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One Touch Alarm for Women Safety Using Mobile Application Development Technology

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Abstract: "One touch alarm for women safety" mobile application is an innovative application for the women safety and for anyone who requires assistant when in urgent situation. There has been lot of physical harassment cases rising in public places such as bus stands, railway stations, etc. There is the requirement of an advanced security system for women to provide safety measures when traveling alone in public places. This paper proposes a new model of security aiming at providing 100% safe environment for women. This paper describes" One touch alarm for women safety" application that provides combination of specialized software and a GPS device to track the location of the user sending out alerts from user mobile to selected contacts. The application will track with Global Positioning System technology of the device to find out the location of the person and the location can view on google map using internet. This application is built latest mobile application development technologies like Ionic, PHP, Bootstrap, Angular Js frameworks using Cordova plugins to provide user in effective application in their smart phone. This paper is focused to propose a model that can be used to deal with problem of women safety using a location tracking feature of the mobile device.

Index Terms **- GPS, SMS, Android, Ionic, PHP, Bootstrap, Angular JS, Cordova**

1. INTRODUCTION

Safety of the women has become a major issue these days, as there has been a sharp rise in the crime against to women. Everyday numerous incidents are reported for violence against women either physical or sexual harassment. There is an urgent need for an easy solution to prevent or minimize such events to happen in future. This paper presents an effective and alternative approach to the traditional methods of tacking such situations. This application will be used to notify friends and family members of the person if he/she is in trouble or requires help, the touch the trigger icon will send the phone location and alert using the SMS technology and location of the user can also be viewed on google maps via internet using GPS of the android device.This paper presents analysis and reviews on the principle need of smart and intelligent security system with a challenge to build such a system. The system can help the victim to get emergency help by informing friend and family and thereby reducing risk and brining assistants when needs. The uniqueness of this application is that it is highly responsive application built on latest advancement technology making it a reliable system and more effective and accurate location data available and constantly maintained and shared to selected contacts of the user.

2. TECHNICAL OVERVIEW

2.1 Ionic Framework

Free and open source application development framework, which offers a library of mobile optimized UI components, which can be used to develop fast and highly interactive application. Adaptive Styling of the framework makes it possible to run on multiple devices and platforms. It has developer friendly CLI to create, build and test an application providing scrolling on mobile up to 60 fps.

2.2 Angular Framework:

It is used with core ionic experience with the tooling and ionic supports angular version 6.0.0 or up. Angular has built-in tooling and uses typescript files which are used to trans pile code into java script which can be understand by every browser or application supported. It helps of dynamic content on the front end to be easily displayed and used when the information is changing rapidly, like location in our case.

2.3 Laravel (PHP Framework):

One of the top back end frame works is free and open source, with modular packaging system and different ways to access relational databases. Autoloading, Reverse routing, Application logic features can be helpful in develop our application. Moreover, Laravel framework has very rich set of features which are highly useful in speeding up the web development. Moreover, website which is built in Laravel is more secure and helps in preventing several web attacks.

2.4 Apache Cordova: Apache Cordova is a mobile application development framework. Apache Cordova enables software programmers to build hybrid web applications for mobile devices using CSS3, HTML5, and JavaScript, instead of relying on platform-specific APIs like those in Android, iOS, or Windows Phone. It enables wrapping up of CSS, HTML, and JavaScript code depending upon the platform of the device. apache Cordova is open source.

2.5 Cordova Plugins

In computing, a plugin is a software component that adds a specific feature to an existing computer program. It allows the application to use the native capabilities of device beyond what is available to pure webs apps.

Plugins to be used:

- Cordova plugin contact
- Cordova plugin device
- Cordova plugin geolocation
- Cordova-plugin -Ionic -web view
- Cordova plugin splash screen
- Cordova plugin whitelist
- Cordova plugin SMS
- Cordova plugin keyboard

2.5.1 Cordova plugin contact:

This plugin defines a global navigator. contacts object, which provides access to the device contacts database.

Document.addEventlistner("deviceready", onDeviceReady, false); Finction on DeciceReady () {Console.log (navigator. contacts);}

2.5.2 Cordova plugin device:

This plugin defines global device object, which describes the device's hardware and software. Although the object is in the global scope, it is not available until after the deviceready event.

