

ToolTaxi: Affordable & Convenient Tool Rental

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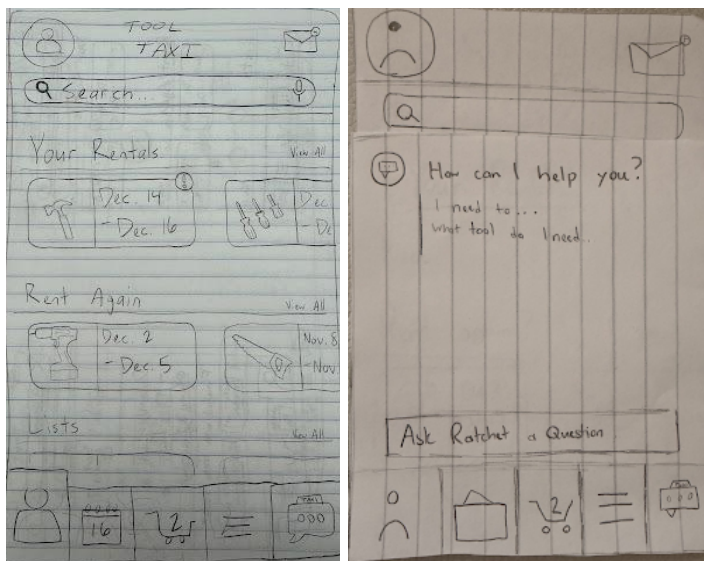


Problem and Solution Overview (1 paragraph)

The problem we're taking on is the high cost of power tools/heavy equipment relative to the needs of the average DIY homeowner for a project. While a home repair may occasionally require specialized tools, there is often no regular use case for the average person after the job is completed. Our goal is to save power tool users/DIY'ers money by encouraging the use of equipment rental instead of outsourcing the job to a contractor or buying the equipment outright for a high cost. Our solution to these problems is a convenient and cost-effective tool rental service, specifically targeting the average homeowner rather than professional contractors. We would purchase a wide variety of small to medium-duty tools from retailers in order to offer them for rental, as well as sourcing tools from local communities to encourage goodwill among locals and save on costs. With this service, users would be able to search for tools for specific projects, have them delivered along with detailed instructions and suggestions, and have the tools picked up from their own home at their convenience. By involving the community and offering a convenient, cost effective solution to a problem that many homeowners face, we believe that more jobs around the house will be done for less money.

Initial Paper Prototype (1 page)

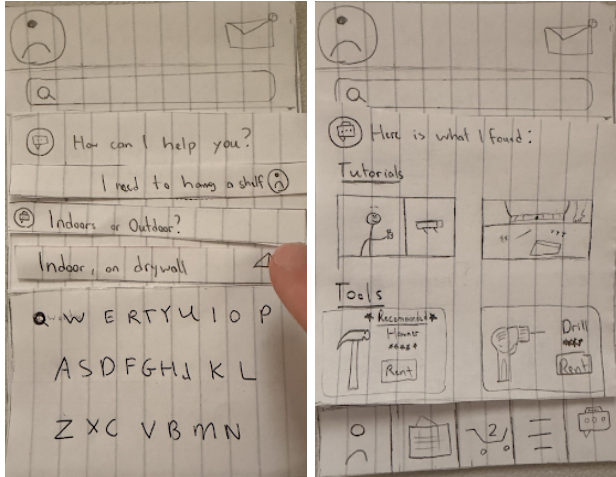
Our initial paper prototype for ToolTaxi is a mobile application designed to simplify the process of renting, selecting, and returning tools. Our concept is focused on reducing friction for users who may lack experience with tools, while also improving the logistics of managing rental. The interface is a mobile app with a navigation system and assistance features.



The paper prototype has several pages: a home page, calendar, cart/checkout, user settings, chatbot assistant, profile, inbox, and top search bar. The home page is the central hub. It displays current rentals, previously rented tools, and has customizable user lists. This layout prioritizes quick access to ongoing tasks and encourages repeat rentals.

