

PROJECT REPORT
WITH LITERARY SURVEY & DOCUMENTATION

SHIELD

*Submitted in partial fulfillment of
the requirements for the paper
PROJ- IT781*

Bachelor of Technology
in
Information Technology

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DECLARATION

We hereby declare that the project work being presented in the project proposal entitled **“SHIELD”** in partial fulfillment of the requirements for the award of the degree of **BACHELOR OF TECHNOLOGY IN INFORMATION TECHNOLOGY** at **(Calcutta Institute of Engineering And Management)** is an authentic work carried out under the guidance of **Ms. Srijita Paul**. The matter embodied in this project work has not been submitted elsewhere for the award of any degree of our knowledge and belief.

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ABSTRACT

As we know the usage of smartphones has increased rapidly from 3% to more than 20% in the past five years. And all smartphones have GPS built into them. So, a smartphone can be used efficiently for personal safety or various other protection purposes, especially for women. This app can be turned on by a shortcut key pressed three times in quick succession which will not only launch the app but also send an Emergency Message to the police and some emergency contacts of the user's choice. Moreover, the app would show a detailed heat map of the user's city to show the number of panic reports in an area so that the user would know to avoid that part of the city. The app would also send the user's last known location to some of the user's loved ones if the user would want to do so. Another feature of the app would be to send a tracking request at the user's request to one or more of their emergency Contacts to track the user as they are passing through an unsafe place marked on the app's map. In the future, we hope the app will also work as a key feature in the reporting of crime as the police would know immediately where the is taking place and respond almost immediately. Through this app, we not only want to ensure the safety of women on our streets but want to make sure that the crimes against them do not go unpunished. This is done by addressing the circumstances that put women in danger while on the road in today's day and age.

LITERARY SURVEY

PREVIOUS WORKS

The previous works done on the subject have been somewhat successful, some more so than others. So we have decided to do our research based on the most used and the most popular apps currently available to our society. We decided to follow some of the best available apps listed by some of the popular Newspapers or online Articles. Studying the lists we have concluded that the most used apps in our country area as listed below:-

- ***112 India***
- ***My Safetipin***
- ***Punjab Police Women Safety App***
- ***bSafe***
- ***Smart 24×7***

SURVEY ON PREVIOUS WORKS

So there are some apps already present in the market. Some of these apps we feel are not up to the mark that they should be. We would like to talk about some of them and talk about why we feel that our app can be an improvement on the ones already mentioned above.

- **The My Safetipin** app is a phenomenal app in its own right but our team during research has found some problems in the app. The app is mainly focused on giving a safety score to places in a city which will be shown via their app. The user can then choose the safest route available to them. Moreover, the parameters they have mentioned, which they use to measure the safety score of a place does is not enough to accurately score a place. The parameters mentioned on their website are:-

Lighting – Availability of enough light to see all around you.

Openness – Ability to see and move in all directions.

Visibility – Vendors, shops, building entrances, windows, and balconies from where you can be seen

People – Number of people around you.

Security – Presence of police or security guards.

Walk Path – Either a pavement or road with space to walk.

Public Transport – Availability of public transport like the metro, buses, autos, and rickshaws.

Gender Usage – Presence of women and children near you.

Feeling – How safe do you feel?

The main thing we feel is missing from this app is the ability to notify the if some mishap does happen the user, they have no way to notify the police or anyone for that matter. Moreover, we feel that only showing a safe route through a place is not enough to keep people safe on the streets. They also have no way to tell if any user is lying in their Feelings parameter.

- **The 112 app** is a Government all-in-one public safety app. This app is a very good user-friendly app that helps all of its users in a variety of different ways. The has one button feature for all the integrated safety organizations in the Country like

Police(100), the Fire Department (101), and Ambulance(108). The user will have all the options in the app itself and a single press of the button will let the user call whichever organization they want. We feel that the problem with this app lies in its execution. The app is designed for public safety or better yet a reporting app for any user facing any problem on the road. The problem with the app we think is in its way of weeding out prank reports or any consequence of pranksters whatsoever. Moreover, there is no shortcut button feature to contact the police as they may not have time to open the app during an emergency. The app is at its best in use in case of passive emergencies. It is most useful when someone else is reporting for someone else. The app being a government app does have a certain level of trust among the user's nonetheless based on the reviews on Google Play store and Apple Store.

