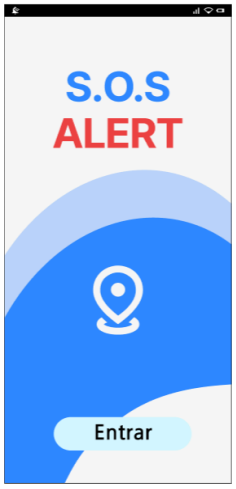
Tecnologia em Sistemas para Internet - IFRS Porto Alegre

Interação Humano-computador
Final Project

Aplicativo SOS ALERT



Componentes do grupo

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1. Introduction

1.1. What is the app

S.O.S. Alert is a real-time emergency reporting app. Users can add and see, in a map visualization, different types of emergency and crisis events, such as flood, bomb attack, shooting, safety zones, availability of drinking, that are happening close to them or in other world regions.

The reports, besides user generated, can be informed by other entities. Official authorities can collaborate with the reports, such as local police, city hall, civil defense and also other important groups related like local newspapers or Non Governmental Organizations (NGOs).

Other key features are also designed to help people that are facing these situations. Notifications and Alert System, to get informed of what threats are happening nearby. Tracing routes, based on the reports that are active. Orientations and Help Contacts for different necessities.

1.2. App objective

The main objective of the app is helping people in emergency scenarios and crisis situations. With global warming and war conflicts, people in the city face more problems every day that involve risks to public safety, health, or order, taking by exemple floods, storms and war fields. These kinds of problems demand a coordinated response and articulation to enhance public safety and awareness in an easy and fast place where people, working together, can effectively inform, get informed and have the tools to face the emergency situations.

1.3. Target audience

The target audience of the app is the general citizen that lives in areas that have a high occurrence of emergency and crisis events, such as urban cities in developing countries and war conflict zones, like places in Israel, Haiti, Ukraine. Local Authorities, NGOs, journalists, and other interested groups also are an audience segment and have an important role as information contributors. Travelers that don't have so much knowledge about a new place visiting, also will make part of the audience.

1.4. Technologies considered

- Crowdsourcing: forms and quick-report buttons, with support for text, images and videos.
- Data Validation and Processing: Mechanism of confirming a report, detecting a false report and outdating an event.
- Geolocation and Mapping: GPS and Geofencing.
- Real Time Communication: Push notifications.

2. Development

2.1 Definitions made by the group

Interaction requirements:

- Simple and intuitive, prioritizing quick and easy actions in emergency situations.
- Minimal use of text, focusing on clear icons and visual elements.
- Fluid navigation and quick access to main functions (report emergency, view map, see guidelines).

Interface requirements:

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- Clean and minimalist interface, prioritizing information readability.
- Colors that convey urgency and reliability (e.g., red for emergencies, green for safe zones).
- Easy-to-interpret maps, with clear icons for different types of emergencies.
- Technological requirements:
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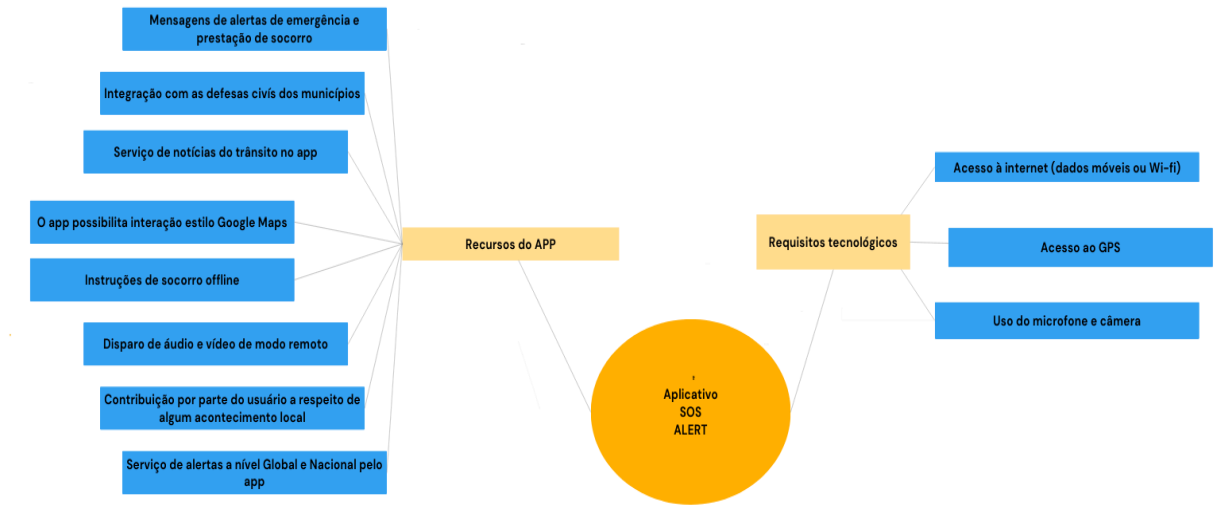
- Lightweight app with low battery consumption to work in critical situations.

