

## "SOCIAL SECURITY AND WELFARE VIA INFORMATION TECHNOLOGY"

#### **PARVEEN SINGLA\***

\*Research Scholar, Pro Bono Entrepreneur

## ABSTRACT

With the increase in accidents and other emergency situations, many lives are lost because of delayed response and first aid help. This delay is happening due to many reasons but one of the main reason is the relief-vehicle driver does not know about the emergency location. Though popular names in this space have been popping their safety features but still failing to remain abreast with sub-continent consumers.

**The Existing Systems:** There are two variants available in marketplace for better safety and security. The first variant is generally free app which is mainly ad based. Ad based sometimes creates less interactive UX towards end user. However the only advantage is life time free downloadable and accessible. On the other hand there are paid apps but they are cluttering free and mainly available as an affordable option for iOS users. Though it is available for Android devices however in developing nations where market base of Android Devices is more significant and they prefer to download mainly free apps over the premium one.

**The Proposed System – A New Innovative App:** The current system includes the app's general security features as embedded in screenshots JauntBee created for every other traveler is masterpiece flaunts its meaning from two words "Jaunt" which means "pleasure/short trip" and "Bee" and the later symbolizes "diligence and indefatigable effort.". It is their latest innovative approach of using an app for discovery of new places.

## **KEYWORDS** Jauntbee, Social Security, Information Technology, Android Mobile Application

#### 1. INTRODUCTION

With the increase in accidents and other emergency situations, many lives are lost because of delayed response and first aid help. This delay is happening due to many reasons but one of the main reason is the relief-vehicle driver does not know about the emergency location.

Though popular names in this space have been popping their safety features but still failing to remain abreast with sub-continent consumers. The noted point hence affects tourism inflow index. Russia has removed India from the list of safe travel destinations for its tourists. The Russian information center in Goa said that a revised travel advisory had been issued following the blacklisting of Egypt and Turkey.

(https://www.indiatoday.in/india/story/russia-removes-india-from-list-of-safe-travel-destinations-274833-2015-11-29)

## 2. EXISTING SYSTEMS

There are two variants available in marketplace for better safety and security. The first variant is generally free app which is mainly ad based. Ad based sometimes creates less interactive UX towards end user. However the only advantage is life time free downloadable and accessible. On the other hand there are paid apps but they are cluttering free and mainly available as an affordable option for iOS users. Though it is available for Android devices however in developing nations where market base of Android Devices is more significant and they prefer to download mainly free apps over the premium one. Hence, there was a need to realize the importance of having free app without ads for Android devices.

#### 3. PROPOSED SYSTEM – A NEW INNOVATIVE APP

The current system includes the app's general security features as embedded in screenshots JauntBee created for every other traveler is masterpiece from Neonex Technology. flaunts its meaning from two words "Jaunt" which means "pleasure/short trip" and "Bee" and the later symbolizes "diligence and indefatigable effort.". It is their latest innovative approach of using an app for discovery of new places.



JauntBee is an application which uses virtual globe, the visualization of study area is carried out in 3D along with it real time tracking of relief vehicle is done, so as to know where the relief vehicles are. The system is providing emergency intimation facility by call or message; by using the relief vehicle's location and emergency spot, the system is providing with the shortest route. It is also providing with the information about the nearest hospital.

## **3.1 JAUNTBEE WORKING STEPS**

Though the current version of the app is merely 1/4th of the overall equation of purpose reflected in app's screenshots. However the future readiness of what JauntBee will evolve in due course of time being made which is clearly elaborated below.



- By going Google Play Store and then search for JauntBee or just by visiting the link given below and then proceeding to install for the app https://play.google.com/store/apps/details?id=in.neonex.jauntbee&hl=en\_IN
- 2. After installation the user has to proceed by adding as many as Emergency Contacts of their trusted ones whom they want to contact in the adverse situation
- 3. User has to enter their destination where he or she is supposed to travel (The embedded screenshots are self-explainable as they are ordered in a sequential way for its working methodology)

← Contacts	
Emergency Contacts	JauntBee
	Enter destination ×
	RIAGCOPIA
	TRAWELL
Save	

- 4. The GPS must be on & it will automatically search for your current location. It uses Google Maps for the navigation purpose.
- 5. JauntBee also notifies about the remaining distance until the end user reaches the destination.



