

# SOCIOFIX

## It starts with us

*Abstract* — SocioFix is a platform that bridges the gap between social problems and the social workers willing to look into the same. In case an individual encounters any social issue they'll be able to post it using our app just by clicking a picture, selecting the domain under which the issue falls and selecting the location where the case occurred. All NGOs that serve in that area and for that particular cause would receive the notification of that post. The NGOs can either choose to accept or reject the request anonymously depending upon whether or not they have the necessary resources at the moment. NGOs would also be able to post regarding their upcoming events and drives and hence gain more support from people interested.

*Index Terms* — NGO, Sector, Volunteer, Module, Iterative Model

### I. Introduction

Today, there exist a number of social problems that have not yet been resolved, despite the fact that there are many organizations, communities, and individuals willing to assist. This is due to a number of difficulties encountered while bridging the gap between social problems and the social workers. NGOs and other social assistance groups deal with a number of issues. Among these are social issues like the public's underwhelming response and political influence on the populace, among others. Students studying social work encounter

issues like a lack of institutional recognition and a lack of knowledge about technological advancements and ethical social work practices. A major issue that people face today when running into a social problem that needs immediate attention is the obliviousness of contacting the right person/organization; the unavailability of the working phone numbers at that moment; and the fact that the entire process takes more time than most people would like to devote. In most situations, due to the time and effort required to draw attention to a cause, people walk-by ignoring it or pay no heed to take a rain check after having notified the right bodies working for these causes. Therefore, a need for a common platform where the two sides of the same coin can work together comes into place. Social media sites like twitter are a place where a community network exist which can be helpful to address these issues to some extent but the drawback of these platforms is that they serve multiple purposes like entertainment, personal gain, social engagement, learning, etc, as a result the likelihood of social problems reaching the right people becomes relatively low.

Despite the fact that there are platforms dedicated to addressing social concerns, the amount of time it takes for a problem to become noticeable relies on how well-known the person who is asking for help is on the network. Therefore, our application helps bridge this gap between the social problems and the social workers

willing to look into them. The purpose of this platform would be to bring light to the social problems that exist in today's world and help reach a solution for them with the various bodies working towards the same.

## II.Literature Survey

In today's world, there are many social problems that have not yet been resolved, despite the fact that there are many organizations, communities, and individuals willing to assist. This is due to a number of difficulties encountered while bridging the gap between social problems and the social workers. Non-Governmental Organizations are considered to play a significant role in community development practice in India. Recent study highlights a variety of social problems encountered by these organizations which includes receiving poor response from people, barriers of social traditions and culture, influence of political leaders on the people and other problems [1]. What could be the reason behind receiving poor responses from people? In 2012, an online survey was conducted that examined public perceptions of NGOs in the Republic of Georgia. To the question, "How effectively, in general, do you think NGOs are addressing people's needs?" more than 44% of respondents thought that NGOs are either ineffective or only marginally helpful at addressing social issues. This is in line with the findings of a Transparency International Georgia study conducted in 2008, which revealed that "almost half of Georgians feel pessimistic about the use of aid money, assuming that most of it will not be wisely spent." In addition, 56% of respondents believed that NGOs are

"Somewhat" or "Not Important" in assisting those in need of basic necessities (food, housing, health services, and clothing) [2]. These could be a few of the many factors contributing to the negative public perception of NGOs.

A publication - Social Needs Framework: An Alternative Framework to Analyzing and Addressing Social Problems [3] presented the discussion of a social needs framework. The framework is based on four concepts that the social workers use during social work practice.

1. Social workers use the concept of social problems to find out people's needs
2. Social workers engage in finding social solutions to their clients' problems
3. Social workers engage in finding resources/ technologies in order to address their clients' social problems..
4. Social workers engage in setting goals and monitoring them.

Although this framework is only conceptual and theoretical in nature, yet, social work is a practice based profession and this framework must be applied to real situations to solve social problems.

Also, lack of recognition by institutions and authorities for the distinctiveness of fieldwork practise and inability to use the most recent technology are issues that social workers in India have been found to encounter [4].

The International Federation of Social Workers (IFSW) is one such organization that strives for social justice, human rights and inclusive, sustainable social development through the promotion of social work best practice and engagement in

international cooperation [5]. This provides better assistance to social workers and aids in second and third steps of the above mentioned Social Needs Framework. But still the step 1 of the Framework i.e. gathering problems of people trying to seek help still persist along with step 4 which requires monitoring the accomplishment of set goals. A major issue that people face today when running into a social problem that needs immediate attention is the obliviousness of contacting the right person/organization; the unavailability of the working phone numbers at that moment; and the fact that the entire process takes more time than most people would like to devote. In most situations, due to the time and effort required to draw attention to a cause, people walk-by ignoring it or pay no heed to take a rain check after having notified the right bodies working for these causes.

