VEHICLE POOLING

Arnaz Shaikh, Nikita Nirhali, Prajakta Javalge, Seema Mane, Prof. P.P.Shevatekar

[1,2,3,4,5]Savitribai Phule Pune University

Arnazshaikh97@gmail.com
Nikitanirhali915@gmail.com
Prajaktajavalge6490@gmail.com
Seemamane.sunita@gmail.com

Abstract

Vehicle pooling, is nothing but sharing of vehicle journey in order that over one person travels on a vehicle .Vehicle pooling reduces every person travel price like fuel prices,pollution and also the stress of driving. Vehicle pooling is additionally seen as an additional environment friendly and property thanks to travel as sharing journeys reduces carbon emissions, tie up on the roads. Authorities typically encourage Vehicle pooling, particularly throughout high pollution periods and high fuel costs. we have a tendency to bent creating associate degree automaton based mostly application that may alter to let individuals recognize if vehicles are obtainable for bike pool in their desired path they will register for it. This may alter individuals exploitation this application to share expense. We are going to link aadhar card to the appliance for obtaining users true identity. Individuals having this application on their telephone will simply bike pool with unacquainted individuals without fear regarding security.

Keywords: Vehicle Sharing System, Multi-modal Journey

1. Introduction

The purpose of the computer code style Document is to produce an outline of the de-sign of a system absolutely enough to permit for computer code development to proceed with associate understanding of what's to be designed and the way it's expected to be designed. The computer code De-sign Document provides data necessary to produce description of the main points for the computer code and system to be designed. The system for Bike Pooling mistreatment humanoid Application Initially the user can register through associate humanoid device, enter his/her details to the appliance, and enter the placement wherever he/she needs to succeed in. Then booking of bikes is finished user accepts the request. once registration and booking, current location of user and shopper are displayed and additionally the trail for traveling showing shortest route are displayed mistreatment

GPS navigation and integrated Google maps. The user can be picked up from current location and born to the specified destination safely with minimum value.

2. Existing system:

Existing system offer either bike sharing or car sharing**.**

3. Disadvantages of existing system:

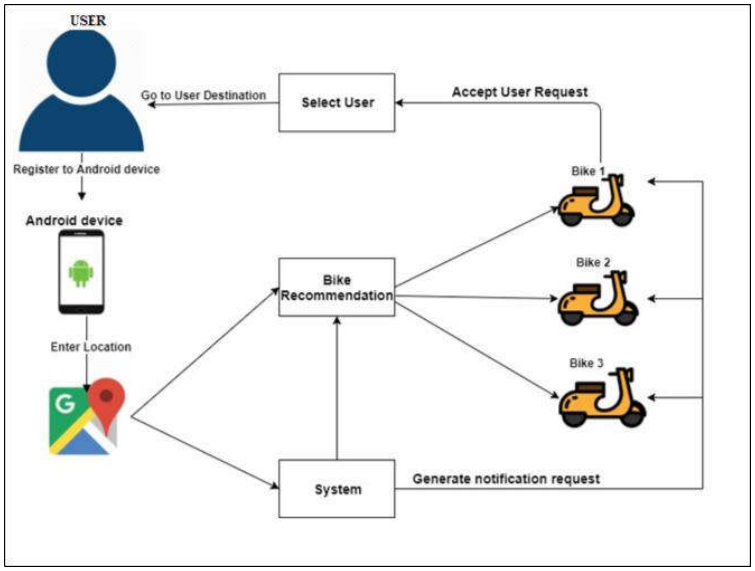
There is absence of system that offer single person ride as well as multiple person ride.

4. Proposed system:

First the user can register through associate degree golem device, enter his/her details to the application, and enter the placement wherever he/she desires to succeed in.Then booking of car is completed user accepts the request. when registration and booking, current location of user and shopper are displayed and additionally the trail for traveling showing shortest route are displayed exploitation GPS navigation and integrated Google maps.The user can picked up from current location and born to the specified destination safely with minimum value.

5. System Architecture:

Fig: System Architecure



6. Advantages of Proposed system:

- 1.Help to reduce parking problem
- 2.Help to reduce traffic congestion
- 3.Help to reduce carbon emission.
- 4.User can request to bike or car.

