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Event-driven Platform toManage Agility

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Abstract— City Logistics is a field of research to solve urban freight transport problems. These problems are associated with congestion, negative environmental impacts such as air pollution and noise. Research on city logistics has currently become applicable to any part of the supply chain. The freight transport has to cope with lot of uncertainties and companies must be able to respond quickly to short-term changes in demand or supply. The ability to respond quickly and adequately to short-term changes is defined as 'agility'. Existing literature focuses on making information about various events available to the user. However, the range of coverage is limited. In this paper, we propose an Agile Vehicle Routing System based on federated open-trusted (FOT) platform for event-driven interactions between services that provides the user with coverage of higher range and suggest enhanced behavior options to users (or devices). Such a platform could be useful for drawing vehicles' itinerary and for priority management.

Keywords- Events, optimum path, Event occurrence and solutions, actions against events-wait, change, Agility.

I. INTRODUCTION

In this paper, performance of network increases rapidly byTraffic problem is one of the challenging issues in large cities nowadays. Since last decade ever increasing attention is paid to traffic and transportation due to various issues such as traffic jams and delays. Ahmad Habibizad Navin, et.al.,[1] in their study show that millions of people encounter traffic problem every day and an efficient method is essential for solving this problem. The problem in the transportation system has a large impact on almost all areas of social activity. Also the problems faced by freight transports are mostly associated with congestion and negative environmental impacts (i.e., air pollution and noise). Thus, city logistics become a catching issue in the eye of companies and private organization. Adding to the issue, in a typical medium sized city, on an average each person wastes more than 1.5 hours in traffic[1] consuming more than thousands of litres of fuel in traffic every day. Around 41% fuel consumption is on heavy traffics. So, in order to cope with a lot of uncertainties, companies and individuals must be able to respond to these short–term changes adequately and quickly. The main goal is to provide right information to theright person at the right time[2] thusmaintaining 'Agility'. This thesis proposes a method to support the user to take decision regarding the best possible action the user can take on the occurrence of any event towards its destination. The purpose is to propose an agile vehicle routing procedure on a federated open-trusted (FOT) platform for event-driven interactions between services. The system not only tracks the occurrence of the events but also facilitates an appropriate intelligent solution for the same, leaving less for assumption and making a right decision at right time in right direction and support the user to make a right move.

This paper is organized as follows the introduction to city logistics. In Section II, describesthe literature survey. It specifies different models and methodologies of various city logistics measures and different disaster management systems and also event driven architecture principles, methodology and event driven platform to manage Agility. Section III we briefly describe the proposed system of event driven platform managing agility by providing a strong decision support to take actions against events. In section IVit represents the plan analysis. And design of the system. section V discusses the result analysis.

II.IMPACT OF EXISISTING SYSTEM

Detection of event occurrence and proper decision to take action against these events is difficult. Existing system[2]cannot recommend appropriate actions and hence it is not effective to make an intelligent and flawless decision. It leads the user to aconfusing situation having knowledge of getting informed earlier. The current system at a very short distance neither can face emergency situations nor can inform earlier and guide him properly. The existing systems successfully track the real time location of the user but are unable to detect the upcoming unwanted events in the route at a longer distance. As such, most of the decisions as the events occur are left to the user, who is unaware of the consequences of his decision and thus can make a flawed decision. The real time tracking of the events is not available in the existing systems leaving user to take

decisions based on assumptions. Also, the existing system fails to give an intelligent way out in case of occurrence of any event. The user enters his sourceand destination and starts his journey. System, based on this datacomputes the routeavailable. However, there is no guarantee that thisroute is optimal. As the user moves towards his/her destination, the system, on the occurrence of an event, throws an identification of the event through Admin within a distance of 1 Km. Here, since the identification of the event is at distance of 1 Km [13] there are several possible chances of not finding an alternate route. Also the existing system [13] has not givenchoice of decision of what action to be taken on an event occurrence which can lead him to further problems to reach destination.

