A Mobile Based Women Safety Application (I Safe Apps)

Dr. Sridhar Mandapati[1], Sravya Pamidi[2], Sriharitha Ambati[3]

[1]*Associate Professor, Department of Computer Applications, R.V.R & J.C College of Engineering, Guntur, India*
[2]*Department of Computer Applications, R.V.R & J.C College of Engineering, Guntur, India*
[3]*Department of Computer Science & Engineering, R.V.R & J.C College of Engineering, Guntur, India*

Abstract: *Many unfortunate incidents have been taking place in woman's case. Problems may come from any direction such as women walking on the road after the work, going to super market or many other reasons for which they go alone. People at home are not sure of their return safely. Another factor is woman die without knowing the reason as they attend excursions and industrial trips conducted by the organizations. It happens due to attacks on woman but not suicides. In 2013 there happened an incident which is a gag rape in New Delhi in the case of 23 year old woman in bus at 9:30 PM. Another incident that has taken place at Mumbai in the case of woman who is leaving her native place after Christmas holidays has been kidnapped and killed. These are some of the problems that have taken place in the day to day life of women. In order to overcome such problems faced by women the I Safety (women security apps) mobile based application is not only necessary to use but also plays a pivotal role with android software.*

Keywords: *apps, android, mobile, safety, Women.*

I. Introduction

Ban Ki-Moon, the secretary general of United Nations stated that "There is one universal truth, applicable to all countries, cultures and communities: violence against women is never acceptable, never excusable, and never tolerable" [1]. Violence against women is a significant public health problem, as well as a fundamental violation of women's human rights [2]. There are three reasons why mobile technology will reduce violence against women in public places. They are easily accessible, crowd sourcing and affordable scalability [3]

The capital city New Delhi in 2012 arrested the attention of not only the people of the nation but also the entire world. A rape incident captured the attention of the entire human kind that occurred on 16th December 2012 at a place Munirka, a neighbourhood in south Delhi which was a fatal assault. A 23 year old woman physiotherapy (intern) was hit and molested by a gang at 9:30 PM when she was travelling in a private bus with a male counterpart. They were returning after watching the film Life of Pi in saket, south Delhi and boarded an of duty charter bus at Munirka to Dwaraka, which was driven by joy riders at that time.

The family members and colleagues of TCS software engineer Esther Anuhaya found her body with the help of a Vijayawada police team. Her parents spent the entire Thursday looking for her in Bhandup (East) as her last call signal on January 5th was from Bhandupeshwar Kund in Kanjurmarg, which falls under Bhandup (East) jurisdiction. The family had been trying to trace her where about by showing the locals her photographs. Locals said that the spot where her body was found is a hangout for criminals. The body of Anuhaya has been procured by Vijayawada police.

Another 19-year old Pharmacy student named Ayesha Miran was raped and murdered brutally by 22-year old P. Satyam Babu in a hostel at Vijayawada. A body with stab injuries was found in the bathroom on Dec 27, 2007. A letter dropped by the 'murderer' stated that the girl was raped and murdered for refusing his request for 'love'.

An 'app' is a small, specialised software program, easily downloadable and installed onto mobile devices such as Smartphone's or tablet computers. The use of 'apps' has been popularised by the Apple's 'App Store' and also by Google's 'Play Store' [4]. In this paper, some app's created to know whether a woman is safe or not? Which indicates the present state of affairs of the woman by touching the option, which also indicates the location of the endangered woman they gave a phone call, video forwarding, fake calls, and location of the person, first-aid details, and application having the instructions that is the way to use the application. The rest of the paper is organized as follows. A literature review is presented in section 2 followed by some methods and materials in section 3. The experimental setup described in section 4 followed by the results and discussions in section 5. Finally, the paper concludes with future research direction in section 6.

