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OPTIMIZING THE CARPOOL SERVICE PROBLEM WITH GENETIC ALGORITHM

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ABSTRACT: *Now a day's traffic congestion is a main issue all over the world so we are proposing a carpool system that will increase the no of occupation seats by decreasing the no of empty seats. This system divided into basically two modules. These modules are the mobile client module and Global Carpool Services module. User first have to submit carpool request using any android based Smartphone and obtain a matches within the mobile client module via the global cloud module. With the help of genetic based carpool algorithm global service module generate acceptable matches.To reduce the time required and to find a best match we proposed a genetic algorithm for large no of users. Related to the quality of matches and processing time. The experimental results shows that the current root matching algorithm successfully showing the results which are optimal and also operate with the less computational time.*

KEYWORDS: Optimizing, Carpool Service, Genetic Algorithm

INTRODUCTION

Due to increased in economic development in recent times rates of industrialization and globalization increased. As a result of that more no of cars are running on roadways and that led to increase in a traffic congestion problems. And it is also affect the environment. In a city area there are diff options are available for public transportation but the there are the disadvantage of comfort level. So user can travel using personal vehicle but

it will used for only one or two person. And it will only lead to the traffic congestion problem. According to study says that average occupancy rate is 1.5 people per vehicle so lots of work needs to do in order to alleviate this problem. Carpooling helps not only the traffic congestion problem but also it helps to increase the no of occupation rate. So it is an effective solution for our problem. In carpooling, drivers share their vehicles with one or more additional riders whose destinations are similar. So it will automatically reduce the no of cars on read.

BASIC CONCEPTS

The main motive of carpooling is to provide an effective solution to a traffic congestion problem by share their vehicles with one or more drivers whose destinations are similar. It helps environment by decreasing the rate of empty seats by increasing the rate of occupation. There are few of carpooling syatems which are already present in the market but they are web based and simply have option to send a request option for a specific date and time and give a specific result. Some of the carpool uses the feature of several systems feature a digital GIS mapping ability by which to provide a visual tool with accurate location information to users. Unfortunately, these systems are neither efficient nor convenient for users who need real-time carpool matches. So we are proposing an intelligent carpool system which has service oriented architecture. Our project based on genetic-based Carpool Route and Matching (GCRM).

EXISTING SYSTEM

Many carpool service systems have been proposed which can be divided into two broad categories based on their features. The first of these comprises systems which are web-based and which transmit carpool information to an online community platform. One such system is Carpool Global which supplies an interfacing service for willing drivers and prospective passengers. With this system, users can search all posted carpool requests and contact the creators of applicable posts. However, systems of this category do not include geographic information system (GIS) technology and consequently cannot provide real-time, location-based support. The second category of carpool service systems provides digital GIS support in order to match requests via location information an example system of this category is the ShareYourRide platform by which users can readily submit carpool requests and offers via its map-based interface. In addition, ShareYourRide supplies a GIS-based routing service. However, this system has limited applicability in situations requiring instant service due to the fact that it cannot support the use of Global Positioning System (GPS) handheld devices which provide pertinent information regarding user location. Many carpool service systems have been developed to lessen traffic congestion .Of these, several web-based systems supply simple carpooling functions including the option to send requests for a specified date and time, and search for applicable users. In addition, several systems feature a digital GIS mapping ability by which to provide a visual tool with accurate location information to users. Unfortunately, these systems are neither efficient nor convenient for users who need real-time carpool matches. In order to transcend these shortcomings and make carpool system operation easy to achieve, we

propose an intelligent carpool system called BlueNet which has a service-oriented architecture (SOA).Our proposed system incorporates mobile communication technology with GIS to create a carpool service which is operable in real time. Subsequently, users can instantly submit carpool requests to the intelligent carpool system which reflect their current locations via the use of smart, handheld, communication devices which feature GPS capabilities. The system will use the carpool matching algorithm to generate and return match results within a short amount of time.

SYSTEM ARCHITECTURE

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In this project, we will present a Genetic-based Carpool Route and Matching (GCRM) algorithm with which to solve the Carpool Service Problem (CSP) by dramatically reducing the time required to match a large number of users. The proposed intelligent carpool system is organized as follows:

1) An environment is supplied by the framework in which drivers and passengers can readily access the intelligent carpool system from anywhere and at any time.

2) The proposed intelligent carpool system utilizes the global information of open GIS technology to facilitate its use by users around the world.

3) We propose a GCRM to supply prompt carpool service and thereby significantly reduce the time required by services computing to match a large number of users.

Carpooling System

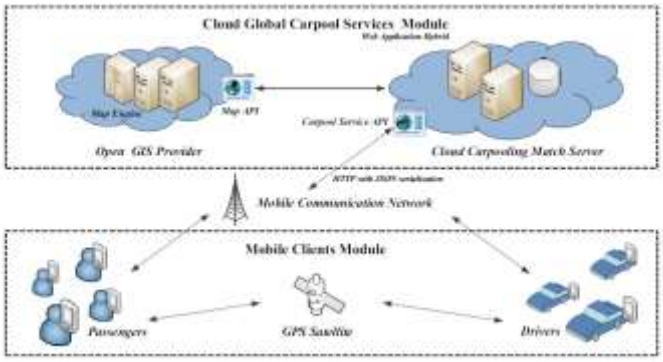
ARCHITECTURE DIAGRAM

Carpooling System Our proposed method includes two modules: a Mobile Client (MC) module, and a Cloud Global Carpool Services (CGCS) module. The two modules communicate with each other through HTTP protocol via the web service.

