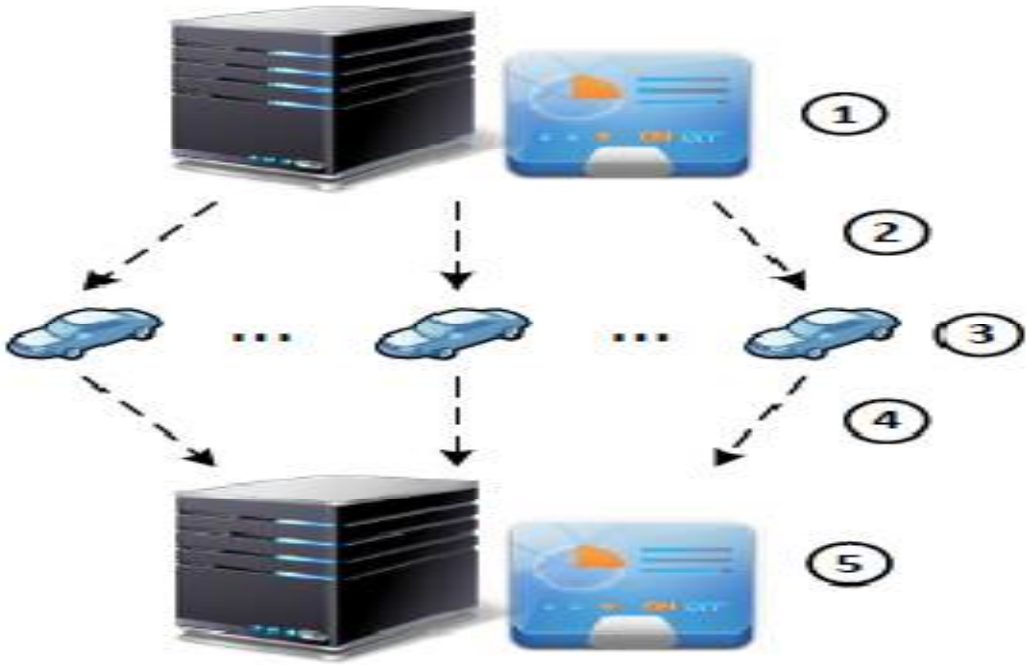

Fig .1 Proposed System

Split-table Service:
The service is allowed to be supportedby more than one vehicle. In this way, the passengers ofthe request will be split into multiple groups and travel o separate vehicles. Yet we do not exclude the situation thatall passengers may stay along in the same vehicle in somecases. We denote the charge of the split table services by *c1*.

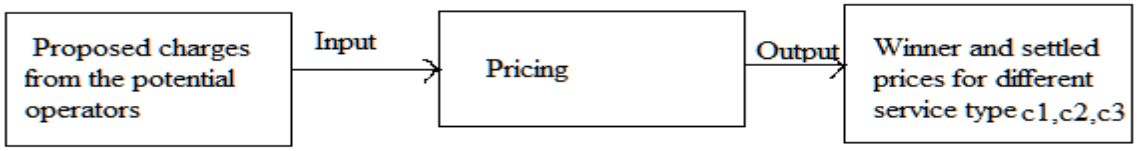

Fig. 2.The pricing process.

Non-split table service:
The service is accomplished by one single vehicle only. This accounts for the situation that the passengers prefer to stay along together during the journey. The charge of the non-splittable service is denoted by *c2*.

Private Service:
The service is solely supported by one vehicle and no other passengers of other requests are allowed to stay in the vehicle during the time serving *r* even though there are not enough passengers to occupy the whole vehicle. In other words, the passengers desire to hire a private vehicle for the travel. We denote the charge of the private service by *c3*.

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IV. CONCLUSION

In this paper, we propose a new public transportation system based on AVs. It manages accommodate transportation requests. We focus on the two major problems of the system: scheduling and admission control that shows the Traveling information and transportation vehicle route , time prediction for traveling to Destination .We get the real time information regarding transportation system.

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