OFF-ROAD

Team: 17:33

Design for Crisis

Rebuild and heal the world with design

23rd July, Pune, India

Road Accidents killed more people than the Coronavirus Pandemic last year…

Team 17:33

Meet the Squad

Name : **Gatisha Sapre**
Product Design Student

Name : **Tia Alex**
Graphic Design Student

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Animation Design Student

Name : **Manasvini Purohit**
User Experience Design
Student

Name : **Eshna Sengupta**
User Experience Design
Student

Rupashree N

Principal Product Designer
Zycus, Mumbai

Over

1,31,000 people were killed

in road accidents in the last year alone.

1214 road accidents occur everyday in India.
That is more than the number of people killed in all our wars put together.

Problem Identified

PROBLEM DESCRIPTION

India has 1% of the world's vehicles but accounts for 11% of all road crash deaths.

How can we help save those in road accidents in a country where one death every four minutes and the resources are already limited.

Problem Domains

ENVIRONMENTAL LEVEL

Road accidents often result in gas and fluid leaks, emitting harmful chemicals into the environment that can poison grass, neighboring plants and harm wildlife. Major oil spills from wrecked vehicles are one of the biggest problems with transportation accidents, particularly those that happen near water.

SYSTEMS/GOVERNANCE

Road accidents cost as a tremendous burden to the society and the nation and the estimated cost of a death in a road accident is around Rs 91.16lakh.

PERSONAL

Physical Injury, Emotional trauma, Financial loss, Legal concerns.

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Urgency/Importance

WHY IS IT AN URGENT PROBLEM?

Road accidents have been the leading cause of deaths worldwide with the last three decades seeing a substantial increase in this regard. The WHO's World Report on Road Traffic Injury Prevention lists Road Accidents as the third leading contributor to the global burden of disease, up from ninth position in 1991. India's contribution in this regard is amongst the highest in the world with the country accounting for the second highest number of road accidents globally and the highest number of deaths. A total of **1,51,113** people were killed in India in **4,80,652** road accidents

'Approximately 1.3 million people die each year as a result of road traffic crashes. '

93% of the world's Fatalities on the road occur in low and middle- income countries , even though these countries have approximately 60%of the world"s vehicles .

The Hindu 20/11/19
'53 road crashes, 17 deaths per hour in
Kushaiguda: Housewife killed by speeding truck
FATALITIE 3 killed & 2 injured in 4 separate road accidents
KILLER ON THE ROAD
kills man, driver booked
I-T office
ent on Pur ROADS TO HELL
 t ends
Road accident scenario more 'dangerous' than Covid in India: Gadkari
Malakpet: RTC bus mows down 20-yea
Five men killed
Traffic Cr
1 killed, 4 injured in Salem car crash

We Interviewed

EMERGENCY ROOM

"5-6 road accidents, are reported everyday. Care of injuries after a crash has occurred is extremely time-sensitive: delays of minutes can make the difference between life and death."

ACCIDENT VICTIMS

The accident victims we interviewed ranged from mild to severe even to the point where some don't remember being taken to the hospital. The bystanders in the road accidents played a crucial role in saving the lives of the individuals in severe road accidents.

Our Aim

To reduce the fatalities caused by road accidents.

