



Marketing Plan

Prepared For:

ETM 555 Technology Marketing

Winter 2015

Instructor: Dr. Antoine Jetter

ETM Department

Portland State University

Prepared by:

Jerrod Thomas

Kranthi Kumar Reddy Rapolu

Liyan Xiao

Purva Chhatre

Shiva Ram Reddy Singireddy

Wendy Lally

Yasaswi Deepak Kancherla

TABLE OF CONTENTS

Exectutive Summary	1
Company Overview.....	2
Product Analysis	2
<i>Product Value</i>	2
<i>Technology Assessment</i>	3
Market Value Analysis	3
<i>Market Size</i>	3
<i>Market Growth Potential</i>	4
<i>Competition</i>	4
<i>Price Sensitivity</i>	5
<i>Physical Structure</i>	5
Customer Analysis.....	6
<i>Customer Segmentation</i>	6
<i>Target Customer Determination</i>	7
<i>Customer Personas</i>	7
Competitive Landscape.....	8
<i>Competitor Products currently on market</i>	8
<i>Competitor Analysis</i>	11
SWOT Analysis.....	12
<i>Strengths:</i>	12
<i>Weakness:</i>	12
<i>Opportunities:</i>	13
<i>Threats:</i>	14
<i>SWOT Findings and Conclusion:</i>	15
Market Entry Strategy	16
<i>Product Pricing Evaluation</i>	16
<i>Distribution PLaN</i>	17
<i>Advertising Plan</i>	18
<i>Advertising Action PLaN</i>	18
Initial Financial Requirements.....	19
Conclusion	21
Works Cited	22
Appendix A: Initial Market Analysis Survey Results	27
APPENDIX B: Competitor Product Analysis	31

EXECUTIVE SUMMARY

More than 70 million Americans suffer from some form of sleep disorder. REMzen is a new startup company looking to take on the burgeoning wearable market-space with an advanced sleep mask capable of precision sleep cycle monitoring, deep analytics that provide meaningful real-life coaching for better sleep, and the only sleep-cycle driven light therapy wake up on the market. REMzen benefits begin day one by monitoring your sleep and waking you up utilizing natural light therapy at the optimal moment in your sleep cycle. Wake up feeling refreshed and ready; gone are the groggy, abrupt awakenings of alarm clocks, ripping you from a deep sleep state.

With REMzen, the real power comes to play after a week of use. It begins to learn and understand your particular sleep challenges and starts to recommend changes in your habits and patterns to best maximize your time and sleep. REMzen learns your habits, watches your sleep patterns and schedule and makes recommendations and adjustments based on real, personal data. Know if you're getting enough sleep, set goals to improve your sleep, and most importantly, know the quality of your sleep to build an understanding of how this affects your life.

Within a short time, REMzen will become a part of your daily routine, recommending modifications to your behavior, analyzing and changing with you. Do you have issues caused by the changing amounts of daylight? REMzen knows, and will coach you through those tough winter months, making sleep issues something you now understand and control.

As a startup, REMzen is uniquely positioned to enter the growing wearables market and take a significant portion of the sub-segment targeting sleep issues. A review of the present market shows massive growth potential and a fairly crowded competitive landscape. However, current competitors are not focusing on the sleep sub-segment. There is a pretty clear division between the large consumer one-size-fits-all product companies looking to compete with Apple and Microsoft and those who are entering the market specifically targeting wellness and sleep efficacy. It is this emerging segment that REMzen is ideally suited to compete within.

Our customer analysis shows that a great beachhead to start will be women between 35 and 65, with reasonable incomes who suffer from sleepless nights, tiredness, or who more generally wish to understand and have better control over their sleep. Estimates put the total accessible market in the range of \$260m. Pair that with a conservative estimate of 200% growth over the next 5 years and it becomes more obvious why there are multiple startups entering this unfilled space.

To get this product off the ground our research group is recommending a typical, digital only launch strategy. Form the brand image, create a direct-sales web portal, engage in a crowd-funding campaign, and push to highly targeted online media and blog platforms; allowing for minimal cost and high-impact marketing. Once through this initial year, additional capital will be required to sustain any growing company and angel investors or venture capital will be required quickly as the first round of production begins to ship.

With a focused team, and a growing market, REMzen is poised to create something really unique and helpful for a large segment of the US population. While it is going to be an uphill battle in a competitive market, if REMzen focuses on the message, and the value the product brings to those suffering from sleep disorders such as insomnia, there is a real chance for success.

COMPANY OVERVIEW

REMzen is a lean startup company founded by four highly skilled and motivated engineering students from the Maseeh College of Engineering and Computer Science at Portland State University. During a Launch In 9 Entrepreneurship Weekend, the four students met and devised the basics of the idea. Over the last several months they have focused the product down to its essence and are now diligently working on their first working prototype. Jeremiah Scott is their leader and a passionate technologist and electrical computer engineer. His drive is pushing this team to create something new and unique. With initial funding and support from Portland State University they forge onwards, excited by the prospects of entrepreneurship and a passion to help people with their everyday problems.

PRODUCT ANALYSIS

REMzen is a non-medical, wireless, wearable device that is dedicated to accurately measuring REM sleep. An initial launch of the first-generation product is planned for Q4 of 2015. Its advantages in form factor and sleep technology provide a targeted, accurate, and simple solution to millions of Americans suffering from insomnia or poor sleeping habits.

REMzen enables you to:

- ✓ On Day One: Wake up feeling refreshed, rested, and ready!
- ✓ In Week One: Understand your sleep to enhance your sleep!
- ✓ In Year One: Plan for your sleep challenges and get help to improve!

PRODUCT VALUE

Rapid eye movement (REM) sleep is a stage of sleep characterized by the rapid and random movement of the eyes. REM sleep typically occupies 20-25% of the total sleep period, about 90 to 110 minutes of an average night's sleep [1]. Sufficient REM sleep every night is important to both the young and old, since during REM sleep, the brain consolidates and processes the information it has learned throughout the day. Studies have suggested that REM sleep is important for the consolidation of procedural memory and spatial memory [2]. REM sleep helps form neural connections that strengthen memory, and replenishes the brain's supply of neurotransmitters. These neurotransmitters include the feel-good chemicals like serotonin and dopamine that boost an individual's mood throughout the day [3]. It also stimulates the brain regions used in learning and affects the ability to learn certain mental skills [4]. Without enough REM sleep, individuals can experience a myriad of symptoms from feeling groggy, to memory issues, and generally degraded performance at work and home.

Table 1 - Form Factor and Functionality of REMzen

Form Factor	Functionality
Padded or soft fabric which is light-weight and comfortable to wear	Embedded sensors for accurate tracking
Secure to face with an elastic band for data accuracy	Collects data of REM sleep cycle and long term sleep trend
Battery operated wireless wearable device	Provides advice on the optimization of sleep
Washable and interchangeable shell	Wireless communication with smart phones
	Rechargeable battery with long battery life
	Luminescence to wake user up at the right moment

REMzen is an electronic sleep mask that will track an individual's REM sleep cycles and provide useful feedback on the quality and duration of their sleep states. Software on the owner's smartphone synthesizes this wealth of information into useful recommendations for simple changes in behavior that can maximize both their sleep efficiency and efficacy. By providing this personalized, data-rich understanding of an individual's sleep, day after day, week after week, REMzen will be able to provide targeted, meaningful advice to deal with chronic sleep disorders thus maximizing sleep efficiency. The product also incorporates a smart alarm feature that uses luminescence to wake the user just after a REM cycle with blue light therapy. This helps the user wake feeling refreshed and rested on the very first use.