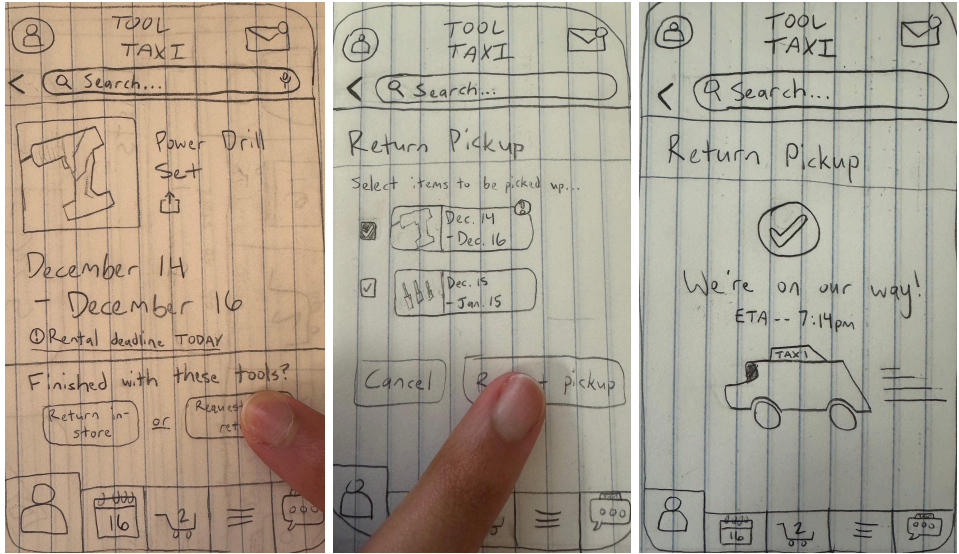
A key feature of the design is the integration of an AI assistant that helps with navigation and decision-making. Users can interact conversationally with the assistant to find tools, receive recommendations, and access tutorials. The assistant is both a search mechanism and a guidance system for users with limited tool knowledge.

The first primary task is about a user who is unfamiliar with which tool to use for a job, like hanging a shelf. From the home page, the user describes their goal to the AI assistant. The assistant asks the user for additional details and returns the relevant results, like recommended tools and instructional content.



This task shows the importance of guided interaction with the chatbot as a central design element. It adds a supportive, task-oriented system to the app.

The second task is about a user who is unable to return a rented tool before the deadline. On the home page, the user sees their active rentals, and notices that a return is due. Selecting the tool brings them to a rental page where they can return the item in-store, or request a pickup.



Overall, the prototype focuses on accessibility, guidance, and convenience. The design is driven by two core user needs: helping users identify the correct tools for their task, and simplifying the rental return process. The AI assistant and streamlined task flows reduce user effort while improving the overall rental experience.

Testing Process (1 page)

We conducted a series of usability tests using our paper prototype. Our primary method involved task-based testing where we observed how participants interacted with the interface while verbalizing their thought process. During each session, one team member acted as the facilitator, another simulated the app by switching between paper screens, and a third recorded observations and user behavior.

The first participant, a 45-year-old homeowner with limited tool knowledge, reflected users who may not know which tools are needed for specific tasks. The second participant, a 54-year-old homeowner, was more familiar with tools but preferred renting over owning equipment. The third participant, a 26-year-old renter, was experienced with digital platforms and expected fast, intuitive support systems.

One task required users to identify the correct tool for hanging a shelf, while another focused on returning a rented tool under time pressure. A third scenario explored how users would report an issue with a malfunctioning tool. These tasks helped us evaluate key aspects of our design, including navigation clarity and system feedback.

Our testing process evolved as we refined how we conducted sessions. Initially, our instructions led to inconsistent results across participants. We adjusted by standardizing tasks and ensuring that all participants received the same level of guidance and context. We also improved how we assigned team roles during testing. This resulted in more detailed and objective notes.

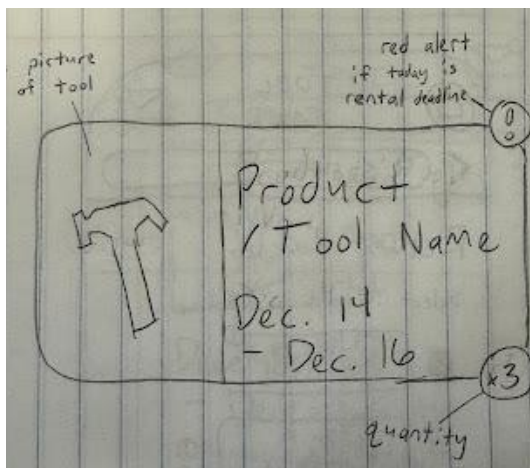
We also refined our observation strategy. At first, we focused primarily on whether users could complete tasks successfully. In later sessions, we paid closer attention to hesitation, confusion, and other uncertainty which revealed problems like unclear navigation and missing feedback. For example, one participant struggled to locate a way to report an issue, while another hesitated due to unclear pricing information for return options.

