



SiteManager

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Table of Contents

Introduction.....	1
Value Propositions	1
Problem.....	1
Solution.....	1
Sketches.....	2
Sketches.....	3
Selected Interface.....	4
Final Prototype.....	5
Final Prototype.....	6
Selected Interface Design.....	7
Method.....	8
Procedure.....	9
Results.....	10
Challenges.....	11
Consent Form.....	12
Consent Form.....	12

Introduction

Value Proposition

“Right people. Right equipment. Right on time.”

Problem

Construction companies require a digital dashboard to track all projects, employees, and equipment in one centralized location, as current systems often lack real-time visibility, resulting in inefficiencies. Managers frequently have to rely on manual reports, calls, or spreadsheets to understand what resources are available or where progress is being delayed, which slows down operations and leads to scheduling conflicts.

Solution

Our solution is to create a live map that links to projects and shows exactly which employees, equipment, and materials are needed at each location. By combining this information into one dashboard, SiteManager helps construction managers make faster, data-driven decisions, reduce downtime, and improve communication between teams on different sites. The result is a smoother, more efficient workflow that keeps projects on track and on schedule.

Sketches

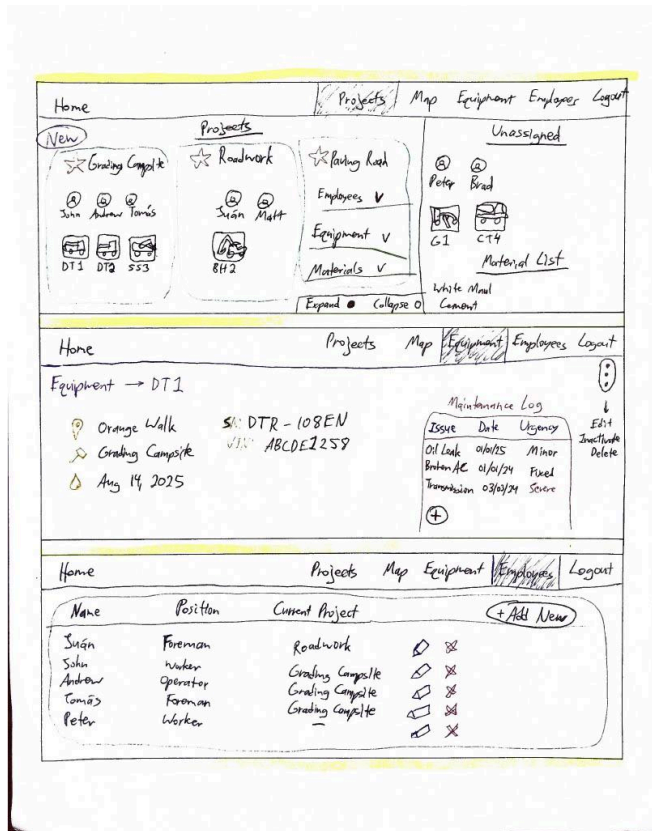


Figure 1: Webpage

