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Bootstrapping smart cities through a self-security model for the user

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Abstract - *A 'smart city' is also a 'Safe city' which must enhance city performance on safety and security for citizens to thrive as a city. A 'Safe' city is a pre-requisite to create an attractive economic and social environment for the citizens. With the integration of smart citizen-centric services with the safety and security infrastructure, the city would be able to ensure sustainability and social economic growth. The simplest thanks to minimize your probabilities of changing into a victim of violent crime (robbery, sex offense, rape and domestic violence) is to spot and invoke resources to assist you out of the dangerous things. The application proposed in this paper can help users to achieve safety and security to a greater extent.*

Keywords- *GPS, Location Android.*

I. INTRODUCTION

In today's world many unfortunate incidents and road accidents are taking place in and around our society with child safety, teenagers, disabled or old male/female due to rapid urbanization as a result of increasing population and urban migration. Road accidents are quite common as a result of significant traffic growth due to increase in the number of vehicles on the road and unsafe driving by immature drivers, also individuals are more frequently getting targeted for violent attacks whenever they are alone. In most cases it's while walking on the silent not so crowded streets during late nights, or just while strolling alone in the park for a breath of fresh air. Family members are uncertain and feel concerned about the personal safety of their dear ones while commuting. In few of the metro cities of India the crime rate against women has been on a gradual rise as per the Crime Report. Hence in order to tackle these kinds of day to day issues, I am presenting the "I-Safety" mobile application which is an integrated approach to manage the safety and security of the individual. The "I-Safety" application in emergency will collaborate with multiple established government and/or private agencies like the Police department, Fire department, hospitals/nursing homes, child safety/women safety NGOS along with friends/families via a static message which will be triggered when the user double taps the screen of the device in use. This will facilitate fast service to the person in need and eliminates the time spent communicating the required information to the service agencies regarding the location of the fatal accident. Thus the I-Safety application aims at reducing the severe loss as a result of injury and morbidity in accidents to an excellent extent.

II. PROPOSED SYSTEM

The proposed I-Safety application needs tapping on the mobile screen to auto generate two messages with same information, one to alert the nearest available police station and second to the five registered emergency family/friends saved in square measure contacts list. The auto generated message will have status text like "Need urgent help" or " I'm in emergency" along with the accidental spots geo location (i.e. the GPS longitude & latitude coordinates) which by law will first mandatorily be sent to the nearest police station and then to the five listed emergency contacts who ever would be available near the accidental spot. The police station on receiving the longitude and latitude information will plot the location on the map. After plotting the location the police authority based on the severity & criticality will order the nearest required service providing agency (Hospital/nursing home, Fire department, child/women safety, CBI etc.) to provide the necessary service on exact accident location. After both the messages are sent a peculiar sound will be generated in the destination device alerting the elite contacts (police station and five square measure contacts) that the user of the application is in peril. By installing the I-Safety application on the user mobile device, will provide the required confidence while commuting to both the individual and their families and friends. The proposed application aims at reducing the severe loss as a result of injury and morbidity in accidents to an excellent extent. It will also minimize the need of evidence to register a FIR.