Document. addEventlistner ("deviceready", onDeviceReady, false); Finction on DeciceReady (){Console.log (device. Cordova);}

2.5.3 Cordova plugin geolocation:

This plugin provides formation about the device's location, such as latitude and longitude. Common sources of location information include Global Positioning System (GPS) and location inferred from network signals such as IP address, RFID, WIFI and Bluetooth MAC addresses, and GSM/CDMA cell IDs. There is no guarantee that the API returns the device's actual location.

Document.addEventlistner("deviceready", onDeviceReady, false); Finction on DeciceReady ()
{Console.log ("navigator. Geolocation work well");}

Methods used:

- navigator. geolocation. getCurrentPosition
- navigator. geolocation. watchPosition

2.5.3.1 navigator. geolocation. getCurrentPosition:

Returns the device's current position to the geolocation Success call back with a Position object as the parameter. If there is an error, the geolocation Error call back is passed a Position Error object.

2.5.3.2 navigator. geolocation. watchPosition

Returns the device's current position when a change in position is detected. When the device retrieves a new location, the geolocation success call back executes with a position object as the parameter. If there is an error, the geolocation Error call back executes with a position Error.

2.5.4 Cordova-plugin -Ionic -web view:

This plugin uses WebView on iOS and the latest evergreen WebView on Android. Additionally, this plugin makes it easy to use HTML5 style routing that web developers expect for building single-page apps.

2.5.5 Cordova plugin splash screen:

This plugin displays and hides a splash screen while your web application is launching. Using its methods, you can also show and hide the splash screen manually.

2.5.6 Cordova plugin whitelist:

This plugin implements a whitelist policy for navigating the application WebView on Cordova 4.0Cordova plugin SMS: Plugin to operate SMS, send / list / intercept / delete / restore. Cordova plugin keyboard: This plugin provides the keyboard object which has some functions to customize and control the keyboard. It also supports the Hide Keyboard Form Accessory Bar (Boolean) and KeyboardShrinksView (Boolean) preferences in config.xml.of five years. The time series monthly data is collected on stock prices for sample firmsand relative macroeconomic variables for the period of 5 years. The data collection period is ranging from January 2010 to Dec 2014. Monthly prices of KSE -100 Index is taken from yahoo finance.

3. ARCHITECTURE MODEL:

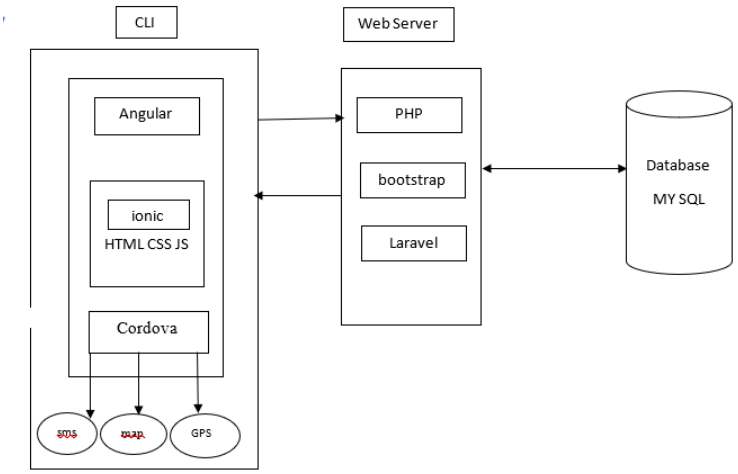

Figure.1. application architecture for application server

4. PRELIMINARIES REQUISITES

Based on analysis and examining the scope of the project the following preliminaries were decided:

- SMS is sent to the preset contacts
- live location to ten selected persons
- User device should have GPS enabled, along with others permission to app for SMS service
- Cannot work offline or without internet
- Cannot automatically make a call to selected contacts during the trigger but only sends alert and location.
- Cannot work android version 4.4

