

Introduction

I started my research by looking at a lot of natural disaster videos and interviews. The videos gave me a good understanding of the havoc created by the calamities like volcanoes, landslides, Tsunamis, Tornadoes etc. and the irreparable damage caused by them on the humans and mother earth.



Natural calamities are Inevitable and create irreparable damage . They create devastation and destruct everything on their way which leads to loss of human and animal destruction.

In 2018 as per statistic, the most significant natural disasters by death toll were Tsunamis and Floods. The North Korea floods, Nigeria floods, Japan floods , Kerala floods & Indonesia Tsunami have killed thousands of people all over the world.

Natural disasters in itself is a vast topic to study on. So for the sake of moderation of my research in the given time, I decided to concentrate on **FLOODS** as a disaster for this test.

Problem Study

Research was conducted with a backdrop of Kerela, Chennai, Uttarakhand, Kedarnath floods in India in the past ten years.



Problem Areas faced at different stages

Pre-Disaster

- No Disaster preparedness
- Absence of early warning systems

Lack of awareness of what is to be done in natural disasters

During Disaster

- Panic and confusion in masses
- Locating people for rescue
- Lack of resources for mass evacuation.
- Mass Casualty management
- Lack of Relief supplies
- Lack of awareness about disasters leading to time lag of evacuation and rescue

Health centres not adequately equipped.
Local communication networks affected
Transportation services severely affected
Lack of resources for mass evacuation
Timely assistance to the casualties
Don't know who to reach out for help

Post Disaster

- No houses to go back to
- Contaminated drinking water
- Air born diseases
- Need help in Rehabilitation
- No agricultural and vegetable cultivation for a long time after disaster

Lack of water supply and sanitation
Fly Menace
Post-traumatic stress disorder, deprivation, and depression
Food shortage and crisis of hunger and malnutrition

Stack holders in flood Disasters

Help Givers

Politicians
Non Profit Organisations
NGOs
Government Officials
Local People
Emergency Services
Donors
Armed Forces
Software Professionals

Help Seekers

People Stuck in Floods
Injured People
Old People
Children/Infants
Pregnant Women
Handicapped
Animal

Disaster preparedness

Preparing for a disaster can reduce the fear, anxiety and losses that disasters cause. Increased public awareness to ensure an organised and calm approach to disaster management, particularly that of the vulnerable segments of population, can help in disaster risk reduction. Periodic mock drills in the general population and making it a part of school kids curriculum can be very useful.

It is impossible to anticipate natural disasters such as flash floods. However, disaster preparedness plans and protocols in the civil administration and public health systems could be very helpful in rescue and relief and in reducing casualties and adverse impact on the human life and socio economic conditions.

Personas

Help Seekers



A Woman at the age of 38 with two children managed to safely reach at the relief centre with the help of local people, however her husband is missing. She and her kids have not eaten anything since two days and kids are unwell.
Wants help in finding her husband and needs food, medicine and dry clothes for the kids.



A farmer of the age 52 stuck on the terrace of his house with his family, waiting for the rescue boat to come help them.
Has a disabled mother, wife and three kids with him. Can see boats passing by taking other families and waiting for his turn. Calling out to the passing boats for help.



An engineer at the age of 27 along with his mother escaped floods and reached a dry land after floods, however his mothers leg is injured and needs immediate medical help.



A 48 years old construction site worker owns a basic phone. His house was washed away in floods and his whole family is cold and shivering. Needs shelter and some warm clothes and food.

Help Providers



Neha a MBA student and is a part of a small NGO which helps slum kids. Wants to be a part of the Volunteering team and help rescue people in the floods affected areas in her city.



Allen is a software engineer from India working in an IT company in Canada. Sees on news about the floods happening in India and wants to provide whatever financial he can.



Roma is a 23 years old intern. Her area is not flooded and has enough supplies of basic necessities. Wants to join an NGO and provide help. Does not know how to get to the victims who need help and know their needs.

Affinity Mapping

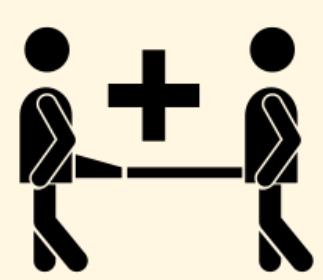
Rescue	Rehabilitation center	Material collection Drives	Rehabilitation	Fund Raising
Medical Help	Temporary shelters	Relief material Packing and transport	Accomidation	Donation Camps
Locate people	Doctors	Sanitary Napkins	Masks	
Relocating to safe place	Water supply	Blankets	Gloves	Online money transfer
Volunteer coordination	Sanitation mosquitos repellents	Clothes	Insurance	
Walkie Talkie	Post traumatic stress / Disorder / Depression	Towels	Malnutrition	
GPS location	Warm clothes	Diapers	Water diseases	
Volunteer Groups share location	Hot food / Beverages	Milk Powder	Debri clearing	
SOS emergency	Medical help	Biscuits	JCB/ Cranes	
Boats	Tents	Packing material Transporting Material vehicles	Data collection	
Helicopters	Looking utensils and dining utensils like plates and tumblers	Looking utensils and dining utensils like plates and tumblers		
Trucks	Packaged food	Household furniture like chairs and tables		
Safety of volunteers		Containers for storing rice, other pulses, and cereals		
		Footwear		
		Mugs and buckets		
		Sanitary napkins		
		First Aid medicines/ kits		
		Candles and matchboxes		

Design Solution

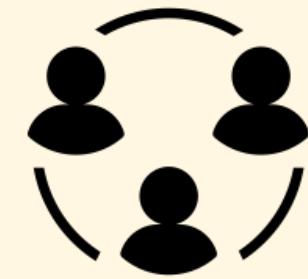
I realised that providing help at the time of the disaster does not work well as people are unaware of what to expect and what's the best thing that has to be done. So it's very important to make sure people are prepared for the upcoming disaster.

SAVE THE SOUL is one such platform which will train masses before the calamity arrives on the four phases of emergency management: **Mitigation, Preparedness, Response, and Recovery**. and later with the help of these trained volunteers manage disasters.

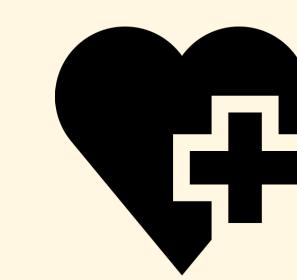
Objectives



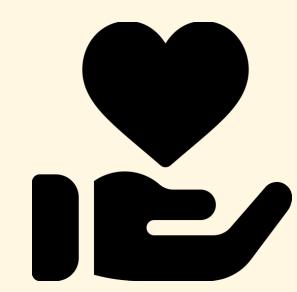
Rescue people as fast as you can



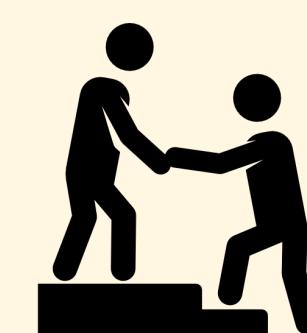
Help collaborate with other volunteers for fast evacuation



Cater the needs of people post rescue



Get donations and make sure its directed well



Help people get back to their normal lives post disaster

What all Save the Soul does:

Pre Disaster

1. With the help of trained volunteers conduct workshops to educate people in schools, colleges, organisation, etc. Provide training and information in first aid, water safety and other skills that help save lives.
2. Spread disaster awareness and empower the community by performing demonstrations and mock drills.
3. In collaboration with the government Save The Soul will ensure there is enough relief materials stored in case of disasters.
4. Identify which places in each city can be turned into relief camps. Have a number of boats, helicopters and other vehicles ready in case of disasters.
5. Provide online disaster education and online games for kids teaching regarding disasters.

During Disaster

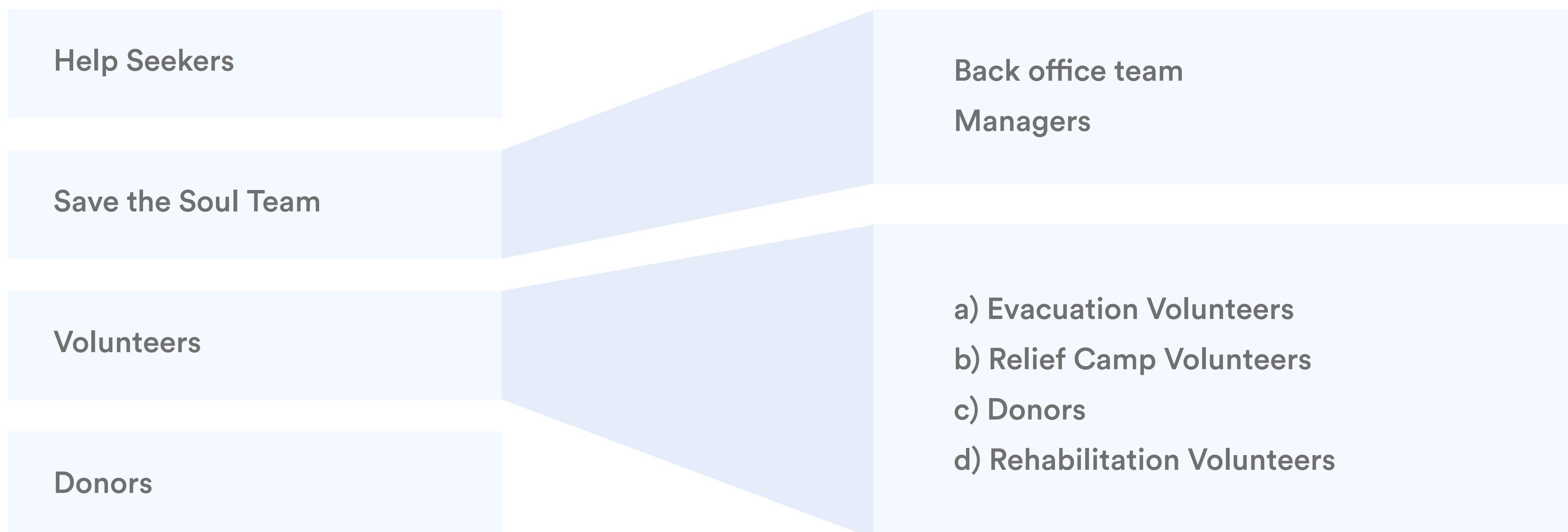
1. Quickly locate places that can be turned into camps. Do a city survey to understand which points are low lying and which are high raised which will help volunteer set up safe zone.
2. A platform which will help connect with people who need help and rescue. A platform which will help all volunteers connect and provide help.
3. When the disaster hits, the application link will be sent to the contact numbers of these registered volunteers.
4. Use social media platforms like Facebook, twitter to encourage more people to participate in volunteering.
5. Initiate donation platforms.
6. Set up Relief camps and Medical camps with the help of local people and doctors.
7. Take relief material donations and create a system to ensure it reaches out to the people.

