Exide DTSC Land Contamination Cleanup

California State University, Long Beach

IS 699: Information Systems Project

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Project Overview

The Exide DTSC Clean-up project addresses the pressing challenge of environmental contamination caused by the Exide battery recycling plant in Vernon, California. Over decades of operation, the plant released harmful levels of lead and arsenic into the surrounding communities, posing significant health risks to residents. Despite various regulatory actions and penalties, the problem persisted, affecting thousands of properties and leaving severe contamination in soil and water. This project aims to systematically clean up the affected areas, restore community health, and enhance transparency and community involvement in the remediation process.

Solution Summary

The project focuses on remediating residential properties, schools, parks, and daycares in the most affected areas, including Bell, Boyle Heights, Commerce, East Los Angeles, Huntington Park, Maywood, and Vernon. Key features of the solution include:

- **Comprehensive Cleanup Efforts**: Remediation of 5,333 total parcels, including extensive soil excavation up to 14 feet deep in heavily contaminated areas.
- **Community Engagement**: Regular public meetings and office hours in local neighborhoods to provide updates, answer questions, and involve residents in the process.
- **Workforce Development**: Training over 70 local residents through the DTSC Workforce for Environmental Restoration in Communities program, ensuring community participation and skill-building.
- **Strategic Partnerships**: Collaboration with the U.S. EPA and California Environmental Protection Agency to secure federal funding and designation under the National Priorities List (Superfund).

These efforts provide measurable benefits to the community by reducing lead exposure, restoring environmental safety, and fostering trust between regulatory agencies and residents.

How the Prototype Solves the Problem

The clean-up initiative directly addresses the challenge of environmental contamination by systematically identifying, prioritizing, and remediating affected properties. The project's phased approach ensures that high-priority areas, such as daycares and schools, are cleaned first, minimizing health risks to vulnerable populations. Transparency measures, such as public meetings and community office hours, rebuild trust and empower residents with real-time updates and involvement in decision-making. The inclusion of local workforce training creates economic opportunities and strengthens community ties to the project.

Scrum Process

The project's implementation followed an iterative Scrum framework, ensuring efficient and timely delivery of key milestones:

- **Sprint 1 (Weeks 1-2)**: Initial discussions, project requirements gathering, and issue selection. The team identified the need for transparency tools and proposed a website for real-time updates.
- **Sprint 2 (Weeks 3-4)**: Soil sampling in priority areas and confirmation of technology stacks (React.js for the front end, Node.js for the back end). Initial designs for the user interface were developed.
- **Sprint 3 (Weeks 5-6)**: Execution of cleanup plans, including data visualization for contamination reports. Legal and environmental datasets were integrated into the platform.
- **Sprint 4 (Weeks 7-8)**: Monitoring and progress updates, incorporating stakeholder feedback into the UX/UI design. Testing of the platform and adjustments to improve scalability and performance.
- **Sprint 5 (Weeks 10-11)**: Finalizing the platform for public beta launch and preparing documentation for project handoff. Office hours in local communities were established to answer resident queries.
- **Sprint 6 (Week 12)**: Comprehensive system testing and validation were completed. Feedback from public testing was incorporated into the design, enhancing the environmental mapping feature.

- **Sprint 7 (Week 13)**: The project concluded with successful deployment of all planned deliverables. Operational documentation was finalized, and a knowledge transfer session was conducted for stakeholders.

Each sprint focused on delivering actionable outcomes, such as increasing compliance among previously non-cooperative residents, thereby achieving tangible progress in the remediation effort.

Challenges & Solutions

The project encountered significant challenges, including:

- **Community Non-Compliance**: Initially, many residents refused to participate in soil sampling. This was addressed through persistent community engagement and education, increasing compliance rates to cover previously excluded properties.
- **Depth of Contamination**: Extensive soil contamination up to 14 feet deep posed logistical challenges. Specialized excavation techniques and strategic planning ensured thorough remediation.
- **Data Accuracy**: Delays in receiving datasets from DTSC impacted project timelines. The team collaborated closely with stakeholders to prioritize data quality and accuracy.
- **Funding Constraints**: Securing adequate funding was critical to project continuity. The successful collaboration with U.S. EPA and CalEPA to obtain Superfund designation helped secure federal resources for ongoing efforts.

Conclusion

The Exide DTSC Clean-up project effectively addresses the environmental and health challenges posed by decades of industrial contamination. By prioritizing community health, transparency, and collaboration, the initiative has made significant strides in restoring affected neighborhoods. The project's final phase saw the successful deployment of deliverables, setting a benchmark for large-scale environmental remediation efforts. Future steps include ongoing monitoring, enhanced community engagement, and leveraging federal support for sustained progress.