II. Related Research

Nicole Westmarland et al [4] discussed on protecting women's safety? The main purpose of their study is to explore the use of smartphone's in relation to domestic and sexual violence. In report [2] violence against women is a global public health problem, 35% of women worldwide have experienced either physical and/or sexual intimate partner violence or non-partner sexual violence. The report also details the effects of violence on women's reproductive and mental health. In [5] the authors seek to place questions of surveillance technologies into a theoretical framework that foregrounds the challenges that new surveillance technologies pose to anti-violence movements. Specifically they address the impact of surveillance technologies in the practice of violence and some proposed solutions, and consider the ways that surveillance technologies are used disproportionately in the criminalization of marginalized groups. By placing violence against women at the centre of analysis aim to complicate concerns related to surveillance technologies.

In [6] the author discussed that the technology is used in circumstances of intimate terrorism. It will examine how technology is used as a batterer's tool in exerting coercive control over a victim. It will also look at the changes in the laws as the legal system strives to keep pace with the rapid advancement of technology. In particular, the recent use of GPS monitoring of intimate terrorists will be analyzed. This analysis will identify some of the problems associated with the on-going legal changes. However, the same advancements may also allow perpetrators to adapt and/or escalate their offending behaviour [7]. In a US study on domestic violence and information technology, Dimond et al [8] found that users of mobiles and social networks were making trade-offs between potential harm (e.g. continued abuse) and benefit (e.g. support).

Worldwide, the sales of new smartphones are forecast to reach 700 million by 2015 [9]. In the UK, 92% of adults personally own or use a mobile phone and 39% use their mobile handset to access the internet [10]. Furthermore, 40% of UK adults own a smartphone, and tablet ownership jumped from 2% to 11% in just 12 months. Based on the advanced mobile and software capabilities, the smartphone has become a ubiquitous everyday communication device, offering access to powerful computational software that is often a multiplatform and sensor rich[11].

In the study [12] provided insight into the opportunities and challenges involved in delivering health-related behavioral interventions through smartphone apps. The findings suggested a number of valued features and characteristics that app developers may wish to consider when creating health behavior apps. Findings also highlighted several major challenges that appeared the need to further consideration and research to ensure the development of effective and well-accepted behavior change apps. In report [13] by Vodafone on Connected Women, How mobile can support women's economic and social empowerment. The use of mobiles improves the women's access to literacy, banking, health, empowerment and business opportunities.

III. Methods And Materials

There might be a situation in which the person has to travel alone a long distance at an odd hour and perhaps even by public transport and may face some danger. At such a time, a personal safety app might not only be wise to have easy access to, it might also give you a lot of confidence needed. There might be a situation that when women had an accident in the late night and there are no one to help and to take care of them. In such situations the person will not be able to tell the situation that he/she facing. And they do not know the basic first-aid details and to know the person where the incident has happened.

To escape from the un-wanted meetings we do not know the way to escape from that meeting because we do not know the fake calls working. There are no mobile applications for the person's safety, if the person is in danger the people have to make a call to his friends or relatives and have to be explaining the position and problem and generally we do not know the first aid details.

Some drawbacks in the existing system are discussed below:
- The person who is in danger (he/she) can't explain and show his/her position and situation.
- The person doesn't know the first aid details.

In proposed system with the push of one button, people can alert selected contacts that the person is in danger and share the location. With this personal safety app, you'll never walk alone!!

There might be a situation in which have you to travel alone a long distance at an odd hour and perhaps even by public transport and may face some danger. At such a time, a personal safety app might not only be wise to have easy access to, it might also give you a lot of much needed confidence.

The personal safety application requires the name and number of the person who is to be contacted in times of emergency. Users can add multiple people in the emergency contacts list. These are the people who will receive notifications or SMS in case of an emergency.

All it requires is the user's action to trigger an SOS button provided and it shoots messages as fast as the device can manage. Once the SOS button is hit, the people in the emergency contacts will get a message like: I am in an emergency; followed by another message, which has the exact or approximate GPS location of

the cell phone. The user can also make audio or video call. This app also provides necessary first-aid measures that should be taken at the time of emergency situations.

Features:

- Let the family and friends know that you are in danger and where you are? Declare an emergency whenever you sense a danger, when you can disengage the emergency.
- Provides necessary first-aid measures that should be taken at the time of some dangerous situations.
- Let your family and friends know your path to the destination.
- Creates emergency contacts that will be notified by default of all the actions you make in the application. Also display a list of detail contacts of cops, firemen, hospitals etc., nearby your location.