TECHNOLOGY ASSESSMENT

Most of the sleep tracking devices currently on the market use small motion detectors called accelerometers to detect movement. When using accelerometers, movement equals wakefulness and prolonged lack of movement equals sleep; this technique is called actigraphy and has been used for mapping general patterns of sleep. While some companies claim that they can provide detailed sleep quality measures with actigraphy, to do so would be the equivalent of "determining how well a car is driving by its odometer reading alone [5]." The technology REMzen uses is vastly superior to actigraphy. REMzen's electrooculography (EOG) sensors are applied directly to the eye muscle to detect eye movement specifically. This eye movement detection enables REMzen to accurately track the duration of REM sleep vs. non-REM sleep.

REMzen also employs light therapy technology by using blue light to wake the user just after a REM cycle. Morning exposure to blue light may reduce stress and better prepare you for the day ahead, according to researchers at Rensselaer Polytechnic Institute in New York [6]. User will feel refreshed and well rested when they wake up. There are no other products currently on the market that can provide both REM sleep detection and light therapy.

In addition, the software provided with REMzen tracks long-term sleep data. Based on the accurate REM sleep data collected over time, the software application is able to provide advice on how to achieve the optimal REM sleep ratio through lifestyle coaching. Data analysis will be implemented based on the most updated sleep studies from renowned sleep research authorities.

MARKET VALUE ANALYSIS

The market research group conducted a thorough market value analysis on REMzen based on its market size, market growth trend, competition, price sensitivity, and physical structure. Market data, statistics and knowledge were collected through online resources, an interview with a physician, interviews with sleep disorder sufferers, and online survey. Our analysis shows:

- ✓ The sleep tracking device market is new and emerging with a great potential for growth
- ✓ REMzen has a good to fair potential to be a profitable product in the target market

MARKET SIZE

Insomnia is a persistent disorder that can make it hard to fall asleep, hard to stay asleep or both despite the opportunity for adequate sleep [7]. According to National Sleep Foundation, 22% of Americans experience insomnia every, or almost every night [8], which represents a population of around 53 million. With the growing popularity in fitness among Americans, more people are beginning to track their fitness

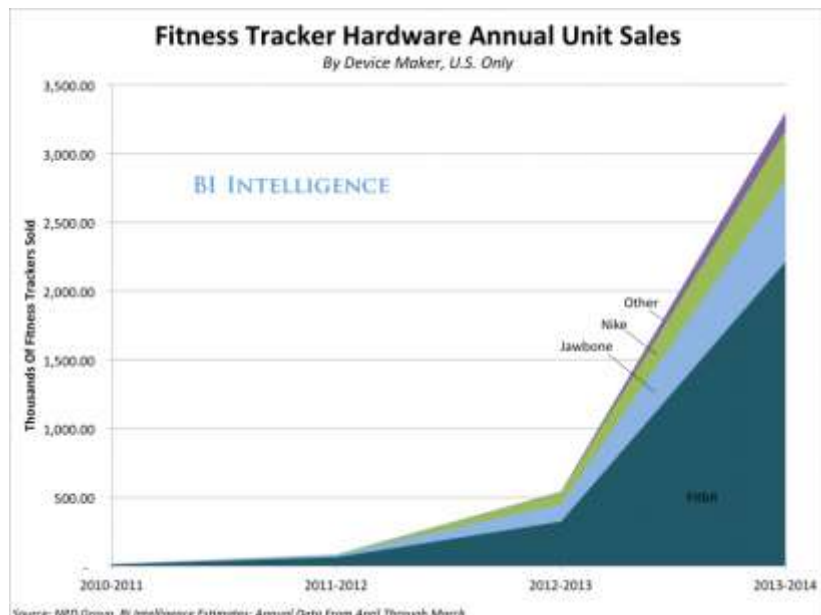
indicators including sleep duration and sleep quality. The Pew Research Center conducted a telephone survey in 2011 called the Internet & American Life Project. The survey result shows that 33% of US adult are actively tracking their sleep patterns [9]. Based on these statistics we calculate the potential market for sleep tracking devices at approximately 17.5 million in the United States. The prices of sleep tracking devices currently on market are centered at around \$130 dollars. Therefore, the estimated total sleep tracking device market is around **\$2.3 billion**. This potential market size for REMzen is fairly good.

MARKET GROWTH POTENTIAL

NPD Group's new Wearable Technology Study shows one-third of U.S. consumers age 16 and older — that's 78 million people— are interested in purchasing a wearable technology product like smart glasses, a smart watch, or a digital fitness tracker [10]. "The market is now large enough to accommodate a variety of products aimed at all levels of athlete—from serious performance-minded consumers to hobbyists—a sure sign of maturity" said Ben Arnold, Executive Director and Industry Analyst at The NPD Group [11]. Their research indicates that there has been a 500% sales growth in wearable fitness tracker hardware over the past three years. This large percentage of growth might due to a low base value as shown in **Error!**

reference source not found.below. However, we remain confident that this is an emerging market with high growth potential. The sleep tracking device market could be considered a subset of the overall fitness tracking device market. There was no market data for sleep tracking device specifically as this specialty market is still very new. We estimate, based on the potential market size for sleep tracking devices and the growing trend of overall fitness tracking device market, that there will be at least **200%** annual market growth in sleep tracking device market in the coming 5 years. This market growth rate is excellent for REMzen.

Figure 1 - Fitness tracker hardware annual unit sales per NPD Group



COMPETITION

Competition in the sleep tracking device market is not favorable for REMzen. Although still in its infancy, the market for sleep tracking devices already contains a mixed environment with several established firms, multiple startups, and several more new entrant startups. The major competitors we see in the market today includes Fitbit, Jawbone, Sleep Cycle Alarm Clock by North Cube and Beddit by Misfit Lab. Startups like Neuro:On, Sense, and Napwell with sleep monitoring or light therapy products are entering this market about the same time as us. Competition is intense and as a new startup with minimal capital and low brand recognition, REMzen will face a great challenge.

Looking on the bright side: more competitors joining the market is often a sign of a growing and appealing market with lots of potential. Moreover, more participants joining this new and emerging market could help

spread the value proposition of this market niche and draw more public attention, in turn accelerating overall growth. Although the competitors are strong and each has hard-to-beat features, we believe that REMzen still has a chance to stand out among the competitors and take significant market share due to the superior features our product provides. See the chapter “Competitive Landscape” for a detailed analysis.

PRICE SENSITIVITY

When analyzing the price sensitivity of REMzen, we focused on the functional substitution and perceived value of the product.