Overall, our testing process became more systematic and user-centered over time. These refinements strengthened the reliability of our findings and better informed the next iterations of our prototype.

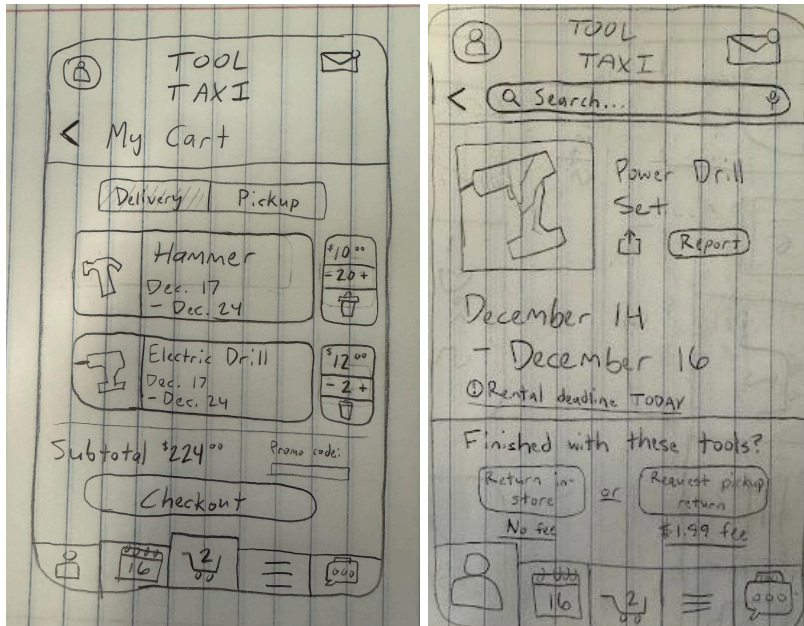
Testing Results (2 pages)

We conducted two heuristic evaluations with groups of classmates, and we were able to assign their critiques with Nielsen's heuristic principles.

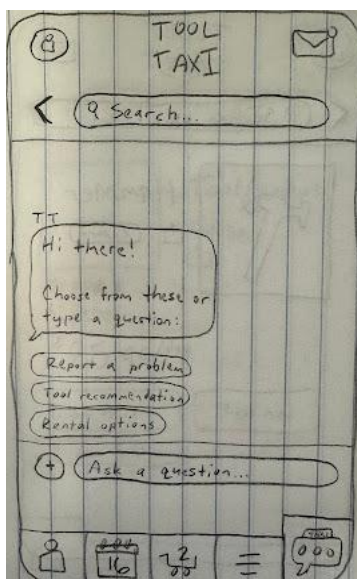
- Recognition rather than recall: Testers pointed out that including the names of the products in the "Your Returns" section will help the user remember which product is which, especially if the picture is not recognizable or if they have several similar tools.



- Match between system and the real world: Testers suggested that we include information on extra fees on delivery services, as well as alternate price and rental options.



- Help and documentation: Testers saw that we had no system to allow the user to report any issues they might face with delivery or pickup, the tool itself, or other complaints.