IV. Experimental Setup

The experiments were performed using a Intel(R) Core(TM) i3 M380@2.53GHz CPU with 4GB RAM and 80 GB hard disk, android mobile with the support of wifi. In the development of the I safety (woman security application) mobile app the software requirements are Front End is Android Application, Web Application is Servlet Java development kit 1.6.0 or above, Eclipse IDE for Android , My Eclipse IDE for java web Applications Android SDK 20.0.1 , Connective wifi router software.

V. Results And Discussion

By just touching the application from the mobile screen the options will appear and by choosing the particular options the appropriate function will take place. In Fig. 1, it is seen that the available options in the apps. By choosing the option "Add guardians" from the main screen then the screen navigates to the other screen and the other screen is having two options they are "Add from contacts", "Add new contacts" is shown in Fig. 2. If the option Add from contacts is selected then it retrieves from the phone contacts and then again it should be saved in JSON data base is shown in Fig. 3. After selecting the guardians from the phone contacts the selected mobile numbers are displayed is shown in Fig. 4 and the contact numbers are stored in the JBOS. It is nothing but memory used in the android based mobile phones. If the option Add new contacts is selected then it gives the other popup box having the text boxes to enter the contact name and contact number and it also saved in JSON database is shown in Fig. 5. The call sending is done by simply touching the option SOS from main screen then it retrieves the contacts which are saved in the JSON database is shown in Fig. 6 and it performs the action and at the same time it sends the location url of the person through the message format where she/he used this application when they are in danger is shown in Fig. 7. By just touching the location URL got from the message then it gets the location where the person is in danger by showing us in blue colour spot in the Google Map is shown in Fig. 8. By zooming the Map guardian can easily find out the accurate location of the unsafe woman is shown in Fig. 9.
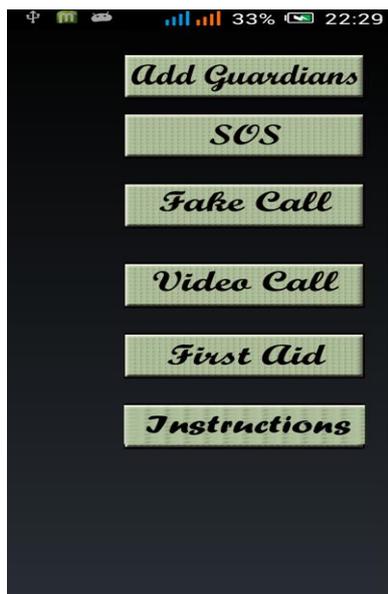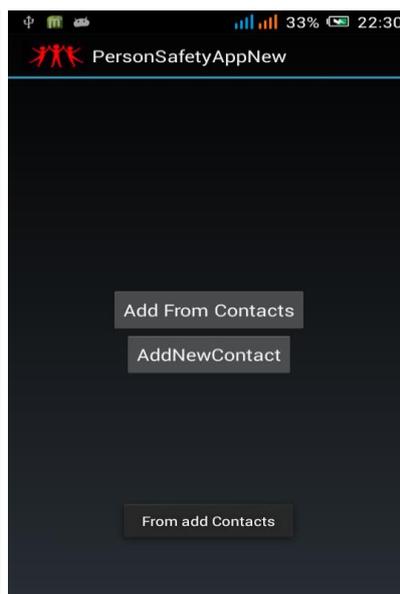