Post Disaster

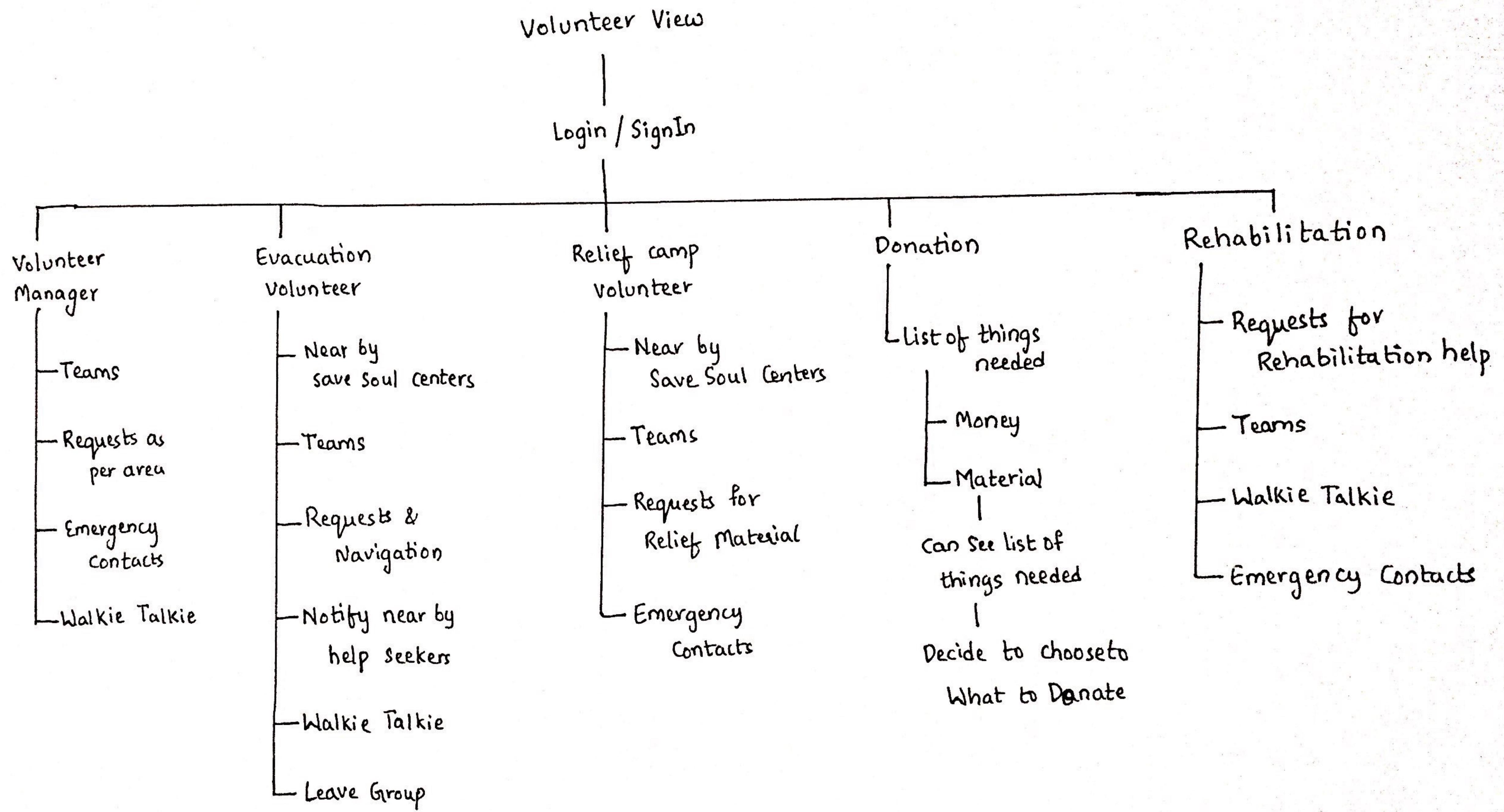
1. Help people in rehabilitations.
2. A platform to help volunteers find people who need help for rehabilitation and provide them help.

3. Provide volunteers with material needed to help in cleaning post disasters like gloves & masks.
4. Create employment opportunities.
5. Nutrition supplement.
6. Education regarding health and diseases.

