



L I V I N G L A M P

Business Plan

APD 2019-10

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Assumptions and Actors

Investor: Bank, business loan

Self: Profitable and self-sustaining small business that successfully accomplishes goal of helping to reduce stress

Users: Individuals, millennials, students, young professionals

Value: Our product reduces stress, provides green in spaces with little/no nature or natural light, teaches individuals breathing techniques to reduce stress, and gives users an opportunity to interact with plant life (satisfaction of caring for living thing?)

Business opportunity

Business objective

A Problem Worth Solving

Stress. What does this charged word mean to you? Do you feel anxious just thinking about it? Stress doesn't have to mean a heavy workload and crippling anxiety, but research exposing the detrimental physiological impacts of chronic stress was followed by a wave of self-care tips, aromatherapy treatments, and yoga memberships. US millennial culture slapped danger labels on stress and it became saturated with negative sentiment. This perspective is limited however, and the keys to reducing stress are more likely to be found by understanding why it exists in the first place.

Stress is not all bad. One way to think of stress as a series of interactions. The interaction between the physiological and biochemical factors in our body makes up the internal environment. Our internal environment interacts with our external environment to produce our physical reaction. Stress might originate due to a dangerous or stressful external environment and this would initiate the internal environment's "fight or flight" response. In stressful situations, such as driving a car in a snowstorm, your body prepares itself and might produce hormones like cortisol or adrenaline to provide energy to handle the situation. Your reflexes are tuned and your eyesight focused and you get to school safely, but, when you're sitting at your desk, you no longer need the same level of stress hormones.

A healthy body would adjust to the now safe environment and return to a state of homeostasis, but a body experiencing chronic stress might continue to produce stress hormones and function in a "stressed state". Overproduction of these hormones and flawed communication channels

ultimately can lead to the development of chronic fatigue, metabolic disorders such as diabetes and obesity, depression, and immune disorders. Chronic stress can also affect the musculoskeletal system, respiratory system, cardiovascular system, gastrointestinal system, nervous system, and reproductive system.

If you've ever experienced chronic stress you know it can impact more than your health. The repercussions cascade to your relationships, work performance, general energy for life, and overall well-being. Though these social problems are too big to tackle universally, we do believe that understanding the process of stress within the body has brought us to an individually targeted solution.

Our Solution

By designing a solution that transitions the body from a state of stress to a state of homeostasis, we give the power to each user to essentially "treat" themselves as well as learn a valuable stress-relief technique.

Product description

We designed a product that utilizes moss, light, and tactile sensation to mitigate stress. Through visual breathing cues, our product incentivizes mindfulness by inviting users to match their breathing with the pulsing lights surrounding the moss bed. We programmed these lights to match an intentional breathing technique called box breathing. Our material choice encourages interaction with natural materials and also brings green into a potentially sterile office or work setting. By uniquely combining nature with a mindful breathing technique we created a passive product that is portable, discreet, comforting, sustainable, and durable with the user in mind.

The user is in complete control of their interaction with the product and this allows them to act when they feel ready and able. Given the natural materials used, the product is still useful if users choose not to touch the moss and engage with the breathing lights. As a passive product, the Living Lamp is not distracting in the way that many mindfulness products incorporating screens might be. Additionally, the product is stationary and placed in an area that the user will pass often in their normal daily path of routine. By incorporating the Living Lamp into a user's desk or workstation, the product is visible and easily accessible to users.

Market analysis

Competitive Landscape

The current market catering to stress reduction offers products which combine plants or moss with some sort of light source or self-sustaining system. Examples of these are the hanging Moss Lamp, moss walls, or SAD lamps. There are others which cater to a broader stress-causing criteria such as the fidget spinner, health tracker, gravity blanket, etc. These are aimed at providing means to track or reduce stress levels or anxiety. Although these products

individually have some stress reducing elements, they lack in characteristics which elicit user interaction or a wholesome approach to stress reduction. Most of the products which are aimed at stress-reduction through nature and light therapy are marketed as interior decoration products, with little to no focus on the objective of stress relief or relaxation of the user. Our product aims at addressing this gap in the market in stress-relieving products. While focusing on millennials as the target customers, we plan to expand the customer base to different segments through product marketing strategies aimed at prospective customer involvement activities.

