www.ijecs.in
International Journal Of Engineering And Computer Science ISSN: 2319-7242
Volume 5 Issue 11 Nov. 2016, Page No. 19249-19254

Compute the Best Route from All Intersection using Cloud Based Services

Priyatharsini V, Grahalakshmi S
Pg Scholar, Department Of Cse
Psrr College Of Engineering For Women
Sivakasi, Tamilnadu, India
Glitterpriya22@Gmail.Com
Assistant Professor, Department Of Cse
Psrr College Of Engineering For Women
Sivakasi, Tamilnadu, India
Grahalakshmibe@Gmail.Com

Abstract - **Cloud computing is a type of figuring that depend on distribution computing incomes rather than having native servers or personal devices to handle applications. Cloud based service is one of the sub services of cloud computing, that service is applied to this project. In this process we have chosen the one dataset in this dataset contains the some congested area details are presented. The details contain name, place, street and distance of the particular area is stored. These details are maintained in our database the user choose particular source and destination of the area. The user select intermediate route also and the find out shortest route. The user fined the Heuristic algorithm for route recommendation process.**

Keywords - cloud, sensors, hazards, emergency management, best route, mitigation, risk control.

I. INTRODUCTION

Humans have faced various disasters, both natural and human-induced. According to our history, since 2010, more than 700 disasters have been occurring worldwide, disturbing more than 450 million people. Moreover, the report indicated that, since the 1990s, average annual damages have risen from $20 billion to approximately $100 billion USD, and the upward trend in such losses is expected to remain. Protecting life in any disaster is a multifaceted problematic faced by everyone. Selecting safer paths left from disaster sectors is a main aspect of evacuation planning. ITS plan road networks by considering the traffic demands at busy hours, such as at the beginning or end of the work. It is difficult to predict traffic during disaster, when large groups of people try to evacuate the site as quickly as possible.

The improper evacuation plans can thus lead to road congestion and traffic jams, which can in turn result in lost human lives. For instance, during the Katrina and Rita hurricanes, lack of suitable departure plans resulted in heavy traffic jams on interstates. In another incident, 25 people lost their lives in just half an hour when fires exploded in Oakland Hills, California, in 1991 and persons were trapped on the street due to congestion. Recently, a winter storm in Atlanta, Georgia, caused a 20-hour traffic jam because the road network was incapable of handling road congestion due to snow and accidents. To prevent incidences such as these, we need route recommendation plans and services that guide people towards after routes with the least congestion and risk during emergency evacuations. To empirically test the service, we present a case study in which people are evacuated away from a disaster site through routes computed by Evacuation System. To make the service scalable, we utilized parallel computing using the Message Passing Interface MPI, on a cloud-based compute cluster. We also incorporated various stochastic factors that usually affect evacuations in disaster scenarios to closely match realistic situations.

II. BACKGROUND AND RELATED WORK

In the cloud computing literature, there are distinct works that propose cost & time reduction techniques or adaptive mechanisms to alert the various users. The following sections deals with most representative work that is related to proposed work.

Various Route Recommendation Algorithm

There are various techniques which help the users to travel from source to destination. The main aim of the algorithm is to minimize departure of cost and departure of time. Increase the average number of vehicle moving at a particular time period. It helps the people in the emergency situation. The following literature review deals with the literature works related to this project.

A cloud Based Service for Emergency Evacuation [1], Cloud computing is an emerging and innovative platform that provides on-demand scalability of computing and storage resources. In disaster, cloud computing can be practically applied to development huge bulks of ITS-based sensory data and to compute, in real time, a set of safer and least congested routes for migrants. Because incoming disaster information could originate from multiple sources, the timely fusion of the information is critically important and requires higher resources, which is practical through cloud computing. The evacuation System Service Architecture shows the generic architecture of the Evacuation System service. We categorize vehicles as either evacuee's Vehicles or special emergency vehicles, such as Ambulances, fire department trucks, and police vehicles. The other entities involved are roads, disaster site, and safety locations. The collection of traffic / road condition information is performed by RSUs, which are mostly deployed at intersections throughout the city transportation network. It contains benefits such as maximum number of vehicles that can traverse a road segment without congestion. The product of the maximum traffic flow capacity and the maximum allowed speed limit of the road segment.

