



**WebSeekers**

# GSL IOT FINAL COURSE PROJECT

Presented by WebSeekers  
Tecnológico de Monterrey & ITA





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## INTRODUCTION

Our project doesn't have a commercial objective, but a social one. Natural disasters affect tons of people around the world, and it's crucial because most of them can't be predicted. With this project we are committed to develop a tool, in this case an app, which provide safety features in case of any disaster.





# PROBLEM



Even though one of the major successes over the past century has been the dramatic decline in global deaths from natural disasters, there are still some countries that struggle with this.

Populations in low income countries – those where a large percentage of the population still live in extreme poverty, or score low on the Human Development Index – are more vulnerable to the effects of natural disasters. (Ritchie & Roser, 2014).



## PROBLEM



Scientific advances are moving technology from predictable spaces into disaster zones. After earthquakes, tsunamis, wildfires, hurricanes, etc. the response teams can use devices such as drones to help boosting the chances of rescuing more victims.

The urgent priority is to rescue the victims, and to quickly re-establish means of communication, transport and supply routes for deployment of external relief. (Medicins Sans Frontieres, 2016)





## TECHNICAL ARCHITECTURE



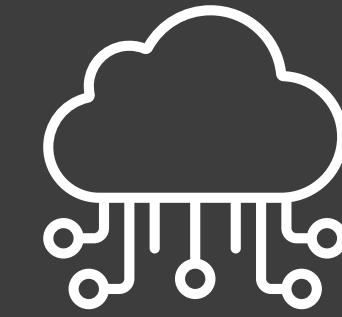
### CLIENT STAGE

Connection to users will be established via Android Devices, since they are popular devices and fulfill the connection requirements.



### EDGE STAGE

Enables the transportation of Mosquitto Broker messages from devices as cellphones and our edge connector container.



### CLOUD STAGE

First, implement a python script in the server to establish the MQTT broker connection. Then, connect it to the dashboard and display the data in a map.



## TECHNICAL ARCHITECTURE



### Broker (MQTT)

We used Mosquitto as our MQTT broker, one of the most popular protocols for IoT. Devices are connected to the broker assuming roles for publisher and subscribers.

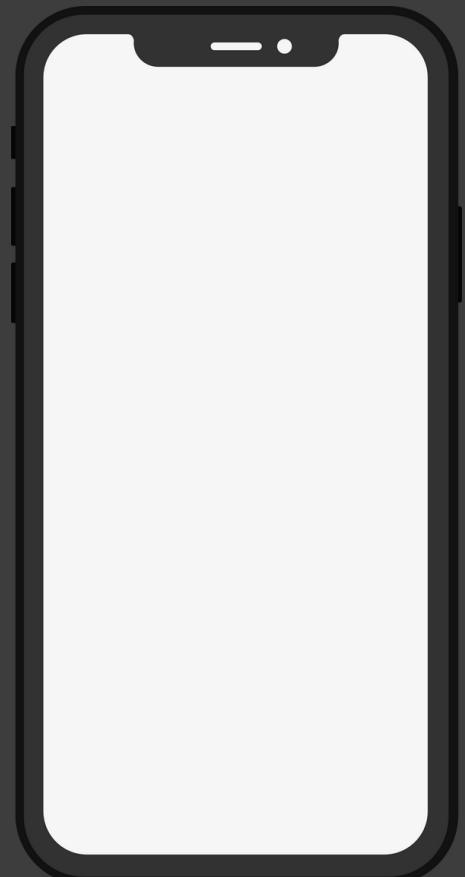


### Database

Our data base is managed thru MySql, and stores all the messages sended by the users. Messages include risk level and exact coordinates.



## TECHNICAL ARCHITECTURE



### Mobile app

This mobile application is installed on the phone (Android devices) and connected to the internet so it can communicate to the dashboard via the broker.