**Fig. 1:** Main Screen **Fig. 2:** Add Guardians **Fig. 3:** Select Contacts
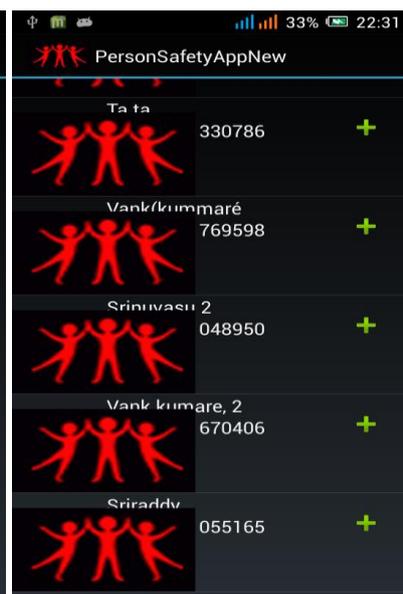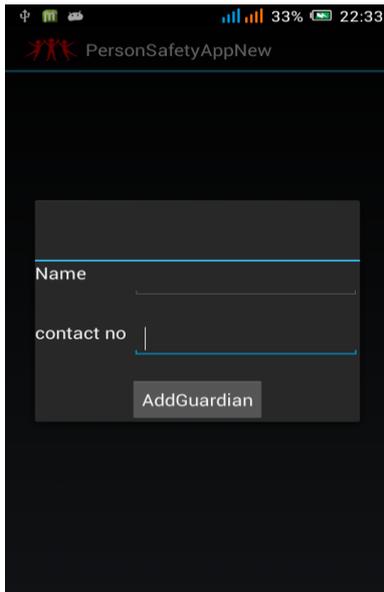
Fig. 4: Selected Guardian   **Fig. 5:** Add New Contact   **Fig. 6:** SOS
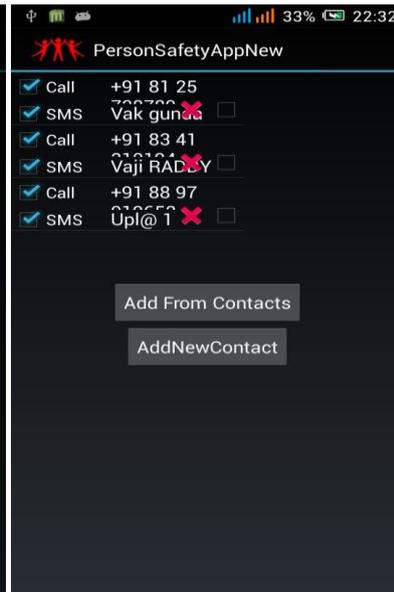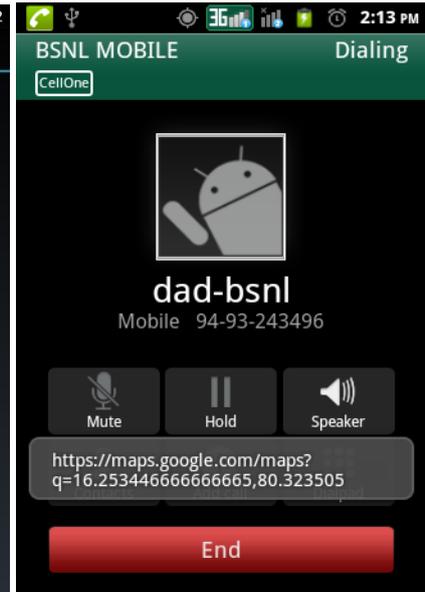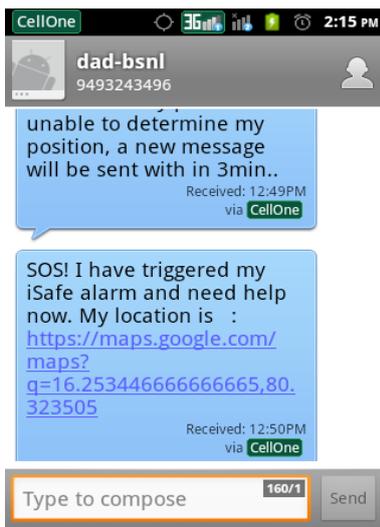