III. SURVEY ON CITY LOGISTICS

A simulation model developed by Eiichi, et.al.,[3] estimates travel times on each link and allows link costs to be determined. The model is composed of two sub-models, a model for vehicle routing and scheduling problem with time windows (VRPTW) for each company as well as a dynamic traffic simulation model for the fleet of pickup/delivery trucks and passenger cars on the road network within the city. A Multi Attribute Decision Support Systembased on SWOT Analysis for management of transport is presented by Dorin D. M. Banciu and Monics C. G. Florea[4] [5][6][7][8][9][10]. In this system SWOT analysis was made for the transport systems in four big cities, viz., Paris, London, New-York and Takio. A pilot of this is planned to be implemented in Bucharest. This pilot will allow choosing optimal routes. An intelligent green wave Model (IGWM) based on data-oriented approach is presented by Ahmed Habibizad, Nima Jafari and Mirkamal Mirnia[1]. IGWM methods of modeling are 1) Macroscopic modeling 2) Microscopic Modeling 3) Mesoscopic Modeling. Macroscopic models use measurement data from simulation to estimate the state of traffic flow on the highway. Microscopic model is a model that maps traffic flow as set of individual vehicles, These model govern vehicles behavior and can be divided into a car-following model, lane change model and a route-choice model. The third class that is gaining popularity is the Mesoscopic model. This is based on a queue-server approach. Event driven architecture as proposed by Luca Filipponi, et.al.,[11] allows the management and cooperation of heterogeneous sensors for monitoring public places. The proposed solution can enhance the detection of anomalous events and simplify both operator's tasks and communication to passengers in case of emergency. An Intelligent disaster management system based on cloud-enabled vehicular networks is presented by Zubaida et.a.l.,[12]. This system includes VANETs (Vehicular Ad Hoc Networks), Mobile and Cloud computing technologies. It can gather information from multiple sources and locations, including from point of incident, and is able to make effective independent strategies and decisions and propagate the information to vehicles and other nodes in real time. Anne-Marie-Bartha-Delanoe, et.al.,[13] propose an information systems interoperability management in a crisis management cell. Their mediation information system helps the crisis cell partners to design, run and manage the workflows of the response to a crisis situation. In order to have an automated agility, their system is based on service oriented and event driven architecture principles. An[2] event driven platform to manage Agility aiming at defining a federated-open-trusted platform able to deal with events emitted by any device is proposed by Matthieu Lauras, et.al.,[2]. They propose an agile vehicle routing procedure based on a federated–open–trusted (FOT)Platform for event-driven interaction between services.

IV. SYSTEM ARCHITECTURE MODEL

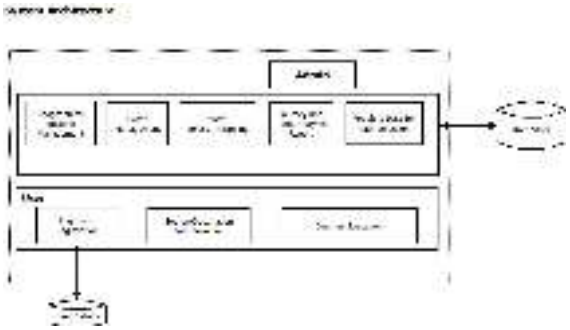
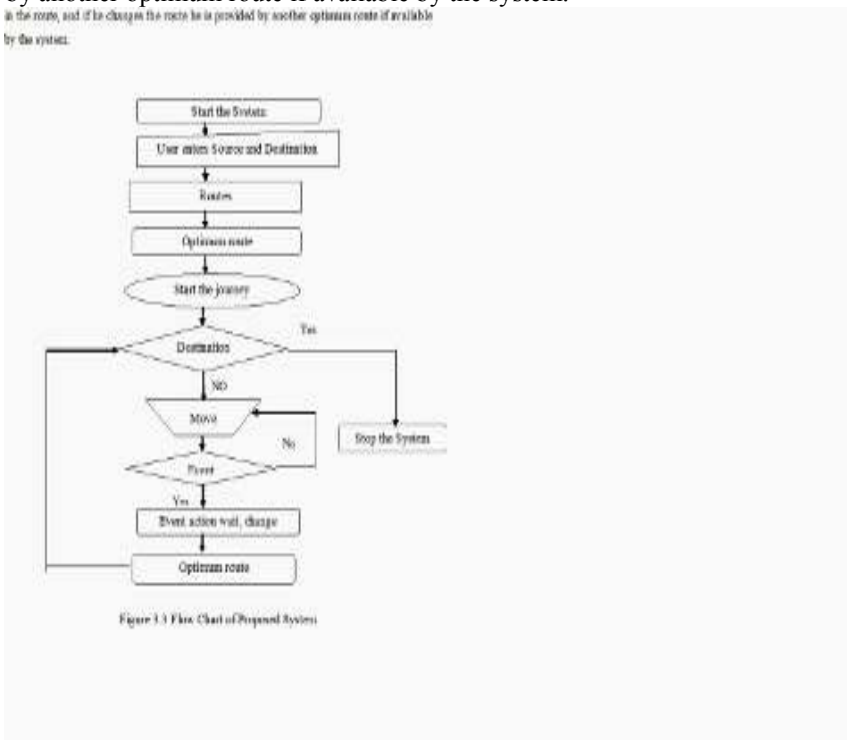