- **The Punjab Police Women Safety App** is yet another effort by the Punjab Police to ensure women's safety on the streets. This is an extremely easy-to-use app; all of the above information and widgets are also available in Urdu text. Those who want to communicate in Urdu can easily do so using an Urdu keyboard on their android phones. As this is an app developed by Punjab Police, you can be sure that none of your information will be leaked or misused. Moreover, as the back end is manned by female representatives, it is another reason why more women will be able to use it easily. The app has many similar features and we think many of the drawbacks of the other apps on this list. The app after login has many features like calling the police and other safety organizations but the lack of a shortcut button will surely be a problem if someone is in danger. Although the app does have a live chat feature that has users chat with women police officers so that users can talk freely about the nature of their problems. This feature is a great one. The main problem with this app we think is that the app itself has no security features i.e that anyone can steal the mobile phone from the victim and just everything is fine. If that happens LiveChat becomes useless as the security representative will have no way of knowing who it is they are talking to. The app also has no way of knowing a prank call from a real one. The Women Safety app although a great effort from the Punjab police lacks a little something that would keep women safe on the streets.
- **The bSafe app** is not an Indian app but is available for download in India through the Google Play Store. The app has many great features for the safety of women on the streets. The app has many great features but it is a paid app. The app charges 1\$ for a single SOS alert you are sending while in danger. The mode of the app has nothing and everything the app offers is behind a paywall. While we can understand that companies that need to make a profit from their apps should at least have some basic features present in the free version. The reviews for this app say it all. Sadly, an app with such great features is not being used to its full potential because of a paywall that stops users from using it. The app has video recording and an audio recording feature that saves that data on the user's phone and not on a cloud service which is a

huge problem. When the alarm button is pressed there will be a voiced notification that an alert has been sent which creates obvious security issues. A lot of personal and sensitive information such as name, email, phone number, and contacts' phone numbers is collected by this app and there is nothing in the policy that explains how long they hold onto this data or any of the recordings gathered from using the app. It might also include locations, information about emergencies, incidents, and contact details of your friends, family, and guardians. When a contact is added to the app, they are immediately sent a notification asking them to accept the terms and be added. Features cannot be used until invites have been accepted. The invite includes a link and each person invited needs to download the app and create an account. This creates a problem as many may not want to download an app for this and this can be done with the app as well. When tested, most of the individuals who received the invite didn't realize they were required to do anything and they did not accept the invite. Others clicked the link and accepted the invite, downloaded the app, but did not continue to create the account. Once you request to have that person added to your social safety network if they accept you will be notified. It is important to know that once the user adds a contact to their network, even if the contact has not downloaded the app, they will be notified via SMS that there is an emergency. A link is also sent that shares the location of the user and states, "I triggered my bSafe alarm and need help! Please get in touch."

INSPIRATION

Violence and discrimination can blight women's lives and hold them back from playing a whole part in the workplace, society, and the economy. We're taking action to improve women's rights and safety in the communities in which we operate. Women's safety has to be our priority. It's essential for everyone - from the government to corporates and individuals – to join hands to make India safer for women to work and live. To this effect, the idea of SHIELD came. We sincerely hope that SHIED would help to keep women safe in and out of their homes.

BRIEF ON SHIELD

While working on **SHIELD** we have found many other similar apps that have some amazing features but some of them are paid and some just don't work. So we have tried to keep some of the key features that we would feel would make this App valuable in keeping women safe.

1. Panic Button:- The Panic Button in the app will send an SOS alert to the Police and the Emergency Contacts set by the user. Also, a map will open up in the app and mark directions for the nearest police station. Moreover, if the danger is taken care of by the user they can

mark themselves safe with a 4-digit password that they will choose. No one can be marked safe unless they have the password to do so.

