Designing a Community-Focused Indoor Heat Alert App for Vulnerable Residents

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Introduction

Background

- Heat events are becoming more frequent due to global warming
- Vulnerable individuals do not identify as vulnerable to heat [1].
- Heat mitigation resources are not being used despite the extreme heat [2].

Objective

- Design a heat warning app to mitigate heat risk using our model that provides specific temperature predictions based on the user's home building characteristics.
- Lower the heat-morbidity rate in low-income communities by raising heatrisk awareness, alerting users in dangerous environments, and supporting community-based mitigations.



0 Background

Collected data from the community to understand stakeholder needs



System Map

Map system to visualize connections between factors.





Competitive Analysis

Capital Eas **3** Personas

Compare apps in the market wants that represent our target to find good/bad elements users



5 Unity Development

Start development of a deployable app based on the prototype.



Evaluation Plan Conduct user testing to evaluate the effectiveness of the app.

4 Prototyping

Sketch ideas for initial design on paper and translate the sketches into an interactable prototype.

Design Requirements

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Create profiles of needs and

Name	Category	Description
Localized Indoor Heat Index	Feature	Provide users pers
Customizable Alerts	Feature	Allow users to set
Heat Mitigation Resources	Feature	Provide users with
Social Connection	Feature	Connect users wit
Heat-Related Health Info	Content	Give users informa
Heat Index Hazard Levels	Content	Give context to the
Balance of Information	Design	Find a balance be

High-Fidelity Prototype



Home Page

- Outside and Inside Temperature Prediction
 - Gives users a prediction of their individual home's temperature based on building characteristics.
- Scrollable Hourly Forecast
- Check-In Notification
- Alerts the user which friend's house has reached an unsafe temperature.

Map Page

- Shows friend's location & nearby cooling centers
- Provides specific cooling center information
 - Crowdedness level, temperature, open hours, images, and distance from the user.

Community Page

- Friends
 - Users send invitations to their friends. • Friends can see contact info, house temperature, and
 - location.
- Check-In System
 - house exceeds safe temperatures.
 - User can set alerts to receive notifications when that • Adds contact to "Favorites" list.

- sonalized predictions of their homes indoor heat index.
- the frequency and type of notifications they receive.
- n multiple recommendations for heat mitigation.
- their community to get help during heat events.
- ation on how to stay healthy during a heat event.
- e temperature by providing a hazard level.
- tween too much and not enough information.





Extensive User Testing

- Is the app useful to people during heat events?
- Does the app change people's heat mitigation behaviors?
- Aim to launch the app to low-income residents in Summer '25 **Additional Features**

- Implement a learning/education feature.
- Add a customizable plan for heat mitigation.

[1] N. R. Sampson et al., "Staying cool in a changing climate: Reaching vulnerable populations during heat events," *Global Environmental Change*, vol. 23, no. 2, pp. 475–484, Apr. 2013, doi: https://doi.org/10.1016/j.gloenvcha.2012.12.011.

[2] A. J. Kalkstein and S. C. Sheridan, "The social impacts of the heat-health watch/warning system in Phoenix, Arizona: Assessing the perceived risk and response of the public," International Journal of Biometeorology, vol. 52, no. 1, pp. 43–55, Jan. 2007, doi: https://doi.org/10.1007/s00484-006-0073-4.



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Future Work

References