A Framework for Real Time Processing of Sensor Data in the Cloud [2], The availability of internet connections and low manufacturing costs have led to a boom in smart objects, devices with a triple creation consisting of a CPU, memory storage and a wireless connection. These smart objects (or devices) are armed with sensors that produce data and actuators capable of receiving guidelines. Such devices have proliferated in all fields and their use is expected to grow exponentially in the future. For these devices, vital data processing has been shown to be advantages due to frequent factors, including the facility to easily draw from vast stores of information, efficient allocation of computing resources, and a appetite for parallelization. Because of these factors, numerous devices may benefit from treating only some data locally and of loading the remainder to central servers. Such examples as the iRobot Roomba, a robot that can fresh the floor, current affordable, automatic aids for regular work. Additionally, Amazon and Google are researching and developing platforms for delivering customer crops using buzzes. Most of these robots have partial onboard dispensation control but still create large sums of data. Cloud-based analysis of data from such robots creates many challenges due to strict latency chucks and high volumes of data manufacture. To process records derived from numerous smart devices, we need accessible data processing platforms. Cloud is an ideal computational stage for hosting data processing applications for smart devices because of its efficiency and agility. It contains benefits such as Storm & process the data and send responses back immediately or it can do some pre-processing of the data and store it for later processing by batch engines such as Apache Hadoop. Data processing applications are written as Storm topologies.

Minimizing the Damage from Natural Disasters [3], Finding the causes of injuries in natural disasters is essential to minimize mortality. In this discussion, a theoretical framework for theorizing injury patterns in disasters, and how knowledge of the numerous chronologic phases of a natural tragedy can lead to schemes for preventing or mitigating the severity of a disaster, will be described. By dividing a natural disaster into three types are pre disaster, disaster and post disaster phases, one may begin to detect facts in the natural or fruition of a disaster that may be docile to the rapeuticor preventive intervention. Within each phase, one may identify factors that play an important role. This concerns the way persons themselves contribute to the growth of natural disasters and the extent to which disasters can be prevented by varying individuals or their behavior. An example of human contributions to the development of natural disasters can be found in the explosive population growth that has taken place in moneyless developed countries, as well as iterative urbanization in the industrialized sphere. Determination of the relationship between time of Assessment of injury outcome characteristics. Development of quantitative severity of injury and illness scales, to determine resuscitation potentials for mass casualties, as well as to serve as a rational basis of triage.

Building LinkedIn's Real-time Activity Data Pipeline [4], It will describe some details of our previous generation of infrastructure for these domains to help motivate our design. We began, numerous years ago, with dual distinct systems: a batch-oriented system that handled user activity data, designed chastely to aid the desires of loading data into a data warehouse, and the next system that handled server metrics and logging but provided this feed only to our observing system. All of these systems were effective & the data pipelines that delivered data to a single destination with no integration occur. We selected Active MQ as a potential system for the message queue. It did well in our real-time performance tests, being capable of processing several thousand messages per second, and it was already being used successfully in other LinkedIn systems for more traditional queuing workloads. We released quick prototype built on Active to test the system under full production load without any products or systems depending on it other than a test consumer and the tracking system that produced log file output. In our production tests we ran into several significant problems, some due to our approach to distributing load, and some due to problems in Active itself. We understood that if the queue backed up beyond what could be kept in memory, performance would severely degrade due to heavy amounts of random I/O. Customer processes balanced themselves at random over Active instances so there were tiny periods where a given queue had no customer processes due to this randomization. The "virtual topic" feature we used to support clustered consumers required duplicating the data for each consumer in a distinct queue. This leads to some in efficiencies since all topics would have at least binary copies of the data, one for the real-time consumer and one for the batch log aggregation service. It contains the traditional file-logging is that it naturally allows compressing an entire log file as a single stream, whereas no messaging system we are aware of provides this kind of batch compression of messages.

Survey of Position Location techniques in Mobile Systems [5], Motive of these systems is to supporting human-space interaction & to recognize the people and the objects the user aims to finding the target task of the user. The designers of systems supporting human-space interface have been led to use dual methods to detect the user's location in space and as a consequence to extract valuable data in order to support them. The first method is obvious to the user, as a locality detection mechanism is used to compute three-dimensional interactions of the user with another. Certain systems are restricted to simply detecting locality and do not support mechanisms and algorithms for noticing more complex spatial relationships. The second way is based on user explicit activities. In particular, the user is examined to declare the particular person or object he/she wants to interact with. An example of this case is when the user scans an object with a mobile device in order to receive data about it, to be shown on this device. Another example is when the user picks from a list of suggested objector people, one to interact with. As the major goal is interaction with these target objects or actors through portable devices, there is robust possibility to be in the proximity of them if their locality is known. Sometimes the combination of these two ways may be is more appropriate. We can distinguish three types of systems supporting human-space interaction: a) the systems supporting automatic location detection, less demanding to the user, b) the systems requesting location related information from the user and c) the hybrid systems which constitute combination of them. It consists of benefits such as mobile systems supporting human-space interaction; the events of interaction often play very important role.

