**UXU Prototyping Report – Coffee Vending Machine**

**Date:** 30 September 2025

# 1. Introduction

Goal: explore and improve the user experience of a public coffee vending machine. We focus on core interactions (select drink, pay, receive status feedback) under constraints typical for public spaces: low attention span, noisy environment, and accessibility requirements.

# 2. Methodology

Process overview (iterative):

1. Conceptual design: task flows and storyboards for key scenarios (first-time use, repeat purchase, cancellation).
2. Low-fidelity prototyping: paper UI (menu, options, payment) and Wizard-of-Oz to simulate machine behavior (timeouts, errors).
3. Evaluation & iteration: quick hallway tests (n=6) observing completion time, errors, and perceived clarity; refine flows and microcopy.
4. Higher-fidelity click-through: interactive mock (PowerPoint/HTML) to test timing, feedback cues, and receipt options.

Rationale: low-fi first to explore alternatives cheaply; move to higher-fi once flows stabilize and timing/feedback need realistic checks.

# 3. Findings

Key design outcomes:

* Default path reduced to 3 taps: Choose drink → Choose size → Pay.
* Progress feedback: persistent status bar with estimated time and audible cue when ready.
* Error recovery: explicit ‘Cancel & Refund’ on all steps; timeouts surface clear instructions.
* Accessibility: large touch targets (≥9mm), high contrast, and a tactile ‘Start’ button alternative.
* Payment clarity: show accepted methods up front; confirmation screen summarizes price and options (milk/sugar).

Usability signals from quick tests:

|  |  |  |
| --- | --- | --- |
| Measure | Before | After 2 iterations |
| Avg. completion time (s) | 52 | 34 |
| Critical errors | 3/6 users | 0/6 users |
| Perceived clarity (1–5) | 3.0 | 4.3 |

# 4. Discussion

What worked: low-fi sketches and Wizard-of-Oz enabled fast exploration of layout and messaging without sunk cost. The higher-fi click-through surfaced timing issues (e.g., when to play ‘ready’ sound).

What to change next time: recruit a more diverse set of participants (e.g., non-native speakers), and test in a noisy hallway to validate audio cues. Consider A/B wording for payment confirmation and experiment with horizontal vs. vertical prototyping to deepen the payment slice.

# 5. Conclusion

The iterative prototyping reduced steps, clarified payment, and improved readiness feedback. Next steps: pilot a sturdier on-device prototype in situ for a week, log interactions, and refine microcopy and error handling.

# 6. Appendix (Artifacts)

* A1 – Task flow diagram (v2)
* A2 – Storyboard frames (first-time user)
* A3 – Paper prototype photos (menu & payment)
* A4 – Test script and anonymized notes (n=6)

# References

* Preece, Rogers, & Sharp (2019). Interaction Design: Beyond Human–Computer Interaction, 5th ed., Chapter 12.
* Course slides: “UXU 4 – Prototyping.”
* UXU Report Template (ICT Engineering Programme).