7. Literature survey:

Project Name Bikeshare Pool Sizing for Bike-and-Ride Multimodal Transit

Author: Guoming Tang , *Member, IEEE*, Srinivasan Keshav, *Senior Member, IEEE*, Lukasz Golab, *Member, IEEE*, and Kui Wu, *Senior Member, IEEE*

Project explanation: In shared motorcycle-and-trip transit systems, commuters use shared bicycles for remaining-mile delivery among transit stations and domestic, and between transit stations and work locations. This calls for pools of bicycles to be placed near every transit prevent wherein commuters can drop off and pick out up shared bikes. We take a look at the highest quality sizing of such bicycle pools. whilst numerous issues associated with automobile pool sizing had been studied before, to the fine of our understanding that is the primary
paper that considers a multimodal transportation machine with a often scheduled public transportation backbone and shared bicycles for the first and closing mile. We gift answers
that assure bicycle availability with high opportunity, and we empirically affirm their effectiveness the usage of Monte Carlo simulations. as compared to a baseline answer, our techniques lessen the scale of the bikeshare pool at the public transit station from 39% to seventy five% within the examined situations.

Project Name: Reliable and Low-cost Cyclist Collision Warning System for Safer Commute on Urban Roads

Author: Jessica Van Brummelen, Bara Emran, Kurt Yesilcimen, and Homayoun Najjaran

Project explanation:Collision warning and avoidance is a wellestablishedarea of research for the automotive industry.However, there is little research towards vitally importantcollision warning systems for cyclists, who are increasinglyjeopardized by motorists on urban roads, especially as quiet, fastelectric vehicles become more popular. This paper describes thehardware and software of a low-cost collision warning system forcyclists. Installed on the back of a bike seat, the system consists ofa single-beam laser rangefinder and two ultrasonic sensors thatdetect oncoming vehicles from behind, two handlebar eccentricmass vibrators that provide left and right haptic feedback to the

cyclist, and a taillight that warns oncoming vehicles. Executed byan Arduino microcontroller, its software consists of a fuzzy rulebasedinference system (FIS), which computes the collision risk
and generates appropriate warning signals in a similar way tohow a cyclist would assess collision risk based on the distance,velocity and direction of an approaching vehicle. The device was
prototyped and statistically evaluated by a survey taken from a pool of seven participants. The participants tested the system before and after receiving initial training. The experimental
results demonstrate the efficacy of the proposed system inwarning cyclists in an intuitive manner, without distracting them.

Project Name: Secure Bike Sharing System for Multi-modal Journey

Author: Mohammad Shahriar Rahman, Shinsaku Kiyomoto

Project explanation:Bike sharing systems (BSSs) are getting popularin many cities of the world as an integrated part of multimodaljourney due to its flexibility and eco-friendly nature.Future BSSs will have a pool of Internet of Things (IoT)-integrated smart bikes with computation and communicationcapabilities. Such systems will be able to provide the serviceproviders with real-time and non-real-time information aboutuser demands, bikes and environments for improved qualityof services. However, manipulation of logistics data (e.g.showing availability of bikes or parking where none mayexist) and mobility operations (e.g. unauthorized tamperingwith service-related data) may disrupt the whole service. Thispaper proposes a framework for secure bike sharing serviceunder multi-modal journey environment using symmetrickey encryption and digital signature. Our proposal lets aservice provider to collect information from stations andexternal service providers, and communicate with users in asecure way so that the user gets correct information and aquality service. The proposed framework has the potential tooffer enhanced quality of service through security featurescompared to existing systems for multi-modal transport
users.

Project Name:A prediction system for bike sharing using artificial immune system with regression
trees
Author: Jheng-Long Wu,Pei-Chann Chang

Project explanation: In beyond years, AIS are powerful and beneficialalgorithms to remedy class and best issues which includesintrusion detection, scheduling and parameters optimization.however, AIS has rarely been implemented in solving the predictionhassle. in this paper, we propose a singular version by usingcombining AIS with regression trees (RT) prediction systemfor a actual global utility, i.e., a motorbike sharing gadget (BSS).The cells in AIS are the primary constituent elements and weembed RT forecasting sub-fashions inside the AIS to form cells pooland use clone choice

mechanism to generate clonedantibody. therefore, AIS-RT prediction device may be applied
to resolve the prediction hassle. Experiments had beenconducted for AIS-RT on bike sharing device. Experimentalresults display that the AIS prediction system can furtherenhance the overall performance of an followed forecasting model; andmoreover outperform the performances of different ensemblemethods.

