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GPS based Method for Natural Disaster Management

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ABSTRACT: Natural Disasters have subverted mankind since history started. Because of geographic region and climate change, there are numerous powerless nations to normal disasters. The nations also need strong calamity readiness outline work to confront natural disaster. Also, a tourist might confront difficulties in finding safe region or shelter place before the event of natural disasters. Consequently, we have proposed a disaster management system and flight structure for individuals using Google Map (GM). The structure is executed on android wireless taking into account the growing advancement of mobile phones in world. Android device with our application presented on it and user. User can enlist the numerous beneficiary or relative or companions to send SMS at a chance to send notice for offer assistance. By sending the present position obtained by GPS and including most short method of sanctuary or safe zone on the aide of the application.

KEYWORDS: Disaster Management, GPS, Earth Quake, Google Map and MYSQL.

I. INTRODUCTION

Natural Disaster is the result of customary perils, for instance, twister, storm, tornado, tsunami, surge, etc. This world has authoritatively watched the dreadful strategy for nature which has taken an enormous number of lives. The 2011 Japan quake and tsunami, the 2010 Haiti seismic quake, the 2008 vicious breeze Nargis, the 2004 Indian Ocean Tsunami, the 1991 Bangladesh tornado are some recurring pattern cases of deadliest typical calamities. Characteristic risks generally end up with catastrophes where the important regions are defenseless. The report of United Nation's International Strategy for Disaster Reduction (UNISDR) on Mortality Risk Index (MRI) positions the Bangladesh no. 1 among 200 nations most at danger from tremors, surges, tropical twisters, and avalanches[1]. Since in world there are the larger part of the normal catastrophe slanted nation, so evasion is fundamental for safeguarding lives and properties. To a great extent individuals may be unconscious about the exceptional typical risks. Absence of knowledge of individuals causes the genuine damage in the midst of fiasco[4]. Thusly, sufficient prior catastrophe alerted and strong clearing system can spare significant number of lives in the nation leaned to incessant debacles. One more comer or a guest in a specific zone might go up against the issue in discovering safe locale from his present stay in the midst of catastrophe. From this time forward, we have expected a region construct catastrophe structure with respect to phones using Google Map which is generally used to messages on the aide. Google Map (GM) is a rapidly creating open source guide of the world as a result of the accessibility of guide information over the world and the methodology of ease advantageous GPS gadgets.

The request of region based administrations is likewise growing step by step with the blossoming improvement of cutting edge cell phones. Our region based system is likewise an android stage based progressed cell phone application to deliver region based administrations demonstrating the notification of anticipated debacles (tsunami, tornado, and surge, etc.) assuming the client is in the possible catastrophe affected territory or close to that district and showing closest safe zone or sanctuaries on the aide of the application. Our proposed structure is created for the common individuals. The ease of use of Google Map (GM) is ensured for all clients as it is free [10]. Clients of our application will send instant message along the bearing on the manual for no less than one relative which number client



enlist in that application. Whatever is left of the paper is composed as takes later. We discuss some connected works and their inadequacies in short. By then we present the depiction of our proposed region based structure. Structure usage subtle elements are portrayed. We have discussed the preliminary result. Finally, we finish up this paper expressing the future plan.

II. LITERATURE REVIEW

Natural Disaster Monitor (Developed by Dominic 925): This Android application gives you continuous overhauls on any overall normal catastrophes like earthquake, tsunami, twister, floods, and fountain of liquid magma eruptions on the scenery of a Google earth map. The application makes use of the alarms distributed by the Global Disaster Alert and Coordination System (GDACS), a cooperative movement of the United Nations Office for coordination if Humanitarian Affairs (OCHA) and the European Commission [5]. The application demonstrates symbols on the aide with hues green, orange and red, each showing the seriousness of the cataclysm. On tapping the symbols, the drop down list indicates date and time, district, fiasco sort and other related subtle elements.

FiascoAlert (Developed by PDC-Pacific Disaster Center): This application brags of 'Dynamic Hazards', an instinctive aide which indicates continuous cautions assembled from conclusive sources with points of interest, for instance, expected dangers to individuals, property or resources through PDC Disaster AWARE application. The application covers overall Earthquake, surges, Tsunami, Volcano, Storm, Marine and, surprisingly, synthetic calamities. The association says the promising redesign will consolidate crazy fire cautions too.

Storm Tracker (Developed by WSI-Weather Service Global Corporation): This application makes use of the NOWrad (National Operational Weather radar) which gives one of the most outstanding determination cloud symbolism with shading codes. It likewise gives 10-day gauges with both step by step and hourly subtle elements. Clients can likewise bolt their #1 areas to monitor the area. Tsunami Alert (Developed Palta Software): This application is sure to help individuals living along the ocean front lines crosswise over Pacific and Indian Ocean, who saw the substantial scale destruction by the 2004 Tsunami. The essential feature of the application is that a client will get continuous overhauls from US government guaranteed NOAA (National Maritime and Atmospheric Administration) Tsunami forewarning focuses in at normal intervals. It will likewise give insights about the zone affected, area of earth quake and also give tips on the most capable strategy to respond to moving toward risk.