Also, a research paper [6], highlights how problems like traditional thinking of rural people, poor understanding, low level of education for comprehending new technology etc pose challenges in functioning of NGOs that play a vital role in sustainable rural development. But as per the statistics, in 2021, 67% of people in rural areas have the availability of smartphones which is only going to increase extensively in the near future. Hence an easy to use application that establishes a better connectivity between NGOs and people and builds a better community can be a step in solving some of many problems that NGOs are facing today. The modern world today is heading towards the development of smart cities. It is noticeable that traditional methods are not enough for solving modern

problems. A Smart City should be inclusive, resilient, safe, sustainable, more connected and should also be able to reduce the number of deaths, displacements and losses caused by disasters. Hence digital networking plays a vital role in providing urgent help in such cases. Sustainable cities therefore aim towards using Information Communication Technology but even today most cities face issues in providing IT solutions for a lot of problems [7].

A thesis [8], critically analyzes the smart city concept and investigates socio-political dynamics behind it based on a case study analysis of Indonesia government's plan to establish new country's capital, which was opposed by local and national NGOs as they believe it won't be of any help in solving the existing capital's environmental and social issues .

By articulating how smart cities are primarily concerned with better technology, modernization, and urbanization, it highlights how critiques of smart cities have emerged and questions about whether "smartization" could actually lead to eco-socio-political issues solutions.

Hence a combination of technology in direction of societal socio-eco problems can help in smart cities become genuinely "Smart".

Therefore, a need for a common platform where the two sides of the same coin can work together, i.e. people seeking help and institutions providing it, comes into place. Social media sites are essential in addressing these issues because they offer a platform for community development and facilitate effective communication between those

looking for aid and those ready to offer it. A survey was conducted to find out the motivations for sharing information and social support in social media by performing a comparative analysis of Facebook, Twitter, Delicious, YouTube, and Flickr. Ten factors: enjoyment, self-efficacy, learning, personal gain, altruism, empathy, social engagement, community interest, reciprocity, and reputation, were tested to identify the motivations of social media users based on reviews of major motivation theories and models. Findings from this study indicate that both empathy and personal gain are the two least influential motivations across all of social media [9]. This indicates that the people use social media for several different purposes and hence the probability of social problems reaching the right people is relatively less. This has led to the emergence of social platforms that solely serve the purpose of addressing social issues. A few such apps are One Today, We365, Horyou ,etc.

With the help of the smartphone app One Today [10] , individuals and charities may connect by making a one-dollar donation. Every day, One Today will highlight a new initiative from a nonprofit organization that is making a difference in the world. With a single click, you may make a donation to the causes that move you. Sharing one's donations on social media with friends and matching them to one's preferred causes might help one's effect grow. However, the problem here is that One Today simply highlights concerns that have already reached NGOs; it does not assist people in locating the appropriate NGOs or communities to get their problems resolved.

Another such site is We365 [11] , which employs challenges and a gamification-based approach and is created especially for young people. It encourages them to take action, provides a centralized hub to gather and track volunteer hours, recognizes and rewards young world-changers, and facilitates connections between like-minded young people. It promotes users' accomplishments by recognizing them. Similar to One Today, this We365 does not help in connecting pressing issues with relevant groups eager to address them. The Social Network for Social Good called Horyou [12] is yet another platform that encourages a humanistic view of technology while its users support and promote unity via their actions. Horyou offers innovative features that encourage fresh forms of interpersonal communication. Social networking helps Horyou move ideas into actionable steps and supports the development of positive and meaningful interactions across the online and offline worlds. Because Horyou works similar to Twitter, your issue's ability to reach the correct people and the required level will depend on how well-known you are and how many connections you have across the platform. This is a significant disadvantage because it may take longer for your problem to become noticeable if you aren't linked to many individuals.

### III.Scope

To determine all the needs and basic facilities required to solve a social problem with the help of right organizations and social workers.

This project has 2 major modules:

*A. INDIVIDUAL:* The Individual module includes all the users who are interested in bringing forth and lending a helping hand to the social problems one might come across in their day to day lives. This platform will enable an individual to post any social issue by adding a picture of the scene, along with the selection of the sector under which this problem may fall and the location to notify the organizations and workers willing to take up the same. Individuals may also choose to volunteer in the various drives/initiatives arranged by the NGOs or may even hit the ‘Interested!’ button on another individual’s post to help out with the issue posted by them, provided they have the right resources to devote. The individuals will hence be notified of the same accordingly.

*B. NGO/ SOCIAL WORKERS:* The NGO/ Social Worker module includes all the organizations who would have an account on this platform to take up the problems in the areas they serve. This platform would help get them a better response and reach by displaying and notifying them about posts with regards to the sector and locations the problems persist in. As soon as an individual posts an issue concerning their areas served and sector, they will be notified. This helps reduce the time consumption involved in reaching out to the right people to look after a problem. The organizations and workers may thus choose to accept or reject the issue before them, depending on the resources they have available to devote for the same. These bodies will also be able to post about their drives and initiatives so as to gather more support from this online platform. However, this platform will not depend on an individual’s popularity across the

application and there will be no option for private messaging. This is to avoid spamming the motive of this project and the application.

