

Cold Chain Equipment Visualization

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CSE 481

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Background

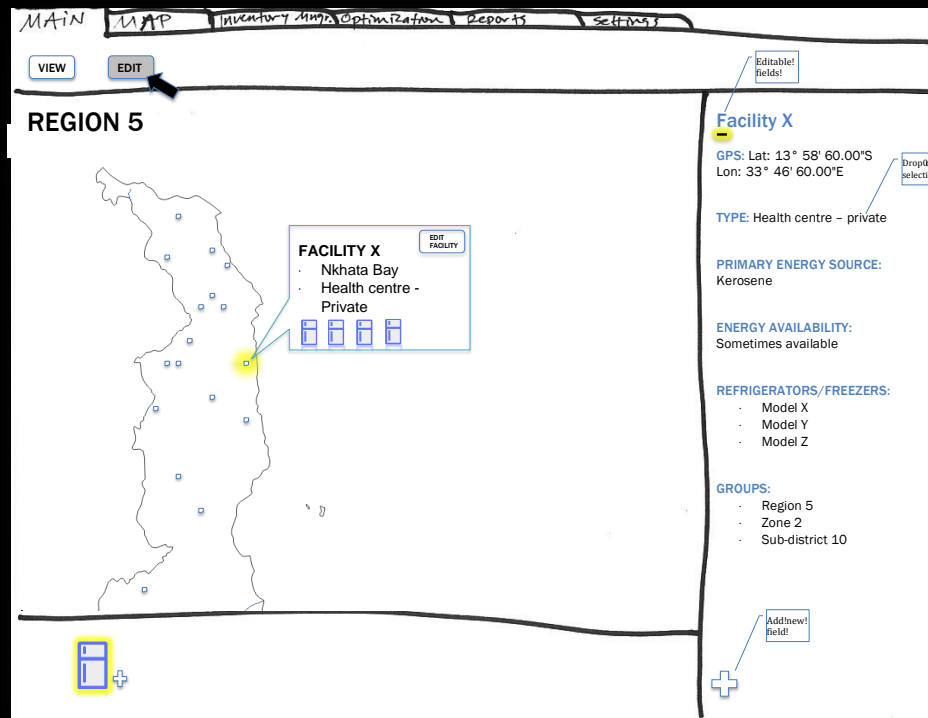
PROBLEM SPACE

- Cold chain a key factor of vaccine programs
- CCEM database for tracking and modeling is complex, not intuitive to use
- Many health ministries and NGOs need to be able to easily model current and possible situations for action and funding

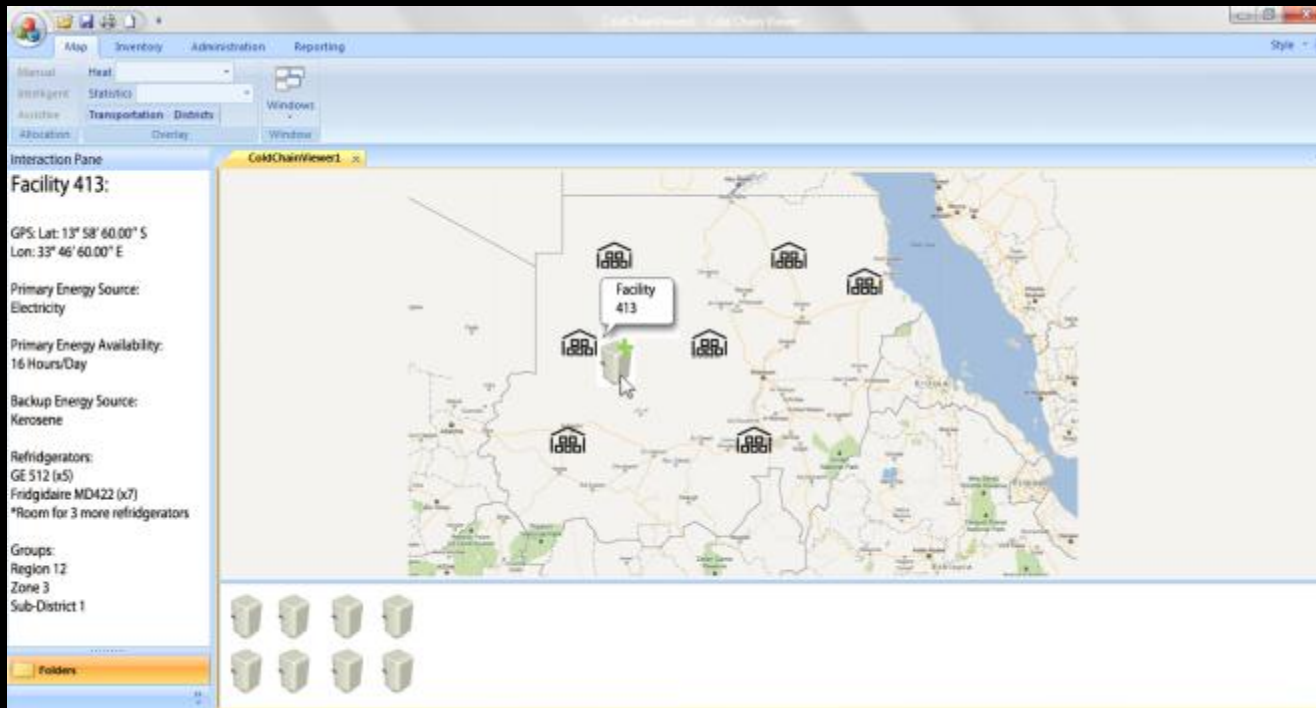
DESIGN QUESTION How can public-health officials use a map-based visualization interface to improve their ability to model vaccine cold-chain equipment scenarios?

SOLUTION A map-based, interactive visualization for modeling equipment scenarios

Early prototypes



Early prototypes



Fieldwork

LITERATURE REVIEW

- Cold chain
- Games
- Visualization
- Health care logistics
- Algorithms

RELATED PROJECTS

- PATH Cold Chain Equipment Manager
- Vaccine Modeling Initiative
- UNICEF Cold Chain Logistics taskforce

INTERVIEWS Richard Anderson/UW, Sophie Newland/PATH, Mark Chen/UW

TURN-BASED GAME ANALYSIS

Early evaluations

FEEDBACK ON DESIGN CONCEPTS FROM PARTNERS

- Meeting with PATH
- Input from Mark Chen
- Ongoing guidance from Richard

USABILITY TESTING

- Basic paper prototype
- Goal: testing ease of use, navigability
- Tested with four people

Evaluations incorporated into design on ongoing basis

Architecture

SQL database

Ruby on Rails framework

Google Maps

Internal data models

Accomplishments

Prototyping and user testing

Implementing a Ruby-on-rails framework

Setting up data models

Multi language support

Mapping clinic locations

Calling clinic information when clicked

DEMO

[LINK](#)

Remaining Tasks

Drag and drop functionality

Algorithms/heuristics

Finalize UI - Map data layers, icons, navigation

Aesthetic improvements

Usability testing

Functional users

Evaluation plan

Next week: PATH touch base

Next two weeks: Usability testing

Next three weeks: Possibly get input from district managers

Test with users based on common tasks, incorporate lessons in updated version. Likely tasks:

- Allocate units using new funding
- Re-allocate existing units
- Run allocations manually and automatically

Timeline

Week 6 Meet with PATH, usability testing, finalize map UI, full facility data from database to map, drag-and-drop

Week 7 Usability testing, populate inventory data, develop algorithms, drag-and-drop

Week 8 Usability testing, finalize algorithms, overall UI polish, meet with PATH

Week 9 Final usability testing and overall polishing, final presentation