Market Size

As discussed in our problem statement, our product's target market includes millennials experiencing stress and stress related symptoms. The current US millennial population is estimated at 75 million. Based on research by the WHO, which suggested that up to 30 percent of buildings worldwide may be the subject of excessive complaints related to indoor air quality, we could assume that a 30% of the millennial population i.e. 22.5M people would be experiencing and acknowledging the impact of sick building syndrome. Out of these, considering the reluctance of people to acknowledge their problems and invest in stress relieving products, we assume that 10% of the affected people i.e. 2.25M people would actually resort to buying. Out of the interested people, considering competition, we assume 10% of people willing to purchase our product. This gives a market size of approximately 225,000. This market size estimation shall be the upper limit to our confidence interval in the demand estimate. This target may be too unrealistic to manufacture, so for initial two years of production, we aim at a volume of 100k or less, followed by expansion in following years.

Market Share

Our product is the first of its kind in the current market gap, but may face competition from other stress-reduction products. Hence based on current market research and share prediction of innovative, small scale industries, we can estimate a market share of 10%. This has been reflected in our market size. This shall be expanded further as our business is established through market expansion techniques such as collaborations with companies and universities, stress awareness workshops, email marketing, social media, advertisements, and a website - a sample web page has been created and can be found at makenzieoconnor.com/living-lamp. This will expand our market outside of millennials and raise our overall market share.

Capital and Personnel Resources

The capital required for this business includes manufacturing equipment, raw production materials, intellectual property, and employees required for product execution and business operations. Detailed list of equipment, manufacturing operations, raw materials, assembly workers and office employee roster is provided in the attached Bill of Materials & Cost Analysis document.

Capital equipment cost for manufacturing comes primarily from the drying kiln, large table CNC and moss growing equipment and is estimated to be about \$45,000.

For operational costs, we anticipate needing 8 full-time employees (4 line workers, 1 sales / marketing, 1 engineering staff member, 1 business manager, and 1 maintenance) to cover daily tasks. Payroll to support these 8 salaried employees is approximately \$287,000 per year. Utilities, rent, insurance are estimated to be approximately \$174,000 per year.

First year costs include the non-recurring engineering, manufacturing equipment, fixed operational costs and variable costs related to manufacturing and materials. Subsequent years do not have manufacturing equipment and NRE launch related costs.

Financial Plan

Break-even (or other investment) analysis

Our calculated net present value (NPV) is \$3,677,000. This was determined by estimating a discount rate of 6%, at 1.5% per quarter.

Using the projected 3-year production ramp up plan, total revenue will exceed our requested loan with interest (assuming a 6% rate compounded quarterly) in Q2 of Y2 after producing about 50k units. To stay profitable after paying off the loans, the company must produce at least 15k units per year to support operation costs.

Based on the results of the pro-forma analysis below, the request loan amount is likely higher than needed, however, it provides a margin of error in the event that estimations of cost and market demand are insufficient and allows for a longer ramp up time if necessary.

Pro-forma income and Cost Projections (profit & loss statements) - Quarterly

Project Year	1				2				3			
Project Quarter	0.00	0.25	0.50	0.75	1.00	1.25	1.50	1.75	2.00	2.25	2.50	2.75
Qty Sold	0	0	8250	8250	16500	16500	16500	16500	25000	25000	25000	25000
<u>Income</u>												
Small Bus Loan	800000	0	0	0	0	0	0	0	0	0	0	0
Product Revenue	0	0	495000	495000	990000	990000	990000	990000	1500000	1500000	1500000	1500000
Total Income	800000	0	495000	495000	990000	990000	990000	990000	1500000	1500000	1500000	1500000

Debt												
	800000	848000	745516	636883	246264	0	0	0	0	0	0	0
Expenses												
Eqmt and Launch Investment	-54693	0	0	0	0	0	0	0	0	0	0	0
Bldg, Utilities, Insurance, Salaried Compensation	-115192	-115192	-115192	-115192	-115192	-115192	-115192	-115192	-115192	-115192	-115192	-115192
Mat and Mfg Costs	0	0	-235125	-235125	-470250	-470250	-470250	-470250	-712500	-712500	-712500	-712500
Loan Payment	0	0	144683	144683	404558	246264						
Total Expenses	-169885	-115192	-495000	-495000	-990000	-831706	-585442	-585442	-827692	-827692	-827692	-827692
QTR Cash Balance	630115	-115192	0	0	0	158294	404558	404558	672308	672308	672308	672308
Running Cash Balance	800000	684808	684808	684808	684808	843102	1247660	1652218	2324527	2996835	3669143	4341451

Assumptions upon which projections were based

The model assumes a profit of \$60. Quarterly volumes may be adjusted, depending on market demand. The unit cost is likely higher, as prices are based on low-volume sourcing.