REMzen is dedicated in monitoring the REM stage of sleep by putting sensors directly on the muscles of the eye. There is not currently any similar non-medical device that could do REM sleep monitoring as accurately as REMzen. Most of the big competitor’s products are fitness trackers that utilize the less accurate actigraphy technology. Therefore, we believe that for sleep disorder sufferers, the fitness trackers are not direct replacement of REMzen. The light therapy feature makes REMzen even more irreplaceable. No fitness tracker currently on the market provides light therapy. Competitor products that provide light therapy to improve sleep do not have sleep monitoring features. Therefore, we believe that REMzen’s functional substitution level quite low.

The REM sleep statistics and advice REMzen will provide are very valuable to users who have sleep disorders and wish to improve their sleep quality. An online survey conducted by our market research group showed that 77% of the respondents believe that daily recommendations on an individual’s sleep schedule would be valuable. See Appendix A: Initial Market Analysis Survey Results for detailed survey results. Among all sorts of sleep data, sleep quality is the most important piece of information people wished to know according to the team’s survey and interviews. REMzen is able to provide valuable sleep recommendations based on accurate sleep quality data. Taking all this into consideration, the team believes that the perceived value of REMzen is fairly high.

We found out from the survey results and during our interview with sleep disorder suffers that a good night sleep is highly valuable. They are desperately in need of help to get good quality sleep. Our online survey results show that among 77% of those surveyed with sleep disorders, 69% of them have purchased some kind of product to help improve their sleep quality, whether it is sleep monitoring device, lamp, bed or even drugs. We saw a compelling reason to buy in the sleep tracking device market. If our potential customer could see the benefits REMzen could bring them, we believe they will purchase our product with less consideration on price. Our survey results confirmed our conclusion. When asked “what features are most important to you when shopping for a device to improve your sleep”, the least popular answer given was cost.

Altogether we believe that the price sensitivity of REMzen is low and the chance of achieving ideal profit margins is fairly good.

PHYSICAL STRUCTURE

As a wearable sleep monitoring device, REMzen’s market place is not seasonal or cyclical. Although some people experience more sleep disorder symptoms in certain seasons than others, the sale of a sleep monitoring device like REMzen is not considered of a seasonal or cyclical type, which is favorable. The regulatory exposure level of REMzen is considered low, too, providing that no medical or diagnostic functionality is claimed. This means less regulatory efforts are needed during the manufacture and sales of this product. This will lead to less general and administrative costs and more profit.

For a new startup with limited funds it will be difficult to serve a large, unified market. We like a market that is easily segmented, so that we can focus our marketing efforts one segment at a time. The market of sleep monitoring devices is easily segmented which is favorable for us. If we can successfully segment the market and focus our marketing efforts, we believe that we can achieve a high market penetration rate and a high market growth rate. Segmentation is discussed in detail in the following section of this report.

Overall, we believe that REMzen has a favorable physical structure that will make it easy to succeed in the market.

CUSTOMER ANALYSIS

CUSTOMER SEGMENTATION

Customer segmentation analysis was conducted based on online research, customer survey data and customer interviews. The team segmented the total customer population by gender, age, sleep disorder symptoms, annual income level, and level of technology adoption.

Gender: Research shows that sleep disorders are more widely reported in women than men with women 1.4 times more likely to experience insomnia than men [12]. We interviewed 11 men on their opinions on wearing sleeping mask. Over 63% (7 out of 11) of them opposed to it, saying "would never wear one", "makes me feel vulnerable", or "couldn't stand it", etc. The amount of negative responses overall combined with the statistics on insomnia differences between men and women directed the team to focus on the female demographic for initial targets.

Age: An Age-related sleep-wake disorders study conducted at a sleep disorder center revealed that 65% of sleep disorder patients are between age 30 and 60 [13]. Among adults, insomnia tends to increase with age. However, since REMzen is a high tech product, we do not anticipate large customer populations in elders. Based on the statistic and our judgment, we estimate that customers with age between 35 and 65 will make up the majority of our total customer population.

Sleep Disorder Diagnosis: There are five major types of sleep disorders: insomnia, sleep Apnea, restless leg syndrome, narcolepsy, and periodic limb movements of sleep. Among approximately 70 million Americans who suffer from chronic sleep problems [14], around 53 million have insomnia as shown in Market Size section of this report, 22 million have apnea [15], 24 million have restless leg syndrome [16], and 0.2 million have narcolepsy [17]. Insomnia is the most prevalent sleep disorder among the US adult population. This is also the population that could benefit most from the features of REMzen. We believe Insomnia sufferers will make up the majority of our customer population. There may be potential customers who do not have sleep disorders, but wish to monitor their sleep quality for fitness and job performance reasons. We estimate this type of customer could make up less than 10% of the total customer population. The reason for this low percentage is that REMzen does not monitor other fitness indexes as is done by the competitor wearable fitness tracking devices.

Annual Income: As a high tech product, REMzen's unit price will be within \$130 - \$150 dollar range. We estimate that individuals with an annual income between \$50-\$100k will make up the majority of our total customer population.

Technology Savvy: Since the REMzen requires use of a mobile device—such as a smartphone or tablet—the market was further segmented by the customer's level of technology adoption. Per Pew Research Center's survey on mobile technology, 58% of American adults own a smartphone and 42% of American adults own a tablet computer [18]. Based on these statistics, we estimates that the majority of our customers will be smart phone owners and will use a smartphone to access the sleep data and sleep recommendations.

Detailed customer segmentations can be found in Table 2 - Customer segmentation analysis.

Table 2 - Customer segmentation analysis

Segment by	Segment	% of population
Gender	Female	60
	Male	40
Age	20-34	30
	35-65	60
	66-90	10
Sleep Disorder Diagnosis	Insomnia	60
	Other Sleep Disorders	30
	Fitness	10
Annual Income	Less than 30 k	10
	30k – 50 k	30
	50 k and above	60
Technology Savvy	Smartphone	70
	Other devices	30

TARGET CUSTOMER DETERMINATION

Based on the customer segmentation analysis above, we chose our initial target customer segment to be **women, age between 35 and 65, with insomnia, an annual income above \$50k, and who currently own a smartphone**. This target segmentation is chosen because it represents the majority of our potential customer population. Due to the limited marketing budget, we are not able to serve the entire customer population from the beginning. We will focus our marketing effort on this segment during the first a couple of years. After sales pick up and budget becomes available, we will push the product to related segments and expand our share in the sleep tracking device market.

CUSTOMER PERSONAS

Jody is a 40-year-old woman with two kids ages 11 and 8. She has a challenging and demanding full time job with satisfactory and stable income. Ever since her second child was born, she started having nights with poor sleep and these have been getting worse. She tried several techniques to improve her sleep quality, including working out three days a week, eating a light meal at dinner, limiting caffeine intake, and taking melatonin. The results were not ideal. She has tried sleeping pills, but doesn't like how it affects her alertness and ability to function in the morning. She currently has difficulty sleeping 2-3 times a week. She believes her insomnia was caused by stress from work and family, as well as an inconsistent sleep schedule due to non-work reasons. She wants a device that assesses her sleep quality and gives recommendation on the optimal sleep schedule.