Market-oriented cloud computing [6], It identifies various computing models promising to distribute the idea of computing efficacies. It defines Cloud computing and provides the design for constructing market-oriented Clouds by leveraging tools such as VMs. It provides thoughts on market-based resource management strategies that encompass both customer-driven service management and computational risk supervision. SLA-oriented resource allocation & grants some representative Cloud platforms especially those advanced in businesses along with our current work towards realizing market-oriented resource allocation of Clouds by leveraging the 3rd generation. It reveals our early thoughts on interrelating Clouds for dynamically creating an atmospheric computing environment along with pointers to upcoming communal research. It contains good quality & highly available equipment. It becomes an entire data center.

Optimal procedures for the discrete time/cost trade-off problem in project networks [7], It describe two algorithms, based on vigorous programming logic, for optimally solving the problem in deterministic activity-on-arc networks of the CPM nature, where the period of each activity is a discrete, non-increasing function of the volume of a single non-renewable resource loyal in it. The first procedure is finding the minimal number of reductions necessary to transform a general network to a series-parallel network. The second algorithm minimizes the estimated number of options that need to be considered during the solution. To give a good indication of their performance, and indicate the circumstances in which either algorithm performs best. It contains available port density. It can require coordination and communication with literally hundreds of individual sub-services running on remote nodes.

A scalable two-phase top-down specialization approach for data anonymization using map reduce on cloud [8], Releasing individual specific data in its most specific state poses a risk to individual confidentiality. This paper presents a practical and creative algorithm for defining an abstract version of data that covers sensitive information and remains useful for standardizing organization. The taxonomy of data is implemented by specializing or detailing the level of information in a top down way until a minimum secrecy requirement is compromised. This top down specialization is practical and efficient for handling mutually definitive and continuous attributes. Our method exploits the situation that data usually contains

DOI: 10.18535/ijecs/v5i11.95

redundant arrangements for classification. While generalization may eradicate few structures, other structures emerge to help. Our results show that standard of taxonomy can be preserved even for highly prohibitive privacy requirements. This work has great applications to both public and private sectors that segment information for mutual advantage and productivity. It prevents traffic in one service from disturbing the other services. It is common for all those distribution the same network sub-tree to sure collateral damage. It should be limited only by the available capacity on the network-interface cards of the sending, receiving servers and assigning servers.

Cloud genius: A hybrid decision support method for automating the migration of web application clusters to public clouds [9], With the iterative in cloud service providers, and the cumulative amount of compute services offered, a migration of information systems to the cloud demands selecting the best blend of compute services and virtual machine (VM) images from an plenty of potentials. Therefore, a migration method for web applications has to program evaluation and, in doing so, ensure that Quality of Service (QoS) requirements are met, while satisfying conflicting range criteria like throughput and cost. When selecting compute services for numerous related software components, across numerous layers, which is impossible to resolve physically. The earlier proposed Cloud Genius structure has proven its skill to support migrations of single-component web applications. In this paper, we enlarge on the extra complexity of facilitating migration support for multi-component web applications. In particular, we present an evolutionary trek process for web application clusters distributed over plentiful sites and clearly recognize the most significant criteria relevant to the choice problem. Moreover, we present a multi-criteria-based selection algorithm based on Analytic Hierarchy Process. It developed a Genetic Algorithm based approach to cope with computational complexities in a rising cloud market. Furthermore, a use case example evidences Cloud Genius applicability. To conduct trials, we implemented Cumulus Genius, a prototype of the selection algorithm and the GA deployable on hadoop bunches. Trials with Cumulus Genius give insights on time complexities and the excellence of the GA. It does not necessarily require virtualization of resources. It is also possible to have hybrid states where functions running on virtualized resources co-exist with those running on physical funds. It comprises an infrastructure summary, updated architectural framework, and reports of the compute, hypervisor and network domains of the infrastructure.