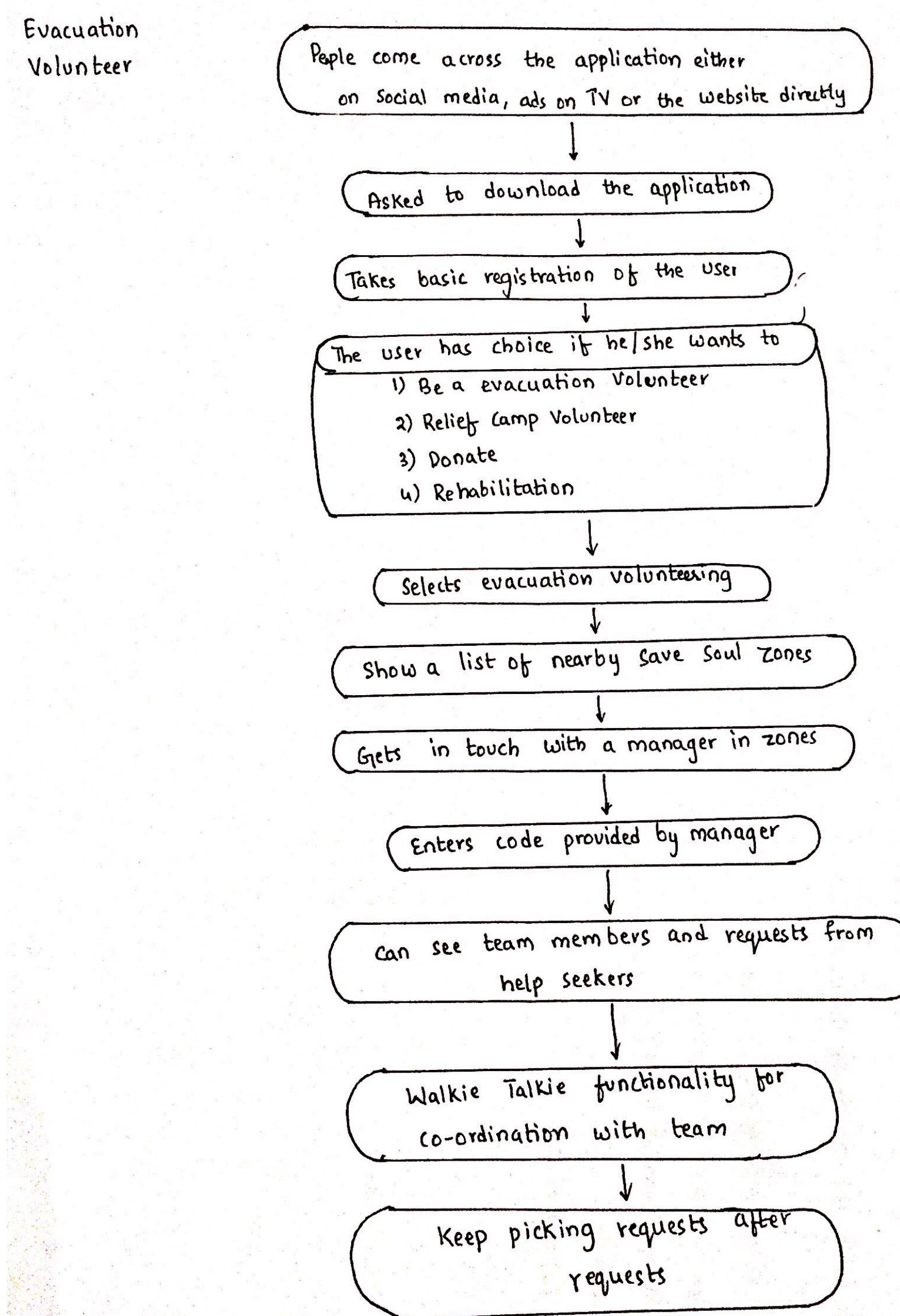
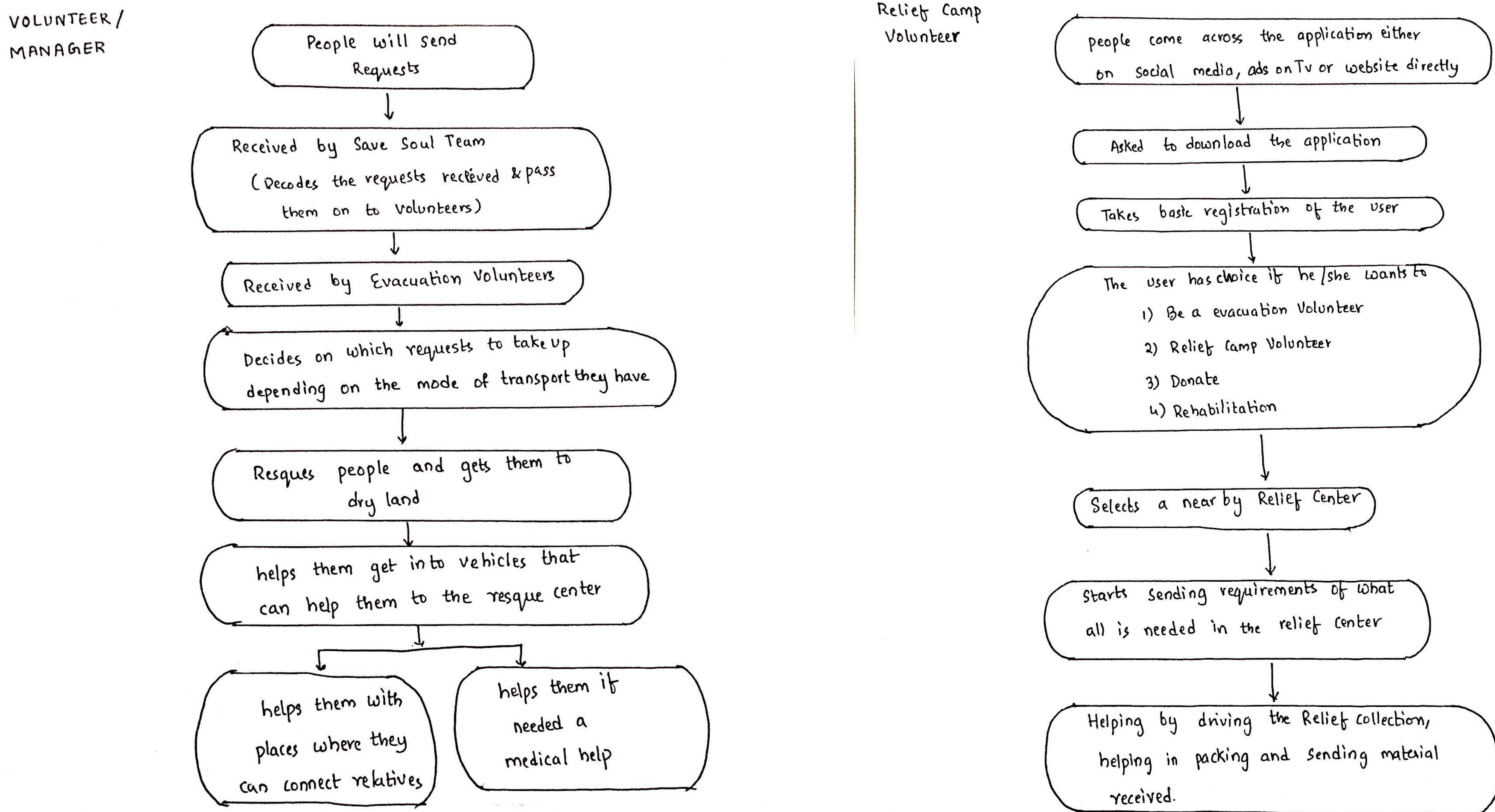
Users



Single level Information Architecture



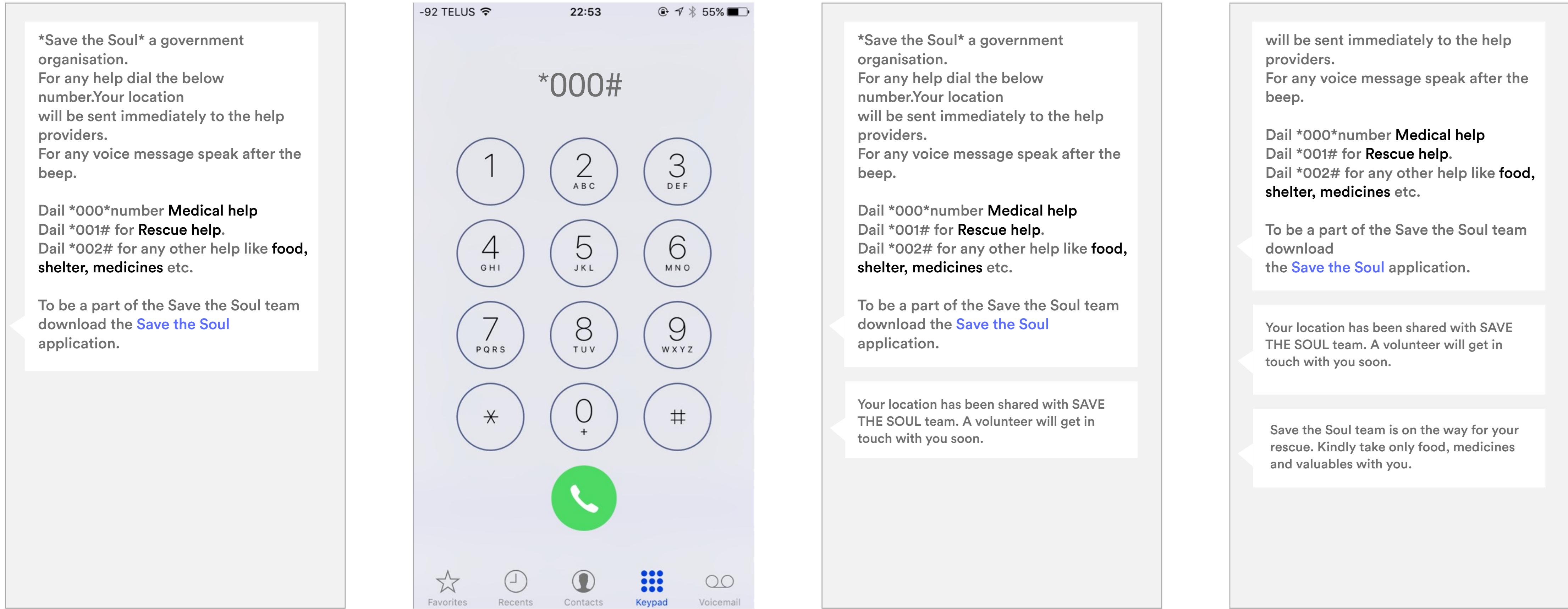
Flows



Help Seekers

Design Solution option 1

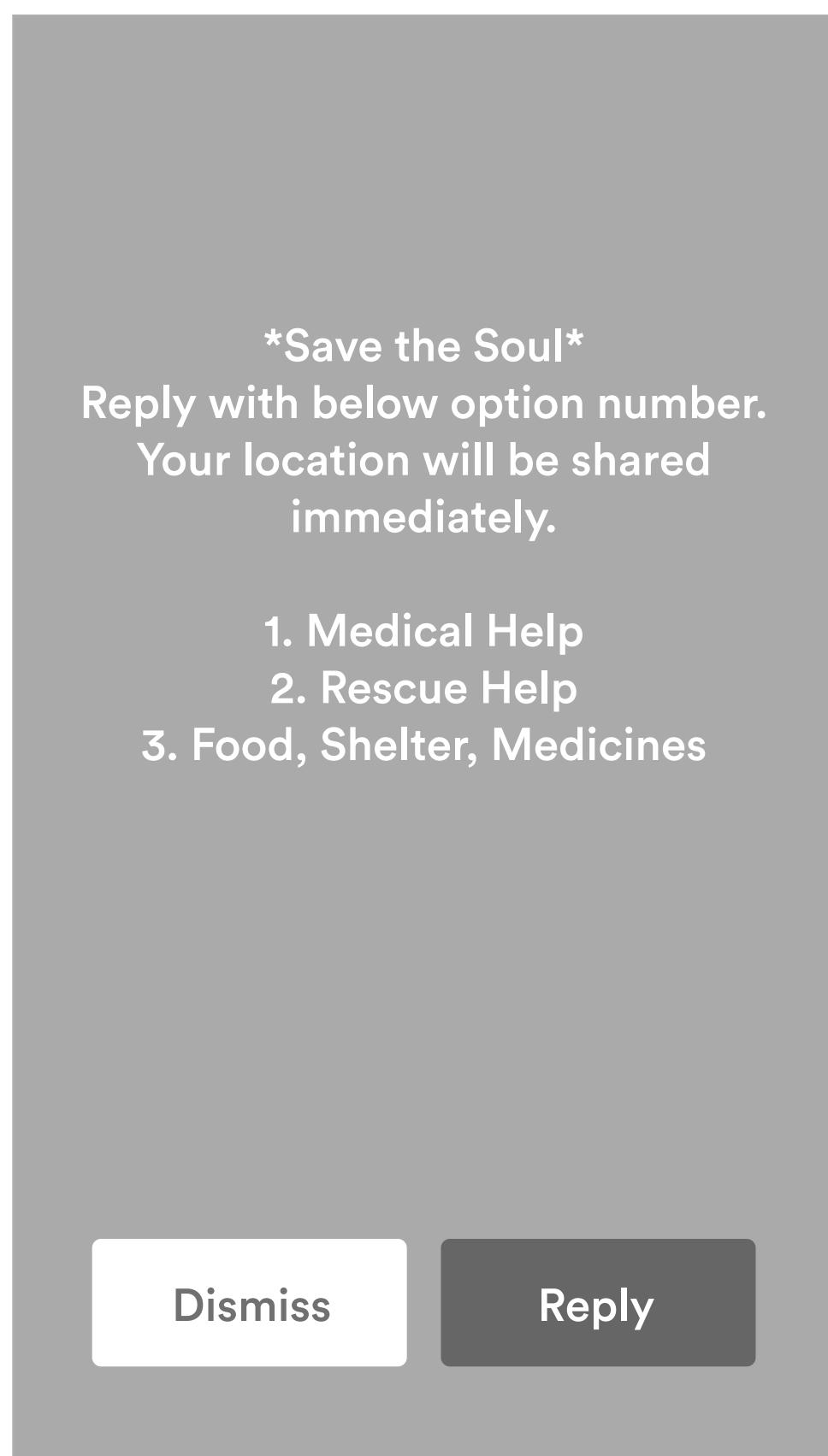
Anyone living in the disaster affected area will receive a Broadcasted message from Save the Soul regarding the emergency contacts. Masses will be made aware of the emergency number through different media channels too.



