DESIGNING A MARKET-READY STEAMUP

Developing the minimum viable product configuration of a premium milk steamer for home use

SteamUp is a premium standalone milk steamer designed for home baristas and coffee hobbyists who seek café-quality milk frothing from the comfort of their kitchen. As specialty coffee culture continues to rise, so does the demand for better milk preparation at home. While most espresso machine brands focus on perfecting espresso, they often treat milk steaming as secondary, delivering average performance. SteamUp addresses this market gap by offering high-end, standalone steam performance in a design-forward product.

In-depth milk research shows that producing consistent microfoam with stable texture and precise temperature control can only reliably be achieved using a boiler-based system. SteamUp embraces this premium technology, while most competitors avoid it due to higher costs and complexity. Its boiler core provides a distinct technical advantage, enabling it to deliver professional-grade steam performance at home.

The project set out to explore whether SteamUp could be designed and produced with both competitive advantage and financial viability. In addition to assessing performance, usability, and cost, the project aimed to evolve the prototype into a market-ready minimum viable product (MVP). User research confirmed that the target audience values aesthetics nearly as highly as performance. This guided a shift toward design embodiment, where the goal became to express SteamUp's technical power through an elegant, recognisable design language.

An extensive form-giving process led to four concept directions, each evaluated for its emotional resonance, spatial proportions, and semantics. The final concept, Duck by SteamUp, was selected for its ability to balance performance and personality. It features a minimal yet expressive form, compact proportions, and soft curves that communicate both precision and calm. Validated by 41 target users and rated 8+ by over 50%, Duck sets a strong foundation for brand identity. Moreover, its design enables future variation in materials and colours, allowing for tailored visual identities across user segments.

Beyond visual identity, sustainability was considered through the lens of repairability. While not a primary focus, the design was developed with disassembly in mind: all parts are mechanically fastened, reversible, and serviceable. This aligns with the values of the home barista community, where the ability to tweak and maintain machines is often celebrated.

Cost modelling revealed that the boiler is both SteamUp's largest cost driver and its strongest differentiator, accounting for 25% to 50% of the unit cost. At a 500-unit batch size, the manufacturing cost (MC) lands around €170, making the original €100 MC target for a €350 retail price difficult to meet. However, from 1,000 units onward, cost structures become more favourable, and the MC multiplier (typically 3 to 5x) falls within the feasible retail range of €350 to €500. This top-down estimate aligns with market expectations for premium milk frothers, especially when factoring in SteamUp's superior technology and design.

In conclusion, this thesis shows that SteamUp can be designed with clear competitive advantage and brought to market at a viable cost, if scale is reached. While the original €100/€350 target may now seem dated, it remains within reach at higher volumes. Production at 500 units is possible through early-stage startup strategies such as founder-led assembly or simplified tooling. These are not permanent solutions, but they offer realistic launch paths until full-scale production becomes viable.

SteamUp is set to advance beyond the prototype phase, blending premium steam performance with elegant design and a seamless user experience.

Laurens Hilbrands (4673093)
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Committee Dr. E. Tempelman
Ir. E.J.J. van Breemen

Company SteamUp

Faculty of Industrial Design Engineering

Delft University of Technology