Fig. 7: Message Format   **Fig. 8:** Google Map   **Fig. 9:** Map Zooming
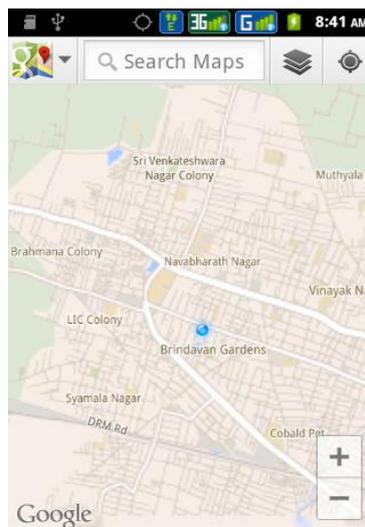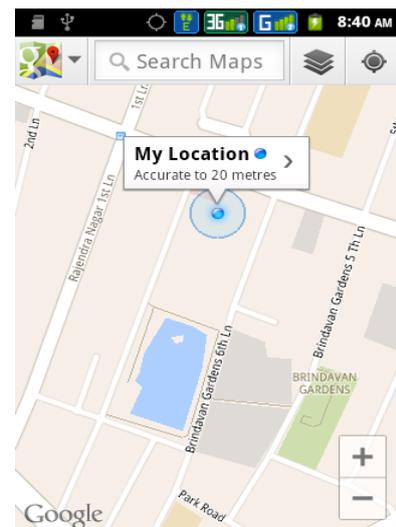
Another important option from main screen is Fake call. This option is very much helpful while the un-necessary conversations is going in between the people then to protect over self we think that if anybody calls then I can leave from this meeting. In such situations this option fake call is very much helpful. The functionality is just it gets ring tone just like getting incoming call through that person can easy to escape from the un-necessary conversations is shown in Fig. 10. When the Fake call is activated it means that a fake call is accepted then it stops the ringing and it also has another option that is Hang Up option just like call cutting is shown in Fig. 11.

There is another important option in the main screen is video call. This option gives the video of the person that he/she has taken. That is if the person is in danger position that is unable to tell the position then she/he can take the video and share via Email or Gmail shown in Fig. 12. By clicking on the First aid option from the main screen only person can know the First-aid details for various problems like unconscious and not breathing, choking, bleeding heavily, burns, heart attack, diabetes shown in Fig. 13.

If the person has touch the option to know the first aid details of unconscious and not breathing then click on that option then it navigates to the other screen shown in Fig. 14. To know the details of choking then touch on that option then it gets the information about that is shown in Fig. 15. If the person will want to know the details of bleeding and burns are shown in Fig. 16 and Fig. 17.
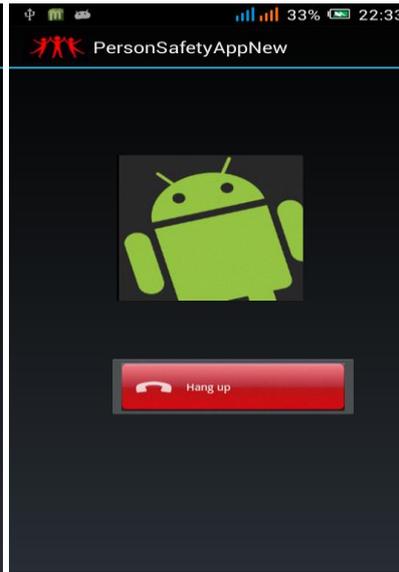
Fig. 10: Fake call   **Fig. 11:** Hang up call   **Fig. 12:** Video Call
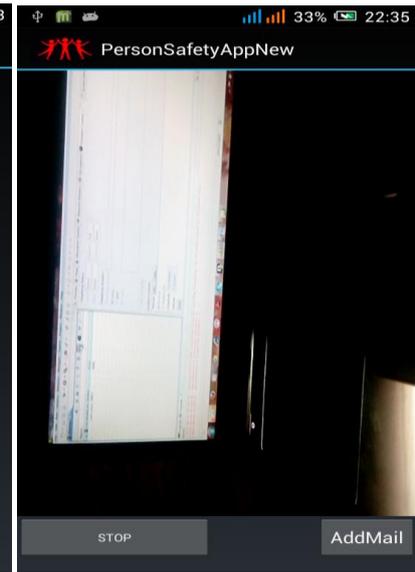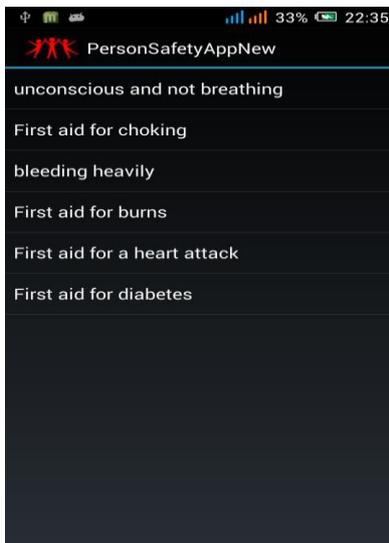

