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INCIDENT MAPPING AND EAS USING DECISION SUPPORT SYSTEM

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ABSTRACT

In traditional emergency alerting system (EAS), we have to inform the emergency team manually by calling them. Even though there are some applications for emergency alert which is time consuming to recover the accident. To overcomethese difficulties in our system we are developing a mobile application which will send an alert to emergency team directly by uploading the photos taken at the accident scene. Use of Online source, our application will automatically identify the incident location using GPS from the user mobile. Then the emergency team will take decision to rescue the accident place by analyzing the data which will be stored in database. To extract the relevant data using the concept called data mining. After making decision by the emergency team, they will pass the information to the nearby emergency service like Ambulance, Fire service, Police service, etc. Because of this system, time consuming is less than the other systems, User friendly, motivate the public to help society. The system views in both table form as well as the map form of the process. This system takes the advantage of the Social media to help the public by passing the information among society.

Keywords: GIS, data mining, decision making, mobile application, emergency alert system.

INTRODUCTION

Online social networking [1] has ended up a standout amongst the most popular routes for the general population to network, offer data, or advance user produced content. The public now depends on social media sites such as whatsapp, hike to communicate during an emergency. Most of the public use social media to make announcements or respond to public concerns during natural catastrophe. It's additionally vital that administration perceives the advantages that online networking in mobile [14] can offers in terms of emergency signal. Official information can be repeated again and again, broadening an agency's reach. 2-way communication allows responders to collect intelligence and measure sentiment. Responders can use social media to look eyewitness reports, photos and videos, as well as description of the incident in a text format. So the mobile phones [7] are very much useful to pass the information during disaster.

There are motivations to trust that the utility of geographic Information System (GIS) for crisis danger and disaster administration will grow as spatial databases turn out to be generally accessible, the expense of programming is less and as risk managers procure GIS ability. It is additionally comparative that GIS use will create past mapping, towards a wealthier use of its spatial informative eligibilities. Invariably, hazard supervisors will likewise require access to DSS Tools that allow them to administer and appreciate the snared method for regular catastrophe. It is likely that GIS-based danger and disaster administration will turn into a component of a nation and neighbourhood crisis hazard administration methodology. This paper investigates the application and combination of GIS in moving objects [11] for tempest surge hazard administration and decision making.

Notwithstanding a distinction of other regular disaster hazard administration targets, for example, testing vehicle reaction times, transportation foundations and assessing calamity arranges, the situation planned to evaluate the utility of GIS for continuous danger conclusion making. An outcome from situation perceptions and post-situation interviews with introduction, oversees call attention to the inconveniences of this innovation for ongoing applications, and fiasco administration specifically. The exploration, in any case, shows that constant disaster uses of GIS have particular needs which are fundamentally unique in relation to long term procedure of choice making for catastrophe salvage arranging. These prerequisites are investigated in point of interest as the lessons instruct might be important for other calamity administration arranging using GIS.

SYSTEM ARCHITECTURE

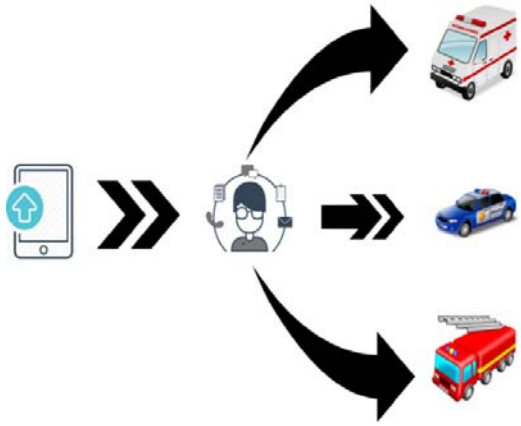

Figure-1. Architecture of proposed system.

Here, in the above architecture diagram the user who is having the android application is clicking the picture of the incident and the picture is sent. The data sent is checked by an administrator one whom allocates the type of accident that is happened. Then the request is sent to the rescue system where the administrator decides the

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type of rescue and the intimation is sent to the respective system i.e. ambulance, fire engine.

The above diagram Figure-1 explains the proposed system clearly. The step by step process involves both User as well as an Emergency team.1) The user can take photos or record videos, then the user can upload what the user saw about the incident place. 2) The information sent by user will reach the emergency team. 3) then the decision manager analyze the information and take decision.4) emergency team passes this information to the nearby emergency service which can reach the incident location to rescue the situation by data mining. The nearby Emergency services are determined by filtering [5] from the database using latitude and longitude. 5) then the emergency service handle the situation to recover the problem issue.

PROCESS INVOLVED IN PROPOSED SYSTEM

a) Capture image or video

- This module performs the operation to catch the emergency incident
- This module is designed in the home page of the app
- On clicking in any one button, it takes us either to capture image or to record video of the incidents
- Once it is done, it will be shown in slide view

b) Location identification

- It locates the latitude longitude coordinates, to make identification for the Admin to provide the service much better
- Since by locating latitude longitude coordinates, the mobile is no need to give the entire address of the incidence where it is happening and time could be saved

c) Emergency team decision

- Based on the request send by mobile user, the admin identifies the location by matching [6] the user's location with system's map view to get the exact distance [13].
- And judge what type of incident is happening and points it to the corresponding services
- Using latitude longitude coordinates, the admin identifies the location
- Then decision manager will take the correct decision to recover the situation by finding the nearby emergency service.