Users will be shared some easy to remember numbers.

A voice recording will play on call which will pick up the phones language, "Your location has been shared with the help providers who will get in touch with you soon. For any message speak after the beep".

Design Solution option 2



Another option explored that help seekers will just dial a single number like *100# and will get the following screen.
Users will reply with the number of the kind of help required and their current location will be share with the Save the Soul team.

As most citizens in India still have a basic phone both solutions can be used easily by all people.

Back-office team

These request will be received by Save the Soul back-offices team who will decode the voice message and direct it to the Evacuation teams.

Address : Bhonabhai Bldg, 17/21a Atmaram Marchant Road, Kalbadevi, Pune.



Address and coordinates : Bhonabhai Bldg, 17/21a Atmaram Marchant Road,

 0.020.32

Number of people

Have special cases like    

Mode of evacuation Air Land

Notes for the evacuation team

Mark Urgent Medical emergency Navy Assistance

SUBMIT

Address : Bhonabhai Bldg, 17/21a Atmaram Marchant Road, Kalbadevi, Pune.



Address : Bhonabhai Bldg, 17/21a Atmaram Marchant Road, Kalbadevi, Pune.



Address : Bhonabhai Bldg, 17/21a Atmaram Marchant Road, Kalbadevi, Pune.

This team will consist of people who can understand multiple regional languages. They will listen to the voice messages sent by the help seekers and write quick notes for the evacuation teams.

I realised that this process can be time consuming and a technology like an Intelligent Voice can index key words and phrases from the voice recording like pregnant, disabled, medical emergency etc. and this message can directly be sent to the volunteers.

Volunteer Manager

Volunteers Managers are Save the Soul trained and registered volunteers. With the help of Save the Soul team they will set up Safe Zones near flood affected areas and manage evacuation operations.

**SAVE
THE
SOUL**

Name *

Mobile Number *

Enter Team Code

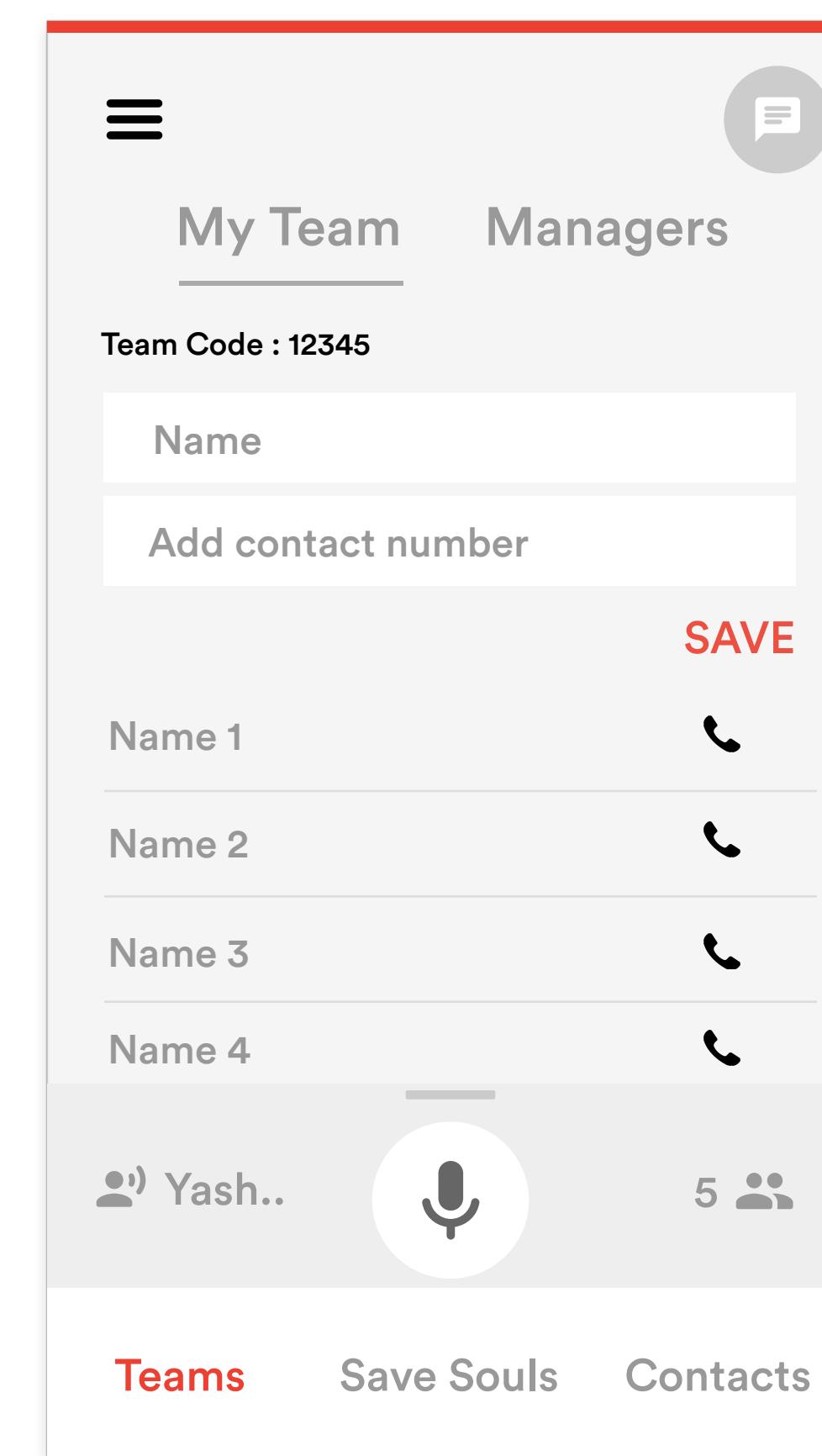
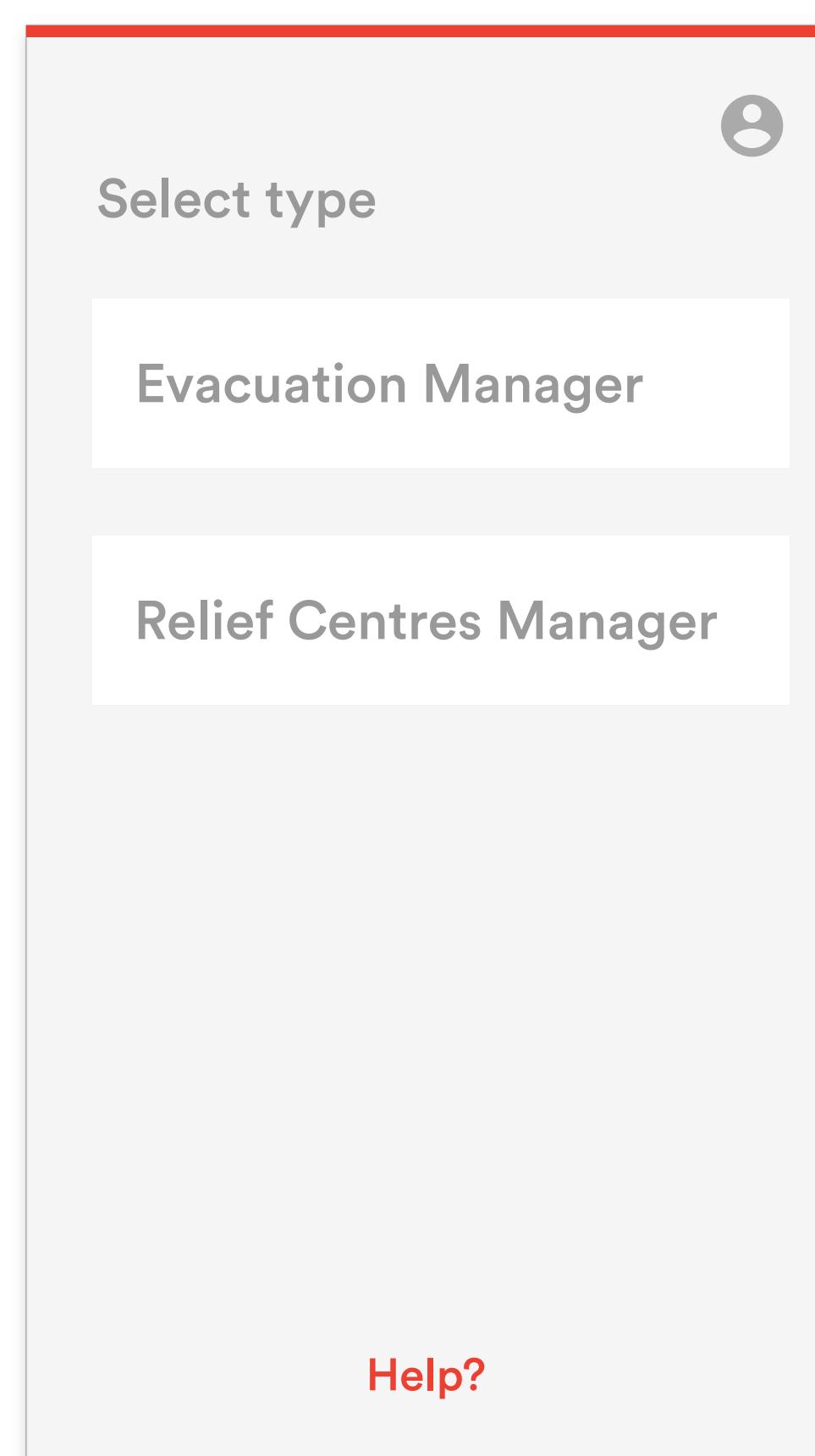
Login as STS Army