The app lets the user to send an SOS alert or call with a single touch in the event of an emergency. When activated, it sends the precise GPS location to the pre-selected contacts by

sharing the exact location updates with an SMS alert. The nearest police station can be reached by just one click within an app.



## REMARKS

It has to be noted that word "Trawell" as represented in screenshots, is used intentionally rather than conventionally thought generic word Travel. As it's a creative and experimental form of the word which reflects the Wellness and Feel Good in overall travelling experience.

## 4. PROBLEM STATEMENT

## 4.1 EMERGENCY OCCURRENCE

Any situation that can cause a sudden risk to human or animal health, their life and property or to the environment is classified as emergency. It is a result of a disaster occurred due to natural phenomenon or technological mishap. To reduce the loss; an immediate intervention is required so that emergency can be confined in a small area and there is no or minimum damage. Emergency management is to avoid and deal with man-made as well as natural disasters. It includes a pre, during and post-disaster plan i.e. to delay or reduce the vulnerabilities or potential damages, minimize the destruction during emergency and reestablishment for the future. The most important task in disaster management is to minimize the difference between the pre- and post-disaster conditions in a community. Disaster cannot be predicted as per their occurrence and impact. They can harm either the environment or property or worst to the resources or civilization present there.





**Figure 1: Phases in Emergency Management** 

Mitigation is the first step towards emergency management; it involves the steps towards reducing the occurrence of any emergency. This includes avoiding activities that can cause an emergency or reducing the effects of unavoidable situations. Preparedness includes making of plans which can be used during the emergency, this improves the chances to deal with the emergency. This generally includes who to call for help, what to do and where to go if a particular situation arises. Response is the step in which many organizations and teams combines together to fight with the disaster and provide assistance to the victims stranded there. This is a very time critical phase; timely intervention can save lot of human, social and economic damage. The last phase is recovery in which assistance is provided for resettlement and rehabilitation to the victims, in this phase we should try to avoid the previous situations, so as to reduce the chances of disaster.

The emergency response team is present in all the steps within the disaster management. Training can be provided to personnel as how to use the application by the organization for pre-disaster management. The main use of the systems is in the response phase, where computer programs give instructions to the rescue teams. In the case of the emergency situation, the emergency call will be accepted and the rescue teams are alarmed and controlled. In the recovery phase, application will store data for training and future use. It can also generate maps to show the expanse of the damage caused by the disaster.

## 4.2 LOCATION BASED SERVICES (LBS)

The advent of different technologies such as wireless networks, Internet, Geographical information systems (GIS) and Global Positioning Systems (GPS), have introduced a new type of information technology called Location Based Service (LBS). LBS is defined as the ability to

locate a mobile user geographically and deliver services to the user based on his location. According to Schiller J. (Schiller et al. 2004) Location based services can be defined as "services that integrate a mobile device's location or position with other information so as to provide added value to a user". So knowing your location or how far you are from a specific location would not be valuable by itself. Only if it can be related to other location this gives it meaning and value.

LBS is an information and entertainment service, accessed through mobile devices using the mobile network and employing the ability to make use of geolocation of the mobile device. LBS services can be used in a variety of contexts, such as health, work, personal life, etc. LBS include services to identify the location of a person or object, such as discovering the closest hospital or the whereabouts of a friend or employee. LBS services include parcel tracking and vehicle tracking services. A positioning component is usually needed in a LBS application to determine the location of user's mobile device. Most of the current LBS services do not require users to input location manually, like entering zip code or street name in LBS application. Instead user's location can be obtained by using some positioning technologies, such as satellite positioning, cellular network positioning, WLAN stations or radio beacons.



**Figure 2: Location Engine Architecture** 

## 4.2.2 ROLE OF LBS IN EMERGENCY MANAGEMENT

If an emergency happens (car accident, fire in a flat, etc.) somebody will transmit an emergency call to the Centre of the rescue team. There the scheduler acquires the incoming emergency call with the necessary criteria including location, time, type, persons which are involved, etc. in the emergency. This information is the solicited input for the decision support module of the



Emergency Management and Response Team (EMRT). The next step is to dispatch the emergency forces. The EMRT will submit, on the basis of the acquired information, the available resources and the alarm plans to the necessary emergency units. The scheduler system automatically proposes which team to send and alerts the emergency team. Along with the alarm, scheduler also send important information like location, route to the location, type of emergency to the dispatched rescue team. During the emergency mission the emergency units are controlled and additional information which is needed to handle the emergency can be requested from the emergency call Centre (e.g. queries from hazardous material databases). All steps, from the time of the emergency call to the status of the emergency forces like the location of the vehicles or the used equipment's to the end of the emergency mission, are logged by the EMRT to a protocol. In the post-processing phase all missing data of the emergency will be completed and a report of the emergency mission is generated and saved in a database.