COMPETITIVE LANDSCAPE

REMzen's competitive landscape can be divided into three primary categories related to the functionality provided:

- Sleep monitoring devices that record sleep states and provide sleep coaching
- Light therapy devices, including light alarms (artificial sunrise) devices
- Activity and fitness trackers

Figure 2 - Competitive landscape diagram

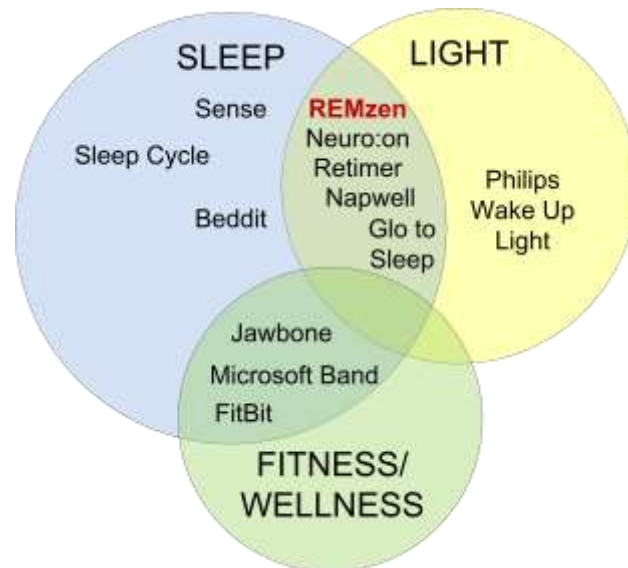


Figure 2 shows our major competitors within the competitive landscape. REMzen falls within the union of sleep monitoring and light therapy devices. Some other devices in this union area are Neuro:On, Re-Timer and Glo to Sleep. Devices that fall only in the sleep monitoring/coaching category include Sense, Sleep Cycle, Beddit and Napwell. Jawbone, the Microsoft Band and Fitbit are activity trackers that also monitor sleep. Philips Wake Up Lights only provide the light alarm/artificial sunrise functionality.

COMPETITOR PRODUCTS CURRENTLY ON MARKET

The market place is crowded with players big and small. Each product has its own competitive edge. Our strategy to compete in this crowded market is to further differentiate us from our competitors' products. Our competitive edge is our uniqueness in the combination of sleep monitoring with long term data based sleep coaching and light therapy. Our specialty in EOG sensor monitoring technology will put us in a superior position comparing with other product employing accelerometer sensing technology. See Appendix B for detailed comparison between REMzen and our major competitors' products.

JAWBONE

Jawbone—a startup company that makes activity trackers—has raised more than \$200 million venture capital funding in 2013 and is valued at \$3.3 billion. Jawbone's latest version, the Jawbone UP3, provides advanced sleep monitoring by tracking REM, light, and deep sleep. The UP3 uses an accelerometer that detects movement and two other chips which helps in tracking skin and ambient temperature. There are additional four tiny bioimpedance sensors. This information is then analyzed and an algorithm estimates the stage of sleep. The Jawbone app provides information on improving the quality of sleep. Jawbone UP3 is priced at \$179.99. Jawbone UP24, which is priced at \$129.99, tracks the hours slept and quality of sleep but does not monitor the sleep cycles as Jawbone UP3 [19] [20] [21]. It is currently the second biggest player in fitness tracker hardware market as shown in Figure 1. Our advantages over Jawbone line of products is our wakeup light therapy and our specialty accurate sleep monitoring function.

BEDDIT

Beddit, a sleep sensor startup, has recently raised \$8 million in funding. Beddit also teamed up with Misfit, a wearable computing startup, to release a smart device which tracks sleep quality, heart rate, and breathing and is placed under the sheet while one sleeps. One of the advantages of Beddit is that Misfit has a proven record for biometric data and analysis. It also works over Bluetooth with iPhone or Android apps to provide coaching to improve sleep. Beddit tracks sleep stages, overall sleep time, and recognizes absences from bed including periods that one is awake and periods of restless sleep. There is a smart alarm clock inside the app, which attempts to wake the individual when they are sleeping lightly. Beddit is priced at \$149 [22] [23]. Our advantage over Jawbone's line of products is our wakeup light therapy and our specialty accurate sleep monitoring function.

SLEEP CYCLE APP

Sleep cycle is an iOS app which tracks sleep patterns and wakes up a person during their lightest sleep phase. Waking up during light sleep feels like waking up rested. This app uses smart phones accelerometer to identify sleep phases by monitoring any motion by resting the smartphone in the bed, such as under the pillow. It is priced at \$0.99 [24]. The low price of this product has gained it popularity. Since it only depends on the accelerometer of a smart phone as data input source, its accuracy can't be guaranteed. REMzen's iOS app uses the most accurate REM sleep data collected by the mask for guaranteed optimal results.

FITBIT

Fitbit is a startup company that makes a wide range of fitness trackers and has raised \$43 million in a new venture capital funding in 2013. Along with activity tracking, Fitbit also monitors how long and well one sleeps. Fitbit's vibrating alarm is a simple one that is set to a specific time. It cannot track REM sleep as REMzen does. The wireless data syncing in Fitbit works on iPhone and Android. Fitbit's series of products are priced between \$99.95 and \$249.95. Fitbit is the dominant company in the wearable fitness device market, occupying 68% of US market share in 2013 [25] [26] [27]. Our advantage over the Fitbit line of products is our wakeup light therapy and our specialty accurate sleep monitoring function.

MICROSOFT BAND

Microsoft is a multinational company and recorded annual revenues of \$86.3 billion in 2014. Microsoft Band is an activity tracker worn on the wrist that tracks activities along with sleep quality. When activated, Microsoft Band tracks the duration and quality of your sleep. It also provides a detailed range of sleep data, including how long it took one to fall asleep, the total amount of time an individual was asleep, the time spent in restful sleep and light sleep, resting heart rate while one slept, and graphs of the sleep pattern and heart rate over the duration of that sleep. It can also differentiate between light, REM and deep sleep. The band costs \$199.99 [28] [29]. The competitive edge of this product is its strong brand recognition and ample R&D and marketing funding by Microsoft. Our advantage remains the same: our wakeup light therapy and our specialty accurate sleep monitoring function.

RE-TIMER

Re-timer is a startup company formed in 2010. Re-timer is a light-inducing device which emits UV free green light to reset the individual's circadian rhythm. It is suggested to wear these glasses 30-50 minutes a day to maintain a healthy sleep cycle. Apart from maintaining a healthy life cycle, Re-timer is also used for the people to counter jet lag, late work shifts and to train teens on when to sleep. Customers need to enter their time zone for a customized schedule for Re-timer. This pair of glasses is priced at \$299 [30] [31]. This product is focused only one resetting the circadian rhythm to help improve your ability to sleep at the appropriate time. Our advantage over Re-timer is our coaching, tracking long term, and light therapy functionality.

PHILIPS WAKE-UP LIGHT

Philips is a multinational company formed in 1891 and reported a global annual revenue of \$26.87 billion dollars in 2012 [32]. The Philips Wake-up Light is an alarm that wakes people by using halogen light for natural light stimulation. Light can be adjusted up to 250 lux depending upon the preference. Apart from stimulating light it can also produce natural sounds for waking up people in a pleasant way. These lights range in price from \$69.99 to \$169.99 [33]. Its wake up light function is remotely related to our product. It is basically a smart light bulb and does not directly compete with us in sleep tracking device market.