Appendix

Product Backlog

- Identification of contaminated parcels
- Soil sampling and testing
- Development of cleanup plans
- Community outreach and education
- Workforce training programs
- Coordination with federal and state agencies

Sprint Backlog (Sprint Planning)

- Sprint 1: Soil sampling in priority areas
- Sprint 2: Execution of cleanup plans
- Sprint 3: Monitoring and progress updates
- Sprint 4: Expansion of community engagement initiatives
- Sprint 5: Public beta testing and stakeholder feedback integration
- Sprint 6: System validation and environmental mapping enhancements
- Sprint 7: Knowledge transfer and project closure

Definition of Done (DoD)

- Completion of soil remediation in designated parcels
- Reduction of lead levels below California's health threshold
- Full community compliance and engagement
- Establishment of sustainable monitoring and support systems

Team Roles and Responsibilities

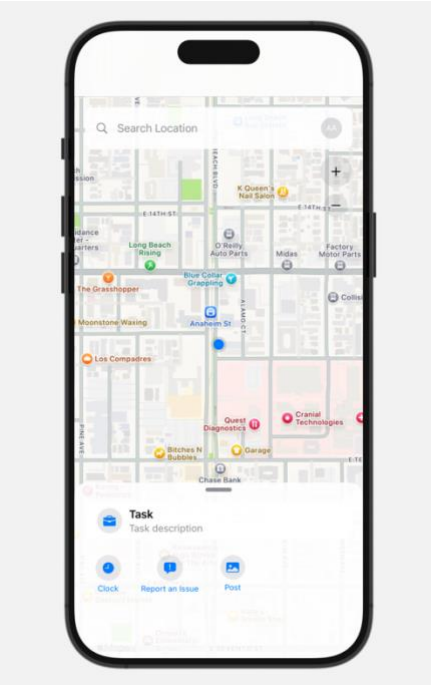
The success of the Exide DTSC Clean-up project was driven by a diverse and dedicated team, each member playing a crucial role in ensuring project objectives were met effectively:

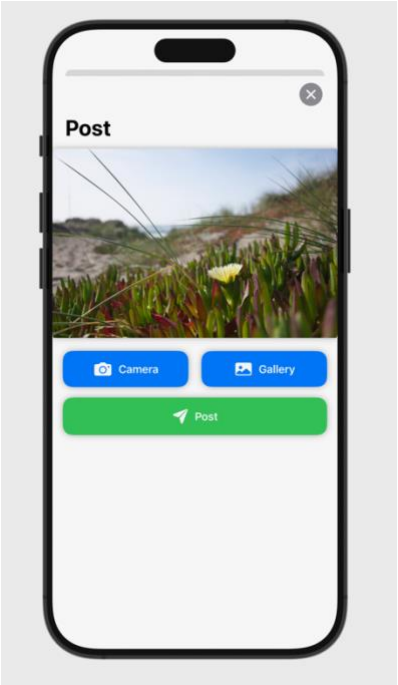
- **Product Owner (Krishnavyas Desugari):** Provided the overarching vision for the project, ensuring that the team's work aligned with the needs of stakeholders and the community. Krishnavyas was instrumental in defining the project backlog, prioritizing features based on community feedback, and facilitating clear communication between the team and external partners.
- **Project Manager (Visnupiriyan Kumarraja):** Oversaw the planning, execution, and delivery of the project. Visnupiriyan efficiently managed timelines, resources, and potential risks while ensuring that milestones were met on schedule. His strong organizational skills ensured the team stayed focused and coordinated throughout the project lifecycle.
- **Scrum Master (Avinash Mandalapu):** Facilitated the Agile framework by organizing sprint planning sessions, daily stand-ups, and retrospectives. Avinash ensured that the team adhered to Scrum principles, resolved any blockers, and maintained a culture of collaboration and continuous improvement.
- **Business Analyst (Shinny Porwal):** Played a key role in gathering and analyzing project requirements. Shinny created detailed documentation to bridge the gap between technical teams and stakeholders. Her insights ensured that both functional and non-functional requirements were met, aligning project outcomes with community needs.
- **Developers (Doranaga Sainadh Vanama and Rithika Goud Pabathi):** Took charge of implementing the technical solutions, including both front-end and back-end development. Doranaga and Rithika worked collaboratively to create a robust, scalable, and user-friendly platform. Their work included designing intuitive interfaces and ensuring the system's performance under real-world conditions.
- **Security Expert (Shoaeb Nawab Shaik):** Ensured that all data and systems were secure and compliant with relevant standards. Shoaeb conducted regular vulnerability assessments, implemented robust encryption protocols, and provided recommendations to safeguard sensitive information from potential threats.