Fig. 13: First aid details   **Fig. 14:** Unconscious details   **Fig. 15:** Chocking details
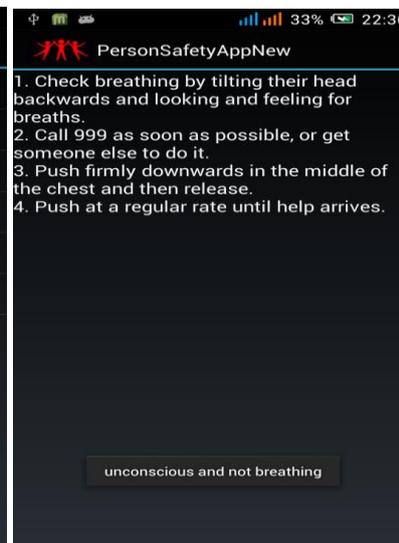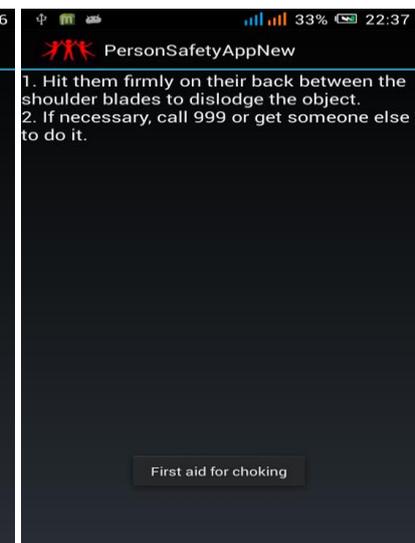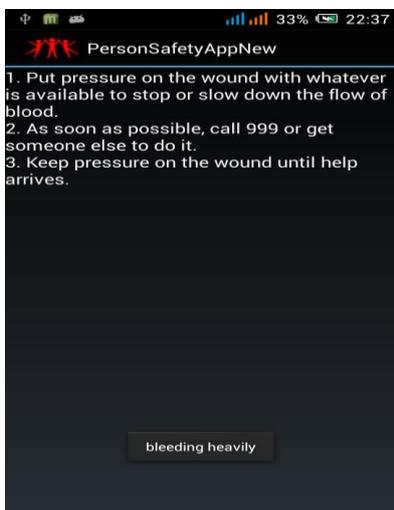