No payment or donation portal would be offered as regards to the problems concerned with this platform. However, the users can freely add a description with their post. Sociofix aims at bringing social problems and the workers to light, which is why no competitive activities would ensue here.

#### IV. Product Features

*1. Media sharing capability via posts :* The individuals may add a picture or video of the problem they want to bring forth before posting, while the organizations and social workers can add a picture or video for posting about their drives and initiatives, giving more information.

*2. Location tagging by use of Maps :* The users and organizations would be able to tag the location where the issue has arisen or where the initiative by the NGO would take place. This can be done by choosing the location by use of Maps to get the right coordinates and avoid any errors while entering the same manually.

*3. Notification to NGOs based on sector and location :* As soon as an individual posts an issue concerning their areas served and sector, they will be notified. This helps reduce the time consumption involved in reaching out to the right people to look after a problem. The organizations and workers may thus choose to accept or reject the issue before them, depending on the resources they have available to devote for the same.

*4. Volunteer option for drive initiatives posted by NGO:* Individuals may choose to

volunteer in the various drives/ initiatives arranged by the NGOs. The NGOs would be able to keep a track of the interested volunteers accordingly.

*5. Individuals follow NGOs they are interested in:* Although the platform does not include a Follow option for everybody, the individuals will be able to be in touch with the organizations they are interested to work for or whose work motivates them.

*6. Upvote posts:* Individuals and NGOs alike would be able to upvote posts they think are worthy of immediate attention. The more the upvotes, the more would be the post's popularity.

*7. Reply to posts to share your story:* Instead of spamming a comment section, this application would pose a 'Share your story' or 'Add to this' section under each post which would ensure healthy threads and commenting.

*8. Save posts:* Individuals and NGOs would be able to save the posts they think are worthy of keeping a track of. They may then follow the thread or view the same on their profile.

*9. Sort and Filter posts displayed:* All the posts may be filtered either by Sector or Location or a wise selection of both. These may further be sorted either by Popularity or Recency. This would help all the users of the application to view only the posts they are interested in, instead of scrolling through a handful of others to find the right one. They may even add their choices of sector and location via a search box.

*10. Editable Profile:* The accounts created for individuals and organizations would be editable in that they may update/change their information linked to this account. This

ensures dynamicity in data stored for each user.

## V. User personas and Characteristics

A persona is the profile of a fictional user that represents the intended audience(s) for this product. A persona would share characteristics with real people, but would not directly describe any real person. Some personas would include:

- User A, a young adult and social media platform user driven by the interest to work for social causes
- User B, an older individual who finds it difficult to reach out to the right people for solving social problems
- User C, a teenager new to mobile technology and interested to volunteer
- User D, a working individual who finds it difficult to report social issues in time
- Social worker, willing to take up issues from an online platform
- An individual interested in helping another unknown individual in times of need
- NGO, looking for a better response and reach to survive
- NGO, looking for volunteers for their new drive initiative

## VI. Overview of Functional Requirements

FR1 - The system should enable a user to login by matching his email address and password with the Authentication server.

FR2 - The system should enable a user to view all posts and sort or filter them as needed.

FR3 - The platform should enable a user to check their notifications depending on the tasks performed on this platform.

FR4 - The system should enable all users to edit their profile information or update with changes.

FR5 - The system should enable a user to go through the various drives or initiatives posted by the organizations and may choose to volunteer for the same.

FR6 - The platform should enable a user to create a new post and add a picture to highlight the social problem.

FR7 - The platform should enable a user to help as an individual or be able to accept/reject the issue as an NGO.

FR8 - A registered individual should be able to add to one's description by putting forth their views or story.

FR9 - The system should enable a user to upvote a post of high interest and urgency.

FR10 - An individual should be able to follow the NGOs and workers that highly interest him/her.

## VII. Overview of Data Requirements:

### *Input Data:*

- The users would be able to provide their login credentials along with their name.

They can edit this, if needed, via the Edit Profile section and update or make any other changes

- The users of this application would be able to add media, sector and location for the posts they put up. They may even add a description with the same, to provide more details to those coming across their post

- While viewing all the posts, if the user wishes to filter or sort through them based on factors such as - Sector/Location and Most popular/Most recent respectively, then he/she may do so by giving in their choice via a search box

- The user would also be able to Add to one's story/description on a post to create a thread

- The users may volunteer in drives by NGOs that interest them, which would automatically add their information to a list of other volunteers

- The users would be able to upvote or save posts of their interest

- Individuals may choose to follow their favored NGOs

### *Output Data:*

- The users would be able to view all posts on a single page and choose to filter or sort through them

- The users' saved and upvoted posts would be seen on their profile pages

- The users would be able to go through the drives or initiatives taking place around them, arranged by various social workers

- To notify users and organizations or social workers of activities including - people interested to help, individuals volunteering for NGO drives or NGOs accepting or rejecting an issue, the Notifications section would help show the same

- NGOs and social workers would be able to see a list of their drive/ initiative volunteers

