Cognilo Smart Macbook Charging Case
Dexter Law | Toiya Smith

Our Company

Problem statement:
As a rising computer engineer, project consultant, and full-time student, I use my laptop for the majority of the day and now, even more. Like myself, students, business people, gamers, and artists are constrained by decaying battery life, forcing a search for an outlet to be tethered to. Pew Research Center reported in 2019 that 78% percent of Americans own laptop devices, with 90% of adult laptop owners being college students.

Description of product/service: Our Macbook charging case will extend the battery life of a laptop. It offers users a modern look, low-weight design, the ability to charge your laptop on-the go, and the option for wireless charging.

The dependable lithium-ion battery is hidden at the base of the laptop case along with a USB-C connector that plugs into the left side of the laptop charging port. Our case snaps on like your standard laptop case and houses a battery life indicator at the back of the laptop. Our case is only designed for the bottom portion of the laptop, so it allows our users to flex their style and choose their own top cover. It also houses a wireless charging at the bottom left of the case. With wireless charging becoming increasingly popular, this allows for users to charge our case with a wireless charging pad or any integrated wireless charging furniture.

Market Analysis

Target market description/size of Industry: New data from Canalys shows that Apple remained the market leader in the combined PC and tablet market in Q1 this year, despite a 16 percent fall in iPad sales. Worldwide, Apple continues to lead the PC market.

With many consumers buying tablets in place of laptops, the approach taken by Canalys in combining the two arguably makes more sense than separating them out as other companies do. Consumers, and increasingly businesses, are continuing to adapt, with PC's acting as disruptors and finding their place as laptop and notebook replacements. Worldwide, laptops now account for 41 percent of combined sales, tablets 38 percent and desktops 21 percent.

Statistically, college students and employees make up the majority of laptop users, so they are our target market. As for our choice of laptop, Apple's line of MacBook's is the preferred option for many college students and business people, so we plan to initially launch our product for 2016+ MacBook Pro models. We do plan to expand our device compatibility as our business grows.

Competitors: There are currently no other external laptop charging cases like it on the market. Our product would compete with similar products on the markets like laptop charging banks. A similar concept popped up back in 2015 on the crowdfunding site, Indego, who's campaign raised ~$2200. The project is currently closed, and no updates have been made since October 12, 2015. A popular backpack

company, Incase, announced the release of a charging sleeve back in January of 2018. This product has yet to be released. Unlike the competitors listed above, our case is the only that offers a design with the wireless charging feature.

Financials

Since we are still in the design/development phase of our company, the financials below provide a rough estimate based on materials and current products like it on the market.

Projected revenue: We will sell our product at a price point of $150 per case. We expect our cases to cost $75 to make. This leads to a ~$80 in profit per case. We expect to have around 175 cases made and sold in 2021 leading to a ~$26000 in revenue and ~$13000 in profit.

Materials/Labor: The materials for our design will cost ~$75 initially. A list of materials and their cost are attached in the appendix. Our designs will initially be made from home using a 3D printer, and we will be constructing the product ourselves. We will be selling our product online.

Development: Bootstrapping and university resources will fund the development of the case. The materials and labor will cost us around ~$3000. This will be our first attempt and most cost efficient option for designing the product on our own. This estimate includes cost for the preliminary design, schematic design, printed circuit board (PCB) layout, hardware/software integration, testing/debugging, and proper documentation.

Legal Fees & Patent: Once our design is finalized, we will file for a utility patent for the software within the charging case and a design patent for the actual encasing. The cost associated with filling for a utility patent and design is ~$3000, and ~$1500 respectively. Getting our company/business registered and obtaining the proper permits will cost around ~$400.

Funding: We are trying to obtain additional funding through crowdfunding via GoFundMe, Kickstart, and other business development grants. If need be, we are willing to take out loans.

Risk: We run this risk of having insufficient resources when designing the product. We can combat this risk by seeking for help with development. Our solution to this is setting aside $2000 for additional resources.

Operations

Initially, our product will be made in-house. The case enclosure will be made using a strong polycarbonate material. These enclosures will be 3d printed and will take an estimated 15 hours to print. The hardware will also be made in-house. We currently have 2 team members, but will outsource for other members as our company grows.

The Future

The portable charging case will be the first of its kind. Like all companies start, we pride ourselves on the quality of our work. We want to become leaders within our industry and thrive off a market that we

create. We want to first focus on optimizing our design. Once our design is finalized and we gather feedback, we'll begin replicating the design for compatibility with other laptop models(HP, Dell, Microsoft).

Appendix

Materials Cost

MATERIAL	COST PER UNIT	QUANTITY	TOTAL PRICE
Electricity in-take and out-take			
USB-C Connector	$1	2	$2
Battery Level Indicator			
LM324	$1	2	$2
6x 10k Trimmer	$5	1	$5
6x 2k Resistor	$5	1	$5
6x 5mm LED	$5	1	$5
Boost Converter	$5	1	$5
Alternative Battery Level Indicator			
48V Indicator	$5	1	$5
Battery			
6x INR18650-25R Li-Ion Battery	$30	1	$30
6x 18650 Spacer	$3	1	$3
Nickel Ribbon (8mm, 0, 15mm)	$2	1	$2
XT60 Connector	$3	1	$3
3S Balance Connector	$3	1	$3
3S BMS	$2	1	$2
Kapton Tape	$3	1	$3
16 AWG Wire	$4	1	$4
Alternative Battery Pack			
Lithium Ion Battery Pack	$60	1	$60
Wireless Charging Pad	$10	1	$10
TOTAL PRICE			$74