Our Approach
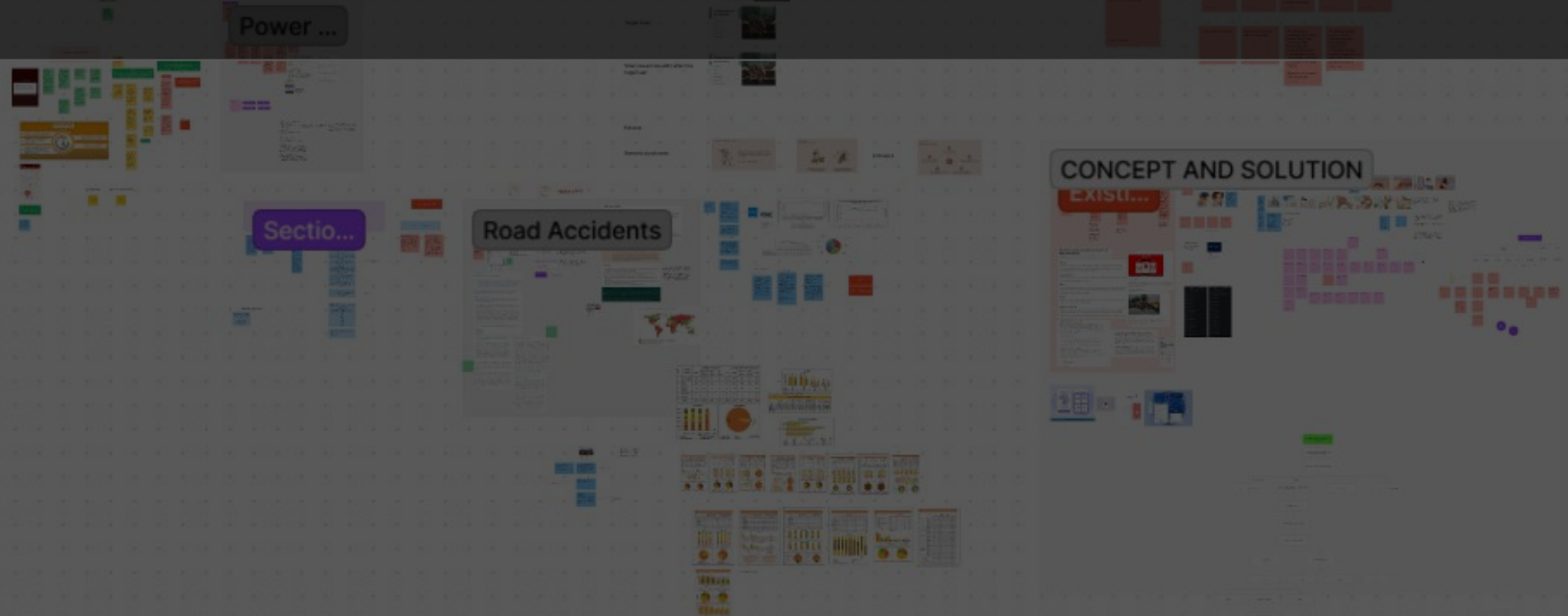
User Persona

BIO

Priyal is 25 year old engineer who lives with her parents and travels to work via her scooter everyday. She is usually responsible enough to wear helmet everyday, but occasionally when she is late, she forgets about it.
She is very close to her parents and for her, they are her lifeline.

SCENARIO

Priyal is driving home from work one day during the rains, which causes her to lose control of the vehicle and skid and fall down. As Priyal is not wearing a helmet, she loses consciousness for a few moments. The last thing she remembers before losing consciousness is the heavy scooter falling on her. On waking up, she realises she is surrounded by people who are trying to help her. One bystander is trying to unlock her phone to call her emergency contact another is offering her water. Priyal still in shock, realises she is bleeding and is quite dizzy. She tells the bystander to call her mom and gives him the password to her phone.

GOALS

To inform her family and call someone to help as soon as possible
To do whatever possible to take care of her injuries.
To quickly go to the doctor and make sure everything is alright.
To reach home safely without further complications.

NEEDS

Needs to know if there is any hospital nearby.
Needs to tend to her wounds as soon as possible.

PAIN POINTS

Has difficulty in helping bystander navigate through her phone while she is still in shock.
Worried about the seriousness of her injuries.
Reluctant to give her password to a complete stranger.
Overwhelmed by the whole situation and unsure about what to do till her mother picks her up and takes her to the doctor.

FEELINGS

Distressed due to the accident.
Panicking because of his injuries.
Confused about how the accident happened.
Annoyed about giving her password to a complete stranger and him not being able to navigate through her phone.
Overwhelmed by the whole situation.

PRIYAL MEHTA

DEMOGRAPHICS

Age: 25
Gender: Female
Occupation: Engineer

User Persona

BIO

Binoj is a middle aged Kirana store owner on a busy road in the city of Bangalore. Because of the amount of traffic on the road, quite a few accidents happen around the locality of his kirana store, but thankfully none of them have ever been serious.
Binoj cares deeply for people and helps anyone in trouble. Whenever he sees someone in an accident, he makes it a point to pick them up and give them water.

SCENARIO

Binoj is tending to his kirana store one day when suddenly a young man driving fast on a bike crashes into a pole and starts bleeding from his head. Binoj and a few others quickly wish to help him to see that the boy is unconscious, his phone a few feet from him. One of the bystanders calls the ambulance whereas a few others try to wake him up. Binoj pick's up the boy's phone to try and call his parents to inform them, but the smartphone seems to be locked. All the bystanders start panicking as they are unaware of the first aid to be given and on top of this the ambulance is taking time to arrive .

GOALS

To make sure the boy is alive.
To do whatever possible to help the young man.
To inform the ambulance and the young man's family.

NEEDS

Needs to know if there is any doctor nearby who can take care of the young man.
Needs to make sure the boy is alive.
Needs to know steps to provide first aid.
Needs to unlock the young man's phone and inform his parents.

PAIN POINTS

Is not able to assess the extent of the injuries and what he can do to help the boy.
Is not able to inform the boy's parents.
The ambulance is taking too long to arrive.

FEELINGS

Distressed due to the accident
Panicking because he is worried for the boy's life.
Annoyed at not being able to inform the boy's family.
Irritated at the amount of time the ambulance is taking to arrive.
Confused as to what he can do to save the boy's life.

BINOJ BIRADAR

DEMOGRAPHICS

Age: 47
Gender: Male
Occupation: Kirana Store Owner

User Persona

BIO

Ratin is 23 year old college student studying in Mumbai. He travels 15 kms everyday through the crowded streets of mumbai to get to college. He occasionally drives over the speed limit when late for college.
He is the eldest son, a responsible person with a tight schedule who does not like to waste his time. He is usually calm, but has issues controlling his anger sometimes. He cares about his family and other people and is usually amiable.