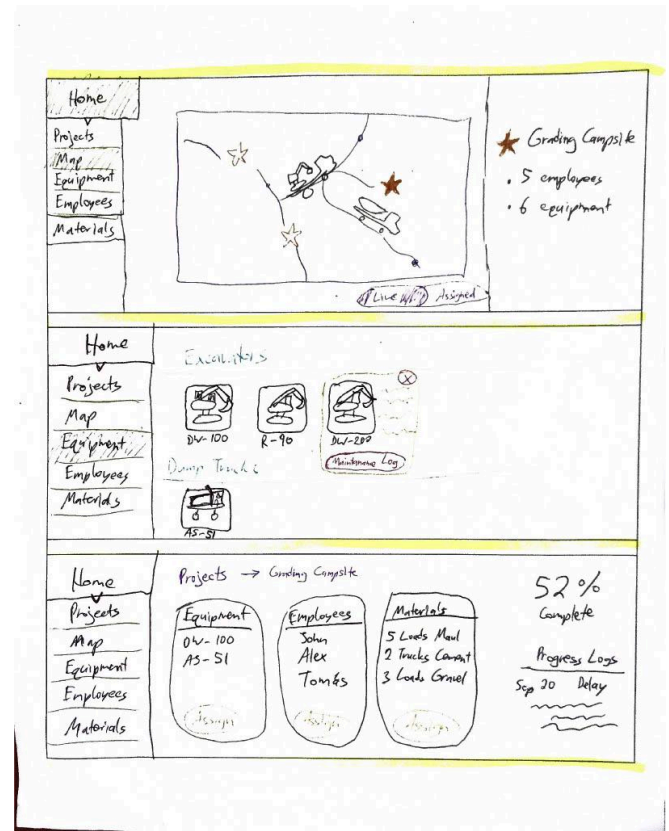


Figure 2: Webpage

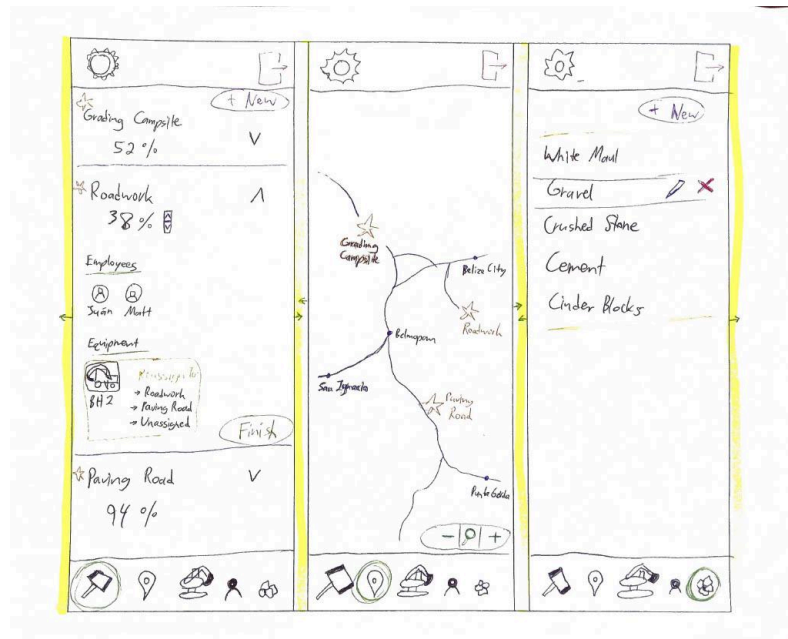


Figure 3: Mobile

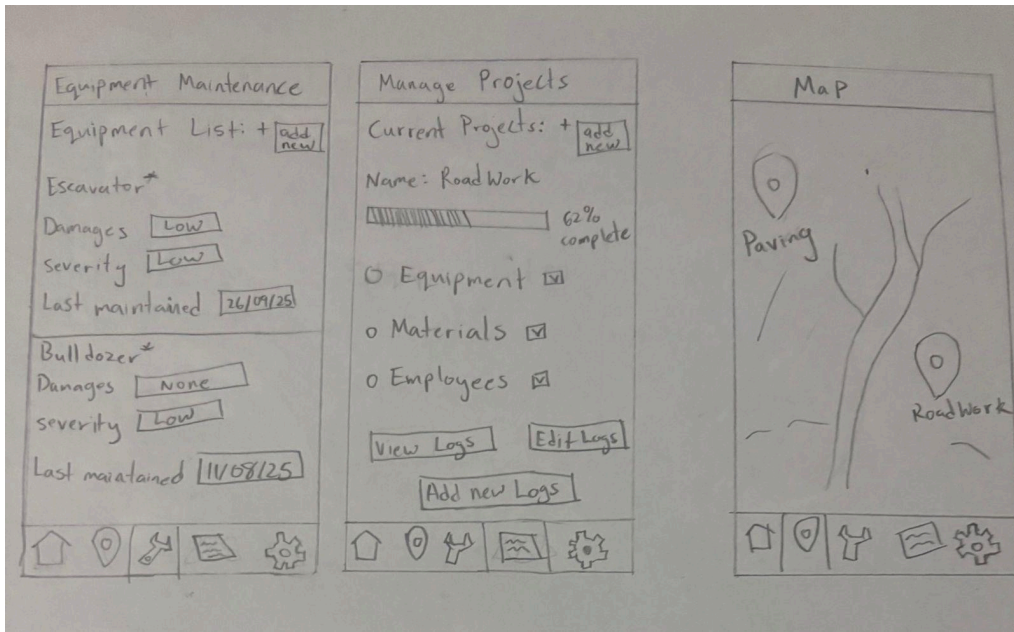


Figure 4: Mobile

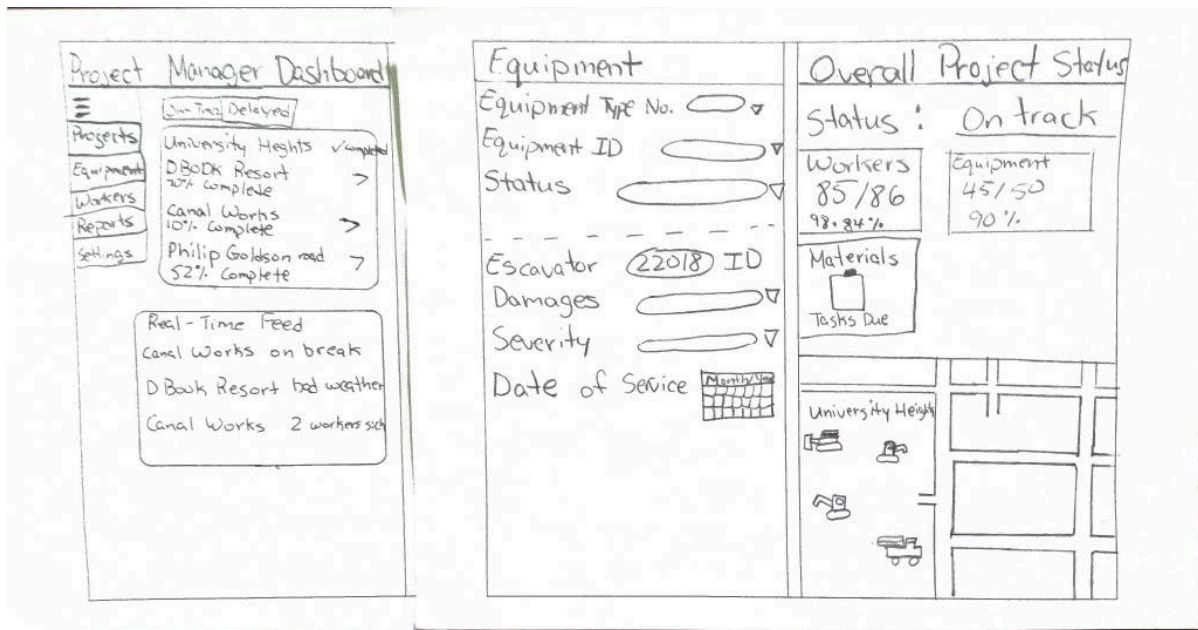


Figure 5: Tablet

Selected Interface

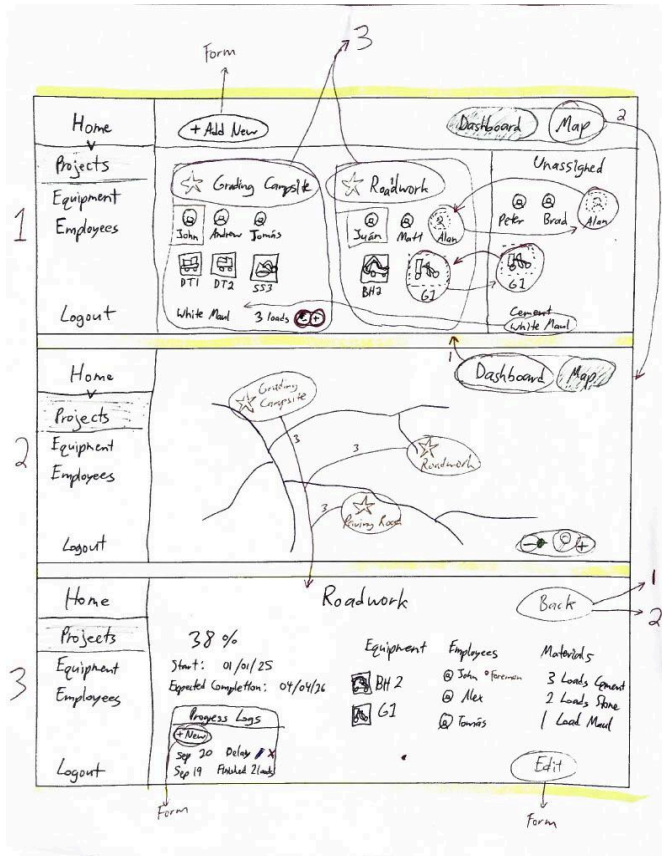


Figure 6: Webpage

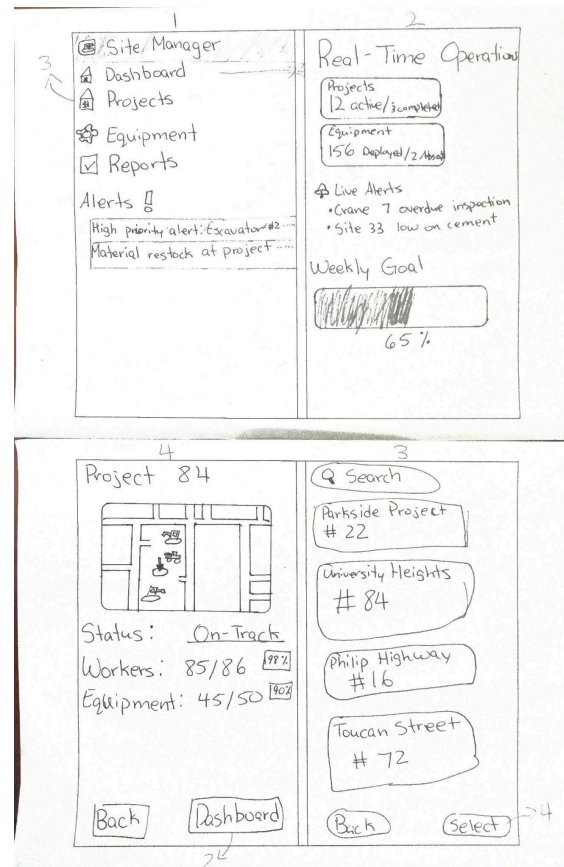


Figure 7: Tablet

#1 Pros / Cons	#2 Pros / Cons
Web based	Mobile based
Simple navigation	More alerts/feedback
More workable	More simplistic

Final Prototype

Home

Projects

Equipment

Employees

Material List

Logout

Add New

MapDashboard

★ Grading Campsite

EX-2DT-1

JohnAndrewTomas

Maul - 1 +
Cement - 2 +
Stone - 3 +

★ Hummingbird Roadwork

CT-1G-1

JuanMatt

Bricks - 2 +
Cement - 2 +

★ Paving Business Lot

DT-3CT-2

Unassigned

EX-1EX-3DT-2

PeterBradAlan

MaulStoneCement

Bricks

Home

Projects

Equipment




















Employees












Material List

Logout

MapDashboard

The map displays the geographical locations of the projects within Belize. The 'Grading Campsite' is located in the northern region near the Rio Bravo Conservation Area. The 'Paving Business Lot' is situated in the central-western part of the country, near the Spanish Lookout. The 'Humminbird Roadwork' is located in the southern region, near the Mountain Pine Ridge Forest Reserve. The map includes various geographical features such as rivers, lakes, and coastal areas, as well as labels for several towns and regions.