III. METHODOLOGY

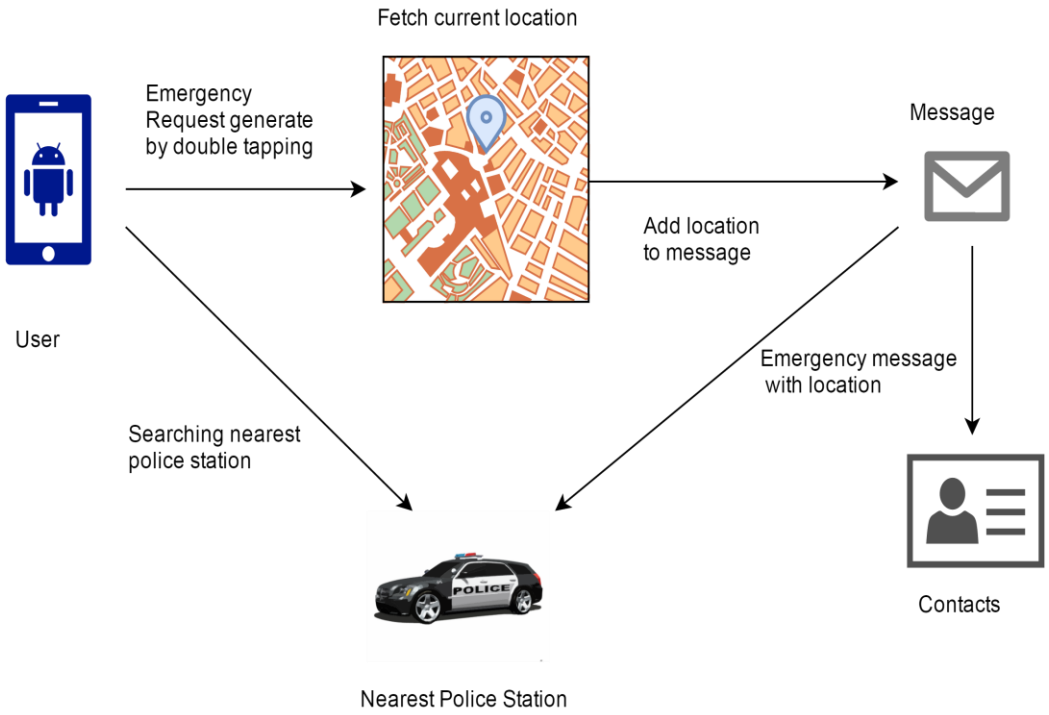

Fig 1: Architecture diagram of proposed system

This system can works once the user double faucet on the screen of the automaton phone. Once a user is in emergency, at that point he/she needs to double faucet on the phone then system can generate the message and send it to the saved contacts mechanically. The contacts that square measure saved within the system, it's going to be relatives or of friends. System can mechanically compose the message. It contains the emergency message and current location of that user conjointly. At purpose} same are going to be happen however the message can send to the police that is nearer thereto user at that incident point. In planned system with the sound on a screen, individuals will alert elite contacts that the person is in peril and share the placement. With this personal safety app, you will ne'er walk alone!! There may well be a scenario during which have you ever to travel alone an extended distance at associate degree odd hour and maybe even by transport and will face some danger. At such a time, a private safety app may not solely be wise have quick access to, it would conjointly provide you with plenty of abundant required confidence. The private safety application needs the name and variety of the one that is to be contacted in times of emergency. Users will add multiple individuals within the emergency contacts list. These square measure those that can receive notifications or SMS just in case of associate degree emergency with his/her current location. Once the screen is tapped, the individuals within the emergency contacts can get a message like: I'm in emergency; followed by another message that has the precise or approximate GPS location of that user.

3.1. Third-Party Provider Solutions

In the past few years, a big range of third-parties providing to deliver alert messages (and different info services) via text electronic messaging services. The design of those systems is comparatively straightforward. Whether or not activated through an online interface, directly from a phone, or as software system running on a field administrator's laptop, these services act as SMS aggregators and inject text messages into the network. Within the event of Associate in Nursing emergency message is shipped to the service center from the victim or footer mobile.

3.1.1. Short Message Service

Short Message Service (SMS) could be a text electronic communication service element of phone, web, or mobile communication systems, exploitation standardized communications protocols that enable the exchange of short text messages between fastened line and itinerant devices. SMS text electronic communication is that the most generally used knowledge application within the world, with 3.6 billion active users, or seventy eight of all itinerant subscribers. The term SMS is employed as an equivalent word for all sorts of short text electronic communication in addition because the user activity itself in several components of the globe. Straightforward user generated text message services - embrace

news, sport, financial, language and placement primarily based services, in addition as several early samples of mobile commerce like stocks and share costs, mobile banking facilities and leisure booking services. SMS has used on fashionable handsets originated from radio telegraphy in radio memoranda pagers exploitation standardized phone protocols and later outlined as a part of the world System for Mobile Communications (GSM) series of standards in 1985] as a method of causing messages of up to one hundred sixty characters, to and from GSM mobile handsets. Since then, support for the service has dilated to incorporate alternative mobile technologies like ANSI CDMA networks and Digital AMPS, in addition as satellite and land line networks. Most SMS messages ar mobile-to-mobile text messages although the quality supports alternative styles of broadcast electronic communication in addition.