Sign Up

Sign in with Twitter

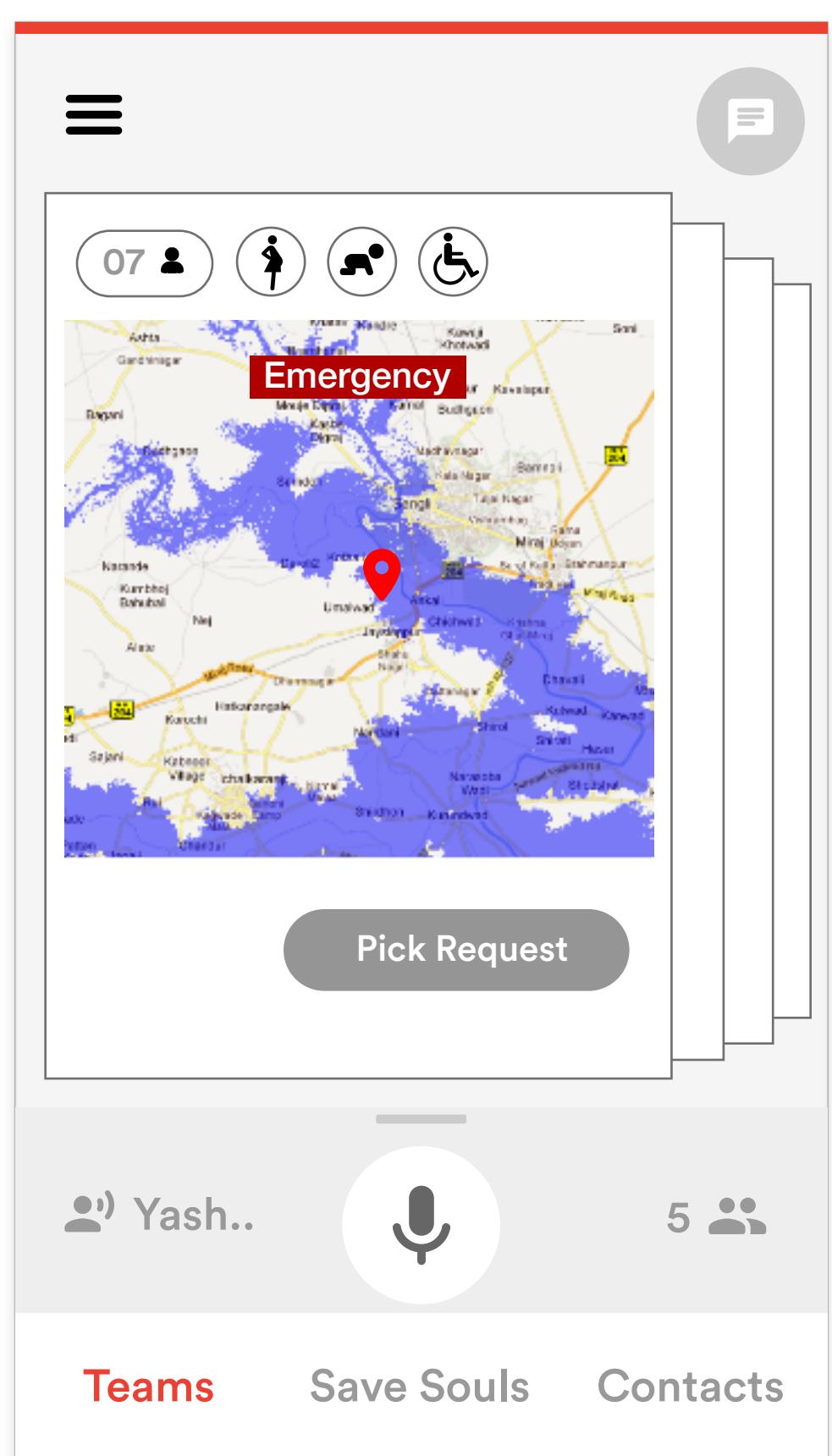
Sign in with Facebook

The manager will login as a STS army.

