

Advanced SOS App in Smartphone

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Abstract: The SOS application is specially designed to help the users in distress situations. The app has some special features that makes it different and give a stand out performance from the previous versions of SOS applications. The advantages in this app are that, the distress signals are more distinguished and various distresses are separated in different categories that make it easy to use. When a distress signal is selected the app will send signals to the nearest available distress response center, to the predefined contact, and an alert is send to the nearest available person who is using the same application. The alert to the nearest available person using this application is made in the form of a blip in the map of the application. The blip should be made in the different color which shows the user that the person in the blip is in emergency. The application is universally connected with other users using the same application. The app uses Cloud technology to store data and maintain the data. When we use this app in India, the Indian map has to be downloaded initially from the cloud database. For quick response and better results from the app the GPS should to be switched on and the app should be kept active always. The advanced SOS app would provide help in distress situations to its users. The app has a very easily usable graphical user interface that makes it easy to use for all the age group people. The app would need the help of many backend processes and a universal network between the distress control centers and other users of the same application.

1. INTRODUCTION

Table 1: Number of road accidents and number of persons Involved: 2002 to 2011

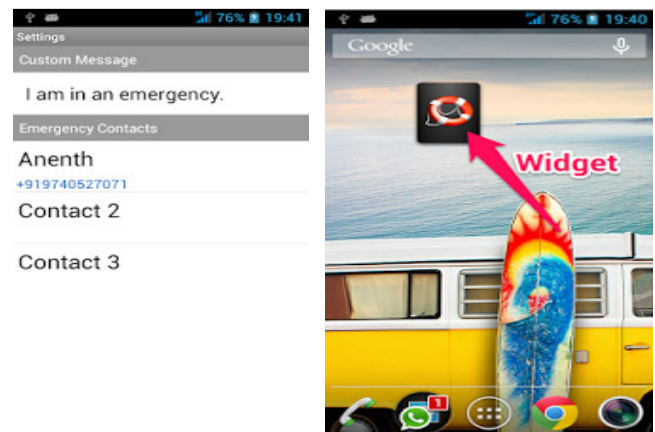
Year	Number of accidents		Number of persons		Accident severity*
	Total	Fatal	Killed	Injured	
2002	40,7497	73,650 (18.1)	84,674	4,08,711	20.8
2003	406726	73,589 (18.1)	85,998	4,35,122	21.1
2004	429910	79,357 (18.5)	92,618	4,64,521	21.5
2005	439255	83,491 (19.0)	94,968	4,65,282	21.6
2006	460920	93,917 (20.4)	1,05,749	4,96,481	22.9
2007	479216	1,01,161 (21.1)	1,14,444	5,13,340	23.9
2008	484704	1,06,591 (22.0)	1,19,860	5,23,193	24.7
2009	486384	1,10,993 (22.8)	1,25,660	5,15,458	25.8
2010	499628	1,19,558 (23.9)	1,34,513	5,27,512	26.9
2011(P)	497686	1,21,618 (24.4)	1,42,485	5,11,394	28.6

P: Provisional, Source: Information supplied by States/UTs (Police Departments), Figures within parentheses indicate share of fatal accidents to total accidents *Accident Severity: No. of Persons killed per 100 accidents

In India from 2002-2011 45% of the deaths in accident caused due to late medical attendance. This has been revealed by the World Health Organization (WHO) in its first ever Global Status Report on Road Safety. The report pointed to speeding, drunk driving and low use of helmets, seat belts, late medical attendance and child restraints in vehicles as the main contributing factors. Every hour, 40 people under the age of 25 die in road accidents around the globe. According to the WHO, the second most important cause of death is late medical attendance to the people caught in accident. There is also another problem, for example a person from India has gone for a tour on U.S.A., and the person is caught in an accident but when the person wish tcall the ambulance he/she may not know the number to call in U.S.A. Hence this application would be of a handy use in such situations.