NEURO: ON

Neuro:On is a startup founded in 2014 and secured \$438k dollars through a successful Kickstarter campaign in early 2014. It is a sleep mask that helps one feel refreshed after waking up. The Neuro:On uses light therapy to create an artificial sunrise and that makes waking up easier. The Neuro:On app analyzes the signals sent from the mask in order to provide you with your personal sleep score as well as coaching to increase it. Neuro:On is priced at \$299 [34]. This product is considered our direct competitor with very similar technology and form factor. The product ran a successful Kickstarter campaign but no product has shipped thus far. To compete with Neuro:On, REMzen will try to get on the market as soon as possible following a lean startup methodology. REMzen will also enter the market at a lower price to gain a competitive advantage.

NAPWELL

Napwell is a startup founded in 2014 that generated \$52k dollars via a successful Kickstarter campaign that concluded in January of 2014. It is a sleep mask designed to enhance napping by utilizing a timer uses light therapy to wake the user at the desired wake up time. Napwell is priced at \$100 [35]. This product is designed especially for people who wish to take a good nap during day time. It has a very similar form factor as REMzen, but without sleep tracking function. While the wakeup function is similar to REMzen, their target market is not the sleep disorder sufferers. We believe the sleep tracking and coaching function of REMzen are more than valuable to people with sleep disorders.

SENSE

Sense is a startup founded in 2014 and has a raised \$13 million in funding. It is a small orb that sits on your nightstand and measures airborne particulate matter, humidity, the level of light in the room, noise and other disturbances during the night. It also comes with a small disc, called the Sleep Pill that attaches to

the sleeper's pillow to tracks movement. By combining these various sources Sense is able to detect and record your sleep patterns and make recommendations about how to improve sleep based on the various inputs. The cost is \$129 for the Sense unit and one Sleep Pill [36]. This could be one of our strongest competitors due to its unique and compelling mix of features and non-intrusive form factor. Since it is not directly applied to human body, it can attract customers who wish to have ultimate freedom during sleeping. However, information provided by a medical doctor during our interview shows that the only method that could accurately monitor REM sleep is to apply the sensor directly to the eye muscle. We will compete with Sense by educating our customer on the superior EOG sensing technology utilized in REMzen.

COMPETITOR ANALYSIS

As previously discussed, there are three main features with that competing products are offering solutions: sleep, fitness/activity, and light therapy. Our analysis of the current market climate, products, and competitive agencies involves points to an emerging market. There are large incumbent players such as Microsoft and Philips, though their products offer limited features. On the other side, there are a large number of startups charging into the wearable market. Fitbit and Jawbone are mature startups, with potential IPOs in their future. Fitbit has secured over \$66m in venture capital and Jawbone has an astronomical \$518.8m in venture funding. Napwell, Hello's Sense, Neuro:On, and Beddit are all nascent startups; only Beddit has a currently shipping product. Of these newer ventures, all of them have engaged in crowd-sourced venture rounds on Kickstarter or IndieGoGo. Beddit and Hello's Sense have gone on to secure additional venture capital.

Because of this mix of players, and the strong grouping of new entrants, we believe there is a market to be approached. It is a highly competitive landscape, but very few of the firms targeting the sleep segmentation have gained significant traction. It appears now is a good time to enter this new market, though close attention will need to be paid to the positioning of products and companies as things can and likely will change rapidly.

Table 3 - Competitor company and capital comparison

Company Name	Company Status	Year Founded	Total Venture Capital	Last Annual Revenue	Number of Presales/Backers
Beddit	Startup; venture capital; IndieGoGo	2006	\$8.5m	-	3,979
Fitbit	Mature startup	2007	\$66m	-	
Jawbone	Mature startup	1999	\$518.8m	-	
Microsoft	Multinational Corporation	1975	-	\$86.73B	
Napwell	Startup; Kickstarter	2014	\$51k	-	769
Neuro:On	Startup; Kickstarter	2014	\$438k	-	1,944
Philips	Multinational Corporation	1891	-	\$27.7B	
Re-Timer	Privately-owned, new Corp.	2010	-	-	
Sense	Startup; angel investors, Kickstarter	2014	\$13m	-	19,349
Sound Oasis	Owned by publicly traded, Headwaters, Inc.	1993	-	\$791m	

Our major differentiator in the marketplace is the blend of highly accurate REM sleep state monitor, sleep coaching, and data-driven light therapy. We will design our marketing activities to focus on amplifying these differentiators in order to gain a competitive edge in the market place.

SWOT ANALYSIS

To examine the current status of the characteristics of the business, the research team decided to use the SWOT analysis tool to gain insight about the REMzen business model. SWOT is a straightforward model that elucidates what an organization can and cannot do as well as its potential opportunities and threats.

STRENGTHS:

Strengths are positive attributes internal to the company and within the company's control. An analysis to determine strengths was performed by the team through interviews with the company team members about the product and team.

The user-friendly recommendation engine is a key component. It will help REMzen's customers find better quality sleep. This will be a differentiator in REMzen's product offerings, which will offer high value to the customers. The recommendation engine directly fills the customer need to get the best sleep possible each day.

REMzen offers the best technology in the marketplace for tracking sleep patterns. This technology is superior to motion sensor monitoring which is used by most of the other sleep monitoring devices in the marketplace. The ocular polarity recognition technology will add value to REMzen's customers as the most precise monitor in the market.

Pairing with this excellent monitoring technology will be luminescence to rouse a person from sleep within a user-designated window. The lights are a differentiator to all of the motion based sleep trackers in the marketplace. This product not only will guide a user to sleep with the recommendation engine, but will also wake you up during the user-set window at the appropriate time in your sleep cycle.

REM sleep cycle is a crucial phase of sleep which when properly reached over the course of a night, can improve physiological and psychological behaviors. Detecting REM sleep is one of the core competencies of the REMzen product and is a REMzen company expertise.

The engineering team is highly dedicated and is looking long-term at this product. The team has a strong leader in Jeremiah who is highly committed to developing the product.

Figure 3 - SWOT strengths

Strengths

- Monitor will offer the **highest caliber of accurate REM sleep monitoring technology**
- Differentiator is that the product will **guide user** to get a better night's sleep
- REM sleep is the most crucial sleep cycle and this is our **expertise**
- Strong and dedicated engineering team
- REMzen pairs high accuracy sleep cycle monitoring with light therapy

WEAKNESS:

Weaknesses are negative attributes within the company or within the company's control. An analysis to determine threats was performed by the team; again this was primarily through interviewing the REMzen team members.

REMzen is a small company with a team consisting of Portland State University students. As such, the company has very limited funding. This marketing plan is being designed by master's students in Portland State University's Engineering and Technology Management program for no cost as a class project. There are no funds for marketing efforts at this time. The company is working on its R&D as a student project funded by the university. Currently there is little budget beyond the basic prototype currently in development. To further develop and manufacture the device as well as to implement the marketing plan, the company will need to acquire outside funding.