5. ALGORITHM

5.1 Authenticate User

```
If (new user) {
validate (OTP auth)
if (! ValidateApplicationCanAccess (GPS, SMS, device_details, contacts, Keyboard)) {
  updatePermissions (getusrInput, updatePermission)
   }
     } else if(re-login) {
validate (OTP auth && JWTToken)
     } else if (user_logged_in) {
while (JWTToken_Refresh) {/ /every 6 hours
validate (JWTToken);
   }
  }
}
If (Auth_success) {
storeCurrentgeoLoc = getlocation_current (latitude, longitude)
getmobiledetails (uuid, ip_address, platforms, versions)
} else {system. auth. error >HTTP 401 Unauthorized}
```

5.2 When Alert Trigger Button is initialized

```
If (DeviceReady && AlertTriggered) {
ValidateApplicationCanAccess (GPS, SMS, device_details, contacts, Keyboard)
if (GPS == enabled) {
//get the location =>latitude, latitude (updated, 60 framerates/s)
storeCurrentgeoLoc = getlocation_current (latitude, longitude). updateLoctionevery(60fps)
} else if (GPS == disabled || SMS == disabled) {
OverrideMobileSettings (GPS, SMS)
//location =>latitude, latitude (updated, 60 framerates/s)
storeCurrentgeoLoc = getlocation_current (latitude, longitude). updateLoctionevery(60fps)
}
For contacts r = 1;
Initialize alert message Queue;
while (for every= 5 minutes && AlertTriggered == true) {
push Message ()
}
while (for every = 1s, every <=AlertTriggered == true) {
shareliveLocation (storeCurrentgeoLoc, user info (), mobile details())
}
Repeat r= 2,3,4...maximum r = 10
end for loop
```

}

6. PROPOSED WORK

The development of the proposed model can be done through both software and hardware part of the user smart phone. Both of them plays a remarkable role in the process of enlarge the application. Software section can be categorized by required programming language, developing platform, integrated development environment and operating system. The realization of this application is performed by android studio, java Programming Language. The database of this application is real time database which is MYSQL. The user also requires to add contact number will be saved in the database module. All the information's will be saved in the database. We use real-time database for storing data on the online. The hardware section divided into two interrelated parts. These two parts acts as a heart of the wireless communication as well as location sharing for safety related issues. Firstly, Users have to carry out a smart phone to establish a reliable connection through GSM and GPRS module. Secondly, the user's mobile must have GPS module for tracking the location Global positioning system is a navigation and proper positioning tools that track the location based on latitude and longitude. an actual address search by GPS coder module. While GPS is disabled or GPS system will not in work, location will be sent automatically only the coordinate value of latitude or longitude.

7. FLOW CHART

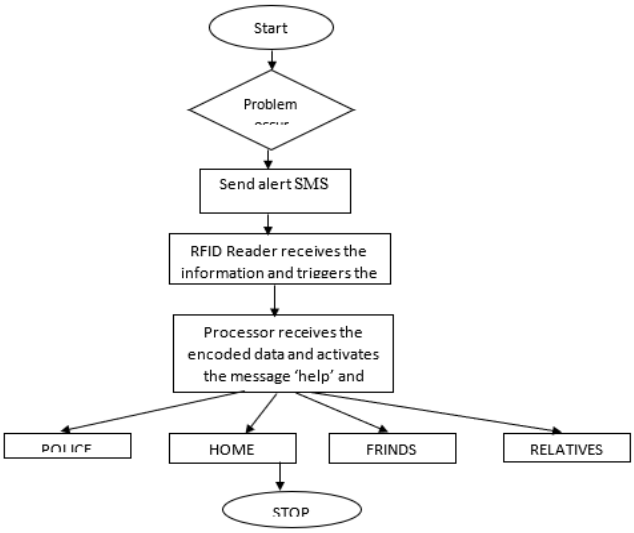

Figure 2: Flow chart diagram send alerts when trigger happens.

8. RELATED WORK ANALYSIS OF OTHER EXISTING MOBILE APPLICATIONS

Mia Md. KH, Mohammad et. al. [1] "Mobile Tracking System using Web Application and Android Apps". GPS sensor is in built in mobile phone. so that base station and satellite transmit the signals. GPS tracker help to track the location but there is extra annually cost to have gps device for mobile without gps system. The service provider charges some money while using GSM in order to identify the particular location. However, here a mobile tracking system has been developed and used without purchasing any extra devices and no paying to any service. This application is available to user for download free of cost from www.mobiletrackerbd.com and client can register without any cost. Client can track the current location of registered contact and can also see any previous location data as per date. This mobile application will help parents to monitor and track their children's mobile phone location.