The main GIS functionality of EMRT is a function that uses geocoded addresses. This function is required in order to enable finding the location of the emergency site. The addresses are usually organized in a dataset, which include the necessary geographic information, e.g. coordinates. In addition to this function, the emergency location can be entered via the street name or ordinary geographical coordinates. The second important GIS function is the network analysis. In the network analysis the shortest or the fastest way between the position of the emergency forces and the emergency site is calculated. This function uses miscellaneous parameters, such as one-way-streets and turn restrictions. Applications designed for ambulances use the function of the mathematical entry for calculating the cheapest way between the location of the apatients and the health care centers (hospitals, foster homes, medical specialists). The acquired routes are then shown on the cartographic visualization tool and sent as GPS-coordinates or as a textual list of directions to the emergency vehicles.

The cartographic visualization of emergency sites is another important function of EMRT. It is usually presented on a digital map which can be completed with tactical symbols, simple drawings and labels. With the help of GPS transmitters the current position of the vehicles is acquired and visualized with symbols on the map. In additional layers, buildings with high exposure, like hospitals, schools, hotels, etc. can be displayed on the map or retrieved from special building databases. Other GIS functions included in the graphic display of EMRT are the measurement of routes and surfaces and the query of specific emergency data.

#### 4.3 USE OF IVR AND EMERGENCY RESPONSE

IVR, short for Interactive voice response, is a phone system technology that allows a caller (or call recipient) to choose options from a menu. Generally an IVR presents a message and then provides a list of options to the caller. The caller makes selections by touching a phone key or by speaking into the phone.

The use of IVR during an emergency can prove to be a highly effective tool when mass communication is required to deliver important messages to a community. Automated emergency messages can be delivered when an emergency response Centre is unavailable or has limited personnel. Community alerts can be sent with sufficient information provided to call recipients. IVRs can provide critical information 24 hours a day during an emergency. If callers need to locate the nearest shelters during a disaster, the IVR can use caller information (such as caller id or zip code) to locate the closest emergency support Centre. Virtually any information that needs to be provided to the public or first responders can be programmed into the IVR. But as emphasized above, the ability to speak with an operator must be provided at all levels of an IVR menu. An IVR can also be effectively used when administering the IVR phone system itself. During an emergency, an administrator can use an IVR to control the emergency broadcast. The IVR can prompt the administrator for a PIN number to gain a secure access to the phone system. The actual emergency message can then be either selected using the IVR or recorded over the phone. The administrator then selects groups or individuals to be called by making touch phone selections from an administrative IVR menu. Finally the emergency voice broadcast can be initiated by selecting an option from the phone key menu. This ability allows emergency administrative personnel the flexibility to launch an emergency notification using any landline or cell phone from anywhere with phone service.

An emergency response plan needs to be robust, accurate and precise. This plan should be made such that it can easily function in almost all the cases. Emergency response system in itself is a fairly large system which can be further subdivided into various sub-systems and each of them will have a different approach.





Figure 3: Context level DFD for EMRS

The very basic task of the application is shown in the Figure 3, whenever an emergency caller intimates the EMRT about the emergency or accident, it sends ambulance to pick up the person from hospital and drops the person off to the hospital. The system also informs the hospital about the emergency (type of emergency, number of causality and how much time is required) and the hospital reverts to the EMRT. This data is then stored into the database for record and training purposes.

The very first step while developing an emergency response plan is to know all the features present in the particular area which includes road network, relief Centre, hospital and landmark geolocation for emergency spot identification. The proposed study uses data from different sources as road network, landmarks and schools, digital elevation model from CartoDEM. Firstly a Geo-RDBMS is created to store dynamic and static data. In this Geo- RDBMS data from different sources is stored and this data is of different types that is points, line, polygon, isolines etc.