2. THE EXISTING SOS APPLICATION:

The current SOS application in use would give an emergency call in the form of an SMS and some older versions of SOS would not have an easy to use GUI which makes it difficult for some users to use it. Even in 2013 an application named One Touch SOS was released in android which can send emergency SMS only. Some of the screenshots of this application are given here



And there are many more apps like SOS stay safe, SOS, S.O.S, Super SOS. All these applications differs in them small variations such as sending alert to two or more contacts and even to E-mail ID. But all the emergency alerts in these apps

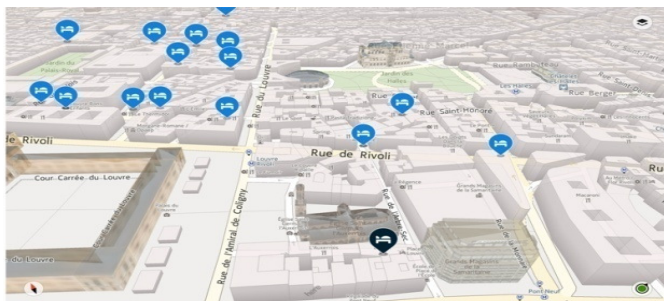
are only emergency messages. There is no guarantee of the receiver seeing the message as soon it is sent. Hence it is an important drawback in all the previous versions of SOS applications. Say for example a person had a vehicle breakdown in a lonely area without any help nearby, signal and he is using any one of the above mentioned applications. The emergency message sent would be as “I am in emergency. My location is so and so. Help me!!” But they will know about the vehicle breakdown only when the rescue team reaches the place. Thus creating a lot of time waste.

3. DRAWBACKS OF CURRENT SOS APPLICATIONS

GPS positioning is not the most accurate but is in vicinity. Only the emergency message is sent to the helper, there is no conformity of receiver seeing the message. No details of the problem the user caught up with. There is an application named Totem SOS, which provides descriptive alert. But it does not contain more details and features.

4. THE ADVANCED SOS APPLICATION

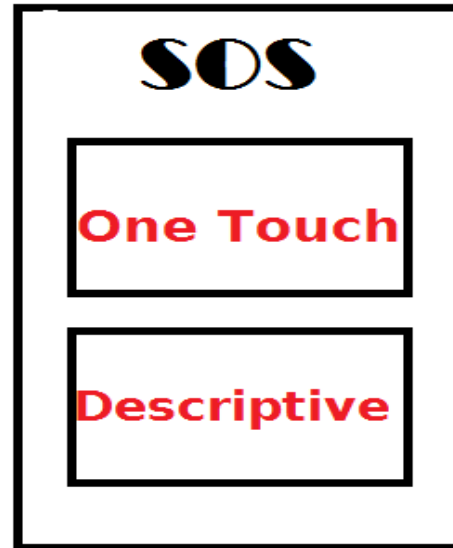
Every smart phone should have one registered version of the application which is registered on the name of the user. The details of the users should be mapped with the IMEI number of the device. One of the most important features of this application is that it does not send emergency messages instead sends predefined voice messages to the emergency response center, the predefined contact of the user and the nearest person using the same app. The alert is sent to nearest person initially because if we don't have signal the alert is sent through signal available with that person. The person who is nearby using the app will receive alerts in the



Here the black blip will indicate the location of the person in distress and the blue blips indicates the person available nearby using the same application. All the persons using the same app are all connected using the Cloud Technology in a universal server. When we buy the application from the store the application should be registered with our name any other emergency number and importantly the IMEI number of our device. Hence when we use this app using the IMEI number the emergency response center would find easily the details of the person in distress, thus making the rescue process simpler and easier. The app has simple and easily understandable GUI.

5. WORKING OF THE SOS:

The application does not request signal but needs active GPS to work. Once the application is opened the home screen appears like this



When one touch alert is selected the app sends the emergency voice call to the response center, the predefined contact, the nearest available person using the app irrespective of the problem. This is the very common method used in all the SOS application. The voice call is nothing but similar to receive the message in the form of Audio/Voice Mail. When the description based alert button is selected the screen shows various slots.

1	2	3
4	5	6
7	8	9
*	0	#

In each slot the user can prefix the required type of distress alerts. Say for example..,

- 0-Women problem
- 1-Accident
- 2-Robbery
- 3-Public Nuisance
- 4-Kidnapped
- 5-Location Lost
- 6-Vehicle Break Down

And so on..,

When a particular slot is selected the distress based alert would be sent. Say for example, when we predefine the slot 1 for accident and that particular slot is selected during the distress. Then the voice message sent will be like “I am caught

in an accident!” with the location details from GPS to the distress response center, the predefined contact and the nearest person using the application. Hence the help dispatcher would send the ambulance with accident first aid services as soon as possible. The application does not require signals to send the alert to the distress response center. They send alerts through universal satellite connectivity. But to the predefined contact it may require signal, if there is no availability of signal the alert will be sent through the signal available at the distress response center or through the signal available from the nearest available person using the same application. The application can be kept in the front end of the phone hence it does not require clear pattern every time to open the application. Once we click the lock screen button the application can be made visible.