Sri DS, Ahmad et. al. [2]" Location Based Service for Information Publication Using GPS On Android-Based Mobile Phone". From the previous studies conducted by Rizqi MachlizaPicture LBS, custom map has been used from personal photography and its area of service only ranges inside the campus. The map service provider, in this paper will use Google Maps and larger service area. LBS application will have advantage among others competitors from the community. Information can be exchanged based on its location between all community members. This location information is the information, for example, information about hotels, their rates, the availability of rest rooms, and other related information about the event or in a place, for example the exhibition event, which may include the date and duration of the exhibition. The given questions are expected to answer questions by LBS application like: Where is the user and what is going on here? Any nearest gas stations? simply by using a mobile device that gives such information.

Mr. Jeet et. al. [3] "Stay Safe Application". This project focuses on providing safety and security to users which includes SMS services, GPS services, location-based services and system Architecture. Most of the present applications available in the market only send a custom message or text to the registered number but not the user's location. In the given proposed and tested application, the custom message is transmitted to the phone registered numbers which includes the longitude, latitude information and the general idea of the place of the current position of the mobile user. This feature not only helps in finding the exact location of the person during safety related incident but also will help the police to trace of the location of incident easily.

D. G. Monisha, et. al. [4] "Women Safety Device and Application-FEMME". In the existing system there is no monitoring system for women/seniors when under unsafe environment, which leads to many problems for them and there is no safety mechanism to protect the girls from the misbehavior activities. In addition to that, in the existing system there is also no alert mechanism available for the girl's safety, so only option left is using manual methods. In this system, the location is sent to the group of people stored in the phone, with SOS Message using android application, which helps in tracking phone and moreover a technique of clicking the volume button is also used. The technique is, if the button is pressed one time then message alert is sent

or secondly if button is pressed for two times then message is sent with audio and thirdly if the button is pressed long time then calls to police is initiated along with message and audio.

Abhijit, et. al. [5] "All in one Intelligent Safety System for Women Security" proposes an application, in which a onetime click of SOS will send a message which contains the location and/ or audio/ video call to the desired number selected in the profile. Google Maps can be used to view the message when the location is sent from the receiver. The limitation of the devices like data storage can be overcome by storing the data onto the cloud environment. There is an also an eminent need to make such safety systems with proper standards and get them approved from government, so that evidences are treated as acceptable from these applications by the courts. New modules can always be crested to enhance the system functionality without any major changes to the entire system, although system works fine with its available functionalities too.

S. Sangeetha, et. al. [6] "APPLICATION FOR WOMEN SAFETY", location of the person is tracked via GPS and details are stored for the current location into a remote server via GPRS consecutively. Call to police or send a Short Messaging Service (SMS) to the particular subscriber code are every time available to women, and after they received the service too. Police can also get in touch later too when there is no time to make a call or SMS. There are also so number of volunteer organizations all around the world to help them in panic situation, but they could not get those alert messages from women. Location of the person will be tracked via GPS and details of the user which is the current location is stored into a remote server via GPRS, and also schedule of the person is tracked as per the schedule list which is being uploaded by the user and SMS will be sent to the relatives of the concerned person which will contain the schedule plus their current location of the concerned person at that time. So that the status of person is shared and if something is wrong, another set of option is to give a call to volunteer organizations, police or any social workers.

Ramya K1 et. al. [7], "SURVEY ON WOMEN SAFETY DEVICES". In this paper, an IoT (Internet of thing) is purposed by the author which is based on women safety device which is able to connect devices to the internet/data using specific sensors and a suitable platform. This IOT sensor is also used in the health monitoring devices to monitor/track the patient's health related condition. The status of the patient is being monitored and data is sent to the doctor and analyses are done from this data that if there is any need of treatment. In a positive note, it is highly useful for the doctors and helps in decreasing the risk in the patient's life.