Due to insubstantial impact on the bottom line, we do not directly consider the following costs: price of advertising, potential staffing for legal consultation, HR, time-costs of daily bureaucratic paper-work related to tax-filing, licensing, permits, regulatory reviews, costs of IT infrastructure and maintenance, accurate insurance estimation, product packaging, shipping costs, daily business expenses (traveling), cost of additional employee redundancy for continued operation if an employee gets sick or leaves, factory supplies (light bulbs, toilet paper).

We assume that all revenue would be applied toward the loan, however, if unexpected costs are incurred and revenue is redirected, then the loan repayment schedule would be extended and more interest paid at the expense of profit.

Finally, we assume that inventory will be sold upon producing and that excess inventory will not be stockpiled, other than for shipping preparation. This will be managed by taking orders in real-time through our online portal, as well as accepting pre-orders during our initial 6-month setup period.


Supporting Documents

Existing Patents and Competitors

Based on the research of US patents in stress-relief products, there are five patents which concern our product :

1. Portable light for seasonal affective disorder: This patent illustrates a portable illumination device, used for treatment of seasonal affective disorder. Since our product concepts do not integrate a portable SAD lamp, the patent will not be infringed by our product design.
2. Moss wall manufacturing: The patent comprises of moss wall manufacturing method, which includes making a framework of a moss wall module, establishing a moss culture medium, performing rapid propagation on the medium layer by using moss chips to form a green moss clump, and integrally installing the cultured moss wall module to the external wall of a building. Our product involves the conventional moss manufacturing and should not clash with the patent.
3. Light Therapy Desk Lamp: The light therapy desk lamp device is used in the treatment of circadian rhythm disorders, such as seasonal affective disorder (SAD), jet lag, depression, sleep disorders, shift-work disorders, fatigue, etc. Our product will not infringe the patent as the design is not shaped as a lamp, but as a strip across the product.

Bill of Materials

Please click the paperclip to open our bill of materials. (please open in adobe acrobat) 

Supply Chain

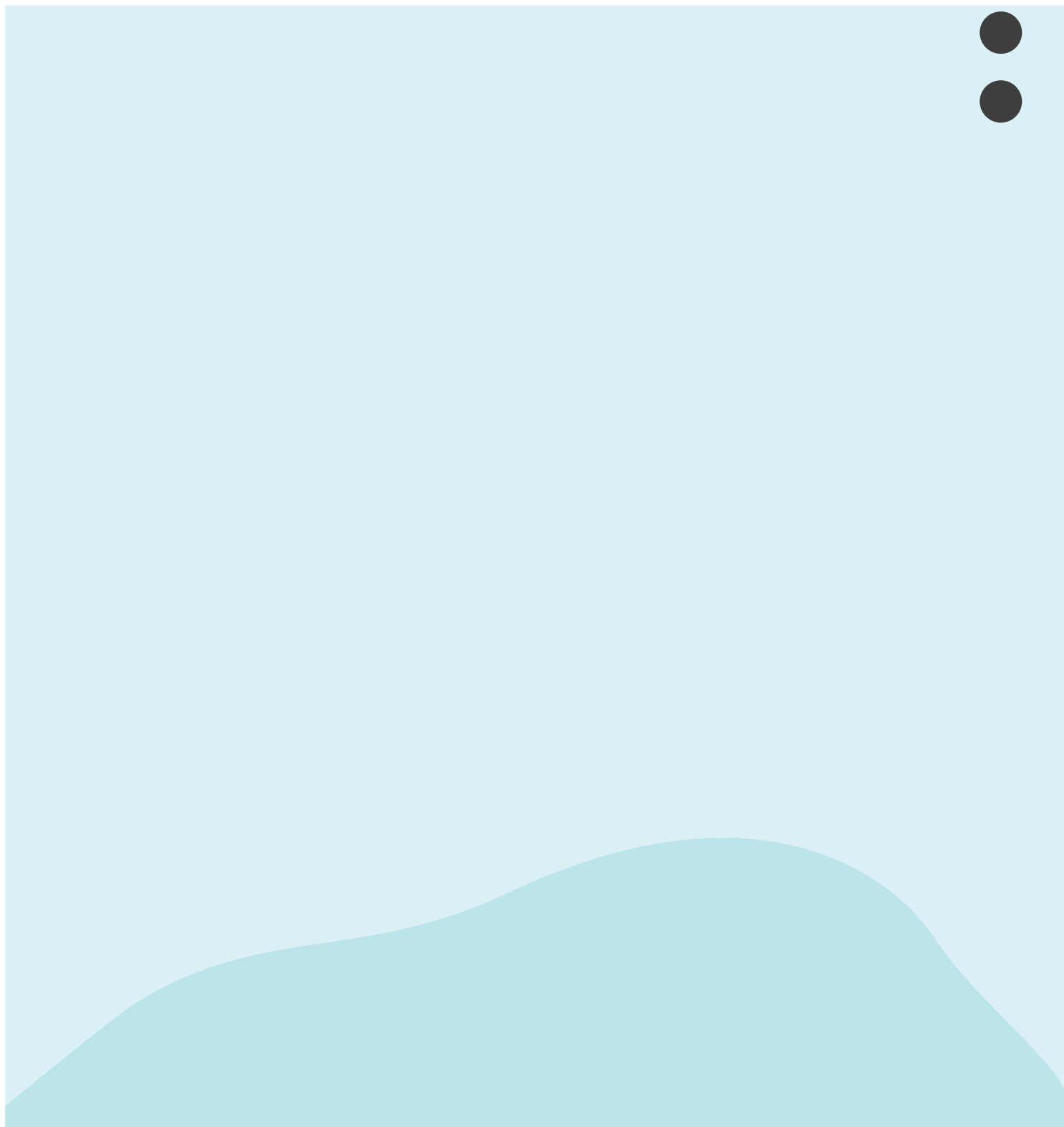
Assembly and production of this product will be based in Detroit, MI due to affordable commercial real estate and conducive small business incentives within the state. Furthermore, we can utilize existing social networks and create a positive impact for our local community