The team is made up of exclusively electrical engineers, and possesses limited manufacturing management experience. Gaining this knowledge will require a steep learning curve, and may hinder the ability of the team to take the product to market.

The team also is missing the software engineers needed to fully develop the product. Key components of the project are the mobile recommendation engine and database management system. The team must acquire these software engineers in order to complete the product's development.

The device is currently in early prototype phase. The technology has yet to be implemented and refined to the level where it can be a technology leader as is required by this marketing plan. There is a long way to go before the product reaches a beta version that can be promoted on Kickstarter. In that duration, a lot could happen including losing team members, not acquiring funding, or simply not being able to reach the technological goals which are set for the product. At this time there is no factory to manufacture the product or existing prototype to demo for venture capitalists or a Kickstarter video. This is the team's greatest, present weakness.

Lastly, this product does not have a mature supply chain. Since it is a prototype, the parts are purchased individually at consumer level retail costs. In order to make the manufacturing costs described in this document the supply chain will need to be optimized to purchase parts at lower cost.

Figure 4 - SWOT weaknesses

Weaknesses

- Very small marketing and R&D budget. **Will require further funding** to progress. Marketing will need to be **low budget** to start.
- Recommendation engine will be a key technology. It **will require a mobile app interface and data management**. Will be required for prototype but we do not have expertise in this.
- Team has **little experience in manufacturing** and taking a product to market. Must hire knowledgeable people in the areas of manufacturing and marketing
- Currently this technology is in early **Prototype** phase
- Very immature **supply chain**

OPPORTUNITIES:

Opportunities are external to the company and may or may not be within the company's control. An analysis to determine opportunities was performed by the team through the market and company analysis.

The market is ripe with opportunity. As described in the Market Analysis section, expected growth in this market of wellness wearable devices and individuals with sleep disorders are projected to be very strong.

Figure 5 - SWOT Opportunities

Opportunities

- **Expected growth** in the wearable wellness devices is strong
- Capturing a small portion of the TAM with a highly engaged userbase will **allow viral adoption** via word of mouth in targeted segments
- Only **one high priced competitor targeting REM sleep**
- **Strong need** in sleep deprived people to have a solution that helps them sleep and wake up feeling rested.
- Trends toward **more sleep disorders**
- **Cheap technologies** reduce costs

The customers have a strong need to get better sleep. As was seen in the interviews, customers are desperate to find a product that will bring them a rested-feeling in the morning.

There is a large TAM of all individuals with sleep disorders; large segments of which can be further targeted by the marketing team.

Making a difference in the lives of individuals who have a strong need to find a better night's sleep will create a highly engaged user base. The word of mouth that will be generated by a product which truly meets the customer's need to have a better night's sleep will potentially allow viral adoption.

The market has no clear leader, especially in the devices with highly accurate sleep monitoring and luminescence which make recommendations in the under \$200 range. The device's one head-on competitor, Neuro:On, is high priced and has yet to actually be offered in the market place.

Finally, the technological components are trending downwards; this has allowed the wearable devices market to flourish as costs decrease. The costs of sensors have already fallen in the last few years: "The average price of a sensor will fall from \$0.59 in 2012 to \$0.55 in 2013 and then to \$0.54 in 2014" [37]. In addition there are a large amount of sensor vendors in the marketplace [38] allowing sensors to possibly become a commodity item in the future.

THREATS:

SWOT threats are external to the company and may or may not be within the company's control. An analysis to determine threats was performed by the team.

If the media picks up a story about the effect of electrical signals close to the body, there could be a possible backlash against electrical data and wireless signal devices. This is an ever-present risk and could be mitigated in the future with PR. The team has proposed that this be through testimonials of experts, however this is a high cost item.

The largest threat is competition already in, or planning on targeting this market. REMzen has no brand awareness in the marketplace due to its current prototype stage. Neuro:On could come out into the market and gain market share before we can get to market with a viable product. Fitbit has a huge brand with recognition. It could continue to gain market share while increasing the sensitivity and accuracy of the sleep features. If this were to continue to the point where customers with serious sleep disorders would move to the well-known brand, this would be disastrous to REMzen.

Figure 6 - SWOT threats

Threats

- **Backlash against electrical data and wireless signal** could scare users away from product if story is picked up by media
- Many currently selling products in this space are **more mature and have brand recognition**. Fitbit could gain marketshare before we can get to market.
- As multifunction watches have their sleep functionality upgraded, **a standalone device may become obsolete**
- **Education of users** about REM sleep is needed. Users may not understand the specific benefits of tracking this type of sleep cycle.
- **No brand awareness** in marketplace

As multifunction watches, such as Fitbit, have their sleep functionality upgraded to more precise technology, a standalone device may become obsolete. Certain users may always use the specialized product, such as REMzen, but the mass would turn to the multifunction tool. This is an ongoing risk.

The American public lacks understanding about REM sleep cycle benefits. Education of customers about REM sleep is needed. Users may not understand the specific benefits of tracking this type of sleep cycle

or the necessity of entering REM sleep multiple times in the night. This could be mitigated through education, however spreading this information could take resources and financing. As a product, REMzen is likely most attractive to those who already have this knowledge through self-education and have actively been looking for products increasing REM sleep.

SWOT FINDINGS AND CONCLUSION:

In conclusion for the SWOT analysis section we were able to summarize the findings:

The strengths and opportunities of the product will be in matching the REM monitoring technology with the high need of the growing TAM. REMzen will satisfy the need by combining the recommendation engine, which encourages the user to have a sensible bedtime, with properly timed luminescence to wake up feeling rested. The market has few direct competitors at REMzen's price point, and the sensor costs in the market are decreasing. Combined, this is a strong position for REMzen.

On the negative side, REMzen has a strong engineering team, but lacks key team members and expertise. Either the team must rapidly learn new skills or find additional skillsets at a low cost. This company must mature quickly. As REMzen is in such an early prototype phase, Kickstarter, angel or venture funding will be required in the short term to finance manufacturing and marketing activities. REMzen has no brand awareness compared to competitors and must stay technologically relevant to continue to remain viable.