R.A. Mahajan1, et. al. [8] "A SURVEY ON WOMEN'S SECURITY SYSTEM USING GPS AND GSM" In this application the security technique uses the process where the actual location tracing details and SMS, also Audio to text Transmission modules are sent. Emergency SMS is sent by system by two categories either online and offline if the victim internet availability is poor or no connectivity, in this case then they can directly transfer the offline SMS to selected emergency contact number for user. Actual location related information of victim/user number is also sent form the application to emergency contact.

Gowrishankar, et. al. [9] "SECURING WIRELESS DEVICE USING LOCTION BASED SERVICE "This very efficient mobile tracking system has been designed and developed and work properly so that user can easily use this application. Any people can track using this application in any mobile to get location at any time using this application which is free of cost and there is no need of any additional device. Testing has been done on different browsers which shows it works smoothly without any problems. Mobile applications receive GPS location and this location is stored into database, also user profile is created by web application used to track mobile phone's location.

Mr. Vaibhav A, et. al. [10] "A STUDY BASED ON WOMEN SECURITY SYSTEM". Number of women safety systems are already existing in the market but still there is not a more sophisticated system or advanced application available to provide improved safety and security options. Thus, in this paper an alternative method is proposed for women security and it may lead to a better alternative as compared to rest of the available security methods in the market. Arduino micro-controller is used to design this system and it uses shockwave generation circuit, GPS, GSM and an accelerometer for providing better security.

Pragna B R1, et. al. [11] "WOMEN SAFETY DEVICES AND APPLICATIONS". An Audio recorder, SOS message, video recorder, 4 main icons, hidden camera detector are some of features of this application. In paper the device can be developed that is more beneficial as there is added defence element into the device which is used in order to protect user at the time if the help gets delayed, as a good backup option.

Radhika, et. al. [12] "Mobile Tracking Application". In this article Radhika, Jyotshna, Purva and Meenal Android application is designed and developed that allows specifying various safety zones/areas of a user. The application is designed to runs only on a one mobile and the alert messages can be sent by application to any mobile devices.

Prof. Seema, et. al. [13] "Location Based Services on Smart Phone through the Android Application". In this article prof. Vanjire, Unmesh, Ganesh and Patil Android apps are designed with 3 modules, 1) Based on place or area, user profile is modified, 2) Using SMS, a family member can track user), 3) Nearest Friends notification or reminder option available.

Rajesh, et. al. [14] "Women Security Safety System using Artificial Intelligence". Application highly beneficial in terms of women safety which uses SMS can eradicated or minimize the safety issues happening in society. By using this application, women will be updated with the alerts about the details of unknown places which will lead to that women will be ready already/informed for any situation/event which might happen at such place.

9. COMPARISON BY FEATURES

Table 9.1: Comparison of similar mobile applications

Application Name	Features	Proposed system feature
FIGHT BACK	SOS key is the way to send the location	TRUE
GUARD	Pressing 3-time power button location automatically send to pre-set contact.	TRUE
LIFE 360	By shaking phone Location sending to trusted the contact number	TRUE
STREET SAFE	pressing button an alert massage sends to guardian	TRUE
WOMEN SAFETY	Send a location to trusted contact number by tap to button	TRUE
SAFETIPIN- COMPLETE SAFETY APP	Send a location to trusted contact number by tap to button.	TRUE
SMART24/7	Sending a location to trusted contact number by pressing to a button	TRUE
HIMMAT	Sending audio and video to the police station by pressing SOS.	TRUE

10. FUTURE SCOPE

As the technological changes or new requirement from user to enhance the functionality of product may requires new version to introduce. Although the System is complete and working efficiently, new modules which enhance the system functionality can be added without any major changes to the entire system. Among the various modules few are identified, which couldn't be included in the last increment due to time constraints. Hence, the advance technology makes the system more robust and reliable. As the new modules provide the functionality which enhance the safety. This mobile application is helpful in future when any problem arises in travelling or any kind of situations.

As the technology changes, it is possible to upgrade the system and can be adaptable to desired environment.

- Any further changes can be easily adaptable, because it is based on object-oriented design
- Based on the future security issues, security can be improved using emerging technologies.

11. CONCLUSION

This project focuses on providing security to users which includes location-based services, SMS services, GPS services and system Architecture. Throughout the development of the first phase of the project, we have learned much more new skills ranging from vital experience in working as a team and the new technologies.