To reduce our ecological footprint and support local economy, materials will be sourced locally when possible: wood from Northern Michigan, concrete from Michigan mines, moss manufactured in-house. The small portion of electronic components (approximately 3% of product weight) will be likely sourced from Chinese suppliers.

Branding Guide

As a small business breaking into a rather competitive market, it will be important to establish a brand that captures the essence of our product and greater mission. Branding increases business value and recognition, creates trust, supports marketing efforts, and makes acquiring customers easier. We designed a logo and brand that communicates our mission of mindfulness and sustainability. Our branding guide can be found below,

LIVING LAMP

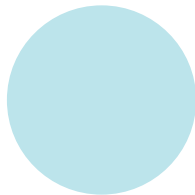




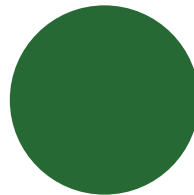
LIVING LAMP



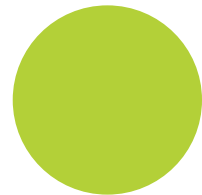
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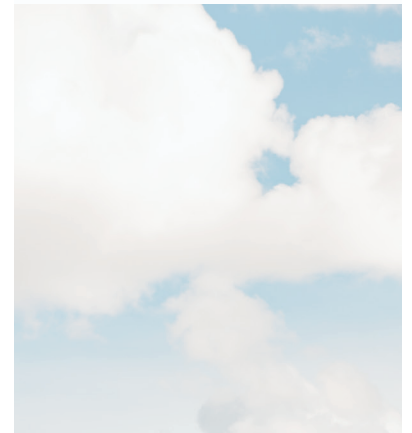
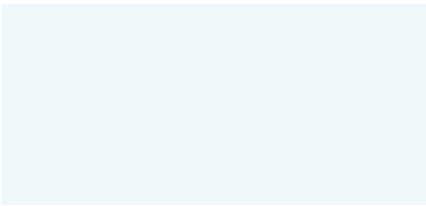
#b4d038

MONTSERRAT BOLD

A B C D E F G H I J K L M N
O P Q R S T U V W X Y Z

Roboto

Aa Bb Cc Dd Ee Ff Gg Hh Ii Jj Kk Ll
Mm Nn Oo Pp Qq Rr Ss Tt Uu Vv Ww
Xx Yy Zz



SUSTAINABLE

TACTILE

SENSATION

NATURAL MATERIAL

USER-FOCUSED

ACCESSIBLE

Our product incentivizes *mindfulness*

by utilizing

moss,
lights,
and tactile sensation...

to mitigate *stress* through

visual breathing cues.