### *Stored Data:*

- The user account information will be stored with a Database that allows for authentication during Login

- Individuals' Following data would also be stored for them to easily view activities of their favored NGOs

- Sector or Location wise posts need to segregated and stored to show the users

- The status of an issue needs to be stored for users to see if they can accept the same
- Saved and upvoted posts by a user would also be stored to display the, when queried for
- NGO verification status would also be stored to check and update accordingly

VIII. Operating Environment -  
Sociofix would be an Android application, supporting versions of 8 and above.

- Hardware: 64-bit Microsoft® Windows® 8/10/11, x86\_64 CPU architecture; 2nd generation Intel Core or newer, or AMD CPU with support for a Windows Hypervisor, 8 GB RAM or more, 8 GB of available disk space minimum (IDE + Android SDK + Android Emulator), 1280 x 800 minimum screen resolution, Android Smartphone Camera, Wifi connection of about 500 mbps.
- Software: Android Studio, AWS, SQL Database, Java Spring Boot Microservices

- IX. Design and implementation constraints
- 1) A Sociofix account will be created by entering details that include Name, Email address and a password.
  - 2) In case a user enters incorrect credentials while login, prompt an error message ‘Email id/ Password doesn’t match’.
  - 3) If not able to exchange data over the network, then display the error message ‘Connection not available’.
  - 4) In case not able to access hardware services of mobile phone, prompt an error message ‘Unable to access Camera’
  - 5) Lock the account if a user does not adhere to the policies of this application.

6) Lock the account in case of spamming or any harmful post.

7) If there exist no posts for a certain location and sector combination, display the message ‘No posts yet!’.

8) If the user uses an email address or Unique ID for an NGO that already exists in the database and is linked to an account, then display the message ‘An account with the above credentials already exists! Login instead.’

9) The smartphone must connect to a Wifi network for creating or viewing posts.

• Limitations:

1) This application would be focusing only on Android as 70.96% people around the world use Android devices, thus covering the majority of the population.

2) An issue will only get processed if there is at least one NGO operating in that area.

• Assumptions:

1) There exist people who want to report problems which they think can be addressed to the NGOs.

2) NGOs come to register themselves on our app.

## X. Specific Requirements

### *1. External Interface Requirements*

User Interface: The software provides a good graphical user interface for the user to perform the required tasks such as creation, updation, deletion and displaying of the various posts and all other related data. It

also allows easy functionality for the various functional requirements included.

Android Application.

Hardware Interface:

OS - Windows

Hard Disk - at least 50 GB

RAM - 4 GB +

Processor - Pentium Dual-core CPU

Software Interface:

Java Spring Boot, Android Studio, SQL server, AWS.

Communication Interface: REST APIs

Other APIs: Google Maps API

## *2.Detailed Description of Functional Requirements*

### *1) Functional Requirement 1 - Login with credentials*

Precondition :

User must be registered on the application

Steps :

Enter credentials

Check user validity

If incorrect credentials are entered, display error message

Else, login successfully by checking with Authentication Server

Postcondition :

Login successful

User can access the application via their account

Alternative Flows :

Incorrect Credentials, Login unsuccessful, Account does not exist

### *2) Functional Requirement 2 - View Posts*

Precondition :

User must be registered on the application, able to login and view all posts over Wifi connection

Steps :

Login to the platform

Go to Home page to view all posts

Scroll through them

Filter and sort to view ordered posts

Postcondition :

User can access the application via their account and perform other functions related to posts

Alternative Flows :

Login unsuccessful, No posts to display

### *3) Functional Requirement 3 - Notifications*

Precondition :

User must be logged in to the platform and connected to Wifi

Steps :

Login to the platform

Allow application to notify immediately

Go to Notifications section to view all notifications

Choose to help for the issue

Postcondition :

User is notified and can tend to the issue as soon as possible

Alternative Flows :

Login unsuccessful, Account does not exist, No posts, No notifications received

### *4) Functional Requirement 4 - Edit Profile*

Precondition :

User must be logged in on this platform

Steps :

Log in to the platform

Go to Edit Profile option on Profile page  
Update/ Change information linked to account  
Save changes  
Postcondition :  
Information linked to account was updated and stored in Database  
Alternative Flows :  
No account created, Login unsuccessful, Changes were not saved

*5) Functional Requirement 5 - Volunteer for Drives by NGOs*

Precondition :  
Login successfully and be able to view all posts  
Steps :  
Log in to the platform  
Go to Drives/Initiative section to view all posts  
Choose to volunteer for drives that interest you  
Postcondition :  
Login was successful and account information was stored to add to volunteers list for NGOs  
Alternative Flows :  
No account created, Login unsuccessful, No drives/ initiatives posted by NGOs, NGO wasn't registered on the platform

*6) Functional Requirement 6 - Media sharing capability with new post*

Precondition :  
Login successfully and allow application to use camera and gallery as media source  
Steps :  
Login to the platform  
Create new post