## Steps involved in database creation -

Data collection and analysis Building a conceptual model Building and validating logical data model Designing physical schema Volunteered Geographic Information (VGI) from various sources such as gazetteer data, data from OpenStreetMap, Bing map etc. is collected. This data is then analyzed for missing values and gaps. The gaps are then filled by manually digitizing or editing the dataset. Landmark and hospital data is created with the use of GPS enabled device. This data is then analyzed for redundancy and for toponym disambiguation and resolution. It involves the task of assigning geographic location to any name. Different entities and relationship between them is defined which attempts to resolve any ambiguity, if present, which ensures that there is no problem with different interpretation of concepts and terms. A logical data model is created and validated for any kinds of errors and then physical schema is designed for data storage.



Figure 4: Jauntbee Working Model

A thick server side application is developed for receiving the location, firing queries on the database and displaying information. Client side application is thin so that the users need not to install any plug-in or software to use the application. A thick server means that all the processing, data is on the server and it's client side is thin application; which means that the client will need to communicate with the server on which processing is done. There is no need to install any software or plug-in on the client machine to use the application, they just need to be connected to the central server via internet. Thin client allows managing the software installed on the user's machine.

Real time tracking of ambulance is done and is then displayed in 3D geo-visualization on the plug-in free web browser. For tracking, the ambulance has a phone whose operating system is Android and an application is developed and stored in it which sends the latitude and longitude information after every 5 to 8 seconds, which is again customizable according to the user's requirement. This information is stored in the database and is used for tracking purpose and height profile is added with the use of cartoDEM of the area, which is done by pre-processing the



cartoDEM which can then be used by openwebglobe. The height profile gives EMRS can monitor the last current location of all the relief vehicles, it can view vehicles in a group as well and in case of any fault in the vehicle it can be communicated to nearby en-route vehicle for the backup.

Emergency can be reported to the relief Centre via a call or a text message. This EMRS can also work as a control Centre with a common dialing number and all the calls or messages will be served with EMRS. The location or buffer of location where relief and rescue is required will be displayed on the computer's browser in relief Centre.

#### This location can be identified by -

Use of GPS service – If the caller has enabled GPS facility in his/her cellular phone then the location within the accuracy of 5m which will be displayed on the computer screen

Intimating about emergency through call – A person when intimating about the emergency will also inform about the location. The accuracy of this location depends upon the precision with which information is shared.

Information extraction through the text message which informs about the emergency and its location – A person can inform about emergency even through a text message stating the type of emergency and the location in which the emergency has occurred. In this the accuracy depends upon the precision of location provided in the text message. Information for the keyword and landmark identification will be retrieved from the text message using natural language processing. The identified landmark will be then displayed on the browser.

#### **4.4 SHORTEST DISTANCE**

A rescue and response plan is provided which includes the shortest possible route from the relief Centre to the emergency spot. This shortest route is calculated on the basis of time required to travel from one point to another, type of traffic allowed on the road (one-way or both-way), the width and elevation of the road. We have provided weight on the basis of elevation of the road, curvature of the road and the traffic density present in the road at the given time. Elevation and curvature information was stored into the database and was used from there but the traffic information is dynamic and changes after every few minutes. This real time data can be collected by sensors and passed into the database for further processing. The weight was calculated by taking average of the DEM value on the starting and ending point of the road, this weight was



then stored into the database. Just after the emergency the victims will be transferred to nearest hospital for first aid and from there they can be shifted to multispecialty hospital for further treatment. For this we have modified the code to take the input from the user and using Common Gateway Interface (CGI) module we read the input check the condition if the specialty matches otherwise refer to the nearest multispecialty hospital.

#### 4.5 VEHICLE TRACKING

For tracking of vehicle, geo-location of the device is required. We can get latitude/longitude by using GPS. Android phone/tablet receives the GPS signals from the satellite and sends the information to the server via GPRS packet after a predefined time interval. The information sent is namely location, timestamp and IMEI number. The server program then inserts this information into the database for further processing and then display on the web interface. The interface displays the location of vehicle and it can be combined with other information if required.



#### Figure 5: DFD for vehicle tracking

#### 4.6. 3D VISUALIZATION

3D visualization is done. It helps build 3D application in browser. This process uses WebGL which enables the applications to run on the browser without any plug-in. We can use different



types of data with it like elevation data, 3D objects, image files etc. It has two components, one is to visualize the data on the web interface and other one is to pre-process the data.