Supporting Ubiquitous Location Information in Interworking 3G and Wireless Networks [10], LBSs are an application service that deeds the spot of a mobile station. There is a wide variety of LBS of which the following four kinds of services are considered the most promising in terms of global revenue. Since WISPs can provide LBSs ubiquitously through heterogeneous networks and situations, the wireless network infrastructure allows delivering of LBSs as well as transferring of service requests and site information. The positioning system is the technology-specific subsystem that infers the user/object's locality. The location architecture and protocols require the responsibilities of the involved units, and how to interchange location data among. Finally, the ethics are a set of technical conditions that allow multi-vendor's LBS interoperability. For example, the Blue-tooth network allows positioning of a Bluetooth enabled de-vice very easily, with an accuracy related to the picoted size (i.e., about 15 m), with an update rate in the range of a few seconds. It contains benefits such as It is most convenient technologies.They include the required horizontal and vertical accuracy, the location age and the response time.It is very accuracy and clear output.

III. VARIOUS REAL TIME APPLICATIONS

Figure 1 Global Positioning System

Global Positioning System

A GPS device can recover from the GPS system site and time information in all-weather situations. A GPS reception entails an unobstructed line of sight to four or extra GPS satellites, and is subject to poor satellite pointer conditions. In exceptionally lowly signal conditions, for example in urban areas, satellite signals may exhibit multipath propagation where signals hop off structures, or are weakened by meteorological circumstances. Obstructed lines of sight may arise from a tree canopy or inside a structure, such as in a building, garage or tunnel. The GPS proficiency of smartphones may use assisted GPS technology, which can use the base station or cell towers to provide the device position tracking capability, especially when GPS signals are unavailable. However, even A-GPS would not be available when the smartphone is outside the range of the mobile response network.

Benefits

- Used for Vehicle Navigation
- Used for Civilian Purposes
- Used for Automobile Navigation System

Intelligent Transportation System

Figure 2 Information Transfer in ITS

- It is used to reduce speed of the vehicle
- To avoid congestion.
- Improve Mobility
- Save Lives
- Incident Detection and Weather Sensors
- Lane and Speed control signs
- Car-Sharing systems
- Intelligent Parking Management
- Automated Payment Mechanisms

Benefits

- Keeping vehicles at a safe space
- Allowing vehicles to converse with structure
- Route scheduling and warnings of congestion and accidents
- Keeping drivers informed of the native speed limit
- Monitoring drivers for signs of fatigue
- Improved efficiency
- Real time service information for public transport users
- Smart and seamless ticketing solutions
- Integrating public transportation into traffic controlling systems
- Reliable

DOI: 10.18535/ijecs/v5i11.95

Applications

- Traveler Information Systems
- Route guidance system
- In-Car Automation and Monitoring System
- Automated Traffic Management Systems
- Electronic Road Pricing

IV PROPOSED SYSTEM

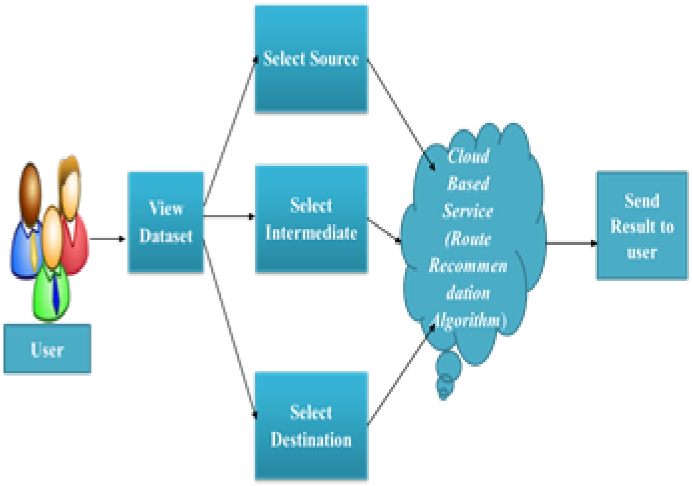

Figure 3 System Architecture

The Road Side Unit(RSU) is collect the traffic information like request & response of process, timing, number of users and these information are informed to the Traffic Control Center(TCC). The Traffic Controller Center analyze the traffic occur information passed to the cloud service system. The Cloud Service to find some routes from Heuristic algorithm. The computed routes are communicated to the TCC to make appropriate decisions during evacuations, as well as to the emergency data transmission and evacuees for traffic guidance.