6. OLD SOS VS. ADVANCED SOS:

OLD SOS	ADVANCED SOS
Only Emergency messages	Emergency calls
Brief Alert	Detailed Alert
Only in Android	Supported on all Platform
Requires GPRS Data	Requires only GPS

The previous version of SOS especially the One Touch SOS in android is available free of cost for download but the app charges the cost of one call for every emergency message sent and message is also not sent to any universal response center. Since this application charges for every emergency message it surely requires signal. But the new application’s major achievement is its ability to use without signal. Initially the app will be sold in the app store for a price. During the purchase the app is registered with user name, IMEI number of the device and the money paid for purchase. Hence during every emergency call made using the app the amount is deducted from the charge paid during the purchase of the application. Once the entire amount is used the application should be updated by paying purchase price again. Since the cost for call through is deducted from the users’ database the application does not require signal.

7. ADVANTAGES OF ADVANCED SOS

Unlike many applications in smart phones this application does not drain charge. The application requires only the GPS to be switched on; hence it does not drain the charge of the phone. Since we can make detailed descriptive alerts the app gets the perfect help to the user and hugely time conservative. Since the app uses a universal network it does not require the network of the service provider. The user’s registration of the app with the IMEI number makes this application unique and it helps in identifying the user quickly. When someone make fake alerts more than three times then the registration to the particular person’s application will be cancelled. Hence the

user has to pay again to register the application. This prevents the persons from misusing the application and playing with this application. The application is always reliable at every situations and locations. Since the application does not use data connection and requires only an active GPS, the app does not drain the battery.

8. CONCLUSION

Thus the advanced SOS application differs from the previously available SOS applications with variety of exclusive features and options. The advantage in this application is its quick response of perfect help, its working without internet connection with easily usable GUI, and its ability to use without data connection. The app can be further upgraded by implementing shock response, mobile theft alert, and automatic emergency alert.

REFERENCES

- [1] Developing a Location-based Mobile App to Save Heart Patients in Emergency-Durairaj Ponraj, LuoZhiqiang, AngCandy, 0649, Nanyang Polytechnic, Singapore, The Asian Conference on Education 2012, Official Conference Proceedings 2012.
- [2] **Developers, Android** basics. [Online] March 10, 2014. <http://developer.Android.com/training/index.html>.
- [3] Anind D, Jeffrey H, Eyal dL, Nigel D. Location-based services. *IEEE Pervasive Computing*, 9(1): 11-12, 2010.
- [4] One Touch SOS-Android application by Ideophone.
- [5] Providing Emergency Services in Internet Telephony Henning Schulzrinne and Knarig Arabshian, Department of Computer Science, Columbia University, New York, NY
- [6] Reverse 911, “Interactive community notification system.” <http://www.reverse911.com>.
- [7] Intelligent Wireless Solutions, “Web-enabled emergency notification.” <http://www.inwireless.com/>.
- [8] P. Castro, B. Greenstein, R. Muntz, P. Kermani, C. Bisdikian, and M. Papadopouli, “Locating application data across service discovery domains,” in *ACM/IEEE International Conference on Mobile Computing and Networking(MobiCom)*, pp. 28–42, (Rome, Italy), July 2001.
- [9] Iris A. Junglas and Richard T. Watson. Location-based services. *Communications of the ACM*, 2008; 51(3):65–69.
- [10] Anind D, Jeffrey H, Eyal dL, Nigel D. Location-based services. *IEEE Pervasive*.
- [11] Mobile location apps review. (retrieved at 2012/Nov/1 through <http://www.webmapsolutions.com/mobile-location-apps>
- [12] A VoIP Emergency Services Architecture and Prototype, Matthew Mintz-Habib, Anshuman Rawat, Henning Schulzrinne and Xiao Tao Wu, Department of Computer Science, Columbia University.
- [13] B. Rosen, “Emergency call information in the domain name system,” Draft-rosen-dns-sos-01, Internet Draft, July 2004, work in progress.
- [14] J. Lennox, “Services for Internet telephony,” Ph.D. dissertation, Department of Computer Science, Columbia University, New York, New York, 2004, pp.113-117.