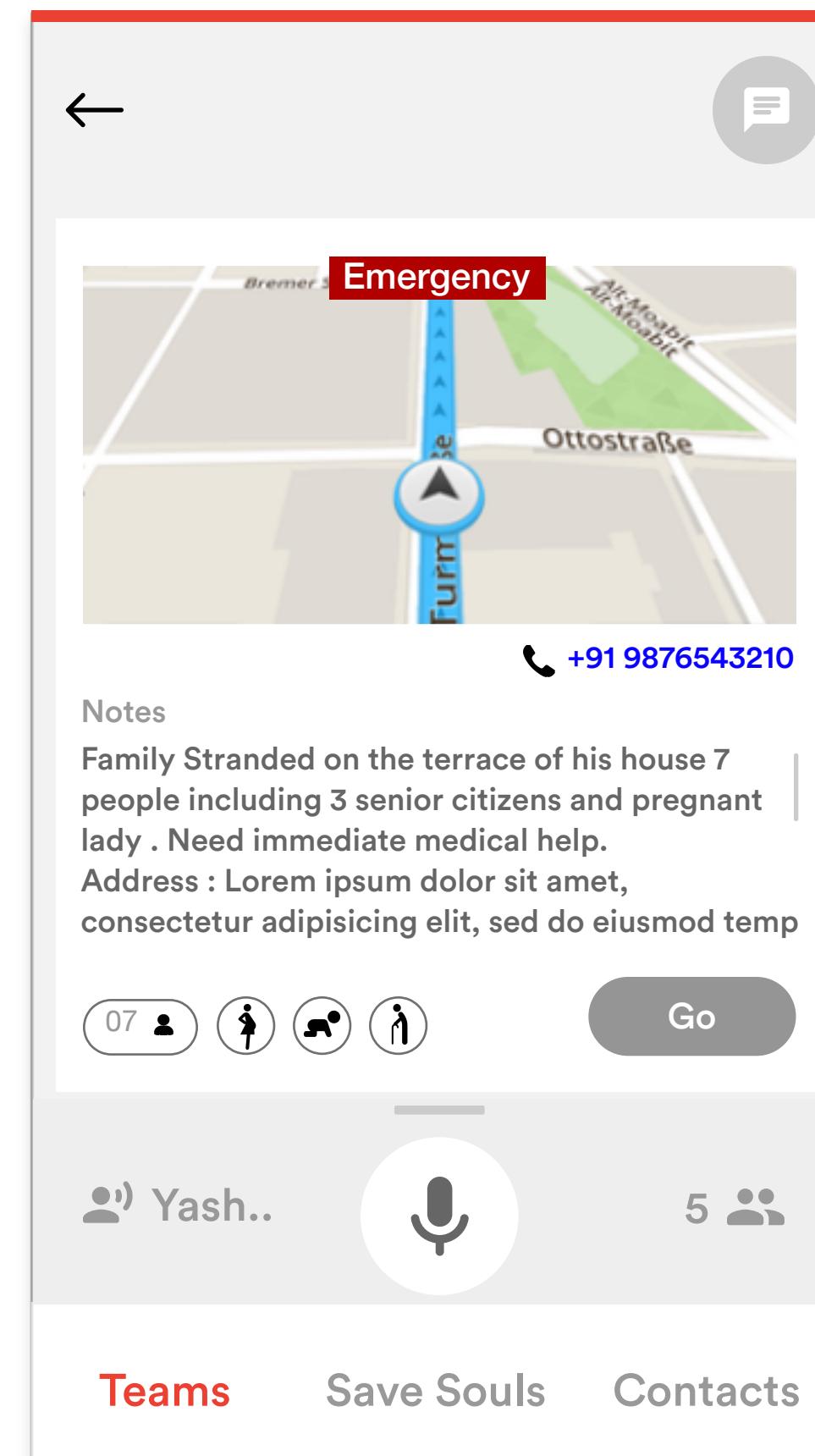


Walkie talkie - press hold on the mike to talk

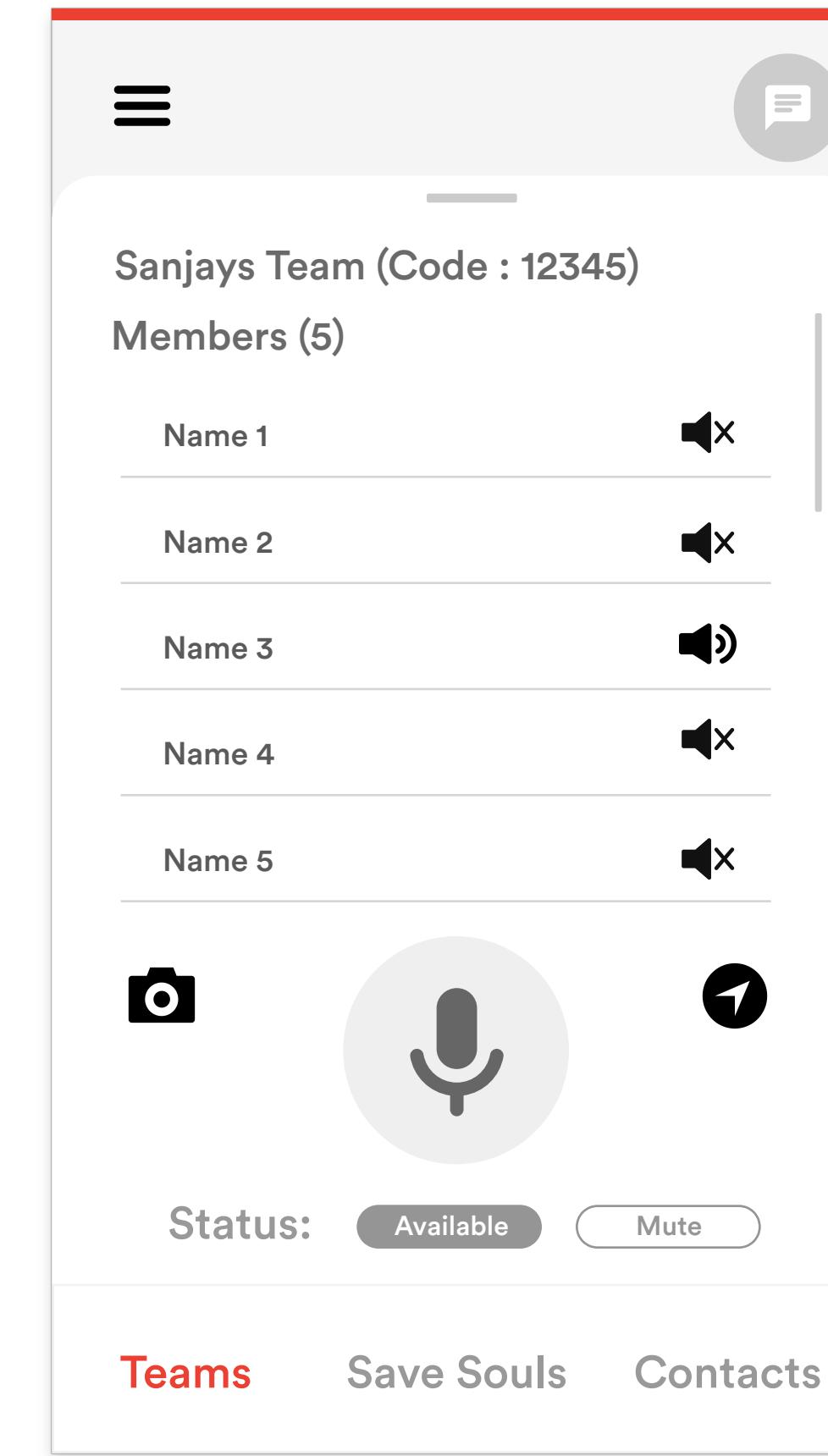
The Walkie - Talkie feature will allow all the volunteers in a team to coordinate



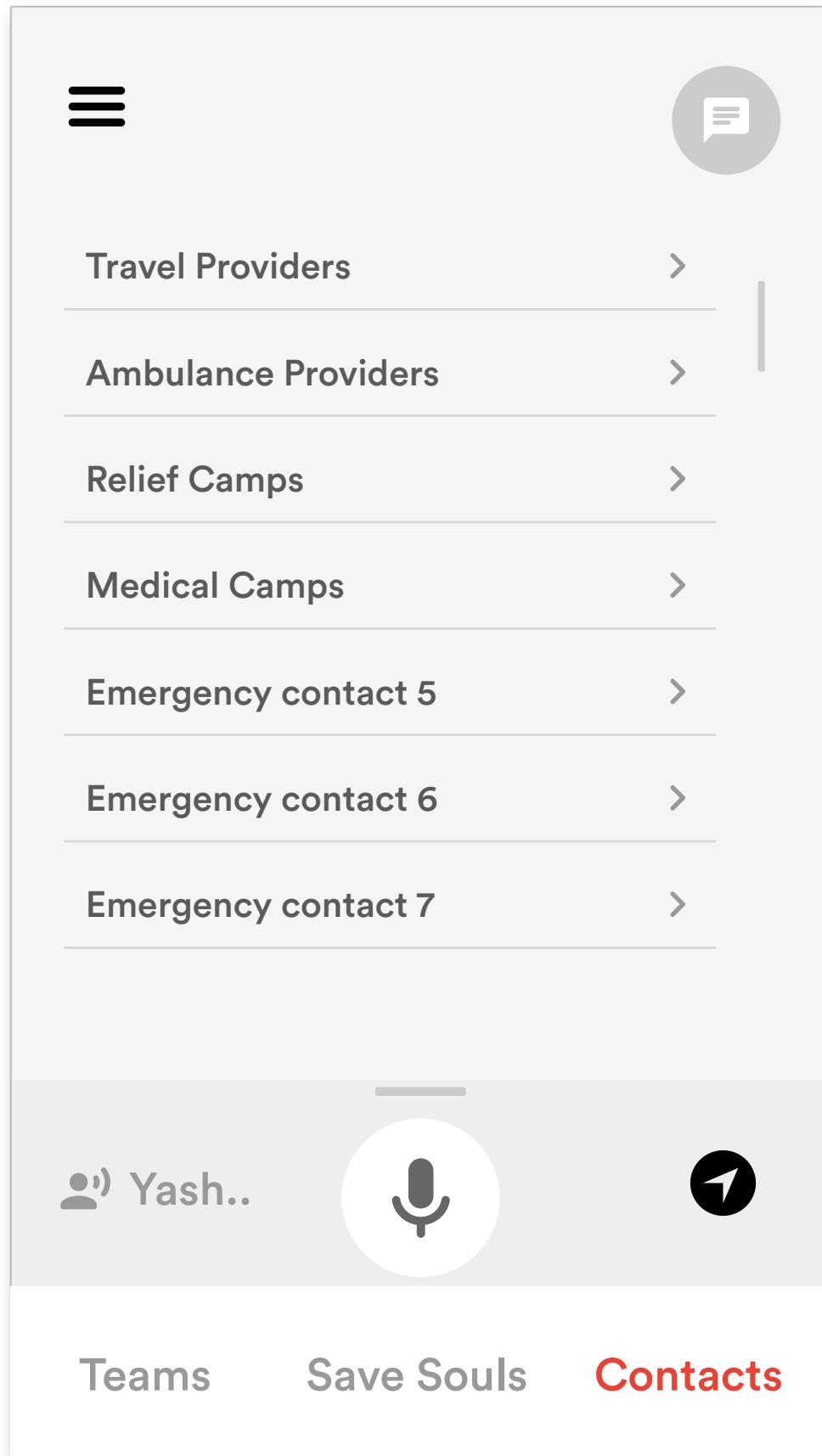
Sees requests in and around the teams area picks requests



All the team members in a particular team can see the same view of which ticket has been picked and how much time to reach destination



Walkie talkie feature : Team members can send their current location or pictures to the team members which can be accessed in the chat.



List of all the emergency contacts numbers

The newly added volunteers, will see the team view directly on opening save the soul application.

Evacuation Volunteers

On signing into the application the users who wishes to volunteer, will be asked to choose the kind of help they would like to provide. The user will be requested to go to the nearest evacuation zone. When near the zone, Save the Soul evacuation managers around will help them join any team and start help.