Add a picture by using camera or choose from gallery  
Postcondition :  
Social problem was posted with supporting Media  
Alternative Flows :  
Login was unsuccessful, No account was created, No post to share, Camera was not enabled

*7) Functional Requirement 7 - Help with the Social Problems*

Precondition :  
Login successfully and view all posts  
Steps :  
Login to the platform  
View all posts or notifications  
As NGO, choose to either accept or reject an issue  
As Individual, choose to help for another individual's issue  
Postcondition :  
The social problem was accepted or rejected and taken up by NGO or individual  
Alternative Flows :  
Unsuccessful Login, Account does not exist, No posts for problems were accepted or rejected

*8) Functional Requirement 8 - Add to a post thread*

Precondition :  
User must be a valid login to the platform and be able to view all posts  
Steps :  
Login to the platform  
View all posts  
Choose to add to one's issue description and add your story  
Post this reply for all to view

Postcondition :

A post thread was created

Alternative Flows :

No account was created, Login unsuccessful, no posts available

*9) Functional Requirement 9 - Upvote and Save post*

Precondition :

User must have a valid login to this platform and be able to view all posts

Steps :

Login to the platform

Go through all posts

Choose to upvote or save certain posts based on urgency and relevance

Postcondition :

Posts were upvoted and saved. These posts can be viewed on your Profile page

Alternative Flows :

Account does not exist. No posts were upvoted and saved.

*10) Functional Requirement 10 - Follow NGOs and social workers*

Precondition :

User must have a valid login to this platform and be able to search for NGOs they are interested in

Steps :

Individual login to the platform

Search for their favored NGOs

Follow NGOs interested in

Volunteer and help them

Postcondition :

NGOs were followed and kept a track of by Individuals Account does not exist, no

NGOs were followed, NGO wasn't registered on the platform

*3. Performance Requirements:*

*1. Response Time:* Application's processing speed and response time should be so high that there should be no delay in executing the user's instructions. Also, the application should not crash repeatedly.

*2. User-interface:* Screen responds within 5 seconds.

*3. Scalability:* Sociofix should provide instant connectivity between the two parties - Individuals and NGOs or social workers, to tend to urgent issues as soon as possible.

*4. Errors:* The system should keep track of all errors.

*5. Availability:* The system should be available at all times when required.

*6. Performance:* Application must be lightweight and must send notifications instantly

*4. Quality Attributes:*

Create bug free software which meets consumer requirements and has a good quality framework.

*1. Adaptability:* The Sociofix application is designed to be adaptable to consequent different smartphones available with the masses provided they support Android versions of 8 and above.

*2. Availability:* Ideally, this platform should be available to all users 24x7 as social problems cannot be delayed due to reporting procedures. If there happens to be any bug or issue in the system then downtime should be less than 10%.

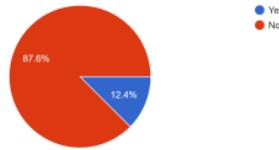
*3. Portability:* The application should be portable to different database vendors in future versions.

**4. Usability:** Any user having the basic knowledge of operating an Android smartphone can access this application with ease due to its simple UI design.

**5. Testability:** The platform should have a debug mode for testing purposes in which self diagnostic messages should be printed on the screen.

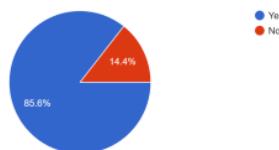
**XI. Analysis of the need for this application**  
 To get a better understanding of how the public and the organizations think about the idea of our app, the usability and whether they will be interested to sign-up on such a platform, was conducted. One form was floated for the individuals and the other for the organizations. A sample of 153 people gave their opinions. The analysis is as follows:

Are you working/have worked with some NGO?  
 153 responses



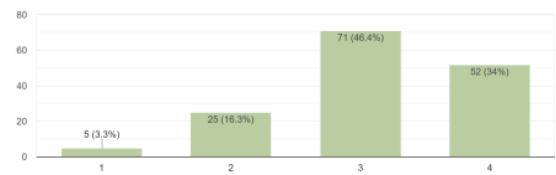
Out of 153 people, 134 people aren't connected with any NGO.

Do you feel you are often unaware about who would be the right person to contact in case of social problems ?  
 153 responses



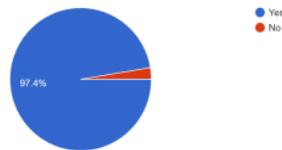
About 85.6% out of 153 respondents feel that they are unaware about the right people to contact in case of social problems

On a scale of 1-4 how complicated and time consuming do you feel is the process of getting in touch with the right organization ?  
 153 responses



Over 80.4% respondents feel that getting in touch with the right organization is mostly or very complicated and time consuming.