In Tsunami Alert application, the client will have the choice to choose 5 guideline locales one US and Canada, Pacific, Hawaii, Indian Ocean and Caribbean Sea [4]. ubAlert-Disaster Alert (Developed by ubAlert): This application is made by interpersonal association site ubAlert, which accumulates checked records of everybody who were show at ground zero and saw the ordinary fiasco preceding any media association declared it. When the individual educates a cataclysm in his/her territory, the system will affirm the news with numerous sources so that there is no degree for false frenzy.

Individuals can transfer pictures and recordings of the occasion from the application to interpersonal organizations like Facebook and Twitter and wariness. Overall failure caution and coordination structure: Fiasco response partners GDACS is a joint effort system under the United Nations umbrella. It incorporates fiasco supervisors and catastrophe information frameworks overall and goes for filling the information and coordination fissure in the essential stage after genuine calamities. Unsurprising information of unsurprising quality at an unsurprising time GDACS is an of existing failure information administration applications.

III. RESEARCH METHODOLOGY

The disaster management comprises of four focal steps, for instance, alleviation, readiness, response, and recovery. Among these means, the emphasis of our work is the readiness which is the improvement of a system for the action plan of fiascos. The environmental area of Bangladesh, a South Asian nation, organized as it is between the Himalayas and the sea, on the delta of wide waterways, implies that the nation is very defenseless against flooding. Everybody of



ocean front territories in Bangladesh need to face a couple of tempests consistently also, cultivable grounds vanish in stream because of stream disintegration. Bangladesh is furthermore a standout amongst the most defenseless nations to the planet's atmosphere changes. Ecological change is making a creating number of brutal winds, and incomprehensibly, there is a more serious risk of drought, too.

The nation is furthermore encompassed by the Bay of Bengal which is definitely north-eastern piece of Indian Ocean and can go after the nation, especially the ocean front belt sternly. Thus, there is likewise the risk of Tidal wave in this nation. Anyway, our fiasco readiness structure secures everybody of this nation from these calamities and utilizations Google Map (GM) considering the way that the headway of GM is very speedy. It is focused on engaging the turn of events, improvement and dispersion of free geospatial data and to giving geospatial data to anyone to use and share [3]. Google Map is one of the tasks using their made aide of the numerous nations. This proposed work is also realized on android convenient telephones.

Android is a functioning system for mobile phones for instance, PDAs and tablet PCs made by Open Handset Alliance drove by Google. Android is more open and exhaustive than other convenient working frameworks. Thusly, it is the smash hit PDA stage all over the planet. It furthermore permits the designers, distant administrators and handset maker to make new applications and items at lower cost. The result is more individual and more wise experience to the clients. Thusly, the android convenient stage has been used as a piece of our proposed disaster readiness system. Our proposed region based disaster readiness system comprises of a GPS maintained android phones with our proposed application presented on it and clients having national id. The client of our proposed android application can likewise enlist the amount of relatives, relative, companions to send message for offer assistance. Through system supplier or GPS supplier, wireless gets the ongoing region of its client and sends it to select part by the client in its application. Using this present position. The client of our proposed application message. Our application gets the present position through GPS or arrange supplier from the client mobile phone send the scope and longitude of client's present position. Exactly when the client in a disaster zone, it will impart something specific admonition alongside way to the part who can help in this message client send instant message and method for pursuing assistance. The way contain the separation from accomplice to the client. The separation can be given with the assistance of Google Map to demonstrate the separation by stroll, by railroad or by transport. Right when the client in a catastrophe zone, it will send a substance message.

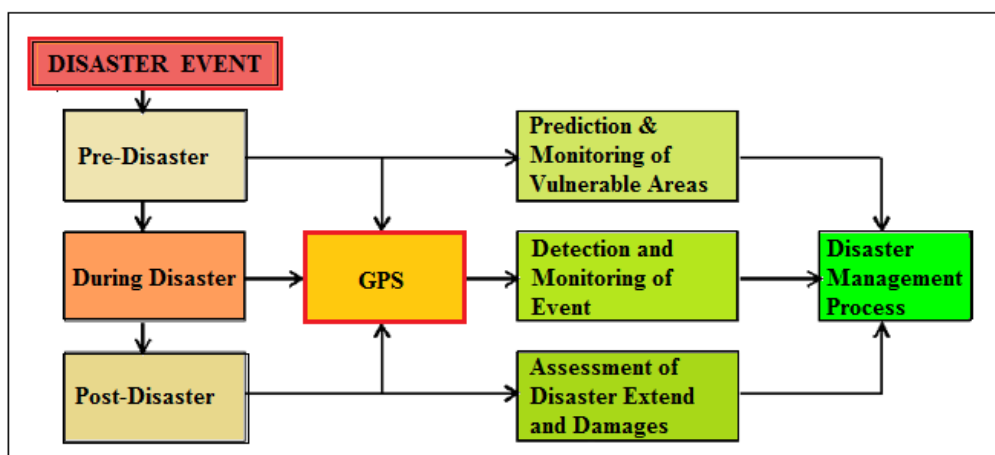


Figure.1 Disaster Management using GPS

We have proposed an area based early disaster cautioning and departure system on cell phones. Our system comprises a server named Disaster Alert and Evacuation System (DAES). The administrator updates the disaster (tsunami, twister or flood) information on DAES. Device user registers on Android Cloud to Device Messaging (C2DM) server to get automatic notice of impending disaster otherwise user gets manual warning. The user