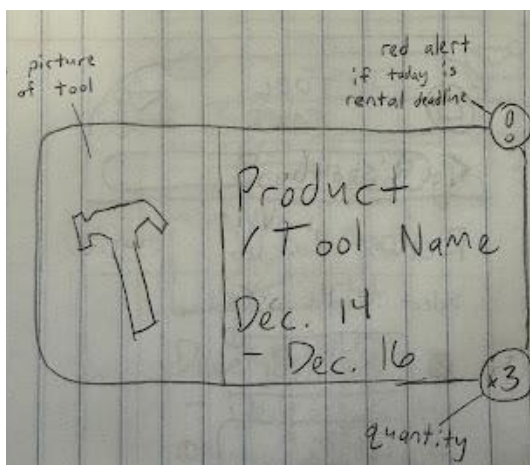
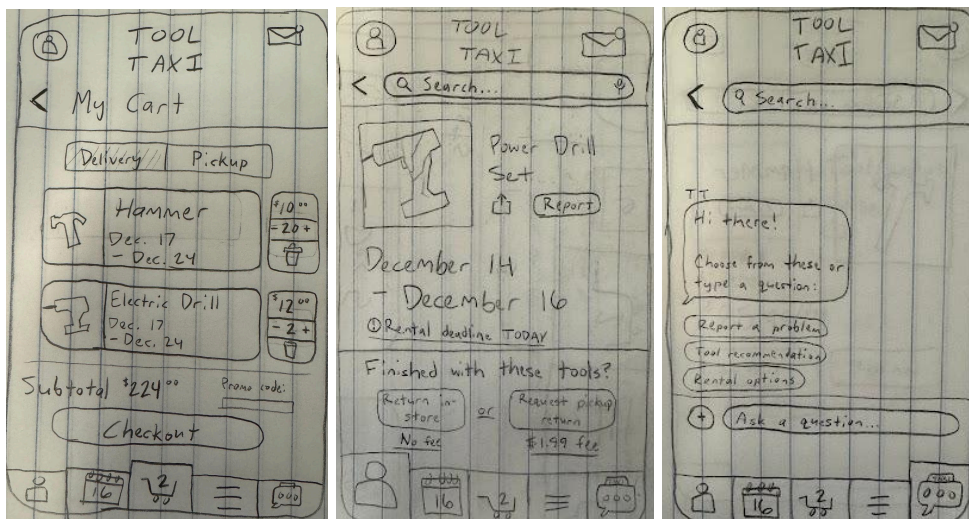
We conducted our usability test with a 54-year old man in his place of residence. We chose this person because they are in the age and environment of our target demographic. The environment did not have much of an effect on testing, as our product is a phone app and can be used virtually anywhere. We had our user complete one checkpoint at a time and navigate through the app without any external assistance. The first task was to navigate to the Ai assistant, and use it to get a tutorial on how to hang a shelf. Our participant had no difficulties whatsoever completing the task. We then had our participant schedule a tool pickup. This one took our participant a bit longer to complete, but he still did not make a miss step.

Since there were no issues completing tasks for our participant, no updates were made to the UI in post. There is potential for updates later down the road depending on feedback gathered from future participants. One potential update that we considered would be making sure that the absolutely essential tasks require the least amount of user input to get to.

Final Paper Prototype (1 page)

Our final ToolTaxi paper prototype builds on our initial design through multiple rounds of heuristic evaluation and usability testing. The overall structure of the application is consistent: a mobile app centered around tool rental, guidance, and return logistics. The final version has key refinements that improve the clarity, feedback, and usability.

The app still has a multi-page mobile interface with a home page, calendar, cart/checkout, chatbot assistant, and user account features. The home page is the central hub, displaying current rentals, deadlines, and previously rented tools. The final design improves recognition based on feedback by including clearer tool names and more informative tool cards. Additionally, feedback is strengthened using visible status indicators such as “Due Today” and confirmation messages after key actions, making the system more transparent to users.



One major improvement is the improved clarity of decision making points. Our heuristic evaluation showed that users lacked critical information, like pricing and return options at the moment of choice. The final prototype clearly displays pricing details (Pickup: +\$15) along with return options. Usability testing also exposed the absence of a clear issue-reporting mechanism. The final design addresses this by adding a “Report Issue” feature on tool pages and in the chatbot, along with reporting options that guide user input.