Name *

Mobile Number *

Enter Team Code

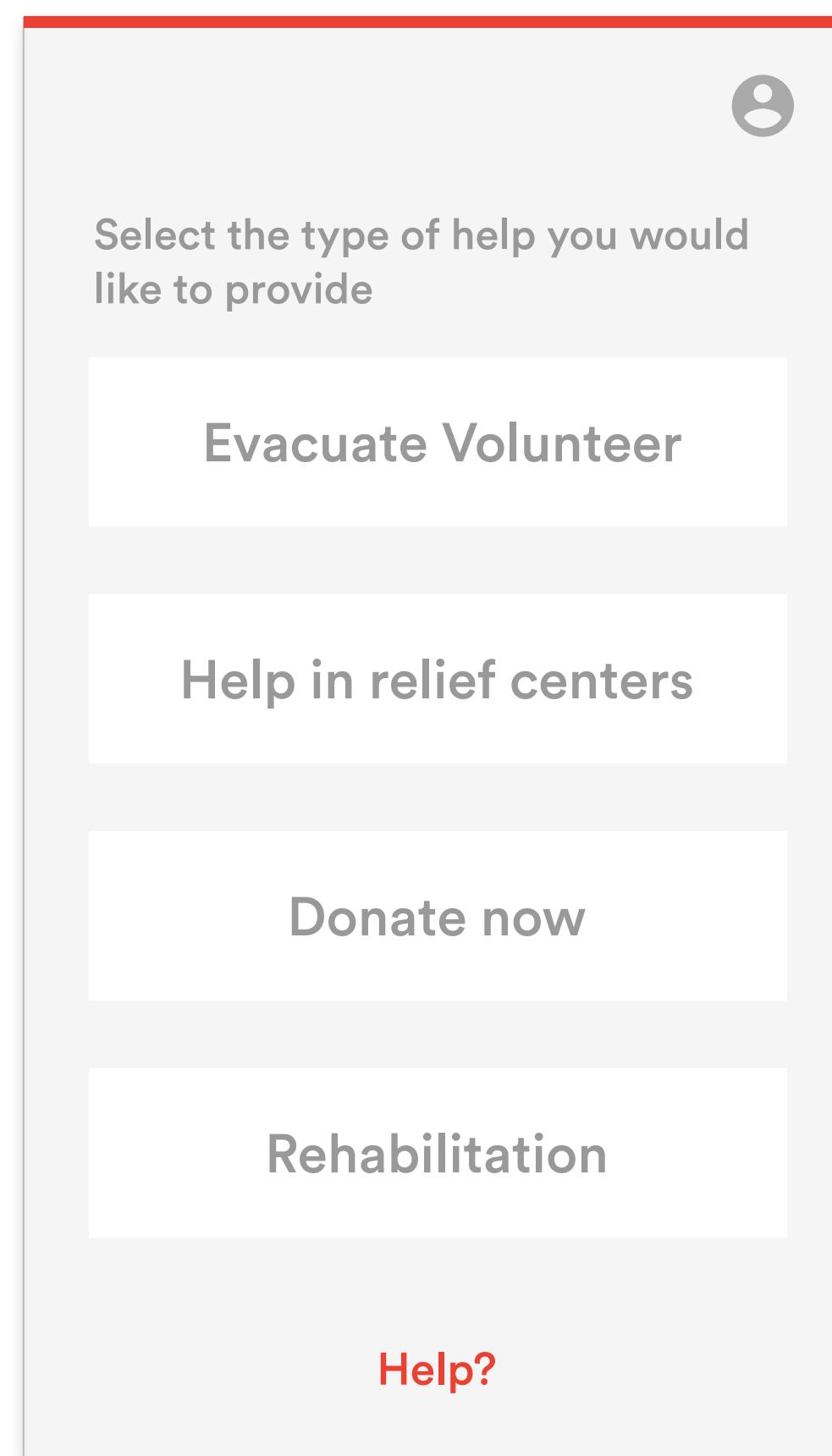
Login as STS Army

Sign Up

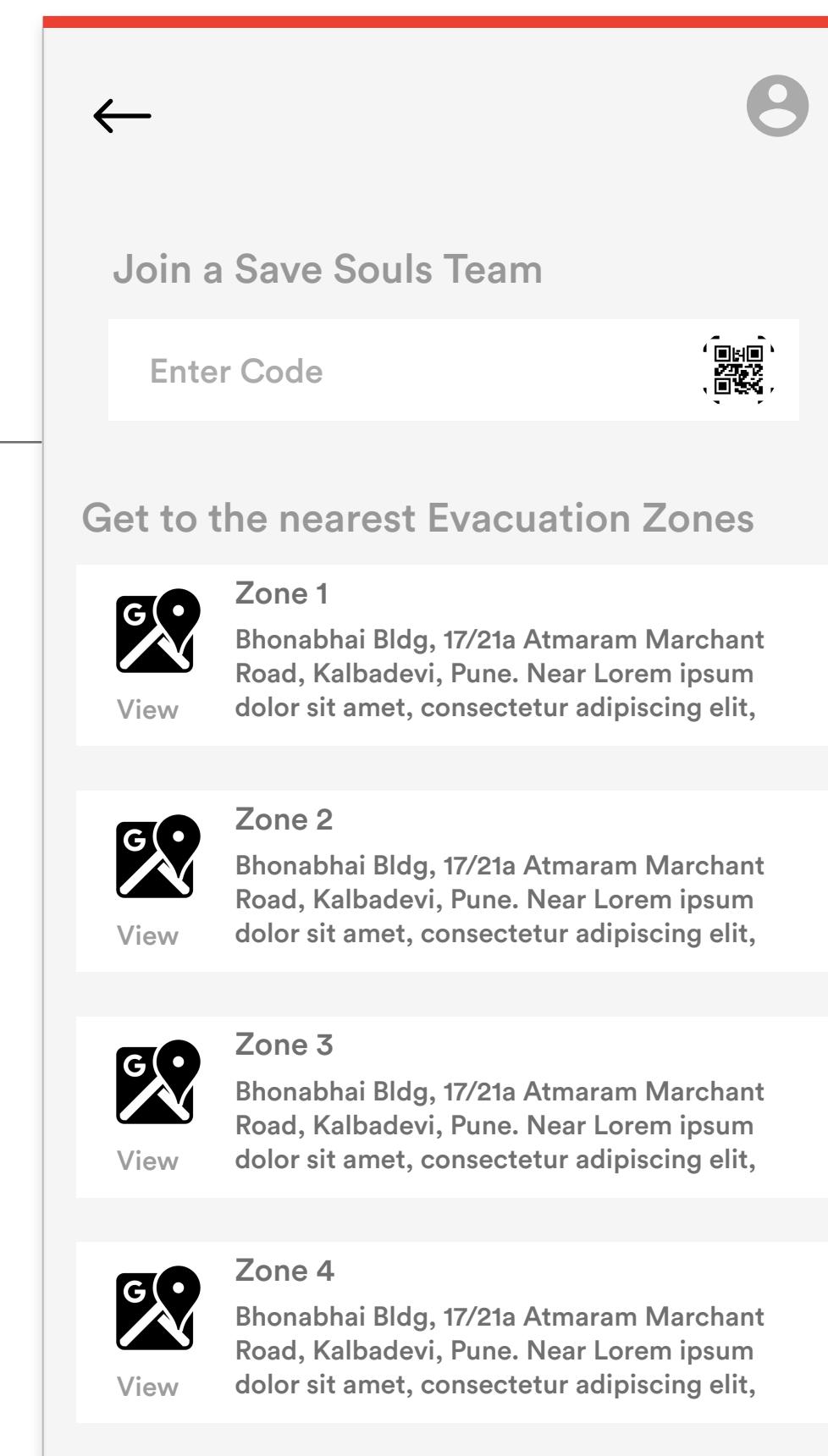
Sign in with Twitter

Sign in with Facebook

On entering the manager provided team code user will be directed to the teams

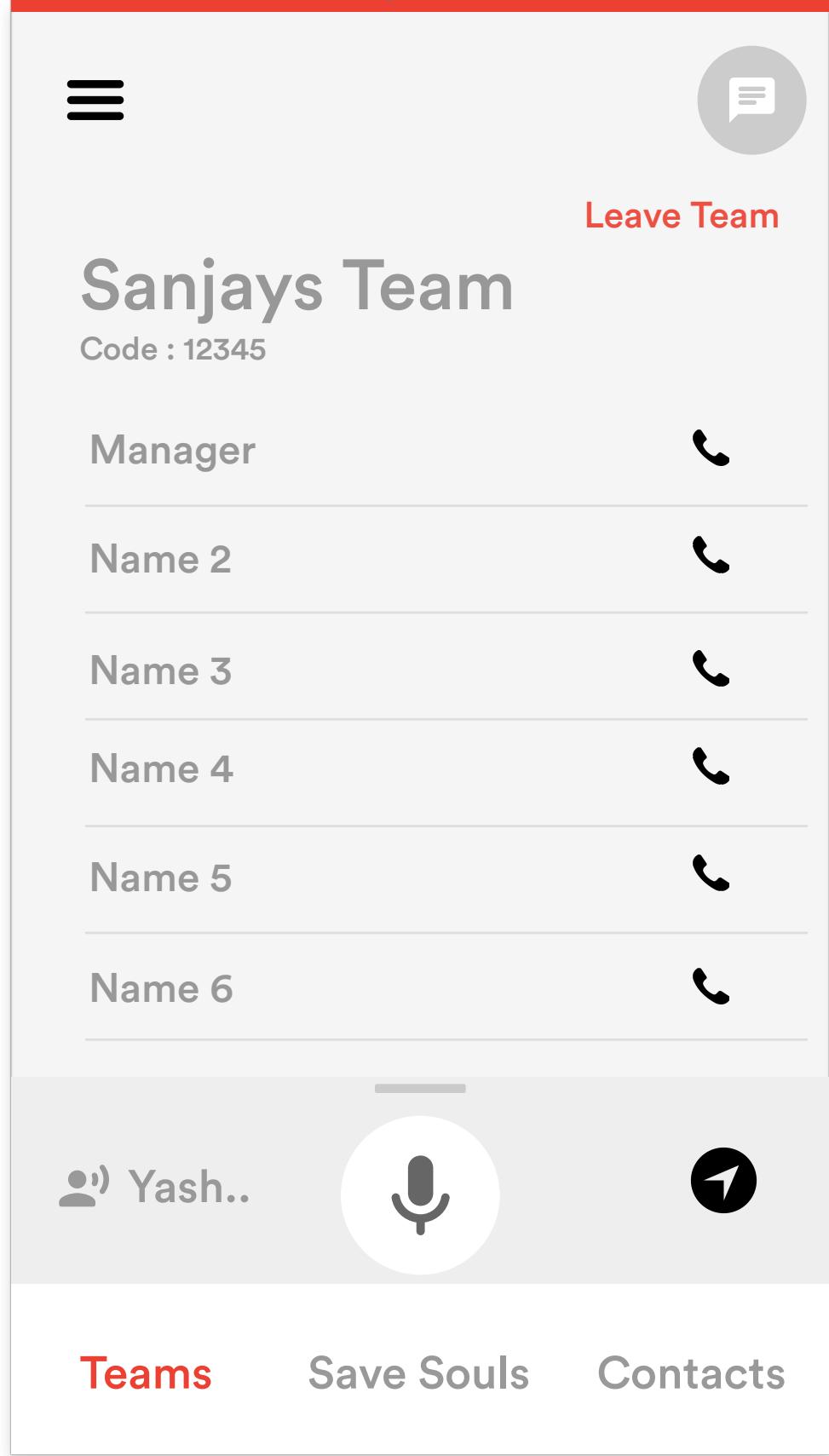


Help?

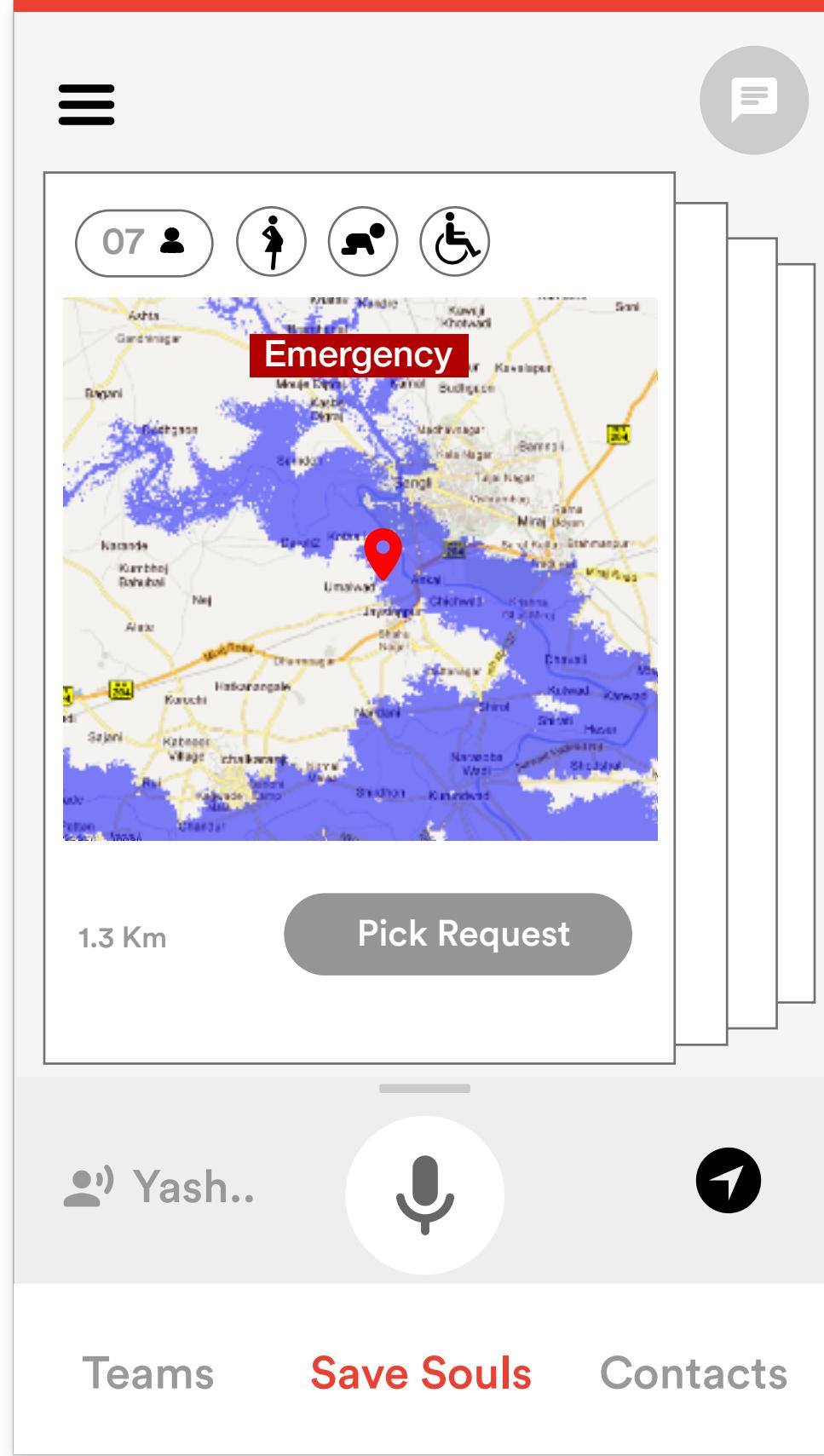


After reaching can join a team by entering Code or scanning QR code provided by the manager.

Based on the users current area a list of near by evacuation zones will be shown.



Will see all the team members in the joined team and contact details.



The Save Soul tab view will be the same for all team members.

The volunteer can choose not to download the application but will keep receiving the navigation coordinates through message when a request is picked.

This is to ensure minimal time and effort required to start an evacuation operation. Even a single member with application installed other than the manager enough to run the evacuation.

Relief Camp Volunteers

The major work to be done in Relief camps is taking care of the people there, understanding their needs and making sure to provide them any relief material that is needed.

With the help of the chat system these volunteers can notify the Save the souls team who is managing all the relief material to provide them anything that is needed in any of these relief camps.

The first screen shows a sign-up form for 'SAVE THE SOUL' with fields for Name*, Mobile Number*, Enter Team Code, and a checkbox for Login as STS Army. It also features social login buttons for Twitter and Facebook, and a 'Sign Up' button.

The second screen displays a menu for selecting help type: Evacuate Volunteer, Help in relief centers, Donate now, Rehabilitation, and a red 'Help?' button.

The third screen shows a list of nearby relief camps with icons, names, addresses, and 'View' buttons. A callout from this screen points to the fourth screen.

The fourth screen shows a list titled 'ABC team' with members: Name 1 through Name 6, each with a phone icon. Below this is a search bar with placeholder 'Yash..', a microphone icon, and a '1' icon. At the bottom are 'Teams', 'Chat', and 'Contacts' tabs.

On selecting a relief centre, user will see all the member working there.

The top section shows a message from 'Save Soul Team' asking if any relief material is needed. Below it, a message from 'Prajakta' lists required items: cotton and savlon bottles, and blankets - 10, male shirts - 15. A text input field 'Type here' with a send arrow is at the bottom, along with 'Teams', 'Chat' (highlighted in red), and 'Contacts' tabs.