2. Heat Map:- The Heat Map is a feature that would show areas of the map which are unsafe based on the number of panic reports in the area. Moreover, the areas will have a safety score based on the scores given by other users on the app.

3. Tracking Request:- This feature will allow the user to send a tracking request to their emergency contacts which would show their live location to the Emergency Contact as they are passing through an unsafe location. This can be sent to multiple Emergency Contacts at once.

4. Volunteer System:- Some users can apply to Volunteer. Volunteers will act as an extra layer of safety. Then SOS alert sent by the user in danger will not only be sent to the Police and Emergency Contacts but also the Volunteers if the user chooses to do so. The Volunteers if close to the danger can respond must faster than the police or anyone else can. To apply to be Volunteer a person will have to provide their Home Address, Phone Number and Government approved Identity proof.

5. Login Details:- The users would need to provide some information about themselves while registering for this app. The main thing that they would need to provide is Government approved identification. This will help against fake panic and prank reports.

Features we want to add in the Future

There are features that we will not be able to add to the app right away. Some features will be coming later and we like to present a list of what the future of the app will look like.

1. Anonymous Crime Reporting:- Users can report crimes anonymously through this app.

2. Video and Pictures Recording:- As soon as the panic button is pressed the app will start recording Videos and taking Pictures and will save them to cloud-based storage space.

3. Video live Stream to Emergency Contacts:- When the panic button is pressed the app will start to live stream Video and Sound to the Emergency Contacts.

METHODOLOGY

When the user first installs and starts up the app they will be prompted to verify their mobile phone number with an OTP (One Time Password) and choose their country of residence. Then the user has to enter their Name, Last Name, Date of Birth, and City of Residence and proceed to choose the people they would like to have as their emergency contacts from their contact list. Now the user will be prompted to choose a password of their choice and after confirming it the user is ready to use **SHIELD**. The user will have to enter the password every time the user logs in to **SHIELD**(the user will remain logged in so long as the user chooses to log out).

Now the user will see the main page of **SHIELD**. Here most of the main functionalities of **SHIELD** are present. From here the user can send an SOS signal to the POICE, EMERGENCY CONTACTS, and the VOLUNTEERS and a route to the nearest police station will be marked on their screen by pressing the **SOS ALERT** button. The user will also have the option to send a tracking request to some of their Emergency Contacts which would send the live location of the user to the Emergency Contacts by pressing the **Send Tracking Request** Button. The **Heat Map** button will show the dangerous areas of the city as per the reports of the other users of **SHIELD**. The **Track Movement** button will always track the live location of the user if the user chooses to and will store a log of the route they usually take.

The Police will register and log in using their login credentials according to their respective Police Stations. There they will receive any SOS signals that are sent by the users along with the Live Locations that will help the police to find them faster.

HARDWARE AND SOFTWARE NEEDED TO DEVELOP SHIELD

HARDWARE NEEDED FOR THE DEVELOPMENT OF THE APP

RECOMMENDED SYSTEM

- 16 GB RAM
- SSD
- Internet Connection
- I5 10th GEN PROCESSOR ANY VARIANT

MINIMUM SYSTEM

- 8 GB RAM
- HDD
- Internet Connection
- I3 7TH GEN ANY VARIANT

SOFTWARE NEEDED FOR THE DEVELOPMENT OF THE APP

- FIGMA FOR UI DESIGN
- ANDROID STUDIO FOR THE APP
- MongoDB FOR DATABASE MANAGEMENT
- Express JS framework with Restful API
- Google Maps shows all the maps in the apps

HARDWARE OR SOFTWARE NEED FOR THE APP TO RUN

RECOMMENDED SYSTEM

- The latest version of Android at the time of release(Although the App will work on all Android Devices we still recommend the latest version to avoid any unforeseen problems).
- 4GB Ram
- 1.8Ghz Processor
- 1GB of Memory Space

MINIMUM SYSTEM

- At least with Android Pie(2018) anything dated than that can cause unforeseen problems.
- 2GB of Ram
- 1Ghz Processor
- 500Mb of Memory Space