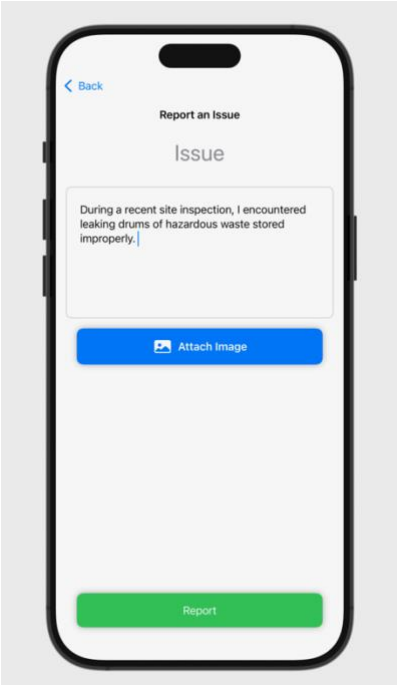
- **Content Manager (Vimalesh Boorle):** Managed all public-facing content on the platform, ensuring that updates were clear, accurate, and timely. Vimalesh's work ensured that the community stayed informed about progress, milestones, and key project updates, fostering transparency and trust.

Application Overview:

User Interface







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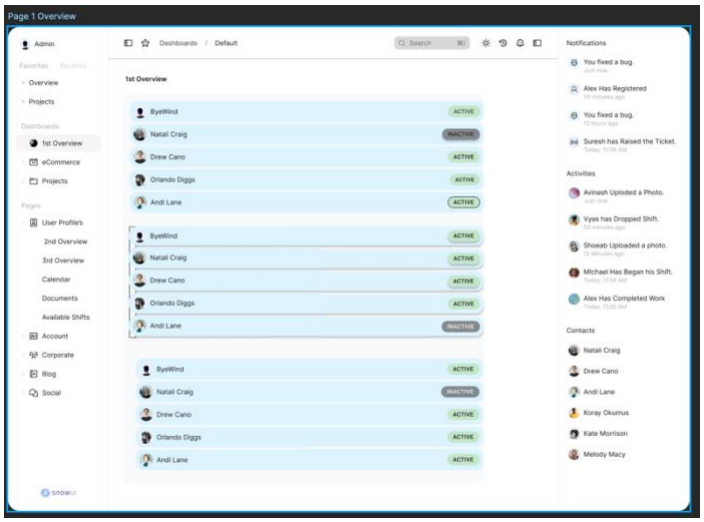

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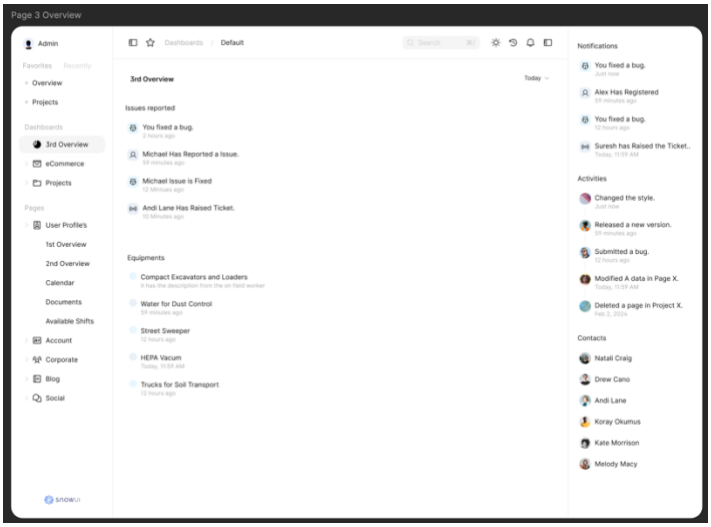

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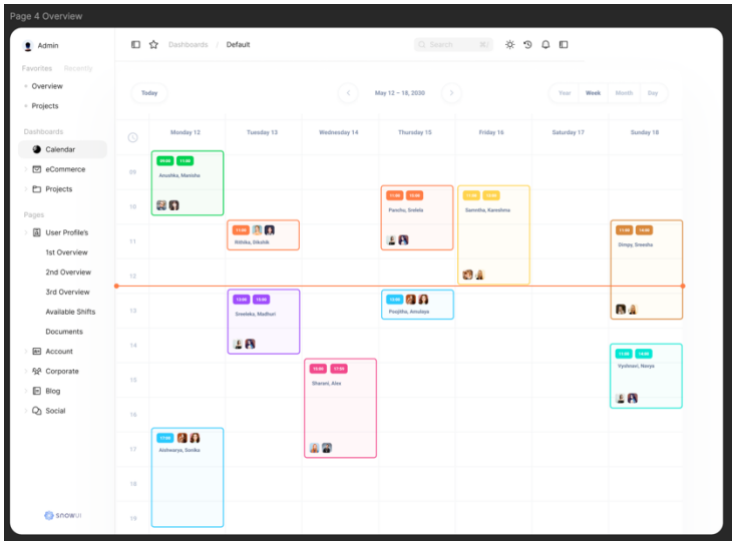

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