Alverca

Overview

The goal of this project is to develop a web-based communication tool to be used by municipalities for effective communication with their citizens. This tool will be specifically tailored for Alverca, incorporating unique requirements and functionalities based on the city's current project to modify public spaces and renew a commercial centre in Vilafranca de Xira. The application will allow citizens to view proposed changes, provide feedback, and reserve multi-use spaces. Below is a detailed implementation plan, focusing on the functional requirements as derived from the provided data and additional information.

Functional Requirements

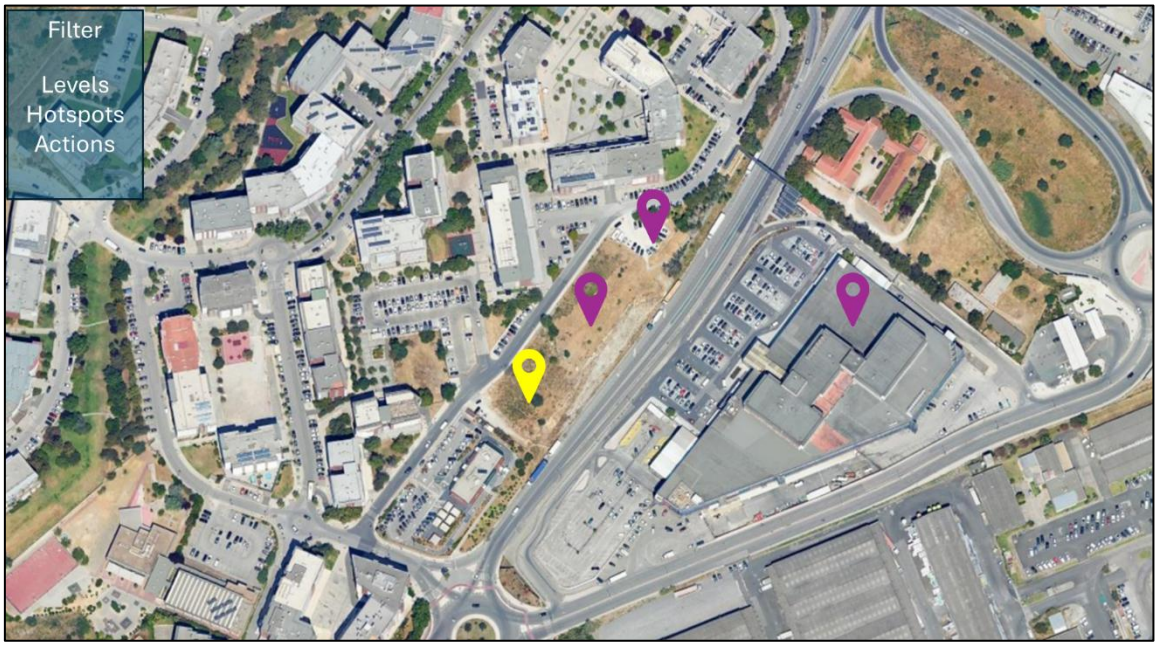
1. **Use Cases:**
    - **Communicate Information:**
        - Display detailed information about the planned modifications of public spaces and the commercial centre.
        - Utilize text, images, renders, and videos to provide a comprehensive view of the future state of these areas.
    - **Obtain Feedback for Internal Decision-Making:**
        - Implement an Opinion Gathering System (OGS) where citizens can participate in surveys, rate changes (on a scale, for example, of 1-10), and provide text-based feedback.
    - **Facilitate Citizen Actions on Shared Spaces:**
        - Provide a reservation system for multi-use spaces, allowing citizens to book areas for events like dance classes, magic shows for children, and markets.
    - **Communication City-Citizens:**
        - Provide information on future events over the spaces included on the area
2. **Scope:**
    - **Current Project:**
        - Focus on the ongoing modification and renewal plans, providing real-time updates and detailed project information.
    - **Future Shared Space Management:**
        - Include functionalities for event communication and a robust reservation tool to manage bookings for community events and activities.
3. **Technical Specifications:**
    - **2D Communication Tool with Cartography Visualization:**
        - Interactive map showcasing various points of interest in the city.
        - Each point of interest (hotspot) will open a pop-up window with relevant information, including visuals and descriptions.
    - **Points of Interest Interaction:**
        - Hotspots where citizens can:
            - Receive comprehensive information.
            - Provide feedback through the OGS.
            - Take actions such as reserving spaces for community events.
    - **Multi-Level Visualization:**

        - Capability to display different floors of buildings, such as the Nhood building, allowing users to explore various levels and their respective information.
    - **Simulation Results Display:**
        - Integrate simulation outputs in raster or vector formats to overlay on maps, showcasing results related to:
            - Transportation impacts.
            - Citizen satisfaction levels.

Implementation Plan

1. **Frontend Development:**
    - **Interactive Map Interface:**
        - Develop a user-friendly interface using frameworks like React.js or Angular.
        - Integrate map services (e.g., Mapbox, Leaflet) for cartographic visualization.
        - Filter to visualize cartography/orthophoto
        - Filter to visualize different levels (only applicable to buildings)
    - **Hotspot Pop-ups:**
        - Design pop-up windows to display text, images, videos, and renderings.
        - Implement navigation controls within pop-ups to view different types of content. (multi-page using arrows)
    - **Opinion Gathering System (OGS):**
        - Create forms and surveys using tools like Google Forms, Typeform, or custom-built solutions.
        - Implement rating systems and text input fields for qualitative feedback.
2. **Backend Development:**
    - **Data Management:**
        - Set up a database (e.g., PostgreSQL, MySQL) to store information about interventions (hostpots), feedback, and reservations.
    - **API Development:**
        - Develop RESTful APIs using frameworks like Node.js, Express, or Django to handle data requests and submissions.
    - **Reservation System:**
        - Build a booking system integrated with the backend to manage multi-use space reservations.
        - Ensure real-time availability updates and confirmation notifications.
3. **Integration and Testing:**
    - **System Integration:**
        - Ensure seamless integration between frontend and backend components.
        - Integrate third-party services for maps, surveys, and notifications as needed.
    - **User Testing:**
        - Conduct thorough testing with a focus group from the local population to gather initial feedback.
        - Iterate on the design based on user feedback to enhance usability and functionality.
4. **Deployment and Maintenance:**

- **Hosting and Deployment:**
  - Deploy the application on cloud services like AWS, Azure, or Google Cloud.
- **Maintenance and Updates:**
  - Establish a maintenance plan for regular updates and bug fixes.
  - Monitor system performance and user feedback to continuously improve the application.



Reference image: interface, including cartography, hotspots and filters

Reference image: Pop-up shown after clicking over a hotspot