3.1.2. GSM Technology

GSM could be a cellular network, which implies that cellphones connect with it by checking out cells within the immediate neighborhood. There square measure five completely different cell sizes in an exceedingly GSM network. The coverage space of every cell varies per the implementation atmosphere. Indoor coverage is additionally supported by GSM. GSM uses many crypto logical algorithms for security. A convenient facility of the GSM network is that the short message service. The Short Message Service – purpose to purpose (SMS-PP) was originally outlined in GSM recommendation that is currently maintained in 3GPP as TS twenty three.040. GSM 03.41 (now 3GPP TS twenty three.041) defines the Short Message Service – Cell Broadcast (SMS-CB), that permits messages (advertising, public data, etc.) to be broadcast to any or all mobile users in an exceedingly nominal geographic region. Messages square measure sent to a brief message service center (SMSC) that provides a "store and forward" mechanism. It makes an attempt to send messages to the SMSC's recipients. If the subscriber's mobile unit is power-driven off or has left the coverage space, the message is hold on and offered back to the subscriber once the mobile is power-driven on or has reentered the coverage space of the network. This operate ensures that the message are going to be received.

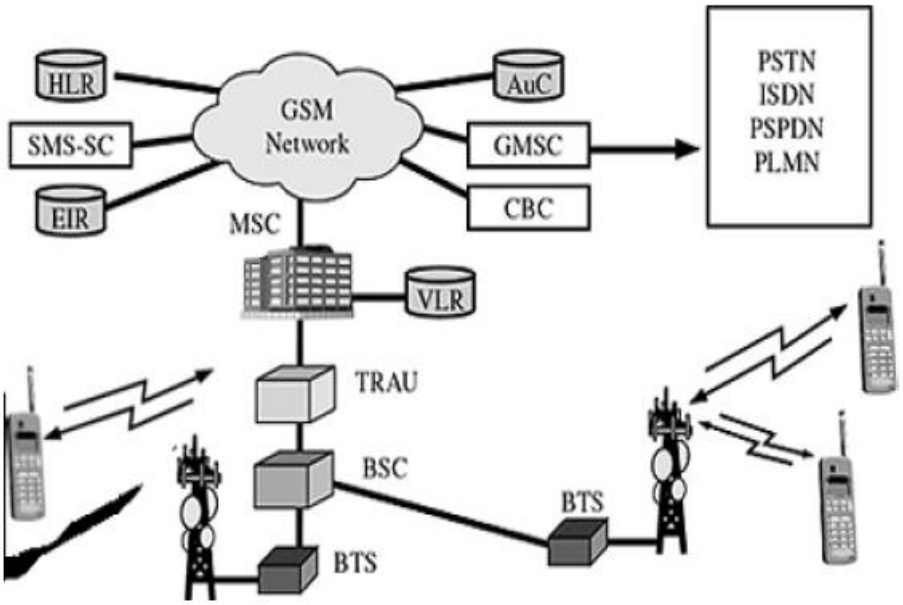

Fig 2: GSM Network along with SMSC

Both mobile terminated (MT, for messages sent to a mobile handset) and mobile originating (MO, for those sent from the mobile handset) operations are supported. In Message delivery, delay or complete loss of a message is uncommon, typically affecting less than 5% of messages.

3.1.3. GPS Technology

The Global Positioning System (GPS), additionally referred to as Navstar, could be a world navigation satellite system (GNSS) that has location and time data altogether climatic conditions, anyplace on or close to the planet wherever there's associate degree unobstructed line of sight to four or a lot of GPS satellites. The GPS system operates severally of any telecommunication or web reception, though' these technologies will enhance the utility of the GPS positioning data. The GPS system provides essential positioning capabilities to military, civil, and industrial users round the world. The US government created the system, maintains it, and makes it freely accessible to anyone with a GPS receiver. The GPS

conception is predicated on time and also the celebrated position of specialized satellites. The satellites carry terribly stable atomic clocks that square measure synchronized with each other and to ground clocks. Any drift from true time maintained on the bottom is corrected daily. Likewise, the satellite locations square measure celebrated with nice exactness. GPS receivers have clocks as well; but, they're typically not synchronized with true time, and square measure less stable. GPS satellites ceaselessly transmit their current time and position. A GPS receiver monitors multiple satellites and solves equations to see the precise position of the receiver and its deviation from true time. At a minimum, four satellites should be visible of the receiver for it to work out four unknown quantities (three position coordinates and clock deviation from satellite time).

