Project Synopsis for AKAM Hackathon 2022

Problem ID:

PID593

Problem Statement:

NARI- (Women safety application)

Synopsis Abstract:

In today's world, as we all see the crime which is happening, 85% of crimes are happening to women. So just like it is important to know self-defence, it is also important for women to provide their safety applications. There are many problems like we all know that most of the women are working in night and morning shifts. Their safety is most important, as most of the ladies travelled late at night. So, it's necessary to remain alert and safe. Nowadays, many women carry their smartphones and it is a boon for them. Hence it is necessary to have at least one personal safety application installed. And here we come with a solution namely

RAKSHAK - SAFETY APPLICATION

It can be used by anyone, including children, elders.

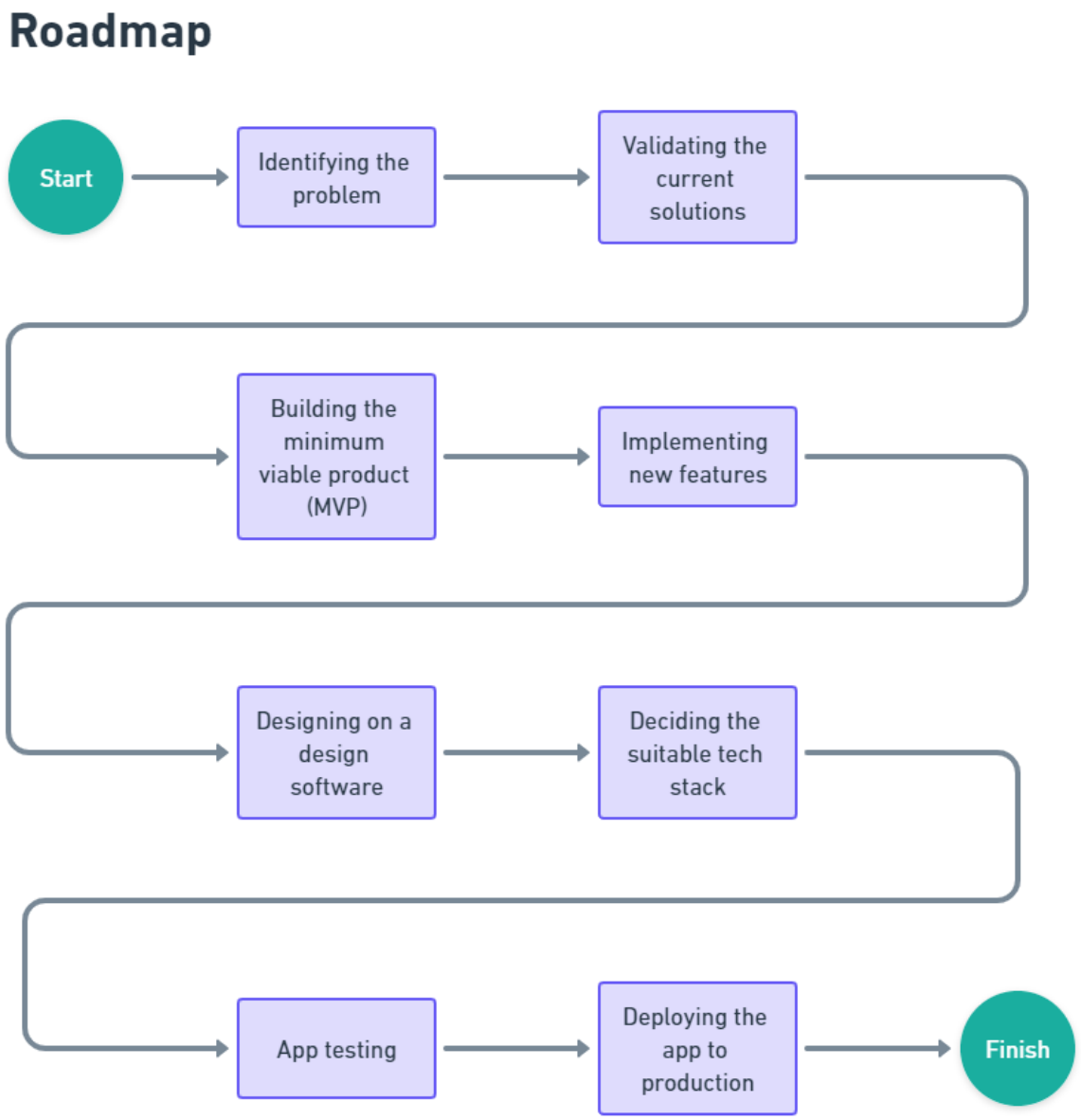
Literature Review/Existing Innovation-technology to address related to your problem:

As a part of a literature survey, we investigated some applications of women safety that already exist in the market. These applications provide various types of features, but are all scattered, or in some not user-friendly. We have tried to bring all such features in a single platform and provide an easy-to-use application for the user. Apart from this we bring about a new feature of informing our users about the safe locality to alert them and warn them accordingly. With the SOS feature we have also added instant use features using gestures, key combination alert, movement detection, etc.

What would be your approach to solve the problem:

The application requires the crime report of the different localities in certain and types of crime committed in those areas. So, in order to avail users with the above-mentioned feature, we will need to access an online database with permission of respective authority to provide users with accurate details about the crime analysis. With the provided database our algorithm will categorize the localities and neighbourhoods around in safe, unsafe type. This will help the user to get alarmed to make safer decisions in an unusual time.

Roadmap:



Tools and technologies to be used to solve the problem:

Frontend:

We decided to build a native app in Flutter. Flutter enables us to build apps for both Android and IOS with only one code base decreasing the time for the initial development and subsequent feature addition. The developer ecosystem of Flutter is growing exponentially.

Flutter is also an open-source framework, and any developer may improve its capabilities and find vulnerabilities making it more secure and robust.

Backend:

We decided to go with NodeJS which is an open-source backend framework which powers many enterprise level applications like Netflix, PayPal, Microsoft and uses JavaScript, a programming language having one of the most robust developer supports. It is lightweight and extremely good for apps that require performance and scalability, ideal for our SOS app which should process the requests with minimum delay in critical/threatening emergency situations.

Database:

We are using MongoDB, a document database, hosted on MongoDB Atlas,

Cloud provider for backend: We are using Heroku free tier for deploying our backend, our Github repository is connected to Heroku, with every commit, a new version of our backend is built and deployed to production.

Version control: Git and Github

Challenges/Risk in implementing your final prototype:

The biggest challenge to implement this application is lack of data of crime reports and related statistics of each locality. We will be deploying our project on a prototype dataset of a city. This prototype database will tell the users which database is safe at a certain time. To use this application on a full scale mode the requirements mentioned must be fulfilled and the database must be shared. Which will be further used by our algorithm giving us a more accurate response.

On the other hand, to make it more efficient and fast we have tried to implement gesture controls. The gesture controls need to be accurate and this will in turn allow the user to send SOS without even having him to open the app. The gesture movements will also allow him/her to record audio without

having to open the app. The implementation of hardware technology would also be a challenge to overcome.

Possible outcome of your work:

- This application provides a sense of security to the users using this app. In this application, we have Save Our Soul (SOS) features. This feature enables the victim to send an emergency message along with the current location to the nearest police stations or women helpline number.
- The second feature is about tracking the location of the users for their own safety purpose. While tracking the location, we can even send the message to the guardians whether we are reaching the destination or not. We have implemented this feature with the help of the Geofence Library.
- There is also a fake call feature in it where the user gets a fake call screen on his/her smartphone and can escape any situation by making a false excuse.
- Apart from the SOS feature there is a shake detection feature which will enable an emergency call to the guardians, sending them the victim's current location.
- The Safe/Unsafe feature is used to see the nearby locations and check whether they are safe or unsafe for that time. Here, we are planning to make this feature more efficient by also taking the data of several crimes occurring in a particular area and then defining it as safe or unsafe for that time. It will be in our future versions of the application.
- Get Home Safe: Tracking user's location after specific time, set by the user, until the user has reached the destination. Meanwhile it will keep on sending the live location of the user to their guardians at a certain interval set by the user.
- Users can also enable voice recording features using smart gestures. These recordings will record clips of audio and send it to the user's guardians.
- The Guardian mode will allow the guardians to see all the SOS requests sent to him with all the audio recordings. This will help the guardian to respond immediately to the SOS requests.
- "Where to" feature will help the user to maintain a track of cab drivers and his vehicle number for whenever he/she is traveling. This will act as

proof for future references in case of any assault or harassment on the victim.