MOBILE CLIENT MODULE

In order to locate suitable carpool partners in a reasonable amount of time, users employ the proposed CGCS module to submit requests and receive match results at any location and at any time via the mobile communication network and their personal mobile devices. Moreover, the proposed MC module provides support to the intelligent carpool system by taking advantage of GPS technology to automatically determine current user location. This information allows the proposed CGCS module to match and track carpool requests. Within the MC module, users access and interact with the system via their smart handheld devices which have integrated GPS technology and mobile communication capabilities. These include devices with iOS, Android, and windows operating systems. This provides users with information regarding their current location, as well

as the ability to connect to the internet and submit carpool requests and pertinent details. The CGCS module accomplishes this through utilization of the mobile communication network, where upon carpool matching is performed. The CGCS module then transmits the carpool matching results to the users, after which drivers can travel to the locations of assigned passengers and transport them to their destinations. After completion of the ride, both driver and passengers(s) may supply feedback about each other, which is viewable to future users



Cloud Global Carpool Services Module:

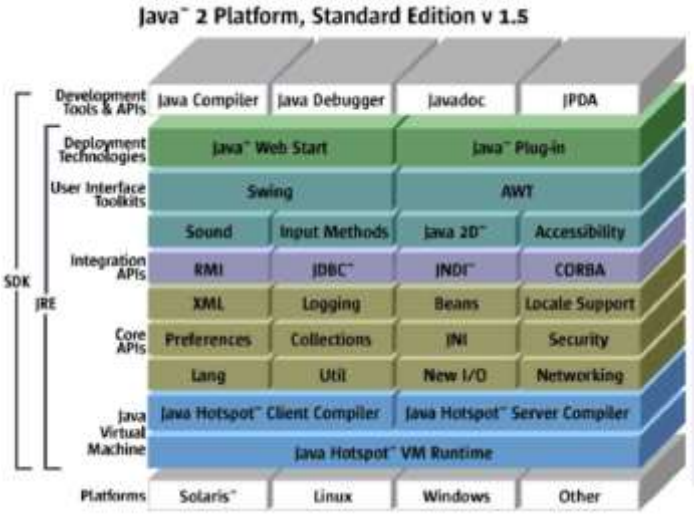
The application of the Restful web service enables the proposed intelligent carpool system to be globally implemented. This is due to its support of the interoperability between the MC and CGCS modules, and the integration of the open GIS system and CGCS module. Open GIS systems include Google Maps, Bing Maps, and Open Layers, and feature ample global geographical information. The digital maps and routing functionality provided by these systems can be used to augment the ability of the proposed intelligent carpool system to provide global carpool services via the proposed carpool matching algorithm. In addition, open GIS systems are utilized to gauge the travel costs associated with these functions. After the carpool requests and pertinent user information have been received via the MC module, the proposed algorithm matches the respective requirements of drivers and passengers of corresponding radial regions. The service oriented carpool match server subsequently transmits these match results to the users, whereupon it will continue to track and interact with them until they reach their destination location(s).

TECHNOLOGY USED

Java was developed at Sun Microsystems. Work on Java initially began with the goal of creating a platform-independent language and OS for consumer electronics. The original intent was to use C++, but as work progressed in this direction, developers identified that creating their own language would serve them better. The effort towards consumer electronics led the Java team, then known as First Person Inc., towards developing h/w and s/w for the delivery of video-on-demand with Time Warner.

Unfortunately (or fortunately for us) Time Warner selected Silicon Graphics as the vendor for video-on-demand project. This set back left the First Person team with an interesting piece of s/w (Java) and no market to place it. Eventually, the natural synergies of the Java language and the www were noticed, and Java found a market. Today Java is both a programming language and an environment for executing programs written in Java Language. Unlike traditional compilers, which convert source code into machine level instructions, the Java compiler translates java source code into instructions that are interpreted by the runtime Java Virtual Machine. So unlike languages like C and C++, on which Java is based, Java is an interpreted language.

Java is the first programming language designed from ground up with network programming in mind. The core API for Java includes classes and interfaces that provide uniform access to a diverse set of network protocols. As the Internet and network programming have evolved, Java has maintained its cadence. New APIs and toolkits have expanded the available options for the Java network programmer.



Android Platform

Android is a recently developed operating system designed for mobile devices. It was developed by Google and uses a Linux based kernel, Java compatible libraries along with the just-in-time compiler for development in the Java programming language. It supports many hardware components. Common hardware consists of cameras, a WiFi communications chip, cellular commutations chip, Bluetooth sender and receiver, and a color touch screen. The Android Application Program Interface (API) contains many functions and classes to control the cellular devices. This functionality is all available in a single device with at least a day worth battery life. For this project H.263 was used in development on the Android device. The initial Android API supports recording in H.263 with Android 3.0 introducing support for H.264. Android ships with a built-in RTP receiver with support for H.263 and H.264 decoding to display video play audio. Android 3.1 introduces RTP encoding support for transmitting audio over a network using the IETF standards. With the RTP encoding integration audio may be transmitted by using the operating system streaming class. Resolutions for the encoders are limited to the recording and playback capabilities of the camera, the processor speed, and the graphics card of the device.

CONCLUSION

Does conclusion can be made the puppet helps in automation of the processes which have multiple occurrences and manage the the system state.It lets machines do what they are made for and lets human to mange thing in a really efficient way.

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