SCENARIO

He is driving home from college one day, slightly over the speed limit when a speeding car comes from the opposite direction. To avoid a collision, he swerves to the right and hits the breaks, causing his bike to skid.He falls of the bike, losing consciousness for a few moments and injuring his knee, which starts to bleed. Bystanders help him to his feet and get his bike off the road, The bike suffers damages and the car driver doesn't even stop and is long gone.

GOALS

To not get the police involved or get in trouble
To get home as soon as possible as
To make sure his family isn't worried or upset
To do whatever possible to take care of his injuries and the damage to his bike
To be able to go to college the next day

NEEDS

Needs to know if there is any hospital and mechanic nearby
Needs to make sure none of his injuries are serious
Needs to get home before the rush hour

PAIN POINTS

Is not able to assess the damage to the bike which was pretty new and expensive
Worried about the seriousness of his injuries and not sure how to treat them
Does not anyone in the area who he could call for help
Isn't able to think properly because of the accident

FEELINGS

Distressed due to the accident
Panicking because of his injuries and the late hour
Upset about the damage to his new bike
Angry with the reckless driver who caused the accident
Overwhelmed by the bystanders who are not as helpful

RATIN SHARMA

DEMOGRAPHICS

Age: 23
Gender: Male
Occupation: Student

Our Thinking Process & Design Brief

Providing timely help to victims right after an accident has taken place

LOOKING AT THE BIGGER PICTURE

On interviewing medical professionals and industry professionals, we found major touchpoints where design intervention can be used to deal with the crisis of road accidents.
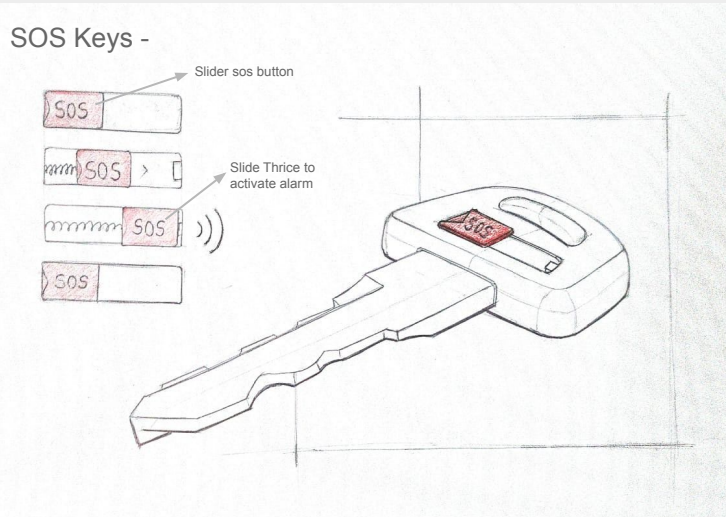
NARROWING DOWN

'Pre accident' i.e. prevention of accidents and 'post accident' i.e. providing timely help to those in an accident were 2 major areas where design intervention could be used to tackle this crisis.

COMING UP WITH PROBLEM STATEMENT

Providing timely help to those in an accident proved to be an area which requires major scope of improvement. The time taken between placing a call to the ambulance and the arrival of one is of crucial importance for the lives of the victims.So we decided to bridge that gap.

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Explorations

Concept 1-

SOS Keys -

Slider sos button

Slide Thrice to activate alarm

Concept 2 -

Helmet kit

First Aid kit

Gauze

Ointment Sachets

Blade

Concept 3 -

Helmet popsocket
-Attaching the helmet to the front panel of the scooter with the help of an external attachment. This will encourage the rider to always remember to wear a helmet as the ignition start won't unless and until it is sensed that the helmet has been taken off the socket.

In times of emergency we thought of what all is accessible and one of the things that we came across are keys. They are always present with the victim, hence we added an SOS feature to it . This SOS button is unlike any other, it is a slider button which needs to be slided thrice to send an emergency signal. The slider button has an advantage over a press one as it prevents sending and blank call.
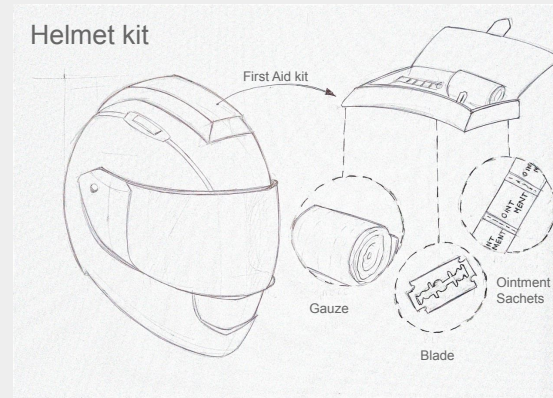
Since most of the road accidents are experienced by a two wheeler, we thought of adding on a first aid compartment on top of the helmet, such that a person during the times of emergency can have easy access to necessary first aid supplies.
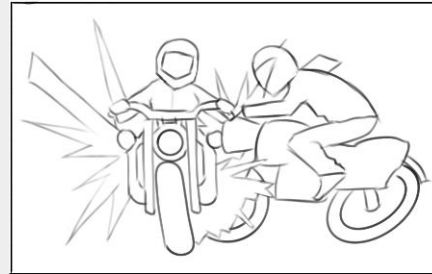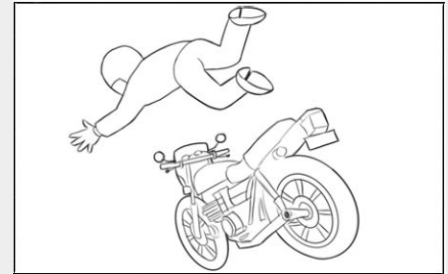
Problem Scenario