Figure 7 - SWOT full analysis

Strengths <ul style="list-style-type: none">• Accurate REM sleep monitoring technology• Product will guide user to get a better night's sleep• REM sleep is our expertise• Strong and dedicated engineering team• Timed light therapy will guide user to wake up rested	Weaknesses <ul style="list-style-type: none">• Very small marketing and R&D budget.• Will require further funding to manufacture or market.• No mobile app and database expertise .• No experience in manufacturing• Technology is in early Prototype phase• Very immature supply chain
Opportunities <ul style="list-style-type: none">• Expected market growth is strong• Possible viral adoption via word of mouth in targeted segments• Only one high priced competitor• Strong need in sleep deprived people to wake up feeling rested.• Trends toward more sleep disorders• Cheap technologies reduce costs	Threats <ul style="list-style-type: none">• Possible backlash against electrical data and wireless signal• Competitors more mature and have brand recognition.• A standalone device may become obsolete• Education of users about REM sleep is needed.• No brand awareness in marketplace

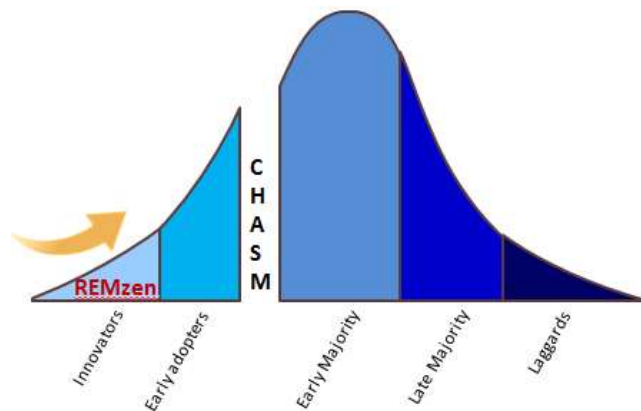
MARKET ENTRY STRATEGY

With REMzen being so early in its development phase we opted to focus on the short-term marketing opportunities and needs versus a more long-term outlook and recommendation. First and foremost, the marketing message of the product needs to be clear and concise. The benefits need to be repeated and to that end, all marketing or advertising should focus on the three key benefits:

- ✓ On Day One: Wake up feeling refreshed, rested, and ready!
- ✓ In Week One: Understand your sleep to enhance your sleep!
- ✓ In Year One: Plan for your sleep challenges and get help to improve.

With the market research, customer segmentation, and competitive landscape in mind, we are focusing our marketing and advertising on becoming a niche player in the wearable wellness market, focusing in on the sleep-sufferers market space. REMzen will remain unique in its blend of highly accurate REM sleep state monitor, sleep coaching, and data-driven light therapy. Lastly, REMzen intends to remain focused and become the specialist in sleep tracking and coaching wearables; and to be the market leader in non-medical, technology-assisted sleep management.

Figure 8 - Technology adoption phase for REMzen



While the market for wearables is well into the early adopters phase, sub-category targeted devices such as REMzen are still emerging. The only sleep-focused product, Beddit, has become available to customers only in the last few months, while all other competitors still in development. This is most certainly a product still in the innovators space, though it has a good chance of moving into the early adopter space rapidly.

PRODUCT PRICING EVALUATION

In order to determine the pricing structure of this nascent company, we first looked to the competitive landscape. As a startup, focusing on competitive pricing is generally not a winning strategy, especially with firmly established firms already operating within, or very close to the target market. As such, we conclude that by focusing on the premium sleep tracking and combining these best-in-class sleep therapy tools, we will have a product pricing model more relevant to a premium product. Our research also indicates that since there is little functional substitution and a high perceived value to the product, price sensitivity overall remains low.

Table 4 - Product pricing comparison

Competitor Devices	Device Category	Price (\$)
Fitbit	Fitness / Wellness + Sleep	\$99.95, \$129.95, \$149.95, \$249.95
Jawbone		\$49.99, \$129.99, \$179.99
Microsoft band		\$199.99
Re-Timer	Light Therapy	\$299
Philips Wake-up light		\$69.99, \$89.99, \$139.99, \$169.99
Sleep cycle	Sleep	\$0.99
Beddit		\$149
Sense		\$129
REMzen	Sleep + Light Therapy	\$149
Neuro:On	Light Therapy	\$299
Napwell		\$100
Glo To Sleep		\$29.95

As shown in Table 4 - Product pricing comparison, pricing for devices ranges dramatically from a low of \$0.99 for the Sleep Cycle iOS app up to \$299 for Neuro:On, our most direct competitor in features. The average price of these devices is \$143 with the median price at \$129. Current cost estimates put the bill of materials for each REMzen at approximately \$50 in low volumes. We expect that after manufacturing learning curves and volume discounts, the gross margins per unit will improve significantly.

By combining all this information we recommend that the initial market price for REMzen to target \$149. This avoids entering to market as a direct price competitor with larger firms, pushes our niche and premium brand recognition and should return sufficient profit per unit to have a sustainable business model long-term.

DISTRIBUTION PLAN

Our recommendations for distribution are simple: begin with a Kickstarter campaign and a company website capable of taking pre-sales and selling direct-to-customer. Once production begins, prepare additional online retail channels by targeting the larger online retailers, specifically Amazon. Online web presence is cheap and ecommerce solutions are everywhere. Shopify is topping many reviewer charts lately as a cheap and convenient ecommerce platform. WordPress and Weebly are alternatives and Weebly seems to be the go-to platform for a modern look with minimal design know-how [39].

Once sufficient momentum has been reached, an evaluation of brick-and-mortar sales channels will need to be conducted. We would recommend starting with big-box retailers such as Best Buy, WalMart and the like, but also invest some effort into specialty retailers may result in a higher conversion rate given the highly specific target market. We estimate this will occur sometime between the third and fifth year of product availability.

ADVERTISING PLAN

Most startups lack funds and rely on viral marketing to get traction and recognition; this venture is no different. While targeting advertising to national magazines with very similar viewership to our target market might get a reasonable conversion rate, it is simply too expensive to conduct at this stage in the business. Because of this lack of resources, we are recommending a wholly online marketing approach. The specific targets are: social media, Internet search engines, popular shopping sites, and blog or news sites.

Social media efforts should focus on Facebook, Twitter, and Pinterest as these have the greatest intersection with our target market segment [40].

For Internet search engines, target Google AdWords and Yahoo Ads; Bing should come third.

With shopping sites, a detailed pricing review should be conducted, though Google AdWords will provide some visibility in Google Shopping results. Having the product available for sale on Amazon would provide additional exposure with good SEO.

The largest target for advertising should be focused on blog and news sites. These sites have a large number of visitors and the demographics are known [41]. We reviewed this demographic information and took the highest union between the target age group and female readership that resulted in the following top sites to target advertising on:

- | | | |
|-------------------|------------------------|---------------------------|
| 1. Hollywood Life | 5. The Huffington Post | 9. Gawker |
| 2. PopWatch | 6. ArtsBeat | 10. Deadline.com |
| 3. Well | 7. The Inquisitr | 11. Ars Technica |
| 4. TMZ.com | 8. Grist | 12. CNN Political Tracker |

ADVERTISING ACTION PLAN

Timing is everything in this. With an emerging market, functional prototypes need to be ready quickly. We've broken the next steps into three time-slices: Now, Soon, and Future.

NOW

The first thing is to build the image of the brand and a company website. In order to engage in a Kickstarter campaign, a logo and identity is needed to unify the message and delivery. We recommend that you engage with a low-cost design firm and website developer to get the company's basic brand image elements hammered out. At the same time, prepare the website with a simple ecommerce solution such that pre-sales can be taken as soon as necessary. Crowd-sourced design services such as crowdSPRING may provide a lower-cost opportunity in this endeavor [42].

Secondly having an expert in social media engagement will be extremely important. While much of these duties can be handed off to a founder, social media consultants already have groomed massive online presences and have a deeper understanding of how buzz can garner clicks-through and sales. Finding a social media consultant that is skilled and trustworthy will potentially return dividends when it's time for the Kickstarter campaign.