d) Emergency service

- Once the nearby emergency service has been found, the decision manager will send the information which is sent by user to that particular emergency service along with the incident location
- Using latitude and longitude for GPS Tracking [2],[16] the location can be identified by the decision manager in the map view [4].
- After getting the information from the Emergency team, the emergency service will determine the strength of location
- According to the strength, Emergency service will handle the situation with the proper teamwork

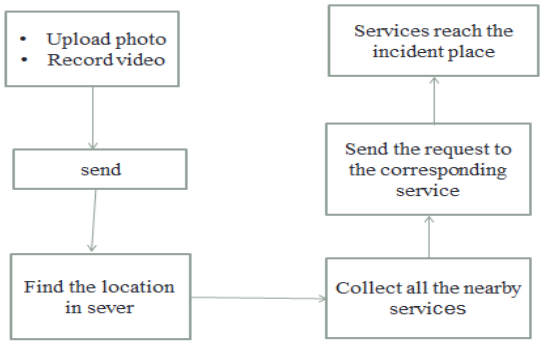

Figure-2. Process of proposed system.

From the above diagram, we have the information about incident place (location, type of incident)In Server, We have two types of view that is Table view and Map view [3]. We can identify the location by using map view as well as table view. Once the location is identified, Decision manager will send the request to the corresponding Emergency Service to recover the incident place. Emergency service such as ambulance, Fire service, Police service, etc., all must be connected with the emergency team system via network.

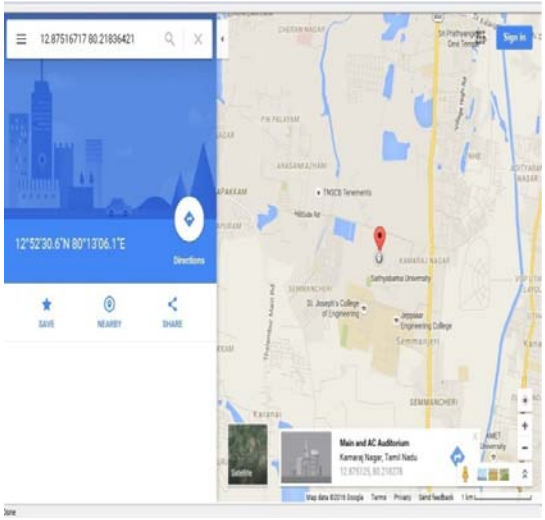

Figure-3. Overview of the emergency decision system.

In database, all the data about Emergency services will be stored. We need to collect all types of emergency service location for a particular area shown in Figure-4. So that we can request the services to rescue the situation during emergency disaster by the location which shown in the map view of decision manager system. Then the decision manager uses the database to select a particular nearby emergency service to reach that incident location.

BACKGROUND AND RELATED WORKS

GPS Tracks

Rectangle method

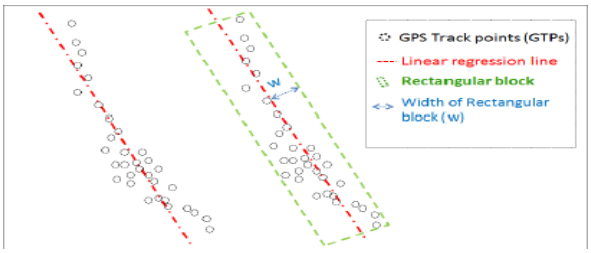

Figure-4. The centerline of a rectangular block.

The above diagram explains the GPS measurement [8] tracks. Rectangle method is started once the GTP reached to the block. Then it waits for the next GTP. The First Received GTP called as a CGTP. After receiving all the GTPs inside the rectangle block, calculate the centerline. Check whether any of the GTP is received outside of the border. If any of the GTP is in outside, considering the second last is the last GTP for the current Rectangle block. Then it is considered as a CGTP. The GTP is considered as a new first GTP for next Rectangle Block. Then calculate the centerline for a old rectangle block to get the GPS.We can also track the location using Online GPS tracks [12].

SYSTEM BENEFITS

The data entryway offers the following profit for responders: 1) System is Cloud-based, fine-to-use and non-resource intensive, 2) Provides responders with tools to quickly collect and sort thousands of social media messages, 3) Provides data in map [9] and tabular template, 4) Allows multiple agencies to efficiently share information using mobile computing[10] during a regional natural catastrophe, 5) Allows new users to be trained in a few hours, 6) Adds potentially 1000s of eyewitnesses during an evacuation. The mobile app offers the following profit for the public: 1) Permits clients to conceivably spare lives with advanced cell, tablet or laptop 2) Keeps the group safer by showing anything that looks dangerous or suspicious, 3) Increases the effectiveness of emergency answerer by acting as their "eyes on the Spot" 4) Allows the public to feel helpful and quick reaction instead of feeling helpless during an evacuation, 5) Trains public users on how to stop and respond to emergencies. Moreover it encourages public to help the society, motivate them to make helping mind, support for social service

CONCLUSIONS

It identifies the latitude and longitude co-ordinates, to make identification of the location for the decision manager to provide the service much better. Since by locating latitude and longitude co-ordinates, the mobile user is no need to give the entire address of the incidence where it is happening and time could be saved.

Based on the request sent by mobile user, the admin identifies the location and judge what type of incident happening and points it to the corresponding Service. The decision manager can analyze the process by either map view or by table format.

The main concept in this system is, the user can upload either photo or video or description about incident using our mobile application. No other work is there for user after uploading the information. Using latitude and longitude of the location the decision manager will identify the location in the map view. This information which is received from the user then send to the nearby emergency service which is extracted from the database or table format. Then the team will rescue the situation.

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