communicates with DAES to have refreshed information sending the ongoing position acquired by GPS. Whenever our application recognizes the user in likely disaster zone then application will send push warning about the disaster and departure guidelines remembering shortest way of the safe zone for the map of the application. The plausible disaster impacted not entirely set in stone by Google Map.

IV. RESULTS AND DISCUSSIONS

User interface design or, user interface designing is a design of appliances, machines, versatile specialized devices, software applications, and websites with the focus on the user's insight and communication. The objective of user interface design is to make the user's cooperation as simple and productive as possible, in terms of accomplishing user goals — what is many times called user-focused design. Great user interface design facilitates finishing the current task without causing unnecessary to notice it. Visual computerization might be used to support its usability. The design process must adjust specialized usefulness and visual elements (e.g., mental model) to make a system that is functional as well as usable and versatile to changing user needs. Interface design is engaged with a wide scope of projects from PC systems, to cars, to business planes; these projects include a large part of the same basic human interactions yet also require some interesting skills and information. As a result, designers will more often than not specialize in that frame of mind of projects and have skills revolved around their expertise, whether that be software design, user research, website architecture, or industrial design.

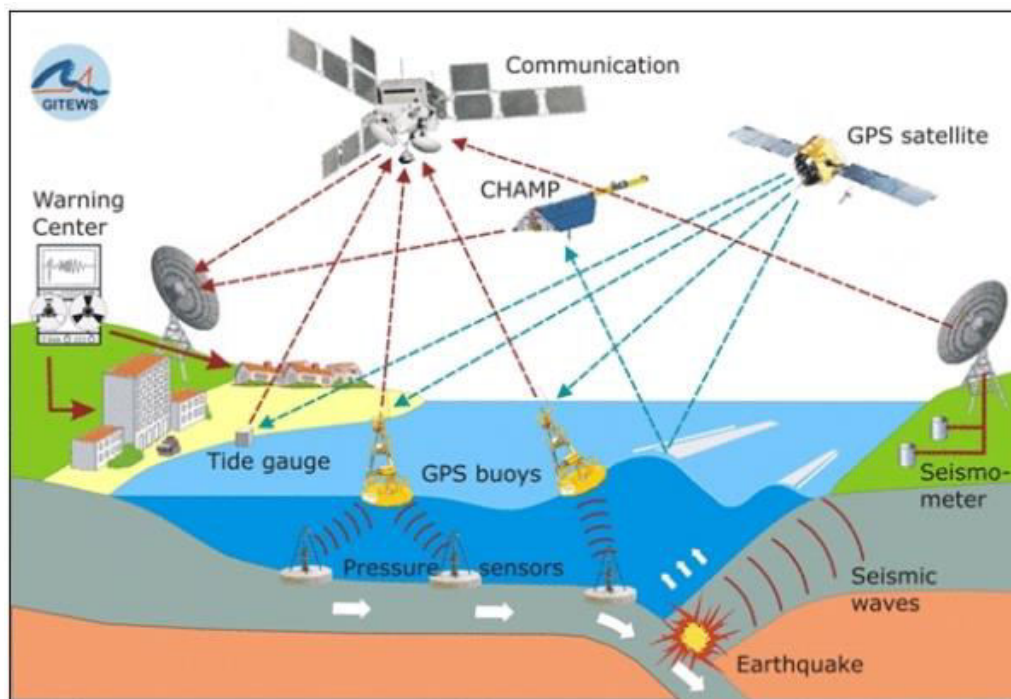


Figure.2 Disaster Monitoring Process

V. CONCLUSIONS

Any system which has been being used for various years step by step decays and becomes less viable because of the adjustment of climate to which has to adjust for a period. It is possible to beat problems by amendments and minor modifications to recognize the need of basic changes. Computerization was proposed as a solution to the issue of being obsolete with the faster present technologies. In this venture, our point is to augment the work to automate it in like manner that meet the whole user needs. The programming climate involves Android as the front end and MYSQL as the backend. The software has been successfully carried out and has been viewed as working productively. It is a lot of user agreeable and similarly agreeable to work. The objective of our undertaking is to create and carry out an area



based service for disaster departure routes. Based on the position of the cell phone the system provides an ongoing computation for an escape course out of the peril zone. The idea is executed for a test region. This objective is accomplished successfully and this application can be easily installed in an android empowered system and it work productively.

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