Work done till date:

We designed the App UI in Figma and decided the positions of all the buttons corresponding to the features we are going to implement in our app.

Link of the prototype that we have built:

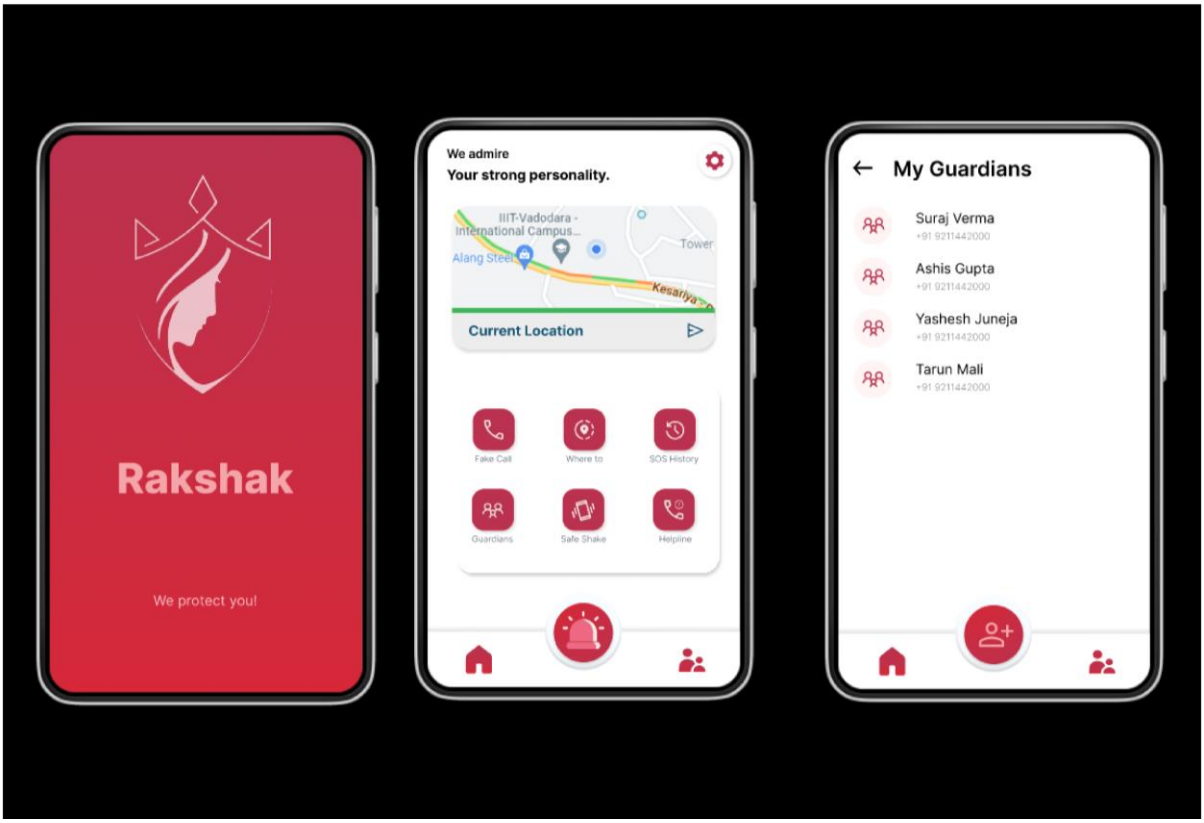
https://www.figma.com/proto/tUVMDyzQWZZ0ODYzLyou56/Rakshak?page-id=0%3A1&node-id=50%3A27&viewport=724%2C162%2C0.5&scaling=scale-down

As we are building the app in flutter, and going to implement many custom features which are not already present in Flutter by default, we found the corresponding packages for all these custom features.and test them individually, like package for shake detection, running the app in the background (so it did not get kill by the phone os) , package for gaining the location of the phone.

