

Zippo Lighter in Singapore

Problem Statement

Zippo lighters exist to provide a windproof and reusable solution in replacement to disposable lighters. However, Zippo lighters have their own problems too. The destruction of property and death of countless children are caused by possible mishandlings of lighters and one death is one too many.¹ This is a cause for concern since 82% of civilian deaths are caused by fires started by lighters or matches and 52% of home structure fires had a lighter as their heat source.² Burns and fires are a leading cause of accidental death³ and the fifth most common cause of non-fatal childhood injuries.⁴ About 85% of wildfires are also caused by humans.⁵

In addition, Zippo lighters need to be regularly refilled since the lighter fluid constantly evaporates. Lighter fluid needs to be purchased to refill the lighter once it has been used up. Smokers, campgoers, partygoers and collectors alike face this hassle.

Through this project, we aim to address these issues of Zippo lighters by taking advantage of possible design opportunities, which include providing alternative safety measures to restrict access to Zippo lighters, as well as implementing a renewable energy source mechanism into the lighter. These measures would likely reduce the frequency of fire-related destruction and death, and make reusable lighters less of a hassle to use, as well as more environmentally-friendly since there is no need to keep refilling.

[1] Enoch, N. (2012, February 15). *Smoker killed by fireball after he dropped Zippo lighter on car seat while lighting pipe*. Retrieved from <https://www.dailymail.co.uk/news/article-2101560/Smoker-killed-fireball-dropped-Zippo-lighter-car-seat-lighting-pipe.html>

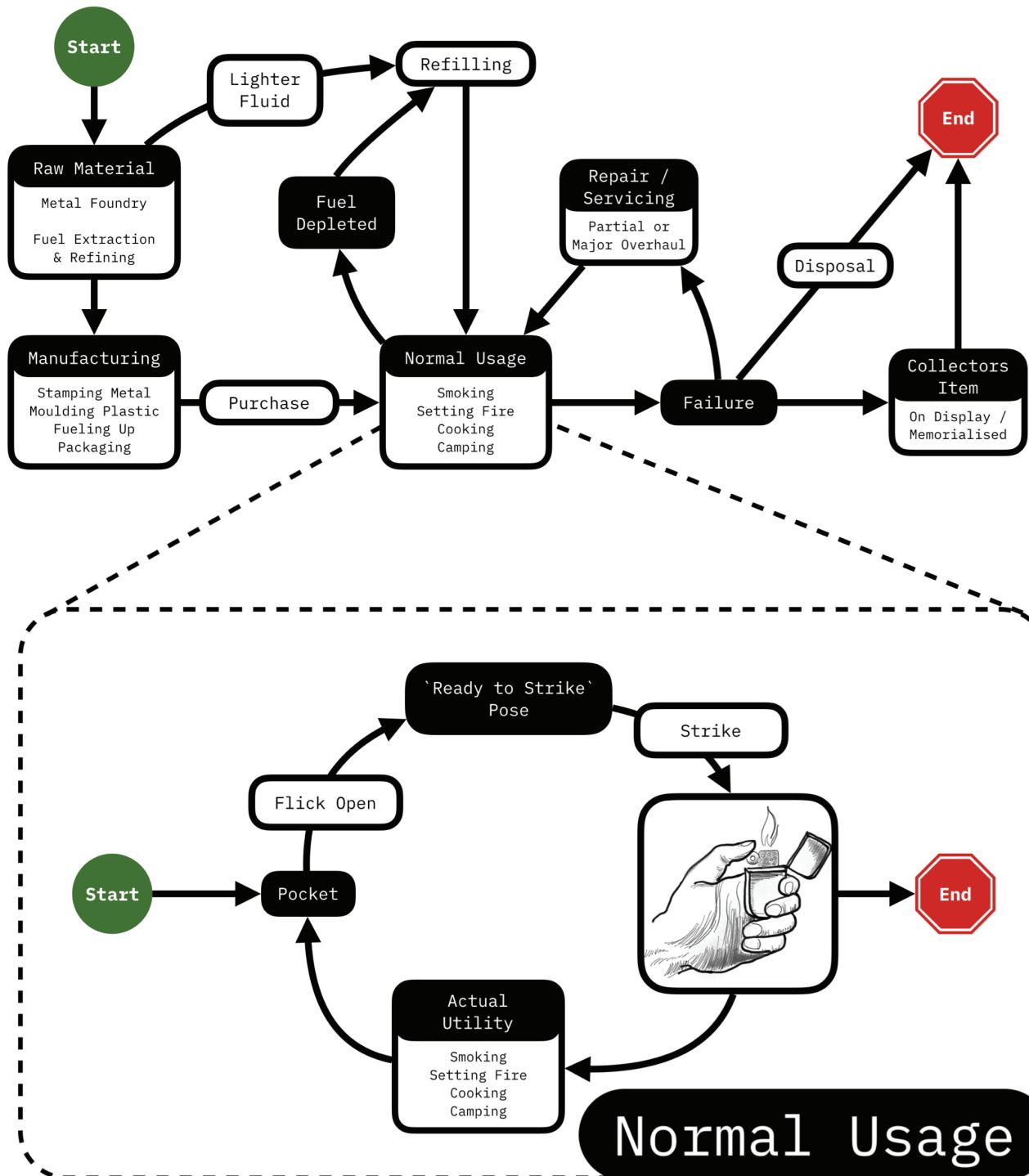
[2] Campbell, R. (2014, March). *Playing with fire*. Retrieved from <https://www.nfpa.org/News-and-Research/Data-research-and-tools/US-Fire-Problem/Children-playing-with-fire>