- Offline functionality for basic reports and viewing preloaded safe zones.
- Data verification system to prevent false information.

2.2 Presentation of the considered map/mental model

The mental map presents a diagram that visualizes the resources and technical requirements of the SOS Alert app, aiming to assist in emergency situations, connecting users with emergency services and relevant information.



App Resources

- Emergency alerts: The app sends notifications about critical events, such as natural disasters or local incidents.
- Integration with civil defense: Allows direct communication with public bodies responsible for crisis management.
- Traffic news: Provides up-to-date traffic information, assisting mobility in emergency situations.
- Google Maps-like interface: Facilitates the location of events and navigation in affected areas.
- Offline rescue instructions: Ensures access to crucial information even without internet connection.
- Remote audio and video triggering: Allows the transmission of evidence or calls for help in real time.
- User contribution: Users can report incidents, enriching the app's database.
- Global and national alerts: Covers a wide range of events, from local to international.

Technical Requirements

- Internet access: Required for most functionalities, such as sending alerts and updating data.
- GPS access: Essential for accurate location of the user and events.
- Use of microphone and camera: Allows capturing images and audio to document incidents.

Inferences

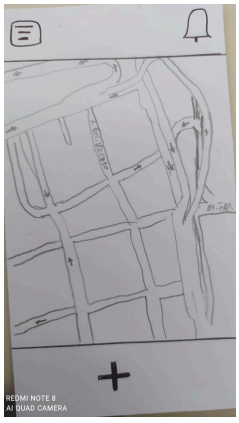
- Target audience: The application is aimed at a general audience, with a focus on areas with a high incidence of emergency events or in regions with limited communication infrastructure.
- Objective: The main objective of SOS Alert is to connect people in crisis situations, providing accurate information and facilitating communication with emergency services.
- Potential: The app has great potential to improve the response to emergencies, both in urban and rural areas.

In summary, SOS Alert presents itself as a promising tool to assist in emergency situations, with a range of features that can save lives. However, there is room for improvement and new features to further enhance the user experience.

2.3 Paper Prototype Development

Screen: Initial

What was thought: A map where reports would be placed and three options for the user: menu, notifications and add a report.

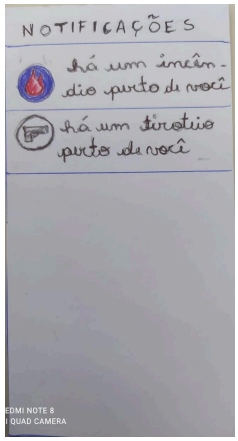


Screen: Menu

What was thought: Users could select what type of report (Security, Natural Disaster, Conflict) would be seen in the initial map.

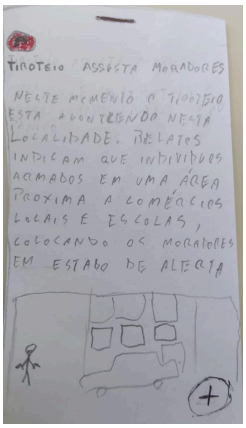
Screen: Notifications

What was thought: Users would see the reports, shown in the map, that are close to him, as notifications. Clicking on each notification would send the screen of more information about it.



Screen: More information of the notification

What was thought: Users would see a text with more information about the report and also pictures of it. A + button would make him add information about this report.

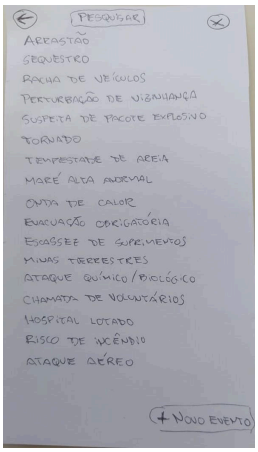


Screen: Add new report

What was thought: Different reports to selection. Organized by different types of color. Red to security issues. Blue to natural disasters. Purple to conflicts. Pink to safe places. Users would have the option button of +Outros if the desired report wasn't available.

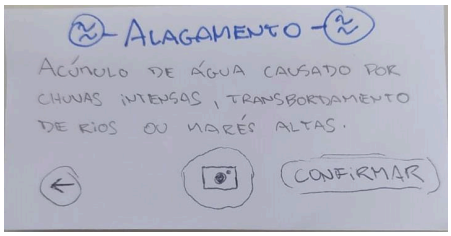
Screen: Other reports

What was thought: A list with other kinds of reports for selection that wasn't available before. A button + Novo Reporte for the user create a new report if doens't exist in the list.

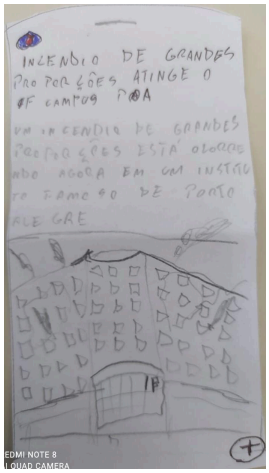


Screen: Register new report

What was thought: A description of the repost selected with three options for the user: come back, take a picture and confirm. This screen would appear above the initial screen with a location market in the map.