Route Recommendation Algorithm	Heuristic Algorithm
➢ The cloud service to find some routes from route computation algorithm.	➢ Heuristic algorithm is used to solve the common Traveling Salesmen Problem.
➢ The route computation algorithm means the user should select the source and destination of the traffic route.	➢ This problem shows given list of source and destination distances between each path, what is the shortest possible route that visits path exactly once.
➢ The selected routes contains some intermediate routes are created.	➢ A heuristic algorithm used to quickly solve this problem is the nearest neighbor (NN) algorithm. Starting from a randomly chosen path, the algorithm finds the closest path.
➢ The algorithm gives some shortest routes and best path. The computed set of routes are informed to the user.	➢ The remaining paths are analyzed again, and the closest path is found. The algorithm is heuristic in that it does not take into account the possibility of better steps being excluded due to the selection process.

Table 1 comparison of existing & proposed Algorithm

Modules

- Dataset Loading
- Preprocess the dataset
- Select source path
- Select destination route
- Select intermediate route
- Calculate Shortest route

Dataset Loading

- In this module we have to create dataset for in our process. In this dataset contains name of the place, street and also kilometer of the distance.
- These data's are load into the database.

Dataset Preprocessing

- The dataset contains Name, street and also has the place of the area. These details are maintained and stored in our database.
- The information is used to finding routes to reduce the performance of searching best path.
- These modules are removed unwanted data's from the dataset.

Select Source path

- In this module contains the list of some source routes, if the user wants to select any one of the listed source routes.
- The selected source details are stored in our database and also maintained the sources corresponding street and name.

Select destination route

- In this module contains the list of some destination routes, if the user wants to select any one of the listed destination routes.
- The selected destination details are stored in our database and also maintained the destination corresponding street and name.

Select intermediate route

- In this module contains the list of some intermediate routes, if the user wants to select any number of the listed intermediate routes.
- The each selected number of intermediate routes have own distance.
- The selected intermediate details are stored in our database and also maintained the intermediate corresponding street and name.

Calculate Shortest Route

- The every user selects source, destination and intermediate routes.
- The selected source should calculate each and every intermediate route.
- Give shortest routes from the selected routes using heuristic algorithm.