Home	Equipment > EX-1	Back																
Projects	EX-1																	
Equipment		Model Number: 14DF56 Brand: CAT Purchase Date: 1-Apr-22 Status: Working Condition																
Employees	Maintenance Log Edit																	
Material List	<table border="1"> <thead> <tr> <th>Date</th> <th>Issue</th> <th>Urgency</th> <th></th> </tr> </thead> <tbody> <tr> <td>4-Jan-24</td> <td>Oil Leak</td> <td>Severe</td> <td> </td> </tr> <tr> <td>8-Sep-24</td> <td>Broken AC</td> <td>Minor</td> <td> </td> </tr> <tr> <td>21-Apr-23</td> <td>Transmission Shifting</td> <td>Fixed</td> <td> </td> </tr> </tbody> </table>		Date	Issue	Urgency		4-Jan-24	Oil Leak	Severe	 	8-Sep-24	Broken AC	Minor	 	21-Apr-23	Transmission Shifting	Fixed	 
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Logout																		

Home	Add New		
Projects	Name	Position	Action
Equipment			
Employees	 John	Foreman	
Material List	 Andrew	Employee	
	 Tomas	Operator	
	 Juan	Manager	
	 Matt	Employee	
	 Peter	Employee	
	 Brad	Foreman	
	 Alan	Operator	
Logout			

Selected Interface Design

After comparing the usability of all interface sketches, we selected the combined web and mobile design as our final low-fidelity prototype. This version prioritized simplicity, accessibility, and efficiency.

UI Storyboards

We created three storyboards to represent key user tasks managers would perform:

1. Easy Task – Add Maintenance Log: The user selects an excavator (EX-1), adds a new maintenance log for “Busted Hydraulic Hose,” updates its status to Being Repaired, marks another log as Fixed, and returns to the projects page.
2. Medium Task – Update Project Progress: The user adds a progress note to the Grading Campsite project, records completion on December 24, 2025, marks the project as Complete, and returns to the project list.
3. Hard Task – Manage Assignments and Materials: The user reassigns equipment and employees across multiple projects (e.g., assigning DT-2 and CT-2 to Hummingbird Roadwork, adding or removing loads of materials), and finally reviews the overall map view for confirmation.

Prototype Description

The low-fidelity prototype was created using simple digital mockups and paper-based layouts that represented real navigation and task flow. Each screen simulated interactions such as selecting equipment, updating project details, or switching between project maps.

Prototype Features:

- Interactive dashboards for project summaries.
- Simulated buttons for adding logs or progress notes.
- Dropdown lists for assigning employees and resources.
- A map page linking all projects with quick access to details.

Method

Participants

Two volunteer participants were recruited from the university computer lab to test the prototype. They were not familiar with the app beforehand, which allowed them to provide unbiased feedback.

Environment

Testing was conducted in a quiet lab setting. Both participants performed tasks under observation, with the facilitator guiding them through the test objectives, while the observer logged down their comments and actions.

Tasks

Each participant was asked to perform the three UI task flows described earlier: Add a maintenance log for equipment, add a project progress note and mark the project as complete, and assign multiple resources across different projects.

Procedure

1. The facilitator introduced the purpose of the prototype and explained the basic navigation.
2. Participants were given printed task descriptions and asked to complete each task independently.
3. Observers noted any errors, hesitation, or confusion points.
4. After each session, participants shared feedback on what they found intuitive or unclear.