We also created a default Flutter project and initialized a repository corresponding to it on Github so that during development phase in Hackathon our team can collaborate easily on the source code with different team members working on different things (building the Flutter app, the node backend and the mongoDB database.)

Link of the Github repository:

https://github.com/yashesh07/SSIP---Rakshak


Rakshak
We protect you!
We admire
Your strong personality.
IIIT-Vadodara - International Campus...
Tower
Alang Steel
Kesariya
Current Location
Fake Call
Where to
SOS History
Guardians
Safe Shake
Helpline
My Guardians
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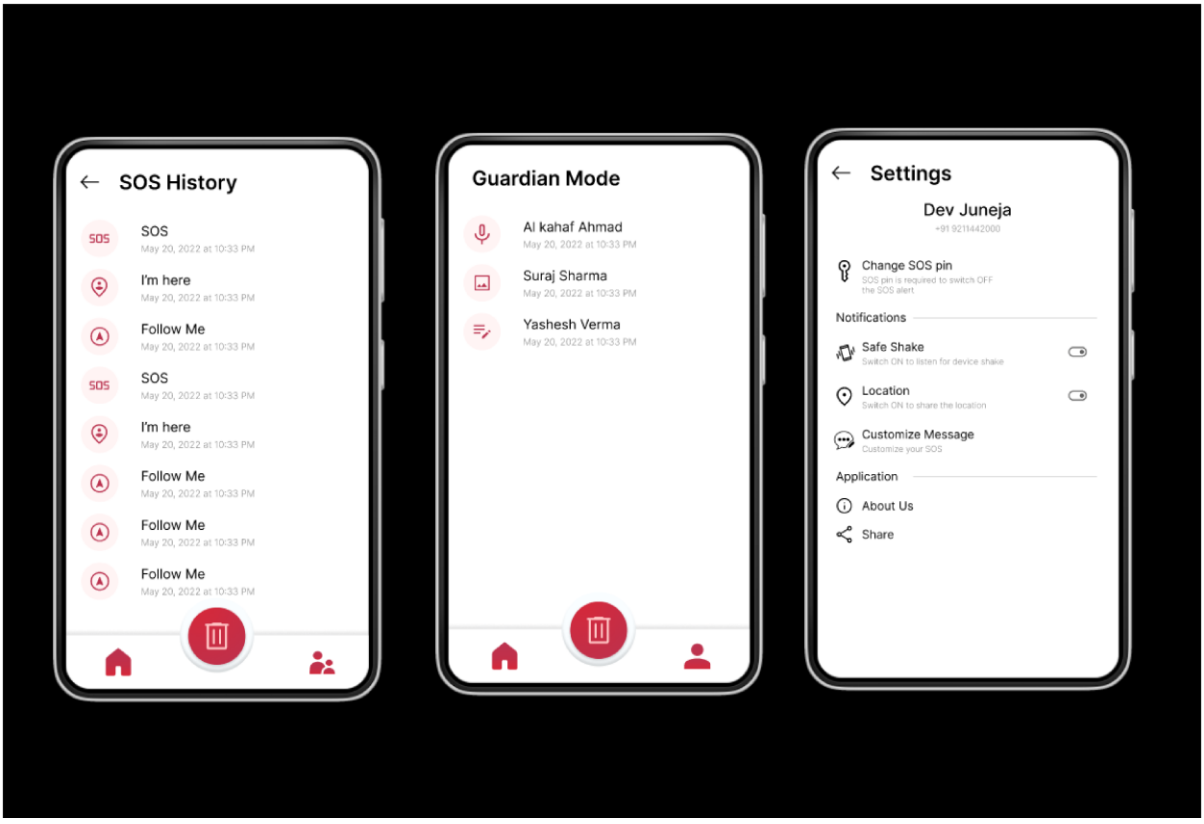
SOS History
SOS
May 20, 2022 at 10:33 PM
I'm here
Follow Me
Guardian Mode
Al kahaf Ahmad
Suraj Sharma
Yashesh Verma
Settings
Dev Juneja
+91 9211442000
Change SOS pin
SOS pin is required to switch OFF the SOS alert
Notifications
Safe Shake
Switch ON to listen for device shake
Location
Switch ON to share the location
Customize Message
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Application
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