## 4.7 INTIMATION ABOUT THE EMERGENCY

A user can intimate about emergency by either giving a call or sending a text message. User can intimate using any regular service provider. If the user is giving call, the operator can receive the call and fill in the details about emergency in a form. The operator will fill the name of person calling, contact number, place of emergency, kind of emergency and the status of people caught in emergency; these values are then stored into the database and from there the further processing starts.

When a user is intimating via a text message, he or she will send the text stating about the emergency and the message then will be updated into the database, a toponym data model for information extraction system will work on it, it will then find the location of emergency and will relay this information for further use.

#### **5. PRODUCT TECHNOLOGY OVERVIEW**

- 1. Notifies you when you are about to reach your destination
- 2. Displays remaining distance and ETA In case of S.O.S. alerts and send your current location to your emergency contacts
- 3. To raise emergency during SMS
- 4. Warns you in case you over speed. Notifies you when you are about to reach your destination
- 5. Allows you to make call to the nearest police station and to your emergency contacts even without Internet usage
- 6. To raise emergency via email covering each and every detailed distances covered complete log maintained
- 7. Heuristically determines and warns you in case there is too much deviation in your route
- 8. E-mail the respective Emergency Contacts along with the detailed journey logs
- 9. No Ad & Free of cost

#### 6. COMPETITOR LANDSCAPE

1. As of now such safety features are available in popular names; however in our case we are making sponsored free app as a right for all travelers.

- 2. So we will be in more generic mode rather than driving our self in specific customer base mode.
- 3. For Neonex Technology, Safety comes as the first priority for end users.

## 7. MONETIZATION FUNDAMENTALS WITHOUT ADS

- 1. Launching free version with Zero tolerance advertisement activity.
- 2. Open to tie up with the Educational institutes, Food Industry, Event Managements,
- 3. NGO's, Social Security & Women welfare departments, Civil Services Zone etc.

## 8. FUTURE SCOPE

- 1. Development of iOS counterpart.
- 2. Also other features will be while traveling one can also view nearby news, latest news, events, weather report, something interesting to read while travelling, places to eat nearby, share location status in WhatsApp besides current SOS text messaging features.
- 3. We have also started work on Pro version of Android app which will have extra features tailored for particular organization which will include Live Tracking feature. Also it will include Cabs' Roaster generation process which will depict which cab's driver picks particular employee which is generally done via manual method.
- 4. Language Connect
- 5. Security Agencies
- **6.** Employability of right drivers and guides

## 9. FREQUENTLY ASKED QUESTIONS

#### 1. How to design a geo-RDBMS for static and dynamic data?

A geo-RDBMS was designed which had static as well as dynamic data. The static data was created which included Road Network, Hospital locations, Landmark location, Police Station, Fire Station. The road network is a complete road network that is, it contains roads, nodes, junction and information about the roads as well (whether it is one-way or bidirectional, if there is any flyover etc.).The dynamic data was received through the android application and this was stored in database in another table which is adding row every time a geo-location is sent to it. This table contains the geo-location received, unique ID of the device (here we are IMEI number) and the time at which location was sent. The database had some tables whose values are constant

GIANJYOTI Institute of Management and Technology Aspire. Achieve. Ascend

that is not changing frequently and some tables were updated continuously as the location of their related device (vehicle) changes.

#### 2. How can we visualize real time tracking in a 3-D environment?

Real time tracking means tracking while the vehicle is moving. For this an Android application was developed which will send the geo-location within every 5-10 seconds and this will be automatically pushed into the database, from which on-the-fly KML will be generated to be displayed on the browser. For 3D environment, a virtual globe was used and data was pre-processed.

# 3. What will be the methodology and designing technique behind Emergency Response System?

For developing the methodology we have referred to the literature and have had meetings with the people working in 108. We reviewed on what is already available for us to use and what is the requirement emergency response team is having, and what is the shortcoming in already available data/software as per the requirements. Instead of "re-inventing the wheel" we decided to use the already existing open source solutions in order to achieve our goal. The technique raises two main questions, which are answered below.

#### 4. How will emergency be reported to the relief Centre?

Emergency can be reported via a call or text message. For reporting emergency through call, a call can be made and the person receiving calls can fill in the details manually. While intimating through text message an Android application has been developed which will send the geolocation of the person sending the text message. If the device user doesn't have the option of android device, they can send the message stating the location and kind of emergency from which information can be extracted.