Other support screens and icons



2.4 Paper Prototype Test - Problems Detected

Our paper prototype underwent two rounds of testing during the initial prototyping phase.

The first test was carried out on October 31st, from 9 am to 12 pm, by our colleague Luana Guerisoli, who identified the following deficiencies:

- Absence of a "close" (x) button in menus;
- Absence of a "close" (x) button in profile pictures;
- Absence of a "close" (x) button in comment pop-ups;
- Lack of enabled/disabled buttons;

Subsequent to some adjustments, the following week, on November 4th, the prototype was retested with our friend Vitória B., who noted the following persisting issues:

- Absence of a confirm button on the report screen;
- Inability to interactively drag the "incident here" icon on the map;

2.5 Suggestions for improvement (from testers and the team, after the experiment)

- Make the interface even simpler by removing unnecessary clutter.
- Make icons easier to see by making them bigger and clearer.
- Offer optional training for new users to get them started.
- Add explanations for any symbols that might be unclear.
- Let users customize the map to show the information they want.

3. Final Prototype

3.1. High-Fidelity Prototype

For the high-fidelity prototype, we chose to use Figma as our design tool. The decision was influenced by several factors, including a recommendation from our professor, who encouraged its use as part of the project requirements.

Additional reasons for selecting Figma include:

- Ease of Use: Figma offers an intuitive interface with a manageable learning curve, making it straightforward to create and edit designs.
- Flexibility: It allows for easy addition of elements, enabling us to quickly iterate and refine the prototype.
- Free Access: The platform is free to use, with additional features unlocked through an academic email login, providing great value for students.
- Templates and Resources: Figma provides a variety of pre-made templates and resources that align well with our project needs, speeding up the design process.

3.2. Connection with Nielsen's Heuristics

In developing the prototype, we tried to align our design with Jakob Nielsen's 10 Usability Heuristics to ensure a user-friendly and efficient application. This alignment not only enhances the overall user experience but also ensures that the app meets established standards for usability and accessibility.

3.2.1. Consistency and standards - Recognition rather than recall

Two important Nielsen's heuristics considered were the consistency and standards - recognition rather than recall. As the start of the high-fidelity prototype, the team defined the main icons, letter fonts, color palette and push up box style that would be used in the application. This ensured that, during the development, the different screens would maintain the same style, even created by distincts members of the group. Also, we took in consideration other apps with similar functionalities, like Waze and Google Maps, because they have high social acceptance. The consistency in the design makes the usability more natural and pleasant, it also reinforces the brand and creates an identification with the app.

Definition of fonts, colors and icons

Other important things considered were the buttons, they maintain the same logic for functionality and for positioning through the application. This standardization has the objective, besides bringing more sense of usage, to make the navigation faster. The highest zone of the screen has buttons to close the screen or to come back. The lowest zone has buttons with the idea of adding new things.

Buttons Position

3.2.2. Aesthetic and minimalist design

The app was developed with a clean visual interface, avoiding unnecessary elements and keeping the functionalities that are essential. Taking in consideration the theme of the app, that is emergency and crisis situations, this heuristic has a significant importance, because users in these situations don't want to be confused or have meaningless information. Also, reliability was one of the requirements of the app, a more clean and minimalist design can help the user to trust in the information.

3.2.3. Efficiency of use

The heuristic of efficiency of use could be tested with the paper prototype. During the activity, users with different levels of experience tried to achieve the same goals in the app. We could ask what the user expected with that button, what would it do, where would it go. Some navigation ideas, that at first seen obviously, proved to be wrong. The learning in this activity oriented changes in the functionalities and navigation to bring a more efficient usage of the app.

4. Conclusions

4.1. Experience Report

Developing this prototype was a valuable learning experience, blending technical skills and practical application. The project showcased the potential of collaborative technology to address real-world challenges.

Working within the project team proved to be both rewarding and challenging. Effective communication, task delegation, and time management were crucial but sometimes difficult to maintain.

4.2. Tools Used and Challenges

The main tool used for designing the prototype was Figma. Figma is a great intuitive platform for creating interfaces, but for us was a little bit challenging. As we were not fully familiar with the tool, we made inefficient use of its features, often creating unnecessary screens and redundant elements that complicated the design process. Despite these challenges, working with Figma provided a foundation for improving our design skills.

4.3. Future Work

To improve the applications functionality and user experience, several additions and features need to be added.

- Notifications Settings: Add customizable notification options to alert users based on their preferences. For example, users could choose to be notified only about events within a 500-meter radius.
- Route Planning: Integrate a feature to map that allows the user to choose routes that avoids specific events or areas marked as dangerous.
- Follow Profiles: Introduce the ability to follow verified profiles, such as Civil Defense agencies, to receive reliable notifications from trusted sources.