Do you feel this app (Scroll up to view the description of the app) would serve as an easier alternative to the traditional method of reporting a social problem?  
 153 responses

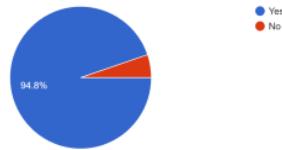


97.4% people feel that this app would serve as an easier alternative to the traditional method of reporting a social problem

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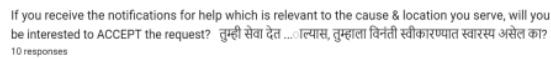
Would you consider signing up on this app ?  
 153 responses



Over 94.8% of respondents considered signing up on our app.

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A total of 10 NGOs responded to our survey. Their analysis is as follows:



A bubble chart with a single large blue circle representing 100% of the data. To its right is a legend with two entries: 'Yes' represented by a blue circle and 'No' represented by a red circle.

Response	Percentage
Yes	100%
No	0%

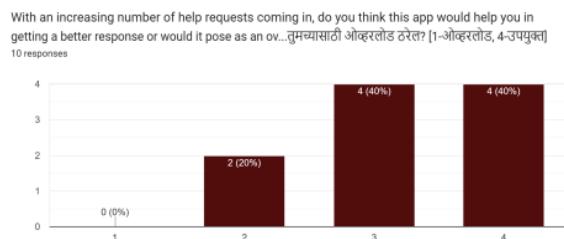
100% of the organizations showed interest in accepting help issues relevant to the cause and location they serve.



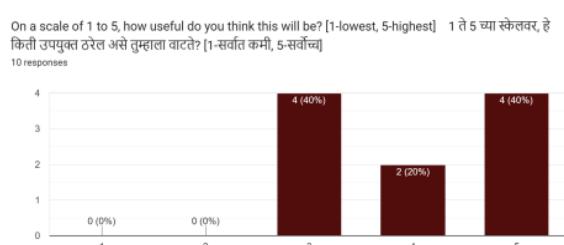
A pie chart illustrating the survey results. The chart is divided into two segments: a large blue segment representing 'Yes' at 80% and a smaller orange segment representing 'No' at 20%.

Response	Percentage
Yes	80%
No	20%

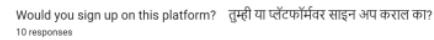
80% of respondents feel that this app would help their organization gather more support from people.



Only 20% of the organizations felt that this app might pose as an overload and would only be marginally useful in getting better response



Over 60% organizations felt that this app would be mostly beneficial or very useful for them.



A bubble chart with a single large blue circle representing 100% of the data. To the right of the circle is a legend with two entries: 'Yes' represented by a blue dot and 'No' represented by a red dot.

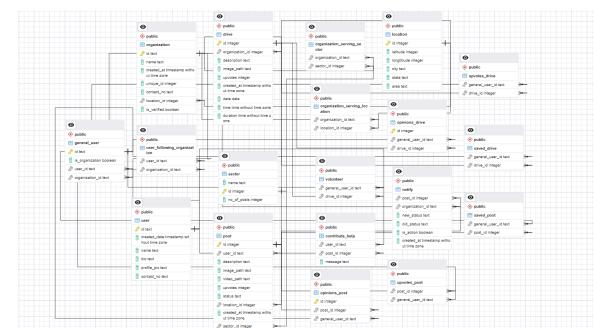
Response	Percentage
Yes	100%
No	0%

100% of the organizations want to register at our platform

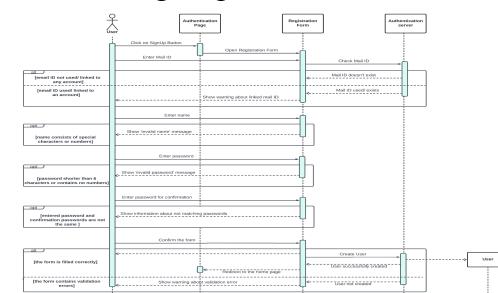
## XII. Diagrams

The database contains the entities as shown. The database is normalized and the entities have been associated with each other via appropriate mappings (one to one, one to many and many to many), have proper indexing and rollbacks to ensure appropriate consistency and timely processing.