#### 5. What will be the different steps in planning of rescue and response plan?

According to the literature, the most important thing in planning a response to any emergency is that we should always try to confine the emergency in terms of loss be it animal, property, lives or household. We should also take care that the rescuers does not become the secondary victims there. A timely response should also be provided. The various steps under this are finding the emergency location, providing the shortest route to the relief team, gathering knowledge about the emergency that is what is the scale of emergency, what kind of emergency is it, dispatching the relief vehicles and intimating hospitals about it. This included finding out the shortest route, with and without considering the elevation, which was developed in python language using A\* algorithm and Smart terrain algorithm, the result was then displayed over the browser. A buffer (geozone) option was used, so as to find out all the facilities near the affected area.

#### **10. LIMITATIONS AND RECOMMENDATIONS**

Based on the study the following recommendations are made.

- 1. Development of a framework for applications without internet: Presently the software is dependent on telephone network and internet connectivity, but there are times during disaster when there is no communication facility. Focus should be given on developing something for the scenario that is offline data can be collected by using the alternative method. A backup plan can also be prepared in advanced and can be used if there is no internet connectivity.
- 2. Level of Detail: To improve the details in the different regions and providing with indoor tracking and navigation for better quality and precision.
- 3. Taking more towards 3D visualization: For better visualization and understanding, we can try taking LBS towards 3D.
- 4. Improving the precision and accuracy of CartoDEM: vertical and horizontal accuracy of the CartoDEM can be improved by taking many GCP points while creating the DEM from two cartosat images. This improved accuracy will be of much help in hilly terrain especially in search and rescue operations of flood, landslide or earthquake.
- 5. The Android application secure messages can be further improved to display the name of place into the map as destination and user's present location as source and then the shortest route can be displayed using Google direction API.
- 6. The application can also be extended to another operating system platform like IOS or Windows. This application can install into all the devices by the manufacturers themselves. We can aware the users to install the application.
- 7. An IVR system can be integrated with the EMRS to record and accept emergency calls automatically.
- 8. EMRS can monitor the internet media for information for emergency news to initiate the response rather instead of waiting for the intimation.

## **11. COUNTING PERSONAL EXPERIENCE**

I was using this app while travelling from Noida to Gurugram late night. I was by auto and noticed the character of the driver a bit fuzzy. A friend of mine suggested this app to me. Although I had some experience with such kind of apps and to be frank I am not a fan of their work. They are all more or less of the same type. They work for some time, then suddenly you are off the grid somehow and whether you will return back on the coordinated is left for fate to decide. Also the SOS service is not very good. Sometimes the message reaches sometimes not, and sometimes no coordinates are sent in the message. I always thought it will still take some more time to build an app that's both effective and accurate. But to my surprise JauntBee was very different. I was not sent off the grid even once and I even sent an SOS to my boyfriend just to check and he called at once and told the location was also in the massage. What I liked the most was this app even calls the nearest police station if you need to. My overall experience with JauntBee was very satisfactory and I recommend it to every late night commuter to use it.

#### **11.1 AS A TRAVELLING GUIDE**

As a travel guide it's my responsibility to keep my tourists safe at all times. Usually it's not a problem but sometimes I do get a little worried at night when some of my customers want a detour. In such cases generally two groups are formed which want to go to different places and I can be personally present at one. So in such cases I recommend the other group to use some navigation apps and stay in touch with me at all times. But since I have started using JauntBee I have to say I am relieved to an extent. The best part about JauntBee is that besides always showing you your location on the app its message service is also impeccable. Messages are sent at one with the exact locations which is extremely helpful. This makes my job less stressful and makes me more relaxed. I advise this app to all the travellers and tourists out there to always use it while your journey, believe me it's very relaxing to know that someone will reach to help you as soon as you need it. I also recommend it to females who have late office hours or need to go out late night due to some emergency.

## **11.2 AS A DEVELOPER**

As an app developer I didn't expect much of JauntBee when I first saw it. I know how tough it is to create an app like this. There are many variables to work on. And the internet connectivity is always a critical issue and to include a message service is no joke either. To my surprise the developers of this app have done a marvellous job. They not only solved the issues I cited above

but solved them to the most precise way possible. I was amazed to see that not even a single time my location on the app went absurd and during my complete trip the navigation shown was as accurate as possible. Also the way the developers have handled the message service is also unparalleled. Messages were sent at once without any lag and error but also with the exact locations which is appreciable. I recommend this app to everyone out there to use this app whenever you feel like. It is something you can depend on and believe me you will love it.