IV. CONCLUSION

The planned emergency alert system is aimed to scale back the time needed by the rescue team to succeed in the accident space. The message is distributed through application put in in mobile. Even the affected person will inform concerning the accident mistreatment the planned system. It uses GPS to send the latitude and meridian price of an area from that the messages is distributed. The latitude and meridian is received by the closest police headquarters and private contacts wherever the accident materialized. The acknowledgement is distributed from the near police headquarters to the victim that reduces the panic within the person. There's neither any maintenance nor any service needed for this method. Since messages will be sent even with low signals, it reduces any technical drawback.

REFERENCES

[1] Daniel Adkins, Karthik Lakshminarayanan, Adrian Perrig, and Ion Stoica. Taming IP packet flooding attacks. In Proceedings of Workshop on Hot Topics in Networks (HotNets-II), November 2003

[2] Patrick Traynor, "Characterizing the Security implications of Third-Party Emergency Alert Systems over Cellular Text Messaging Services" , IEEE / Trans. on Mobile Computing, vol. 11, no. 6, June 2012

[3] "Technical Realization of the Short Message Service (SMS),"Technical Report 3GPP TS 03.40 v7.5.0. 3rd Generation Partner-ship Project, 2002.

[4] "Analysis of the Short Message Service (SMS) and Cell Broadcast Service (CBS) for Emergency Messaging Applications; Emergency Messaging; SMS and CBS," Technical Report ETSI TR 102 444 V1.1.1. European Telecomm. Standards Inst., 2006.

[5] P. Bosch, L. Samuel, S. Mullender, P. Polakos, G. Rittenhouse, G., "Flat Cellular (UMTS) Networks," Wireless Communications and Networking Conference, 2007.WCNC 2007. IEEE

[6] R. Doverspike and A. Gerber, "Traffic Types and Growth in Backbone Networks," in Proc. of OFC/NFOEC, Invited Paper, 2011

[7] Jochen Schiller, Mobile Communications, II Edition, Addison Wesley

[8] Lu, W., Giordano, S. (2001) „Challenges in Mobile Ad Hoc Networking," collection of articles, IEEE Communications Magazine, 39(6).

[9] Campbell, A., Gomez, J., Kim, S., Valko, A., Wan, C.- Y., Turanyi, Z. (2000) „Design, implementation and evaluation of Cellular IP," IEEE Personal Communications, 7(4).

[10] Location management in cellular networks. In I. Stojmenovic (Ed.), Handbook of wireless networks and mobile computing (pp. 24–49). New York: John Wiley & Sons.

[11] Lin, Y.-D., & Hsu, Y.-C. (2000). Multihop cellular: A new architecture for wireless communications. Proceedings of IEEE INFOCOM.

[12] T.S.Ueng, Z.D.Tsai, J.C.Chang (2007) "SMS alert system AT NSRRC",Taiwan. Proceedings of PAC07, New Mexico, USA.

[13] Nilesh Agarwal, Leena Chandran-Wadia, Varsha Apte "Capacity Analysis of the GSM Short Message Service" Indian Institute of Technology Bombay.

[14] Report of the Fourth World Conference on Women. New York, United Nations, 1995 (A/CONF.177/20/Rev.1) (http://www.un.org/womenwatch/confer/beijing/reports/, accessed 1 April 2013).

[15]. World Health Organization, "Global and regional estimates of violence against women: prevalence and health effects of intimate partner violence and non-partner sexual violence, Geneva: World Health Organization (2013).

[16]. http://www.mappsafe.com/blog-1-feb-14-three-reasons-why-mobile-technology-will-reduce-violence-against-women

[17]. Nicole Westmarland, Mariann Hardey, et al. "Protecting Women‟s Safety? The use of smartphone „apps‟ in relation to domestic and sexual violence‟, Durham University, Durham centre for research into violence and abuse (2013).

[18]. Mason, C and Shoshana Magnet, "Surveillance studies and violence against women", surveillance & society 10(2):105 – 118 (2012).

[19]. Justine A. Dunlap, Intimate Terrorism and Technology: There's an App for That, 7 U. Mass. L. Rev. 10 (2012).

[20]. Elliott, J. and McCartan K. The Reality of Trafficked People‟s Access to Technology. The Journal of Criminal Law 77(3): 255-273(2013).

[21]. Dimond, J.P., Fiesler, C. and Bruckman, A.S. Domestic violence and information communication technologies, Interacting with Computers, 23(5): 413-421(2011).