Project Name:Rule-based price control for bike sharing systems
Author: Claudio Ruch, Joseph Warrington, Manfred Morari

Project explanation:The recent increase in quality of shared qualitysystems, during which users take a bicycle or automotive from ageographically-dispersed public pool so as to complete halfof a journey, is due partially to improved technologies for followingand asking client journeys. In several schemes, a customercan begin and finish a journey at completely different arrival stations andis beaked in step with a group fee structure. However, a givensystem typically becomes unbalanced thanks to spatiality ofdemand for such “one-way” services across the system andthroughout the day, and also the ensuing value of using workersto spread the system’s vehicles is critical. This paperdescribes however dynamic client costs, variable geographicallyas a perform of the present and expected future state of thesystem, may be used as management signals to enhance service rates.Such signals may be communicated to customers exploitation existingICT infrastructure. We show, exploitation associate degree agent-based modelparameterized with historical information from London’s BarclaysCycle rent theme, that easy proportional controlrules will improve service rates while not the requirement to resort toconventional bike distribution workers. additionally we have a tendency to analyze the performance obtained and discuss system style problems.

Project Name: Car Pooling based on Trajectories of Drivers and Requirements of Passengers
Author: Fu-Shiung Hsieh

Project explanation:The objective of carpooling is to reduce the number of cars in use by groupingpeople. By exploiting car pooling model, it can significantlyreduce congestion, fuel consumption, air pollution, parkingdemands and commuting costs. This paper aims to develop aprototype car pooling system to match passengers and driversbased on their trajectories. We propose a heuristic method tosolve the car pooling problem. In our approach, we collect thetrajectory data of passengers and drivers first. We thenpropose a matching algorithm to assign passengers to drivers’cars based on their trajectories. The car pooling systemproposed in this study combines a matching algorithm that isseamlessly integrated with Google Maps API, dynamic webpages and database system. We also conduct experiments toillustrate our proposed method.

Project Name: A Machine-Learned Ranking Algorithm for Dynamic and Personalised Car Pooling Services
Author: Mattia Giovanni Campana, Franca Delmastro and Raffaele Bruno

Project explanation:Car pooling is expected to significantly help inreducing traffic congestion and pollution in cities by enablingdrivers to share their cars with travelers with similar itinerariesand time schedules. A number of car pooling matching serviceshave been designed in order to efficiently find successful ridematches in a given pool of drivers and potential passengers.However, it is now recognized that many non-monetary aspectsand social considerations, besides simple mobility needs, mayinfluence the individual willingness of sharing a ride, whichare difficult to predict. To address this problem, in this studywe propose GOTOGETHER, a recommender system for carpooling services that leverages on learning-to-rank techniquesto automatically derive the personalized ranking model of eachuser watch history of choices (i.e., the type of acceptedor rejected shared rides). Then, GOTOGETHER builds the listof recommended rides in order to maximize the success rateof the offered matches. To test the performance of our scheme we use real data from Foursquare sources in orderto generate a dataset of possible mobility patterns and riderequests in a metropolitan area. The results show that theproposed solution quickly obtain an accurate prediction of the personalized user's choice model both in static and dynamicconditions.

Project Name: Smart Peer Car Pooling System
Author: Raza Hasan, Abdul Hadi Bhatti ,Mohammad Sohail Hayat ,Haftamu Menke Gebreyohannes Syed Imran Ali ,Abeer Javed Syed

Project explanation: Increase in college area population and thus resulting in insufficient transportation facilities. Staffs and students prefer to use their own vehicle to commute to college rather using an alternative method. This leads to problems like increase number of vehicles, traffic, parking problems, fuel combustion etc. To overcome this problem Smart Peer Car Pooling System can be used, in which people travelling from nearby source can share the ride to college. Smart Peer Car Pooling System (SPCPS) can be a solution for the given problems. It is an effective means of reducing traffic congestion, waiting time, wastage of resources and fuel consumption, improving social life, reducing the number of accidents and environmental pollution which in turn results in green environment, boosting the economy of the Sultanate of Oman, wellbeing and improving the quality of life of the people. Governments and institutions encourage carpooling to increase high-occupancy vehicle lanes rather than commuters. In this paper, a smart model for Smart Peer Carpooling System will be introduced which is both architecture and business model approaches tested to find solutions for the system based on sustainable mobility.