Fig 1 . Architectural model

The above Figure 1 Architecture shows two modules Admin module and User module. These modules further have integrated modules for storing records, identifying and managing events, updating locations and user's journey. The system shows an Event-driven platform to manage 'Agility'.

V. FLOW OF PROPOSED SYSTEM

The flow manages the Event handling at the time of event occurrence with proper and intelligent solutions. The flow of the system is in the manner as given below in the Figure 2. The user enters his source destination after starting the system, user gets the route for his destination, and an optimum route is suggested by system to the user based on the destination, event and time. The user starts the journey to reach destination, if no events occur user reaches his destination and stops the system, if events occur, he is guided by the systemabout the event occurrence and also he is empowered to take decision on the event, as the system guides him i.e. either by waiting or changing the route, if the user waits he continuesin the route, and if he changes the route he is provided by another optimum route if available by the system.



VI. PROPOSED ALGORITHM

Managing Agility on Event evidence

Step1: The user starts the system as shown in the Figure entering his details and then enters in the system the required source and destination.

Step 2: The system links to Google through its API using Ajax technology. The system finds all the routes available to reach the destination put up by user. (Google Maps is one well-known application that uses Ajax. The interface allows the user to change views and manipulate the map in real time. Ajax [14] applications do not require installation of a plug -in, but work directly with a Web browser. Because of the technique's reliance on XML Http Request, early applications worked only with Microsoft's Internet Explorer browser, but most other browsers now support Ajax. Applications created with Ajax use an engine that acts as an intermediary between a user's browser and the server from which it is requesting information. Instead of loading a traditional Web page, the user's browser loads the Ajax engine, which displays the page the user sees. The engine continues to run in the background, using JavaScript to communicate with the Web browser. User input or clicking on the page sends a JavaScript call to the Ajax engine, which can respond instantly in many cases. If the engine needs additional data, it requests it from the server, usually using XML, while it is simultaneously updating the page).

Step 3: Here the system provides optimum route out of the available routes provided by Google based on distance time and event.

Step 4: The user now starts his journey based on the selection of optimum route found out by the system to reach his destination.

Step 5: As the user moves to the destination, every time the user moves the system checks the current location using GPS

Step 6: The user moves ahead events can occur at variable distances, any event occurrence if found is reported by the system to the user at a distance of 5 Km from where the user is currently located.
Step 7: If the event is found the system guides the user by giving notification about type of event and taking action against that event .The action here can be categorized in two modes1)Wait2)Change. Wait-specify no possible way out, the user is asked waitChange-The user can take alternative path based on the event occurrence, immaterial of the fact that where the user is located or where he has reached, he will be guided by the system right at that position to take a change of route if an alternative route is available.
Step 8: Thus allowing the user to choose for optimum new route, directing him towards Step 5 and continuing all the remaining till he reaches his destination.