V Implementation

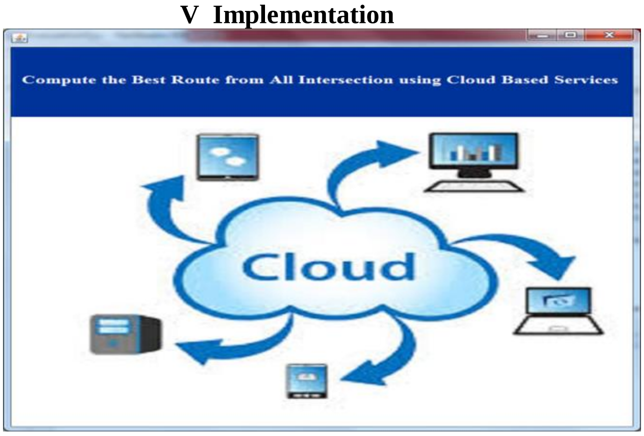

Figure 4 Home Page Creation

DOI: 10.18535/ijecs/v5i11.95

Figure 5 Dataset Loading

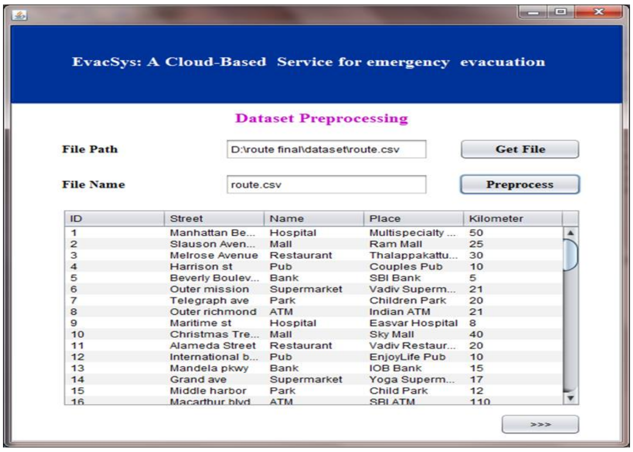

Figure 6 Dataset Preprocessing

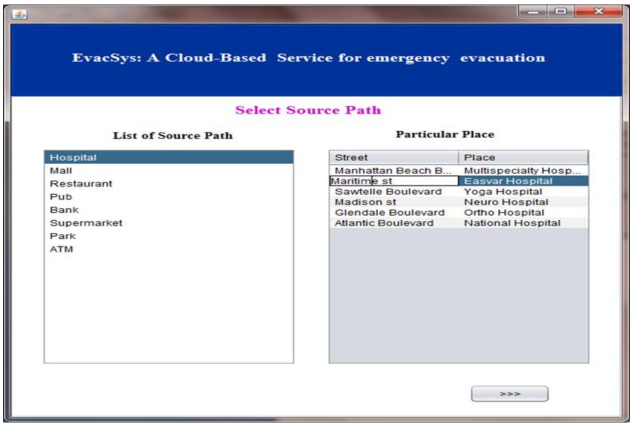

Figure 7 Select Source Paths

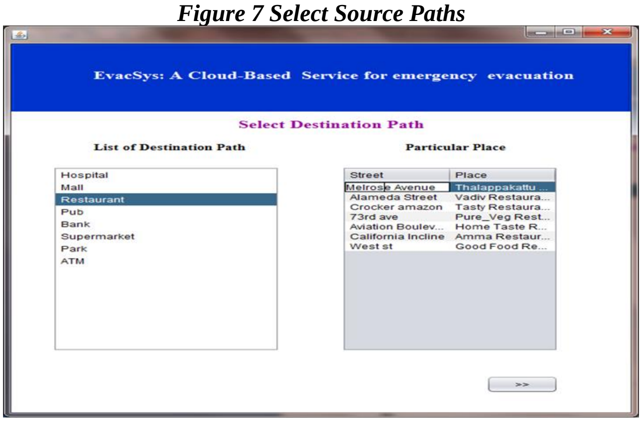

Figure 8 Select Destination Paths

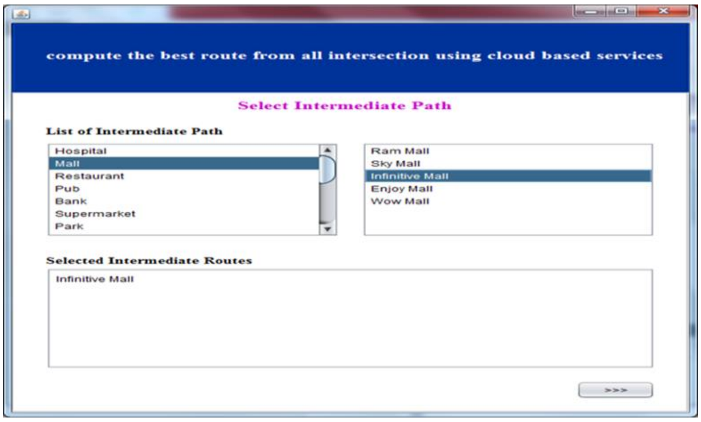

Figure 9 Select Intermediates Path

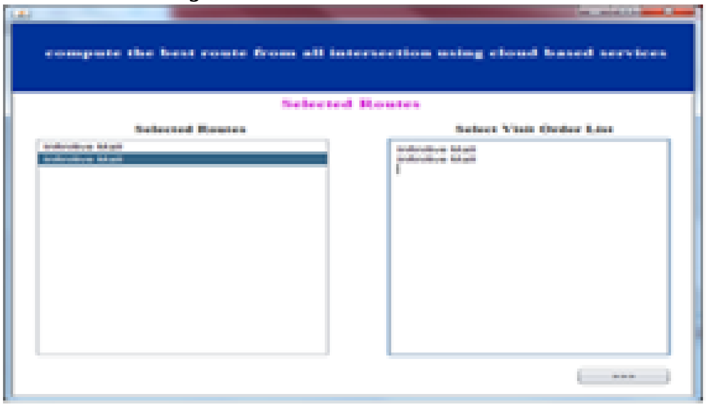

Figure 10 Selected Routes

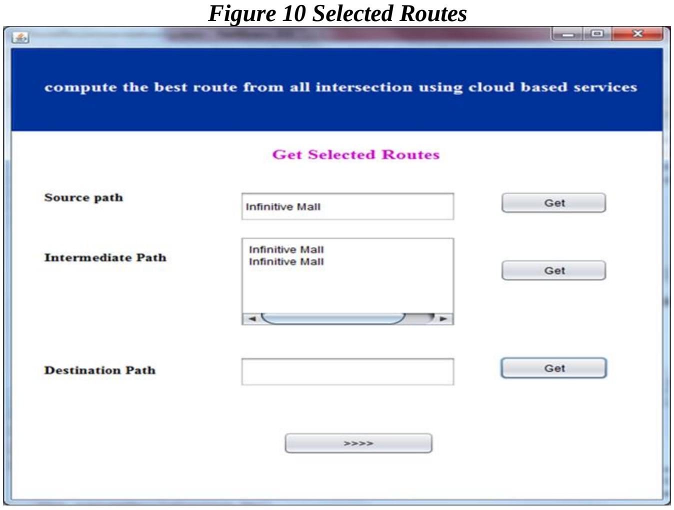

Figure 11 Get Selected Routes

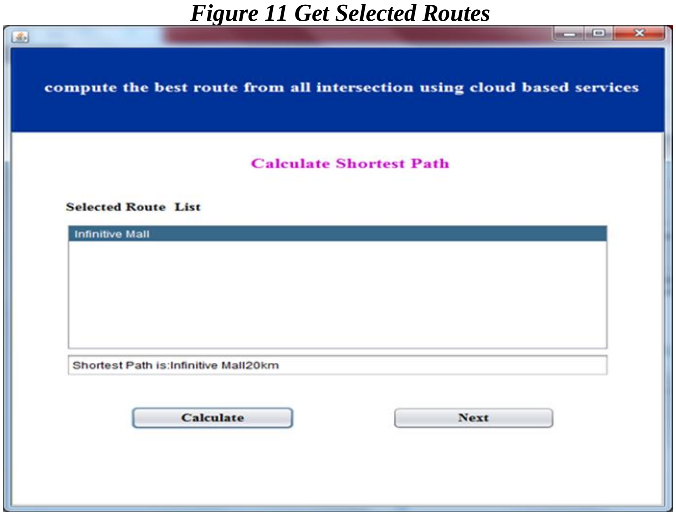

Figure 12 Calculate Shortest Path

VI CONCLUSION & FUTURE WORK

Our finding route solution method is provide better way to exit from disaster management bodies in planning and optimizing traffic operations during possible evacuation situations. So it is protecting human lives in any disaster. In phase 1, future we implement the next two modules such as select intermediate route & calculate shortest route. In phase 2, we plan to extend our model by including additional stochastic factors that are commonly observed during evacuations such as driving under stress or fear and evacuate compliance with routing instructions as well as to incorporate various types and sizes of vehicles and building structures to observe their effect on evacuation times.

REFERENCES

[1]"EvacSys: A Cloud-Based Service for emergency evacuation", Osman Khalid, COMSATS Institute of Information Technology, Pakistan Muhammad usman Shahid Khan, Ying Huang, and Samee u. Khan, North Dakota State University Albert Zomaya, University of Sydney IEEE computer society of India 2016.