Project Name:A Car Pooling Model and Solution MethodWith Stochastic Vehicle Travel Times
Author: Shangyao Yan, Chun-Ying Chen, and Sheng-Chieh Chang

Project explanation:Carpooling is one method that can be easily institutedand can help resolve a variety of problems that continue to plagueurban areas, ranging from energy demands and traffic congestionto environmental pollution. However, most carpooling organizationscurrently use a trial-and-error process, in accordance withthe projected vehicle travel times, for carpooling, which is neithereffective nor efficient. In other words, stochastic disturbancesarising from variations in vehicle travel times in actual operationsare neglected. In the worst case scenario, where vehicle traveltimes fluctuate wildly during operations, the planned schedulecould be disturbed enough to lose its optimality. Therefore, weconstructed a stochastic carpooling model that considers the influenceof stochastic travel times. The model is formulated asan integer multiple commodity network flow problem. Since realproblem sizes can be large, it could be difficult to find optimal
solutions within a reasonable period of time. Therefore, we developa solution algorithm to solve the model. To test how well the modeland the solution algorithm can be applied to the real world, we alsodeveloped a simulation-based evaluation method. To test the model and the solution algorithm, a case study is performed based upondata reported from a past study carried out in northern Taiwan.The results show that the model and solution algorithm are good and could be useful for carpooling practices

Project Name: A Distributed Algorithm Solving Multiobjective
Dynamic Car Pooling Problem
Author: Ta Anh Son1,3, Le Thi Hoai An2, Pham Dinh Taol, Djamel Khadraoui3

Project explanation:Car pooling problem (CPP) is a well known transportsolution that consists in sharing a car between a driver andpassengers sharing the same route, or part of it. The challenge isto minimize both the number of required cars and the additionalcost in terms of time for the drivers. There are two resultingproblems that are interdependent and NP-complete: assigningpassengers to cars and finding the shortest path for the driversso that the overall cost is minimized. In this paper, we considera multiobjective dynamic car pooling problem, where both thecost and the total travel time of drivers are to be minimized.We based on labeling algorithms for solving the multiobjectiveshortest problem investigate a new algorithm to solve this problem.Preliminary numerical results in a real scenario are reported. Theyshow that our proposed algorithm is efficient and promising to
real time applications.

Acknowledgement :

It is real time project which is helpful for the public who facing travelling problems. At the completion of this project we come to know that this system is useful for students and employees for daily transportation and it provides safety and reduces travelling cost also.
Summary

Bike Pooling system is android application for people to travel safely or easily in less cost. The System has two login for user and biker. Bike pooling is android application for students and employees for daily transportation. User can provide Guardian Number also for safety purpose. Aadhar card link also added for getting users true identity.

REFERENCES:

[1] J. Gorzelany. (Oct. 2015). *The World's Worst Traffic Jams,Ever*. [Online]. Available: http://www.forbes.com/sites/jimgorzelany/2015/10/15/the-worlds-worst-traffic-jams ever/#7c86b7476c6c

[2] Y. Bambrick. (May 2016). *The Integration of Bikes and Transit:Multi-Modal Goes the Distance*. [Online]. Available: http://cutaactu.ca/en/node/592

[3] J. Bachand-Marleau, J. Larsen, and A. El-Geneidy, "Much-anticipatedmarriage of cycling and transit how will it work?" *Transp. Res.Rec., J. Transp. Res. Board*, vol. 2247, pp. 109–117, Dec. 2011, doi:https://doi.org/10.3141/2247-13

[4] J. Pucher and R. Buehler, "Integrating bicycling and public transport inNorth America," *J. Public Transp.*, vol. 12, no. 3, pp. 79–104, 2009.

[5] P. Rietveld, "The accessibility of railway stations: The role of the bicycle in The Netherlands," *Transp. Res. D, Transp. Environ.*, vol. 5, no. 1,pp. 71–75, 2000.

[6] K. Krizek and E. Stonebraker, "Bicycling and transit: A marriageunrealized," *Transp. Res. Rec., J. Transp. Res. Board*, vol. 2144,pp. 161–167, Dec. 2010, doi: https://doi.org/10.3141/2144-18

[7] P. DeMaio, "Bike-sharing: History, impacts, models of provision, andfuture," *J. Public Transp.*, vol. 12, no. 4, pp. 41–56, 2009.

[8] NICHES. *New Seamless Mobility Services: Public Bicycles*.Accessed: May 20, 2017. [Online]. Available: http://www.nybikeshare.org/file_download/NICHES_public_bikes.pdf

[9] Wikipeida. (Dec. 2016). *List of Bicycle-Sharing Systems*.[Online]. Available: https://en.wikipedia.org/wiki/List_of_bicyclesharing_systems

[10] N. Zart. (Dec. 2017). *Californian Cities Start Electric Bike-ShareSystem*. [Online]. Available: https://cleantechnica.com/2017/12/15/ californian-cities-start-electric-bike-share-system/