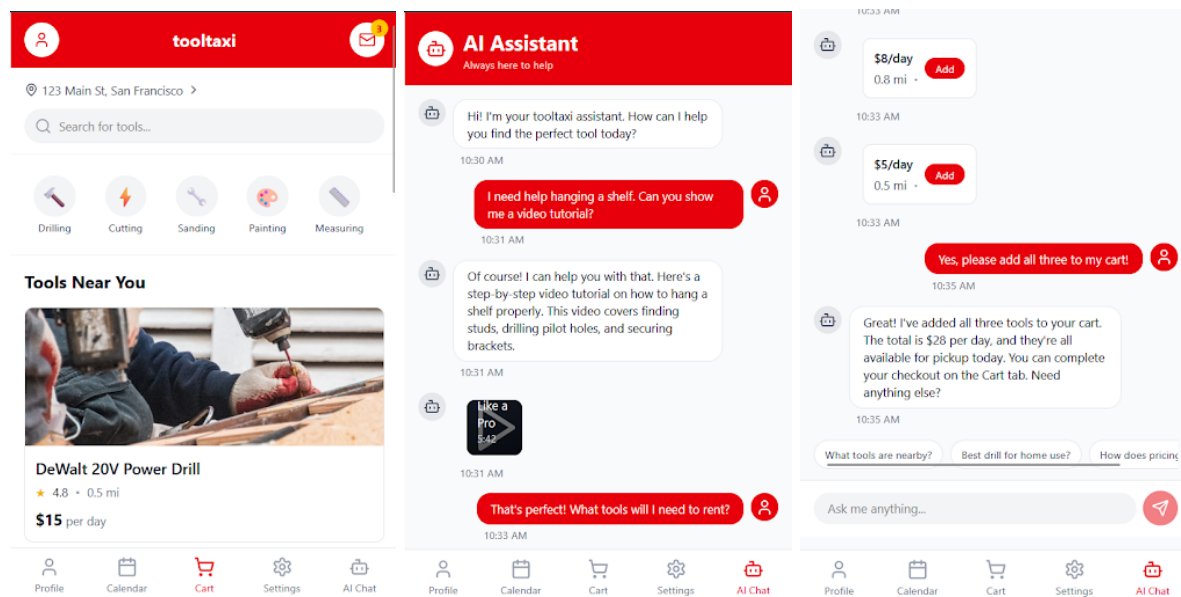
The first primary task remains helping users who are unfamiliar with which tool they need. From the home page, users access the AI assistant, which has been refined to provide clearer prompts and more structured interactions. Users describe their task, and the assistant responds with recommended tools and tutorial content. Improvements to the assistant’s discoverability and guidance, based on early confusion during testing, make it easier for users to navigate this interaction.

The second primary task focuses on returning a rented tool under time constraints. Users begin on the home page, where showing deadlines highlights urgency. Selecting a tool leads to a detail page with clearly defined return options: in-store return or pickup. In our final prototype, this now includes explicit pricing and clear descriptions, addressing prior confusion about fees.

Overall, the final prototype focused on three key improvements: increasing visibility of system status and key information, reducing ambiguity in user decisions, and adding missing features like issue reporting. These changes were made after heuristic evaluation and usability testing, resulting in a design that better supports user understanding, confidence, and efficiency.

Digital Mockup (1 page)

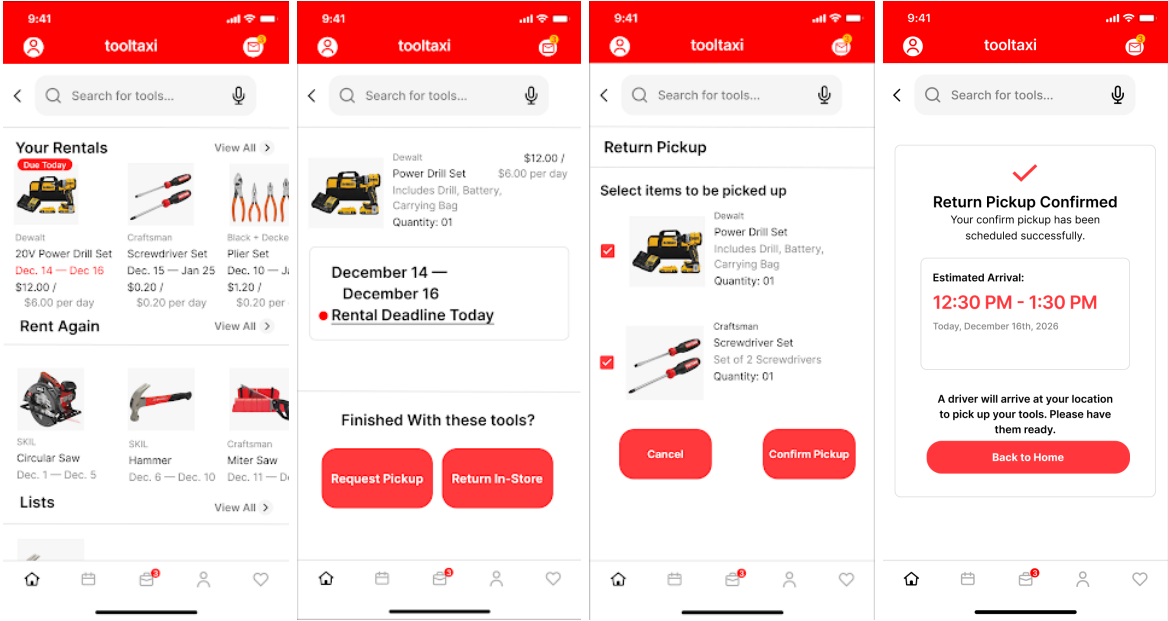
Our digital mockup of ToolTaxi turns our refined paper prototype into a mobile interface, preserving the core structure while improving visual clarity, consistency, and usability. The design still has the same key features like the home page, AI assistant, rental management, and return process, but we have designed a clearer layout, visual hierarchy, and more detailed information display. The home screen now shows tool categories clearly, with nearby tools, pricing, and rental status, making it easier for users to understand available options and their current rentals.