A man is riding a bike
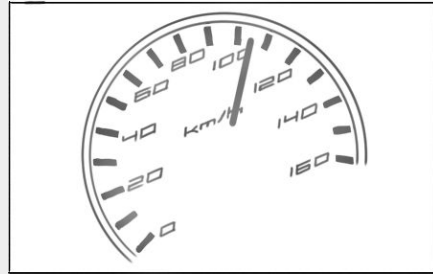
He is over speeding

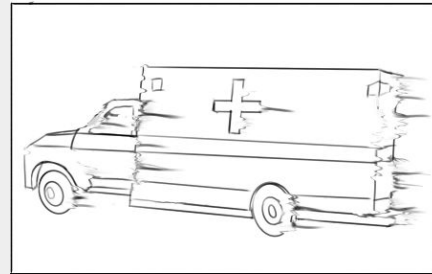He collides with another bike

He flies out of the bike

And is severely injured

The bystanders call the ambulance but are in confusion on what to do next

The ambulance is running late

The man dies before the ambulance arrives

Role of Bystanders during Accidents

When a person is injured in a traffic crash, actions taken by bystanders often are of crucial importance. To perform first-aid actions in a correct manner the knowledge to do so is of immense importance. Unfortunately, the bitter truth is, in India, very few people have first aid training, often leading to a life-or-death situation. Delays in notification, or long distances, may cause an ambulance to take a half-hour or more to get to a crash site. Until medical help arrives there may be a need for someone capable of providing basic life support for the injured. Moreover, most people are unaware of the emergency numbers of India, often causing confusion at an already panicking situation.

Design Process

- Desk Research on emergency situations

- Exploring associated problems like emergency platform in India, health crisis, power crisis among others.

- Selecting problem area after major desk research - road accidents

- Primary research to understand users, severity of the problem and mentality of those around an accident victim

- Primary research & interviews to understand users, severity of the problem and mentality of those around an accident victim and the time and pressure constraint.

- User Personas based on extensive primary research

- Brainstormed solutions for pre and post accident design interventions

- SWOT Analysis for selection of final concept

- Competitive Analysis to assess the existing solutions & their strengths and weaknesses

- Information Architecture

- Wireframing and mockup

What could be the solution then?

To answer that we first asked ourselves a few questions

What is one thing that you can always assume people to have, even in times of emergency? **One thing that would remain consistent.**

What can we do to make the **most out of the already limited resources** available to people?

What would be the **learning curve** for the user (bystander or victim) incase they need to assist?

How do you deal with the **widespread unawareness**?

How do you **help people help others**?

Introducing
# SAHAYAK

Helping you Help others

A SYSTEM UPGRADE

Sahayak: The concept

Sahayak is a road emergency redressal system in the phone with guided help system that help either the victim help themselves (in case of a minor accident) or any bystander help the victim (incase the victim in unable to do it themselves).

Sahayak detects major jerks through GPS receivers and accelerometers and starts emitting SOS alarm that keeps increasing in volume until someone notices the phone. It contacts the ambulance and the emergency contact of the person and then guides the victim throughout the whole process with guided steps and illustrations till the time the proper help arrives.