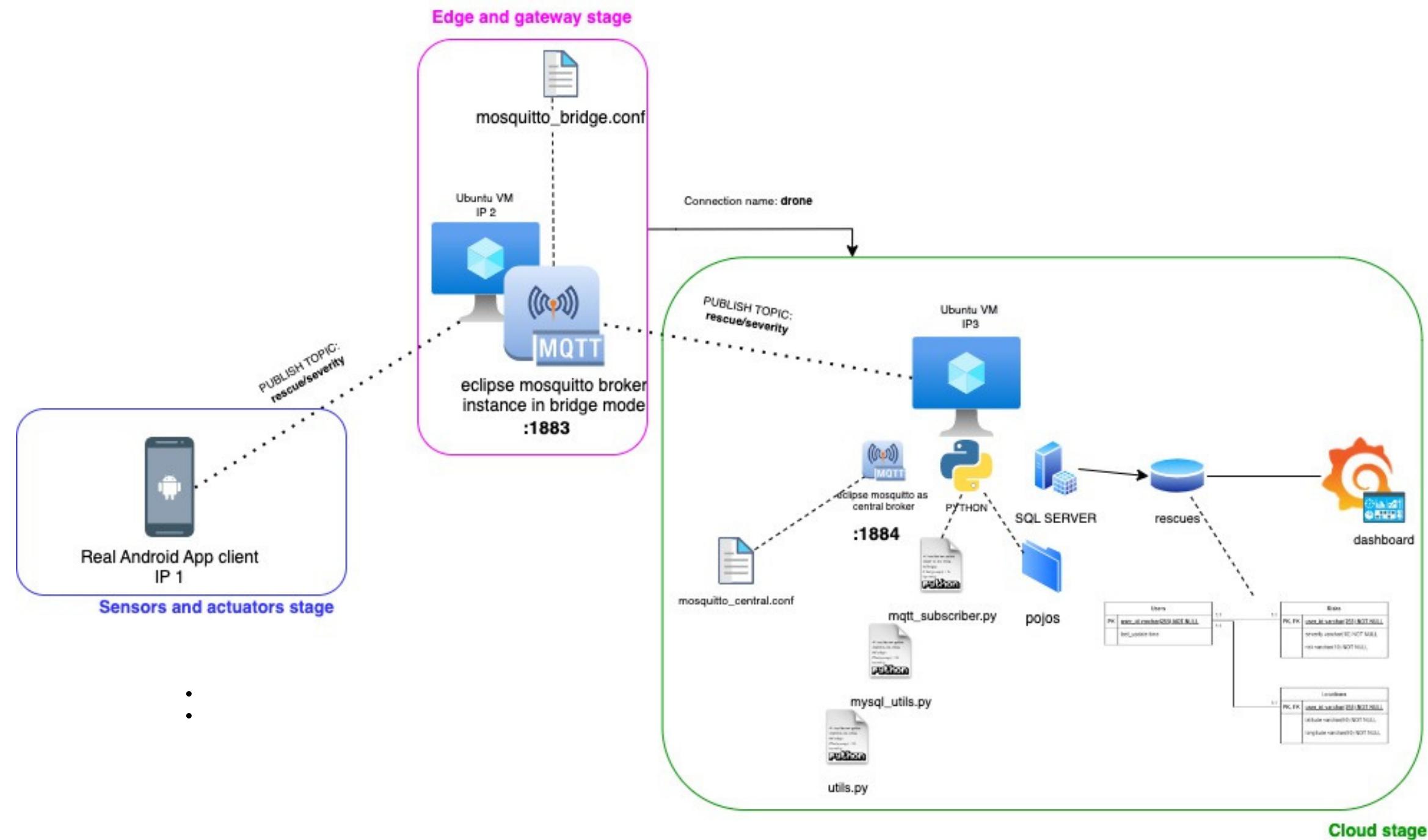


### Network

In order to send and receive all the rescue messages, users and operators must have a connection to internet, it could be thru Wi-Fi or cellular connection.