In concededly it's included that this system will play an effective role for the safety of women. It would be possible to identify the criminal through this system so that women can ensure their safety. The proposed system provides the module women safety by sending the SMS through this, it's possible to sending current location to trusted number by SMS. This system provides some useful features. Very easy to SMS someone or passing current location by emergency alert.

REFERENCES

[1] Mia Md. Karimul Hoq, Mohammad Jahangir Allam, Md. Nurul Mustafa "Mobile Tracking System using Web Application and Android Apps" International Journal of Engineering Research & Technology (IJERT). ISSN: 2278-0181.

[2] Sri Desy Sawant, Ahmad Fali Okilas, M. Dieka Rachman" Location Based Service for Information Publication Using GPS On Android-Based Mobile Phone" Proceeding of International Conference on Electrical Engineering, Computer Science and Informatics (EECSI 2014), Yogyakarta, Indonesia, 20-21 August 2014.

[3] Mr. Indrajeet A. Mane1, Miss. Jyotsna R. Babar2, Miss. Snehal S. Patil3, Miss. Sarika D. Pol4 Prof. Mrs. Nikita R. Shetty4 "Stay Safe9 Application" International Research Journal of Engineering and Technology (IRJET) e-ISSN: 2395 -0056.

[4] D. G. Monisha1, M. Monisha1, G. Pavithra2 and R. Subhashini3 "Women Safety Device and Application-FEMME". Indian Journal of Science and Technology ISSN (Print): 0974-6846.

[5] Abhijit Paradkar ME Computer Engg student K. J. Somaiya college of Engg., Vidyavihar, Mumbai, India, Deepak Sharma Associate Professor, K. J. Somaiya college of Engg., Vidyavihar, Mumbai, India "All in one Intelligent Safety System for Women Security" International Journal of Computer Applications (0975 – 8887) 11, November2015.

[6] S. Sangeetha, P. Radhika PG Scholar, "Application for Women Safety" IOSR Journal of Computer Engineering (IOSR-JCE) e-ISSN: 2278-0661, p-ISSN: 2278-8727, tracking the location of the person via GPS and storing the details of the current location into a remote server via GPRS consecutively.

[7] Ramya K1 Assistant professor, Vimal T2, "SURVEY ON WOMEN SAFETY DEVICES" International Research Journal of Engineering and Technology (IRJET) e-ISSN: 2395-0056.

[8] R.A. Mahajan1, Sayali A. Lavhate2, Saya lee P. Waghmare2, Prerana K. Pingale2 "A Survey on Women's Security System Using GPS and GSM" International Journal of Innovative Research in Computer and Communication Engineering ISSN(Online): 2320-9801.

[9] Gowrishankar, R, T. Manivel "SECURING WIRELESS DEVICE USING LOCTION BASED SERVICE International Journal on Applications Information and communication engineering ISSN (Online): 2394 – 6237 December 19.

[10] Mr. Vaibhav A "A STUDY BASED ON WOMEN SECURITY SYSTEM" International Journal of Science, Engineering and Technology Research (IJSETR) ISSN: 2278 -7798. August 2017.

[11] Pragna B R1, Poojary Praveen Mahabala2, Punith N3, Sai Pranav4, Shankar Ram5, "Women Safety Devices and Applications" International Journal of Engineering Research & Technology (IJERT) ISSN: 2278-0181.

[12] Radhika Kinage, Jyotshna Kumari, Purva Zalke, Meenal Kulkarni. "Mobile Tracking Application". International Journal of Innovative Research in Science, Engineering and Technology (2013), ISSN: 2319- 8753.

[13] Prof. Seema Vanjire, Unmesh Kanchan, Ganesh Shitole, Pradnyesh Patil. "Location Based Services on Smart Phone through the Android Application". International Journal of Advanced Research in Computer and Communication Engineering (2014), ISSN: 2278-1021.

[14] Rajesh Nasare1, Aishwarya Shende2, Radhika Aparajit3, Sayali Kadukar4, Pratiksha Khachane5, Mrunal Gaurkar6 1Professor "Women Security Safety System using Artificial Intelligence". International Journal for Research in Applied Science & Engineering Technology (IJRASET) (2020) SSN: 2321-9653.