[3] Burns in Children. (n.d.) *Stanford Children's Health*. Retrieved from <https://www.stanfordchildrens.org/en/topic/default?id=burns-in-children-90-P01887>

[4] Burns. (2018, March 6). *World Health Organization*. Retrieved from <https://www.who.int/news-room/fact-sheets/detail/burns>

[5] Hamilton, H. M. & Steblein, P. (2019, September 13). *Fast Fire Facts from USGS*. Retrieved from <https://www.usgs.gov/news/fast-fire-facts-usgs>

Activity Diagram of Zippo Lighters



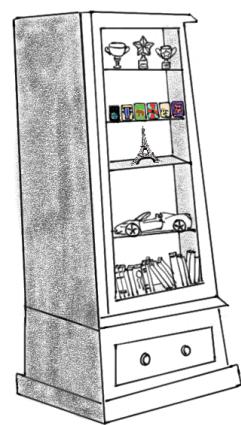
Zippo Lighter is not Self-Sustaining

Time Based Diagram

Duration of Usage: 1-2 Weeks per Refill



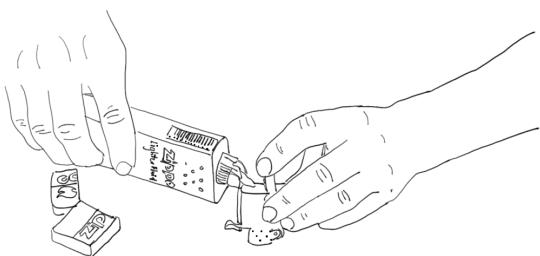
Purchase Lighter



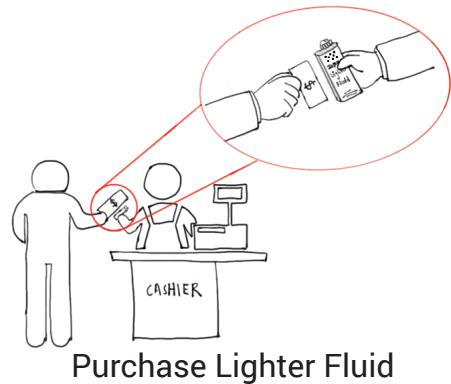
Decommissioned for Display



Use Lighter



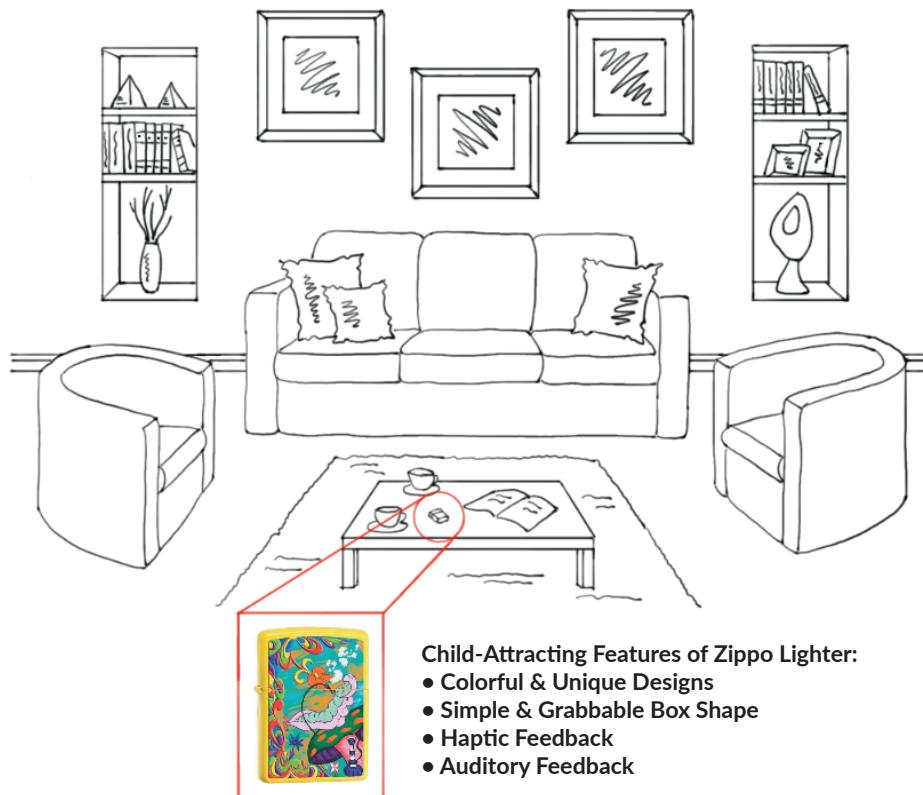
Refill Lighter



Purchase Lighter Fluid

Zippo Lighter at Home

Context & Time Based Diagrams



Child-Attracting Features of Zippo Lighter:

- Colorful & Unique Designs
- Simple & Grabbable Box Shape
- Haptic Feedback
- Auditory Feedback