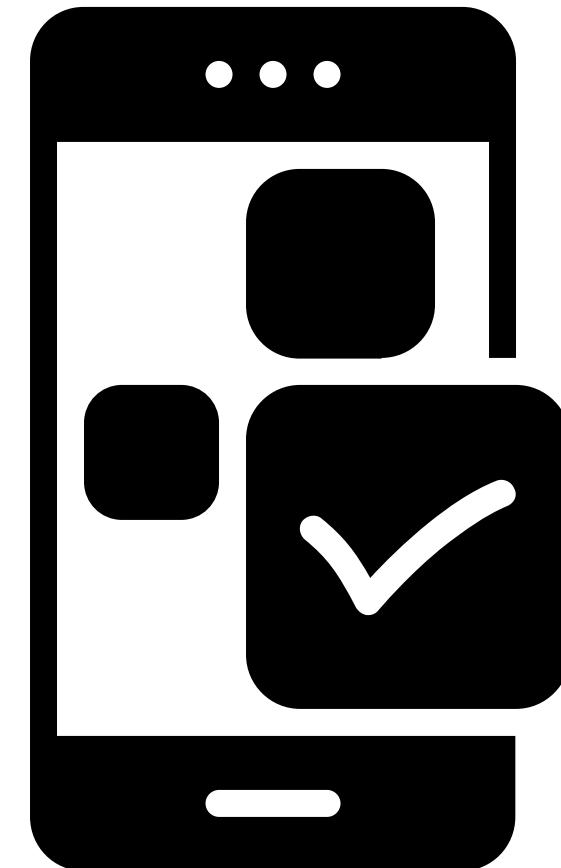


# TECHNICAL ARCHITECTURE





## USER PERSONA

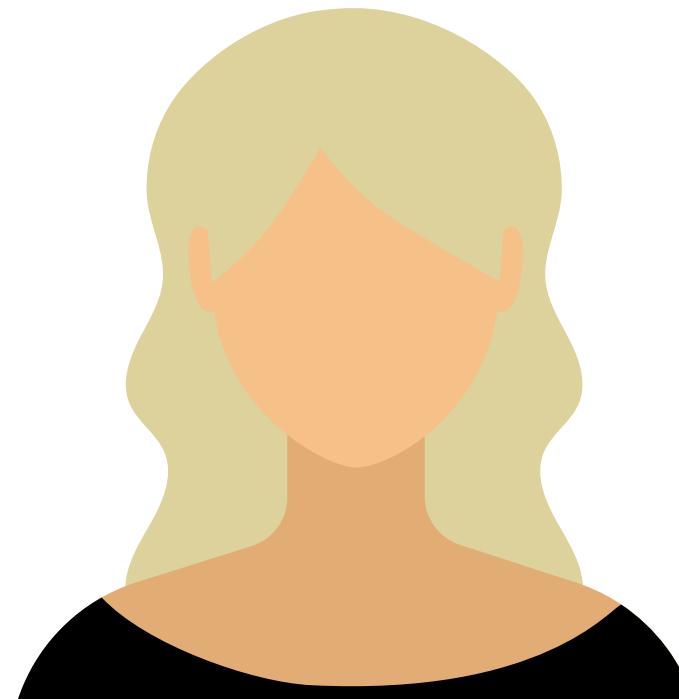


### Personas are...

- Archetypical users whose goals and characteristics represent the needs of a larger group of users.
- Designers usually create user persona templates, which include a few fictional personal details to make the persona a realistic characters well as context-specific detail.
- Their main purpose is to serve as the basis for developing an app that is functional for a wide audience.



# USER PERSONA (MEX)



In this situation of crisis, what I need the most is to be able to communicate to my family and ask for help if I'm in a situation of high risk.



**Dalia de la Garza, 17**

## Scenario

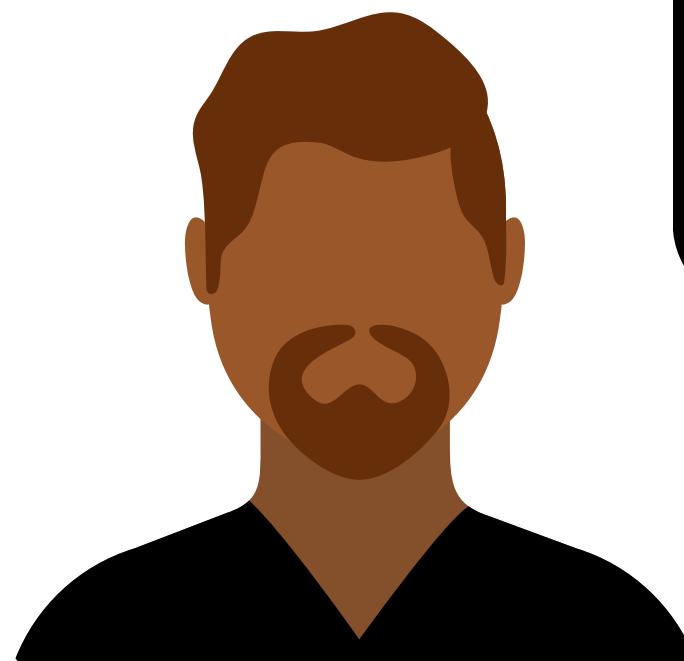
"The other day I was walking to work and suddenly a flood washed everything away. My family was in the house and I was very worried about them because our house is very small and not well built. Apart from that, I cannot communicate with them because the local communications infrastructure was devastated."

## User profile

- **Gender:** female
- Tropical country
- **PT:** extroverted
- **Education:** Junior High School Degree
- **Occupation:** Part-time employee in fashion store and fast food restaurant
- Lives with her family
  - Household income (PPP): \$13,989
- **Location:** Nuevo León
- **Devices:** Mobile phone, laptop



# USER PERSONA (BR)



**Antonio Pedreira, 32**

In this situation, what I need the most is to be able to ask for help to an emergency center in case I'm in danger, as I have no family to support me.