[2]"A Framework for Real Time Processing of Sensor Data in the Cloud", Supun Kamburugamuve, Leif Christiansen, and Geoffrey Fox Hindawi Publishing Corporation Journal of Sensors Volume 2015.

[3]"Minimizing the Damage from Natural Disasters", K. Pretz The Institute,http://theinstitute.ieee.org/technologyfocus/technologytopic/ minimizing-the-damage-from-natural disasters9 Sept. 2013;

[4]"Building LinkedIn's Real-time Activity Data Pipeline", Ken Good hope, Joel Koshy, Jay Kreps, Neha Narkhede 2010.

[5]" Survey of Position Location techniques in Mobile Systems", Manesis T. and Avouris N 2010

[6]"Market-oriented cloud computing: Vision, hype, and reality for delivering it services as computing utilities", R. Buyya, C. S. Yeo, and S. Venugopal 2009

[7]"Optimal procedures for the discrete time/cost trade-off problem in project networks", E. L. Demeule meester, W. S. Herroelen and S. E. Elmaghraby 2007

[8]"A scalable two-phase top-down specialization approach for data an onymization using map reduce on cloud", X. Zhang, L. Yang, C. Liu, and J. Chen 2009

[9]"Cloud genius: A hybrid decision support method for automating the migration of web application clusters to public clouds", M. Menzel, R. Ranjan, L. Wang, S. Khan, and J. Chen 2009

[10]"Supporting Ubiquitous Location Information in Interworking 3G and Wireless Networks", Massimo Ficco, Roberto Pietrantuono and Stefano Russo IEEE 2015.