VII. RESULT DISCUSSION

The proposed system, not only tracks the occurrence of the events but also facilitates an appropriate intelligent solution for the same, leaving less things for the users assumption to make a right decision.
The Admin module tracks and keeps records of the existing and updated events, which are categorized as certain and uncertain type of events. The Admin module in the system intimates the user a notification of any event occurrence, guiding the user to take appropriate action, thus providing a reliable decision support service to the user.
The Client selects the source and destination in the system, the system provides an optimum route based on destination, time and event to the user, after this the user starts his journey events can occur at variable locations and distances, For this the user gets notification from the system of the event at a distance of 5 Km of the event occurrence, the system helps the user to map the event and take action, The action given by the system guides the user to decide whether to wait or change for new route if possible, immaterial of the fact where he is located at that juncture the user continues to move till he reaches his destination, if could not reach will follow the system in the same way.
In the proposed system events can be notified at a quite longer distance so every chance of finding an alternative route is possible, secondly system gives alternative decisions about the event occurred to the user to act accordingly to these decisions (i.e. wait, change).The proposed system gets justifiable as due to the above mentioned two reasons, the system can not only withstand emergency situations but also can get aware of it early compared to existing system.

1.The user gets an identification of the event at a particular location as an alert by the system.The system here asks the user whether he wants to wait or modify the route if it is available.

Fig 2.The system displays event occurrence at particular location

2The system on event occurrence, resolves it by giving a new route suggestion to the user. (Here the user is suggested to go backwards by the system and adapt the new route).

Fig 3.The system changes route on event occurrence

3.The Admin module saves the Event Type in the system, here a table of certain and uncertain events can be viewed.

Fig 4 Event Type Record as Saved by Admin module

4.The system gives the admin module journey analysis report of the user in Distance (in meters) and Duration (in seconds), and it includes all events throughout journey.

Fig 5 A graph on journey analysis report

VIII. COMPARISION

The above survey shows innovation of different models and simulation models in city logistics, and the use of VANETS in intelligent disaster management systems and it also shows Event driven principles and methodologies to manage 'Agility' but, lacks to provide an intelligent and cost-effective real time systems which could give easy solutions to manage Agility for any route demanded by the user to reach his destination which is being managed by the proposed system.The real time tracking of the events is not available in the market leaving most of the things for the assumption of the user. Also, the existing system [2] fails to give an intelligent way out in case of occurrence of any event

IX.CONCLUSION

As city logistics is a nagging issue, the Play Platform could be useful to deal with vehicles itinerary & priority management. Existing Platform has emerged as an event market place, a place that brings together the senders and receivers of events and provides numerous services on top of them to improve the Agility capability. The Existing work proposes to improve the Agility capability both in terms of challenges and opportunities. The Proposed platform has early detection of events and it also gets proper action on such events which will be a strong support for the user to take decision and will also help user to take decision in emergency situations thus reduce confusing situations.
In the existing system[2] the user can land into a confused situation by not taking appropriate decision on event occurrence at a very small distance. He is asked to change route with no proper guidance of distance, time and event allowing more odds to face. Hence the proposed system facilitates the user to take appropriate decision at right time in right direction thus maintaining 'Agility' and also handle emergency situations with deftness.
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X.SUMMARY

The existing system[2] is successful enough to track the real time location of the user but is unable to detect the upcoming unwanted events en route. Likewise, most of the decisions in time of occurrence of these events is leaved on the user who is unaware of the consequences of his decision can make a flaw decision, an objective to detect the occurrence of events in the route of the user is needed, Hence the above proposed system is designed with an aim to cater a solution for real time occurrence of an event, includingThe proposed system not only tracks the occurrence of the events at quiet a good distance but also facilitates an appropriate intelligent solution for the same, leaving less things for assumptions and supportively helping the userto take a right decision.

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