The solution does not require the user to have prior experience with First Aid and takes into account the stress and the panic of anyone involved in the situation. It guides user step by step, conveying in a clear manner what has to be done at every stage.
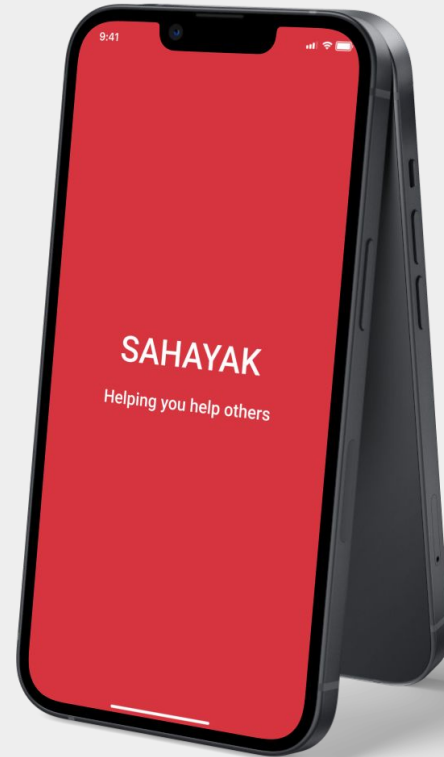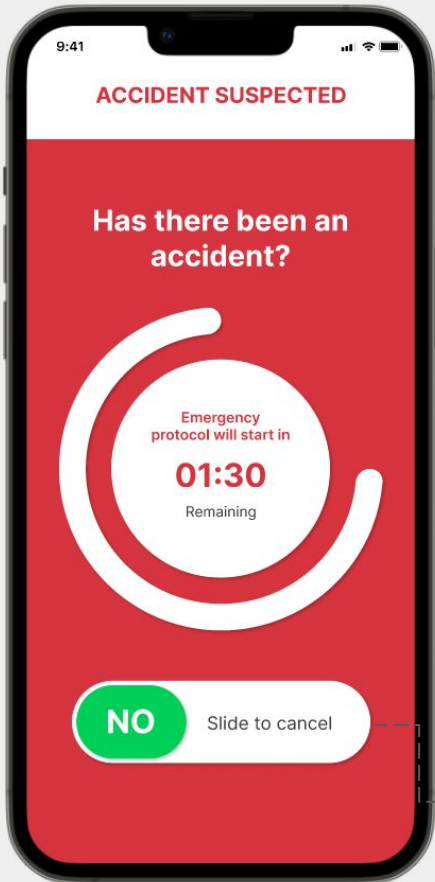
The emergency response system starts on it own when it detects a major jerk and turns on a timer, which automatically starts the emergency response system in case of failure of the victim to say no

Ambulance and emergency contacts are contacted by the system with live location

Cancel button with a slider to end the emergency procedure

A slider button for cancelling the emergency protocol to avoid accidental click and cancellation
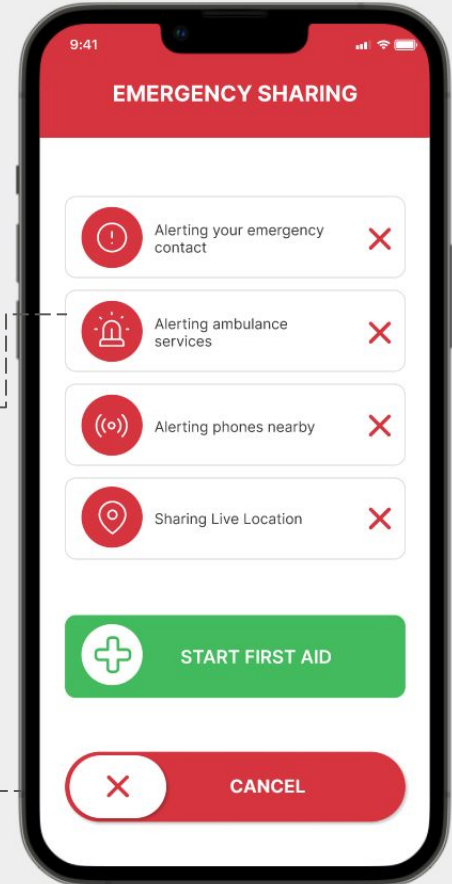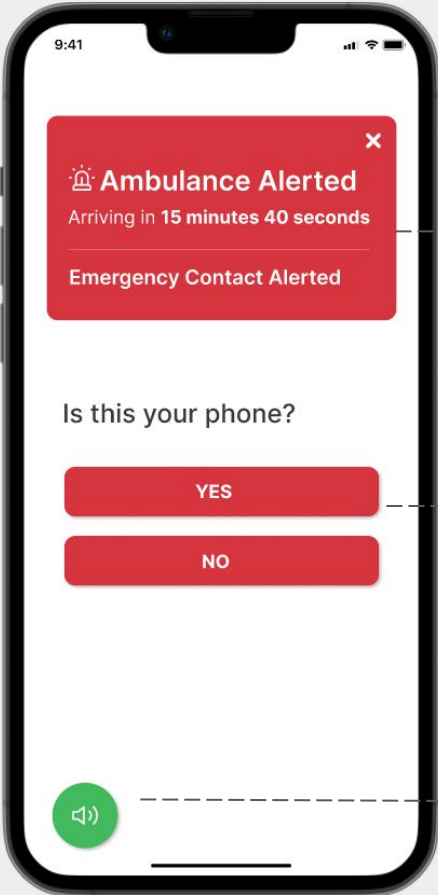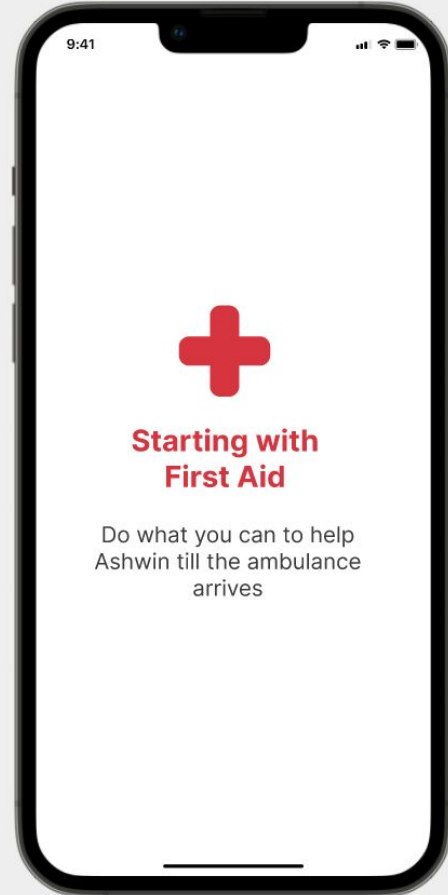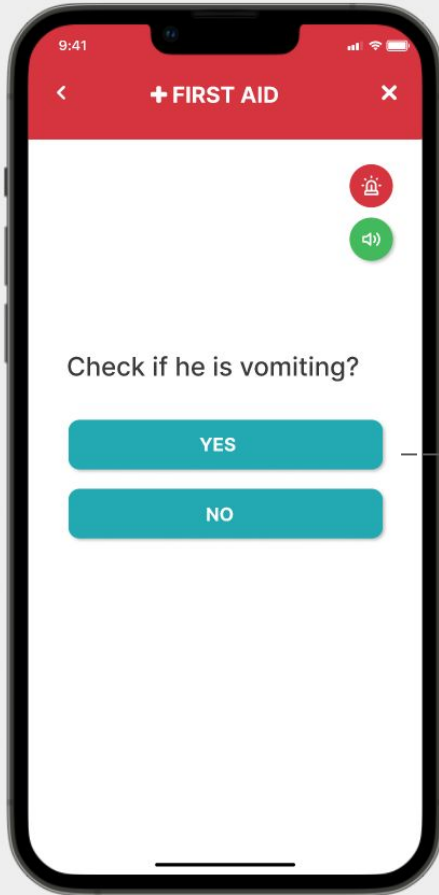
A message conveys that the ambulance and emergency contact has been alerted and the ETA of the ambulance