All the team members in particular camp can keep posting the material needed in the chats.

A modal dialog titled 'Add Items' with a search bar. The 'Food' category is selected, showing items like Biscuits, Food Item 2, Food Item 3, Food Item 4, Food Item 5, Medicines, Blanket / Clothes, and Category 4, each with quantity input fields and plus/minus buttons. A 'Submit' button is at the bottom.

Users can select materials under different categories and their amount.

Donations

Save souls will set up camps to help collect as many money and material donations. The application and website will show a list of things that they currently need in different camps and will help people make donations just in a few taps/clicks.

Rehabilitations

Immediately after the crisis phase, the clean-up and recovery efforts begin. The application can play an important role in helping the local people by providing volunteers to help in cleaning up houses, clearing roads etc. The registered volunteers will be sent notifications asking them to join the rehabilitation operations.

Take aways

Relying entirely on mobile phones during disasters has its own limitations like finite phone charge, internet connectivity or network. However there are continuous efforts going on to over come such problems.

Some examples below.

- ◊ Croatian firm MeshPoint has designed a highly-portable rugged, all-weather wi-fi and 4G mobile device that can connect up to 150 people to the internet at the same time. It contains a built-in battery to enable quick set-up in the most inhospitable conditions.
- ◊ Vodafone Foundation, the telecom giant's charitable arm, has developed "instant network mini", an 11kg backpack containing a 2G mobile network that can offer a coverage radius of up to 1,000 yards (1km), a six-hour battery and a small solar panel.
- ◊ In recent technology, smartphones have built-in devices like the Bluetooth and WiFi that permits data transmission even without the Internet. These typically enable direct communications between mobile devices such as the smartphone via Bluetooth and store-carry-forward (SCF) routing.

Disaster recovery is heavily focused on coordinating people and resources. What is most important is that efforts are harmonised and the partnerships necessary to deliver them are structured ahead of time, so that when disaster strikes, the potential of mobile technology can be maximised.

While technology alone cannot prevent the suffering that inevitably follows natural and man-made disasters, its better use can at least improve the response of governments, aid agencies and NGOs.

Thank you

Shibani Pandit