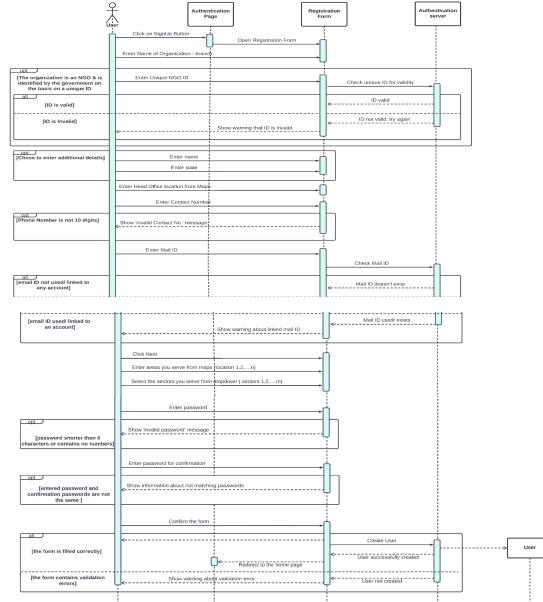
#### A. ERD Diagram



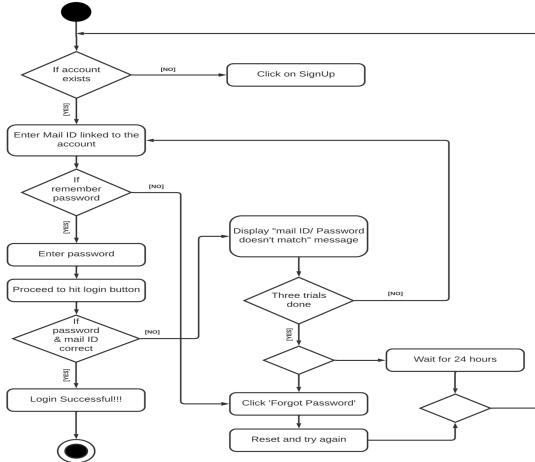
#### B. User Sign Up -



### C. Organization Sign Up



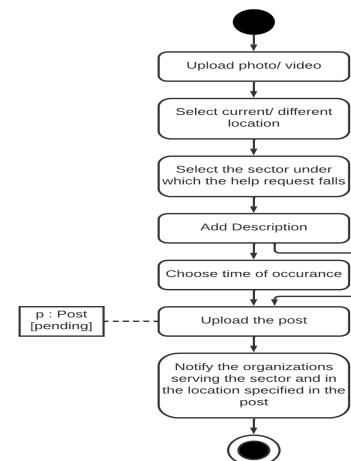
#### D. Login/ Authentication



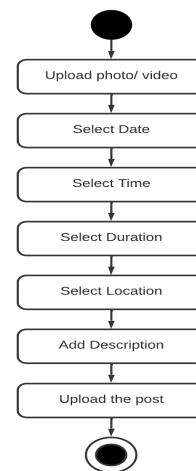
## E. Home Page View



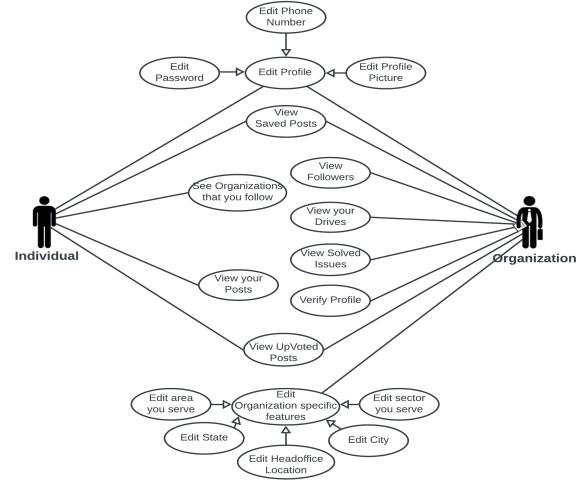
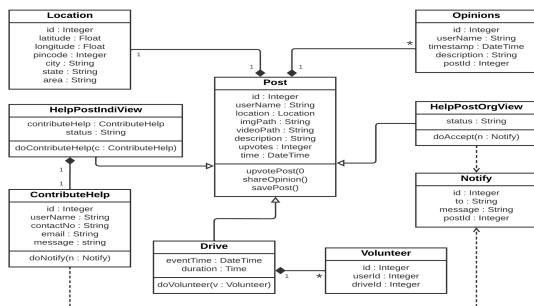
#### F. Create Post - User