#### **REFERENCES:**

[1] Rauschert, I., Agrawal, P., Sharma, R., Fuhrmann, S., Brewer, I., & MacEachren, A. (2002a). Designing a human-centered, multimodal GIS interface to support emergency management. In, Proceedings of the 10th ACM international symposium on Advances in geographic information systems (pp. 119-124): ACM

[2] Rauschert, I., Sharma, R., Fuhrmann, S., Brewer, I., & MacEachren, A. (2002b). Approaching a new multimodal GIS-interface. In, Proceeding of the 2nd International Conference on GIS (GIScience), CO, USA

[3] Rocha, A., Cestnik, B., & Oliveira, M.A. (2005).Interoperable geographic information services to support crisis management. Springer

[4] Roller, S., Speriosu, M., Rallapalli, S., Wing, B., &Baldridge, J. (2012). Supervised textbased geolocation using language models on an adaptive grid. In, Proceedings of the 2012Joint Conference on Empirical Methods in Natural Language Processing and Computational Natural Language Learning (pp. 1500-1510). Jeju Island, Korea: Association for Computational Linguistics

[5] Schafer, W.A., Carroll, J.M., Haynes, S.R., &Abrams, S. (2008). Emergency management planning as collaborative community work. Journal of Homeland Security and Emergency Management, 5

[6] Schiller, J., & Voisard, A. (2004).Location-based services. Elsevier

[7] Steiniger, S., Neun, M., &Edwardes, A. (2006). Foundations of location based services. Lecture Notes on LBS, 1, 272

[8] Tan, H. (2010). Design and Implementation of Vehicle Monitoring System Based on GSM/GIS/GPS. In, Information Technology and Computer Science (ITCS), 2010 Second International Conference on (pp. 413-416): IEEE

[9] Cutter, S.L. (2003). GI Science, disasters, and emergency management. Transactions in GIS, 7, 439-446



[10] Devillers, O., & Pion, S. (2003). Efficient Exact Geometric Predicates for Delauny Triangulations. In, ALENEX (pp. 37-44)

[11] Douglas, D.H. (1994). Least-cost path in GIS using an accumulated cost surface and slope lines. Cartographica: the international journal for Geographic Information and Geovisualization, 31, 37-51

[12] Edwardes, A.J. (2007). Re-placing Location: Geographic Perspectives in LocationBased Services. In: Citeseer

[13] F. Wanga, J.W.L. (2008). TOWARDS 3D LBS - CHALLENGES AND OPPORTUNITIES. The International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences, Vol. XXXVII.

[14] J. (2012). Information extraction from text. Mining Text Data (pp. 11-41): Springer Jungert, E., Hallberg, N., & Hunstad, A. (2006). A service-based command and control systems architecture for crisis management. International Journal of Emergency Management, 3, 131-148

[15] Junglas, I.A., & Watson, R.T. (2008). Location-based services. Communications of the ACM, 51, 65-69

[16] Kevany, M.J. (2003). GIS in the World Trade Center attack—trial by fire. Computers, Environment and Urban Systems, 27, 571-583

[17] Kwan, M.-P., & Lee, J. (2005). Emergency response after 9/11: the potential of real-time3D GIS for quick emergency response in micro-spatial environments. Computers,Environment and Urban Systems, 29, 93-113

[18] Laurent, A.M.S. (2004). Understanding open source and free software licensing." O'Reilly Media, Inc."

[19] Leidner, J. (2008). Toponym resolution in text: Annotation, evaluation and applications of spatial grounding of place names. Universal-Publishers.com

[20] Leidner, J.L. (2004). Toponym resolution in text: "Which Sheffield is it?" In, Proceedings of the 27th annual international ACM SIGIR conference (SIGIR 2004) (p. 602): Citeseer

[21] Loesch, B., Christen, M., & Nebiker, S. (2012). OpenWebGlobe-an open source SDK for creating large-scale virtual globes on a WebGL basis. In, International Archives of the Photogrammetry Remote Sensing and Spatial Information Sciences XXII ISPRS Congress