Team Member Roles



Facilitator & Computer: Joseph Koop



Observer & Notetaker: Enrique Garcia, Kelvin Gordon

The team collaboratively reviewed user feedback after testing to identify trends and possible improvements.

Results

Participant 1 Feedback:

- Vibe: Understandable and straightforward.
- Comments: “Once everything is color-coded, it’s pretty easy to follow.”
- Suggestions: Box related items together to make sections easier to follow.

Participant 2 Feedback:

- Vibe: Enjoyable and engaging.
- Comments: “This is kind of fun.”
- Issues Found: Some icons did not directly link to their expected pages, Progress Notes link lacked visual emphasis, and drag-and-drop reassignment took extra time to figure out.

General Findings

Both participants initially visited incorrect sections but were able to backtrack and complete tasks independently. Color-coding and clearer icon labeling would significantly improve navigation. Users appreciated the map view but desired clearer feedback when assigning equipment or employees.

Discussion

The low-fidelity test provided valuable insights into how users might interact with SiteManager in real-world contexts.

What Worked Well:

- Users quickly grasped the main purpose and workflow.
- The app’s structure felt logical, especially once visual cues were understood.
- Participants found the layout appealing and the map overview particularly useful.

Challenges Identified:

- Visual clarity: Without enough color distinction, users occasionally clicked the wrong icons.
- Grouping and spacing: Items needed better visual containment to reduce confusion.
- Feedback and responsiveness: Some interactive elements (e.g., drag features) were unclear without visible confirmation.
- Link visibility: Buttons such as “Progress Notes” required more obvious placement.

Proposed Improvements:

1. Introduce color-coded categories (Projects, Equipment, Employees).
2. Add visible borders and containers to group related sections.
3. Improve drag-and-drop functionality by providing hover indicators or click alternatives.
4. Enhance progress link visibility using underlined text or icon cues.
5. Implement drop-down arrows to expand or collapse detailed sections.

Conclusion

Testing showed that this prototype can help solve key problems faced by construction project managers due to keeping everything in one place. Users found the system easy to understand and useful for tracking people, equipment, and project progress.

The prototype successfully demonstrated how the app will work, though it needs clearer visuals and better navigation. With a few improvements, SiteManager can become a practical, easy-to-use tool that helps companies stay organized and finish projects on time.

Consent Form

The SiteManager application is being produced as part of the coursework for Information Technology course CMPS3141 – Human Computer Interaction at the University of Belize. Participants in experimental evaluation of the application provide data that is used to evaluate and modify the interface of SiteManager. Data will be collected by interview, observation and questionnaire.

Participation in this experiment is voluntary. Participants may withdraw themselves and their data at any time without fear of consequences. Concerns about the experiment may be discussed with the researchers Joseph Koop, Kelvin Gordon, Enrique Garcia or with Lecturer Manuel Medina Jr., the instructor of CMPS3141:

Manuel A. Medina Jr.
MPIT Department
University of Belize
822-1000 ext.305
mmedina@ub.edu.bz

Participant anonymity will be provided by the separate storage of names from data. Data will only be identified by participant number. No identifying information about the participants will be available to anyone except the student researchers and their lecturer.

I hereby acknowledge that I have been given an opportunity to ask questions about the nature of the experiment and my participation in it. I give my consent to have data collected on my behaviour and opinions in relation to the SiteManager experiment. I also give permission for images/video of me using the application to be used in presentations or publications as long as I am not personally identifiable in the images/video. I understand I may withdraw my permission at any time.

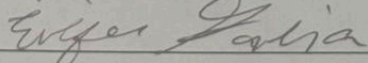
Name Raven Navaro

Participant Number 638-9177

Date 16 October 2025

Signature 

Witness name Enrique Garcia

Witness signature 

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Name Jerome Bayman

Participant Number 1

Date 16/10/25

Signature 

Witness name Joseph Koop

Witness signature Joseph Koop