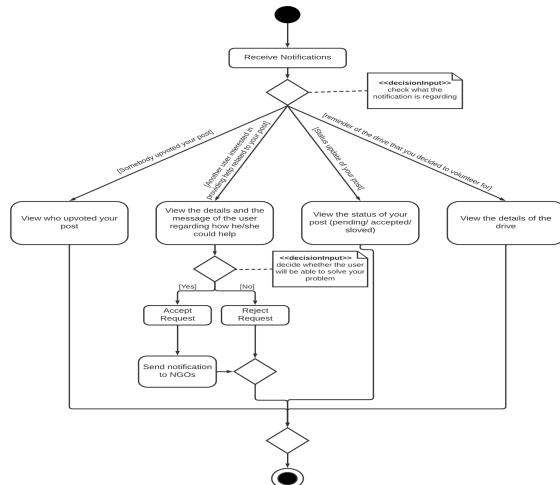
## G. Create Post - Organization



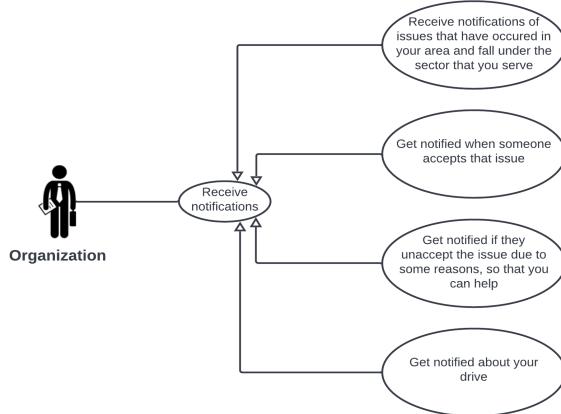
## H. View Post



## I. User Notifications

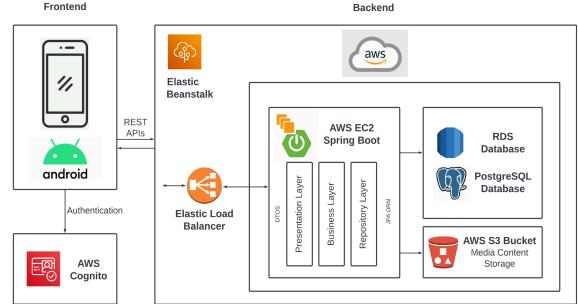


## J. Organization Notification



## K. Profile

## XIII. Technological Architecture of the system



*1. Microservice architecture framework* - It's a microservice architecture framework. Software that is composed of small, autonomous services that interact through well-defined APIs forms the architectural and organizational framework of microservices. Unlike monolithic architecture which is built as a single unified unit, a microservices architecture consists of loosely coupled, fine-grained services. These services communicate via a well-defined interface using lightweight APIs like RESTful APIs. Services are created with business capabilities in mind, and each service handles just one task.

because of which they can be individually managed, updated, launched, and expanded to match the demand for certain application functions easily.

2. *Android* - Frontend will be built using Android 8 (Oreo) which supports 90% devices around. The Android operating system has the most installed bases of all the different mobile platforms worldwide. In more than 190 countries around the world, Android powers hundreds of millions of mobile devices.

3. *Spring Boot* - For achieving the microservice architecture, we have selected Spring Boot as middleware. It involves building of APIs via structuring their development across the presentation, business and repository layer and the use of spring JPA for ORM to implement persistence. These APIs would be RESTful in nature. They offer scalability, speed, simplicity and ability to handle all data types to perform CRUD operations using Hypertext Transfer Protocol (HTTP) requests.

4. *PostgreSQL* - The database that we will use is PostgreSQL since most of the user data and application-generated data management require structural data handling. Postgres is an object-relational database and thus offers a great no. of features like table inheritance, function overloading, etc. It implements Multiversion Concurrency Control (MVCC) and hence handles concurrency better compared to other relational databases like MySQL. The images and video persistence would be achieved by their direct storage on the server for faster and better management.

5. *AWS Elastic Beanstalk* - We will be deploying the backend in AWS Elastic Beanstalk (PaaS) which orchestrates various AWS services and hence provides an additional layer of abstraction to ease the deployment process via auto-handling the details of capacity provisioning, load balancing, scaling, and application health monitoring. The elastic load balancer would automatically distribute incoming application traffic and handle the application crashes and downtime.

6. *AWS EC2* - Spring Boot would be running on an EC2 instance. Scalable computing power is offered by Amazon Elastic Compute Cloud (Amazon EC2) in the Amazon Web Services (AWS) cloud. It provides "instances," which are virtual computing environments having pre-configured templates known as Amazon Machine Images (AMIs), that bundle the server's component parts (including the operating system and additional software).

7. *AWS RDS* - PostgreSQL from AWS RDS service will be used to RDS facilitate the deployment and maintenance of relational databases in the cloud. AWS offers a managed SQL database service called Amazon Relational Database Service (RDS). It supports a wide range of database engines for data storage and organization and aids in relational database management activities including data transfer, backup, recovery, and patching.

8. *AWS S3* - AWS S3 bucket will store the images and videos that will be referred to in PostgreSQL by their paths. Industry-leading scalability, data availability, security, and speed are provided by the object storage service Amazon Simple Storage Service

(Amazon S3). It is used to store and protect any amount of data for a range of use cases in order to optimize, organize, and configure access to the data for meeting specific business and organizational requirements.

9. *AWS Cognito* - AWS Cognito will be used for authentication. It delivers an identity store that expands to millions of people, enables social and enterprise identity federation, and provides cutting-edge security capabilities to safeguard both the customers and the company. It incorporates frontend and backend development resources and provides support for a variety of compliance rules.

10. *Google Maps SDK for Android* - The Maps SDK for Android will be used for all location related functionalities. It provides access to Google Maps data, map displays, gesture responses, extra information for map locations, and interaction support by overlaying markers, polygons, and other map features.

#### XIV. Implementation Aspects

The implementation of the following modules with xml file codes is in progress and has been started : Authentication Login page, Sign up pages, Profile pages and Creation of Post page. On the Login page, the individual or organization will be able to log in to their accounts by entering their email address and password. On the Individual's Sign Up page, the individual can enter their details and create an account on this platform. On the Profile pages for an Individual and the Organization, one can view and edit their profiles along with additional functionalities. For the Creation of post page, one will be able to add an image via camera access, select location via

Map API, select Sector from a list, add description, select Time of Occurrence by use of the clock pop-up window and finally post the issue.

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