The system identifies if the victim themselves are (capable of) using the phone so that the steps provided can be altered according to that

Provides audio instructions in regional languages for ease of understanding

Ambulance Alerted

Arriving in **15 minutes 40 seconds**

Emergency Contact Alerted

Is this your phone?

YES

NO

Starting with First Aid

Do what you can to help Ashwin till the ambulance arrives

First phone screen:

9:41

< **+ FIRST AID** ×

Check if he is vomiting?

YES

NO

Callout / tooltip:

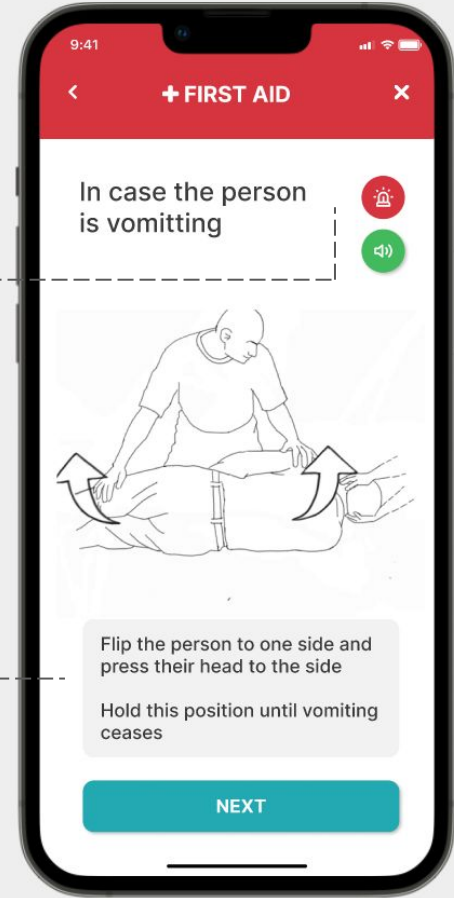Ambulance will be here in 00:13:45

×

Annotations:

A floating button on every screen that updates and shows the estimated time of arrival of the ambulance
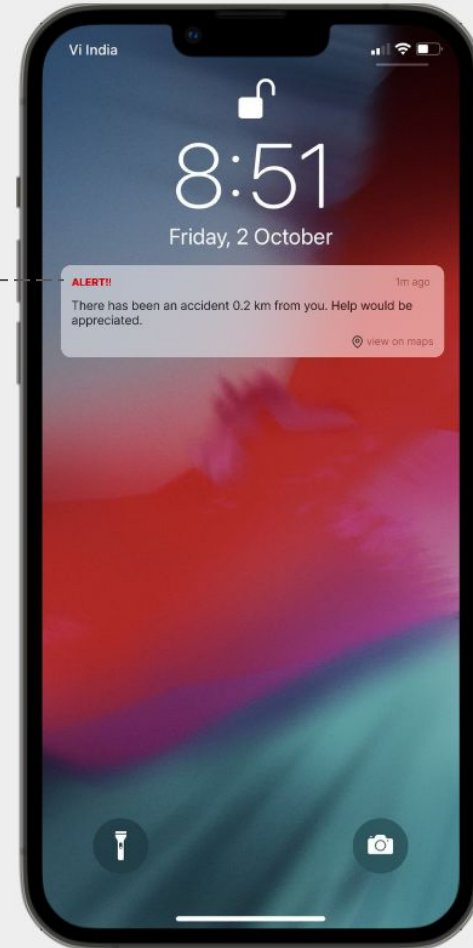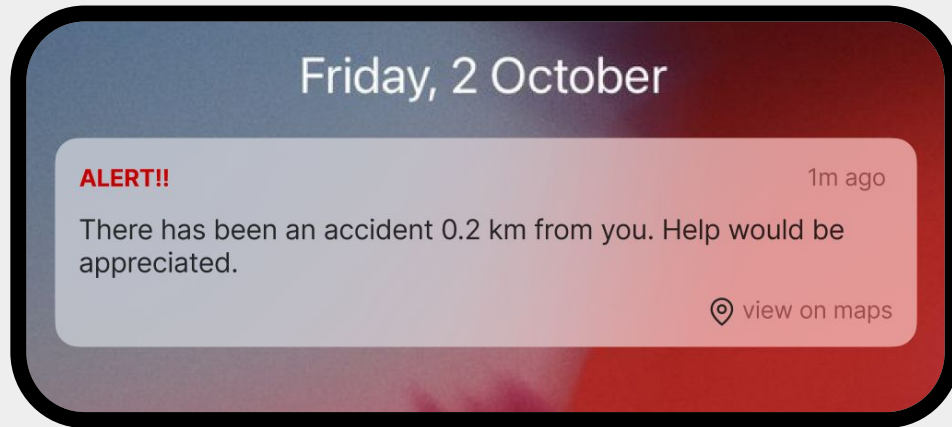
Simple first aid questions for every stage that allows the user to identify and deal with every problem

Easy to understand instructions with illustrations and gifs to guide the user through the process

Second phone screen:

9:41

< **+ FIRST AID** ×

In case the person is vomitting

Flip the person to one side and press their head to the side

Hold this position until vomiting ceases

NEXT

Engaging the Community

Notification displayed on nearby phones via bluetooth to alert them about an accident and urge them to help

Friday, 2 October

ALERT!!   1m ago

There has been an accident 0.2 km from you. Help would be appreciated.

view on maps

Designing for Emergency

Sahayak has been designed keeping in mind that it will be used in a stressful situation by people in panic and possibly distressed by the accident.

The UI has been designed to keep the cognitive load with a clean and simple colour scheme following visual hierarchy giving importance to the crucial steps. Simple gifs have been used to demonstrate the first aid along with text to help bystanders easily understand and provide help. Keeping all audiences in mind, audio instructions in regional language will also be provided.

User Experience

View detailed flow of the system:

https://www.figma.com/file/vg4Z2vwvNB8NuIJ1gTz1IP/UMO-Team-17%3A33-Flow-of-solution?node-id=0%3A1

Download System Update for your Phone

Give Bluetooth, location and contact permissions for when an accident is detected

Alarm Protocal initiated on detection of accident

Emergency protocol de activated

View First Aid

Protocol Activated: Emergency contact and ambulance called, live location shared & nearby phones alerted

Detailed First Aid instructions on type of injury

Detailed First Aid instructions on type of injury

view nearby pharacies

ETA of ambulance

Sustainability

Road accidents are an unfortunate reality of our lives, killing 1.3 million (13 lakhs) people in the last decade alone. As more and people buy automobiles, road accidents increase by the day. The time between placing a call to the ambulance and its arrival can prove fatal.

Our solution, **'Sahayak'** aims at reducing the death caused by road accidents. It finds a way to help those in the accident by alerting the people around the victim, giving them the right guidance for first aid help which can be crucial in saving a life.