Taking feedback from heuristic evaluation and usability testing, we made several targeted improvements. For example, we clarified system feedback by highlighting deadlines and adding confirmation screens with estimated pickup times. We also improved cost transparency by displaying pricing more clearly alongside tools and services.

The first primary task focuses on helping users who are unfamiliar with which tool they need. In the digital mockup, this task is supported through the AI assistant, which is both a guide and navigation tool. From the home screen, users can access the assistant and describe their task (e.g. hanging a shelf). The assistant responds with relevant tutorials and recommended tools, which are displayed alongside pricing and options to add them directly to the cart. The interface

simplifies the decision-making process by translating user goals into relevant suggestions, reducing the need for prior knowledge and improving accessibility.



The second primary task addresses users who need to return a tool under time constraints. The digital mockup improves this process by making rental deadlines visible on the home screen, prompting a timely action. When users select a tool, they are taken to a detailed page that clearly presents the return options, including in-store return or pickup. If the user chooses pickup, they proceed through the UI where they select items, confirm the request, and receive a confirmation screen with a clear estimated arrival time for pickup. The addition of visual feedback, clear steps, and clear confirmations ensure that users understand each stage of the process and feel confident completing the task.

Discussion (1 page)

Through the process of iterative design, we learned that usability issues are not immediately obvious during initial design, even if the interface is functional. Our first prototype supported basic tasks, but heuristic evaluation and usability testing found deeper issues related to clarity, feedback, and user decision-making.

One of the most important lessons we learned is observing user behavior, rather than relying on our own assumptions. For example, although we believed our design supported returning tools and reporting issues, usability testing showed that participants struggled to locate a way to report problems and hesitated choosing between return options. As a result, we shifted our focus from simply task completion to improving clarity, guidance, and system feedback.

The iterative process shaped our final design by helping us prioritize visibility and transparency. Heuristic evaluation emphasized principles like recognition rather than recall, which led us to add clearer tool names and more explicit pricing information. Usability testing supported these findings, such as missing functionality like issue reporting and unclear system states. In response, we added the “Report Issue” feature, and clearer status indicators such as deadlines and confirmations. These changes improved the usability of the system without altering the core structure.

Looking back, additional iterations would likely have further improved the design, particularly in addressing edge cases and expanding functionality. While our final prototype addressed the most critical usability issues, our testing sample size was limited, and additional participants may have shown more issues. At the same time, the earlier iterations could have been more efficient if we had incorporated structured evaluation methods sooner. For example, conducting heuristic evaluation earlier in the process may have allowed us to catch fundamental issues, like lack of feedback and unclear affordances, before usability testing.

Overall, this project showed that iterative design is not just about making incremental improvements, but about refining the system based on user needs. Each feedback activity changed our understanding of what users actually want, leading to a more intuitive, transparent, and user-centered final design.

Appendix

Critical Incidents

Incident 1: No Clear Way to Report

- Severity: 4
- The participant was unable to quickly locate a way to report a problem.
- We could add a visible “Report Issue” button on the tool detail page.

Incident 2: Lacking Guidance/Flow

- Severity: 3
- The participant was unsure what information to provide when attempting to report the issue.
- We could provide structured options (e.g., “Broken tool,” “Missing parts,” “Delivery issue”) to simplify reporting.

Incident 3: Lacking Cost Transparency

- Severity: 3
- The participant was unsure whether the pickup option involved additional fees and hesitated before making a selection.
- We could display clear pricing information directly next to each option (ex. “Pickup: +\$15”).

Contribution Statement

- Elijah - Sections - Testing Results & Document Review
- David - Sections - Initial Paper Prototype, Testing Process, Final Paper Prototype, Discussion
- Ryan - Sections - Digital Mockup & Document Review