Fig. 16: Bleeding details   **Fig. 17:** Burns Details   **Fig. 18:** Heart attack details
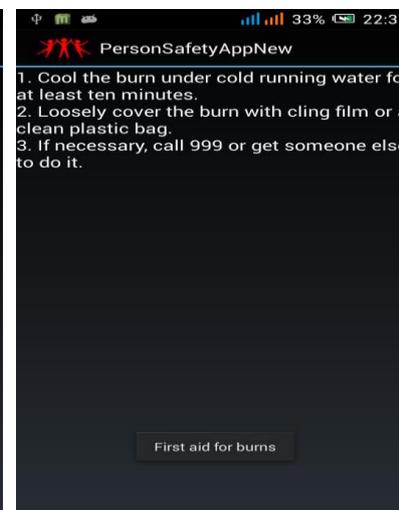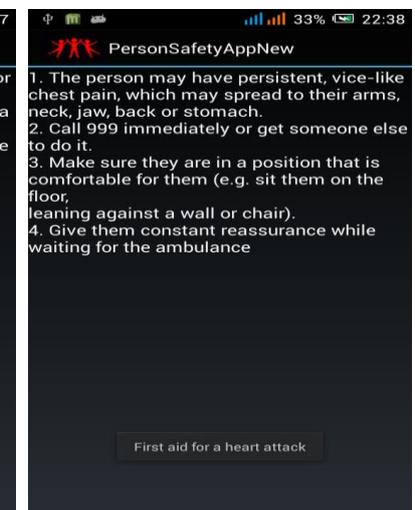
Another important problem now a day's many people face is heart attack. The people will want to know about the first aid details of Heart attack then by just touching the related option then it gets the related information which shown in Fig. 18. Now a day's most of the people are suffering from diabetes and this app also provide information regarding this problem shown in Fig. 19. This app also provides the details of instruction by touching this option from the main screen shown in Fig. 20.
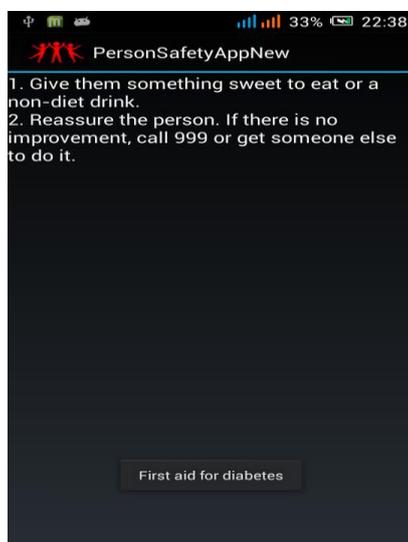
Fig. 19: Diabetes details   **Fig. 20:** Instructions
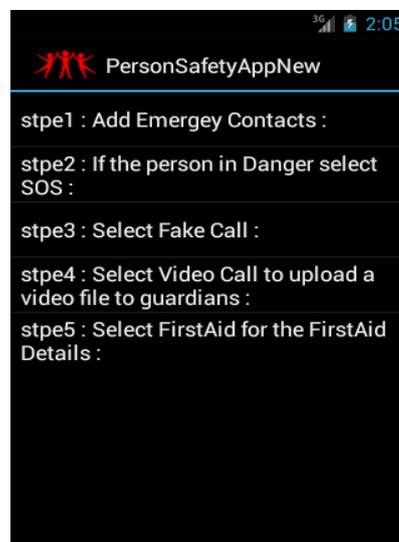
VI. Conclusion And Future Work

This mobile application is very much helpful for any woman. Because when a woman is in danger position then she simply touch this I Safety mobile app and alert their guardians that the woman is in danger. By simply touching the app it sends the call for the first added guardian number and sends the message that she was in danger and sends the location message to the all saved guardian contacts. Through this mobile app we can alert the people at home that a woman belonging to their house is safe or not.

Future Enhancements:

This mobile application is helpful in future when any problem arises in travelling or any kind of situations.

- As the technology emerges, it is possible to upgrade the system and can be adaptable to desired environment.
- Because it is based on object-oriented design, any further changes can be easily adaptable.
- Based on the future security issues, security can be improved using emerging technologies.

References

[1]. 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).

[2]. 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).

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

[4]. 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).

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

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

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

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

[9]. Portio Research. Portio research mobile factbook 2011. Chippenham, UK. Retrieved from http://www.portioresearch.com/Portio%20Research%20Ltd%20Mobile%20Factbook%202011.pdf (2011).

[10]. Ofcom. Children and Parents: Media Use and Attitudes Report (2012).

[11]. Dennison, L., Morrison, L., Conway, G., & Yardley, L. (2013).Opportunities and Challenges for Smartphone Applications in Supporting Health Behavior Change: Qualitative Study, Journal of medical Internet research, 15(4): e86.

[12]. Qualcomm Wireless ReachTM, Vital Wave, and GSMA. Transforming Women's Livelihoods Through Mobile Broadband. Report, February 2014. Available at: http://www.qualcomm.com/mwomenreport

[13]. Vodafone. "Connected Women: How mobile can support women's economic and social empowerment". Report, March, 2014.