As long as road accidents are prevalent our solution is applicable. Thus proving to be long lasting, sustainable and easily executable.
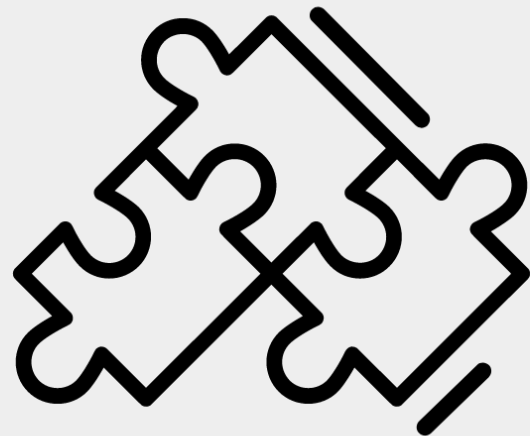
Impact on the Society

IMPACT ON SOCIETY:

Based on a survey we conducted, only 7 out of 40 people knew the number to the ambulance and none knew the steps to basic first aid. During an emergency situation getting help as quickly as possible without further panic is of crucial importance. Our solution:

1. Provides immediate first aid: If the victim(s) isn't in a major accident, they can self assess their wounds and treat themselves with the guided help provided by our solution. Bystanders can help the victims based on the guided steps which would also be relayed in the regional language for ease of use.
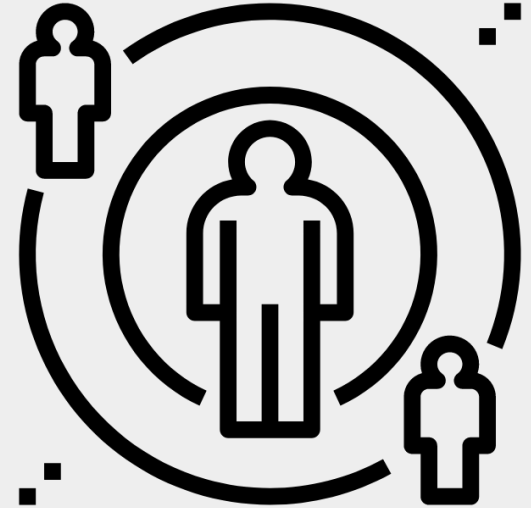
2. Connecting to emergency contacts: In the case of serious accidents, the solution will automatically alert the ambulance and the victims emergency contacts, without having through the hassle of unlocking the victim's phone.

3. Connecting to pharmacies and hospitals: Immediately connecting the victim and bystanders to the health facilities nearby.

4. Alerting those around about the Accident: Immediately providing help to the victim till the ambulance arrives.
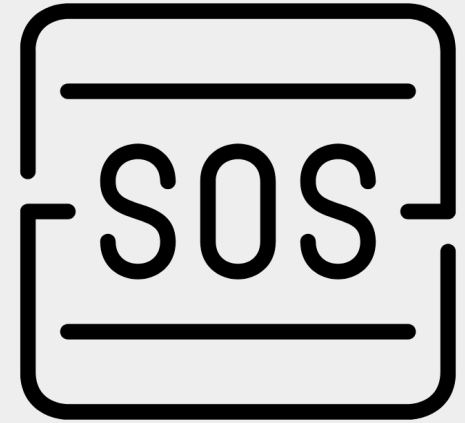
# Practicality & Business Viability

During accidents, the one thing that always remains with the victim's is their smartphones making it a crucial part for any solution involving road accidents.

The smartphone can detect the accident through their onboard sensors (such as GPS receivers and accelerometers). Accident detection systems can help reduce fatalities stemming from road accidents by decreasing the response time of emergency responders and getting valuable first aid help for the victims.

As our solution can be introduced as a native update across all mobile phones, it can be accessed by everyone and doesn't need to be downloaded as a separate app, thus making it an **economically viable, timely and practical solution.** The application would require an initial feed of information regarding first aid instructions. As apart from this, no other previous information needs to be fed into the smartphone, the time required to build the application would be minimal. The location of hospitals and pharmacies can be taken from location data (google maps) and detection of smartphones nearby can be easily done with Bluetooth detection of nearby devices to send them an alert.

According to our primary research, during road accident. Since most people have smartphones, this emergency SOS feature can be easily accessible. The alarm blaring of the phone after an accident will cause the bystanders to give their attention to the victim's phone and provide them with timely help.
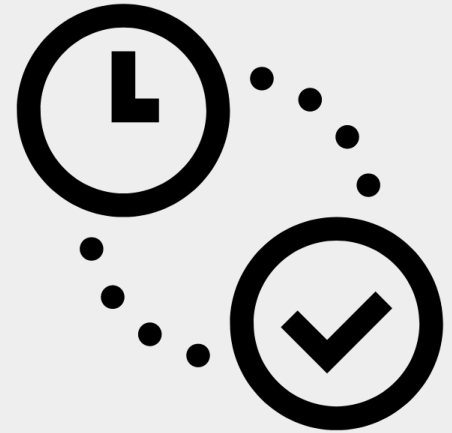
Link to Prototype Video

THANK YOU

We, Team 17:33 would like to thank UMO Design Foundation for giving us this incredible opportunity to solve a problem which has been existing for a long time and a platform for us to push our boundaries and showcase our talents. We would also like to thank our mentor Rupashree ma'am for guiding us through this incredible journey.

Lastly, we'd like to express our gratitude to all those who patiently sat through our interviews and provided us with invaluable information.