## Scenario

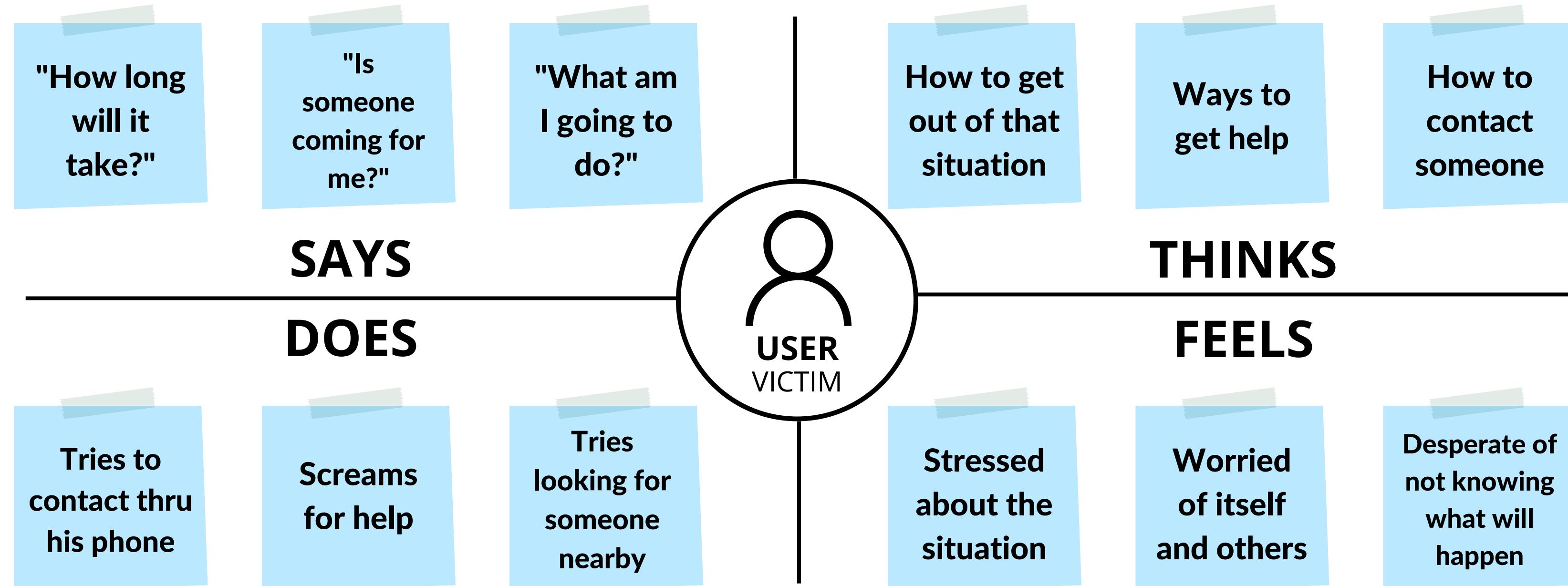
"The other day I was in one of my shifts at the restaurant and suddenly everything was flooded and devastated. A lot of people were hurt and we cannot communicate. Some of my coworkers are at a high risk and we have no one to inform as all the communications are dead".

## User profile

- **Gender:** male
- Tropical country
- **PT:** introverted
- **Education:** High School Degree
- **Occupation:** Waiter
- Lives alone
  - Income: between BRL 25,838 and BRL 37,877.
- **Location:** Itajaí
- **Devices:** Mobile Phone



# EMPATHY MAP





# DEMO OF SYSTEM

**JOIN US IN THIS BRIEF  
DESCRIPTION :)**



# SOLUTION CONFIGURATION

GitHub link:

<https://github.com/ErnoMitrovic/WebSeekers>



¿How to compile, configure  
and run the solution?

Setup and tips to compile  
the code





## REFERENCES

- Ritchie, H., & Roser, M. (2014, June 3). Natural Disasters. Our World in Data.  
<https://ourworldindata.org/natural-disasters#natural-disasters-kill-tens-of-thousands-each-year>
- Natural disasters in depth | MSF. (2016). Médecins sans Frontières (MSF) International.  
<https://www.msf.org/natural-disasters-depth>



WebSeekers



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- José Andrés Rodríguez Ruiz
- Victoria Rodríguez de León
- Juan Antonio Mancera Velasco
- Owen Rosales Castro



**THANK YOU!**