SOON

In order to launch a successful product, capital will be required. The university will not fund a student-based startup to the level necessary so Kickstarter or IndieGoGo are the next-best options. Of the four recent startups trying to enter the sleep tracking market, all four have campaigned on these crowd-funding platforms; two of them secured follow-up funding from venture capitalists or angel investors. One of the most important elements of a successful Kickstarter campaign is a cool video that clearly portrays the problem your product solves quickly and effectively. Professional production of a Kickstarter video often results in significantly higher backers joining your campaign is often your first public marketing effort to begin building your brand awareness.

FUTURE

Once production is underway with a near-final product, a portion of the product should be set aside for additional testing, trials with customers, and for review samples to be sent to blogs in our targeted list. By sending out free samples for review, we can grow the exposure and notoriety of the product and this will be a relatively cheap means to gather more attention and media exposure on the Internet.

Eventually, if funding opportunities allow, it is recommended that we engage several medical professionals as consultants to enhance the sleep analytics and coaching provided within the application. Additionally, these consultants can provide more meaningful, expert recognition of the value of the product in our marketing materials. This will add legitimacy and go towards enhancing the brand as a whole.

INITIAL FINANCIAL REQUIREMENTS

Rather than attempting to enumerate the business revenues and costs for such a nascent product and company, the research team instead focused on the near-term actionable items and associated costs. This provides a glimpse into the next steps and which fund-raising and operations should be focused on.

In order of our recommendations we recommend procuring design services and creating a website and company image. Web hosting is estimated to cost around \$420 annually and similar design jobs have been procured through PSU's Accent Green design group in the \$3,000 to \$5,000 range. This is lower than industry rates, but not as cheap as a crowdSPRING or finding students or friends to do the work; we've projected a \$4,000 cost for design.

While it is possible to do the social media and search engine optimization management internally with the founders, we would still recommend investigating a professional consultant, particularly before and during the Kickstarter campaign. The research team received a ballpark estimate of \$400 per month with a 3-month minimum commitment from Green Sparrow PDX, a local social media consultant. A full-year commitment would cost \$4,800.

Once the product is in production and review samples are ready, at least 100 units should be reserved for customer trials, product reviews, and medical consultants to use. The current bill of materials for 100 units would cost \$5,000 and we estimate needing approximately \$2,500 for customer trials. This would involve advertisement for the trials, food, event space, etc. It may be possible to conduct most of this without any costs, but a more professional setting may lead to higher ratings from individuals playing with the product which can subsequently be used as testimonials to again further the brand image. We were unable to

locate specific information on the cost to hire a sleep specialist M.D. as a consultant. However, we estimate that on an advice-basis, we should be able to secure several targeted discussions for under \$10,000 per engagement. Two consultants put this price around \$20,000.

The largest expense is going to be hiring a programmer or agency to create the iOS application. From our research group's professional experience, this costs, on the low-end, around \$80 per hour. Past experience dealing with software development tasks leads us to an estimation of 480 hours, or 3-months at full-time equivalent employment for a basic, functional application. This expense was rounded up slightly to \$40,000.

As shown in Table 5 - Estimated first year expenses, the grand total for the first year's expenses will be \$77,920 based on these assumptions.

Table 5 - Estimated first year expenses

Item	Capital Cost	Monthly Cost	Est. Yearly Cost
Kickstarter video	\$1000-\$5000	-	\$1,200
Company website + eCommerce hosting	-	Free-\$45	\$420
Company Logo + initial web design	\$3000-\$5000	-	\$4,000
Social Media and SEO management	-	\$400	\$4,800
100 Review samples	\$5,000	-	\$5,000
Medical consultants	\$20,000-\$50,000	-	\$20,000
Trials and product testing	\$2,500	-	\$2,500
iOS app development			\$40,000
Total First Year Budget			\$77,920

The second part of this financial analysis is to estimate the size of any initial production run and how that would relate to any first year revenues. If we use our competitors as a guide, we see that the number of backers—which are almost all pre-orders—ranges from 769 individuals all

the way to nearly 20,000. Our most direct competition reached nearly 2,000 backers and appears to be a reasonable target for our initial Kickstarter goal. If we provide a \$20 discount for Kickstarter backers, each unit would sell for \$129. After \$50 in manufacturing costs, we will earn \$80 profit per unit. This would leave \$158k in revenue in this initial pre-order phase. After our marketing investments from above, this leaves \$80k for operations. This revenue will quickly dry up and none of these projections include any operational costs for personnel, space rental, etc.

Once the Kickstarter ends there will be little additional capital to move forward with larger production runs or additional marketing. The next phase for this startup will be to catalyze the momentum from the Kickstarter campaign into venture investment. While imperative for success, the details of that are outside the scope of this market plan.

Table 6 - Number of crowd-sourced backers

Company Name	Beddit	Napwell	Neuro:On	Sense
Platform	IndieGogo		Kickstarter	
# of Backers	3,979	769	1,944	19,349

CONCLUSION

REMzen offers individuals suffering from sleep issues a unique combination of high-accuracy sleep tracking, data-driven coaching and advice, along with the proven benefits of light therapy. This synthesis of features keenly meets the demands of our target market segment and comes in at a price well below the only direct competitor with this feature set. That is not to say that this will be an easy product to bring to market. There are many incumbents already providing lower-accuracy sleep tracking via fitness bracelets and a slew of new entrants targeting sleep directly. The upshot of this is that any market with multiple entrants is likely to be a market with potential, and that is what our analysis has shown. With an estimated 200% growth over the next 5 years in this specific sub-market, we believe there is the space for products to enter and succeed. Many of the competitors are going to be targeting the much broader wearable consumer and competing directly against the upcoming Apple iWatch and other powerhouses of industry, such as Microsoft. By looking at this large and growing niche market of sleep-sufferers, we think there is moderate to good chance for a successful and profitable organization.

To get up and running it is recommended to take the very popular path and engage in a crowd-funding campaign. This starts by building a brand identity, logo, and website, and then ramping up for a media campaign with catchy videos alongside the official Kickstarter or IndieGoGo campaign. Pulling the people together with the right expertise will be essential, but there are already four other companies who exceeded their original goals on both crowd-funding platforms; the interest is obviously there. Once a successful campaign ends, pushing the production of the final product and initial software launch will be imperative. As soon as the product is “good enough,” distribution of pre-production samples to as many reviewers as possible should swift. This will allow REMzen to maintain the internet buzz and capitalize on any success from the crowd-funding. As soon as this completes, long-term success is going to depend on larger capital investments in the form of angel investors or venture capital. If additional funding remains elusive for too long, the only likely outcome will be failure.

WORKS CITED

- [1] Wikimedia Foundation, Inc., "Rapid eye movement sleep," February 2015. [Online]. Available: http://en.wikipedia.org/wiki/Rapid_eye_movement_sleep. [Accessed 20 February 2015].
- [2] J. D. Payne and L. Nadel, "Sleep, Dream, and Memory Consolidation: The Role of the Stress Hormone Cortisol," *Learning Memory*, no. 11, pp. 671-678, 2004.
- [3] M. Smith, "How Much Sleep Do You Need," February 2015. [Online]. Available: <http://www.helpguide.org/articles/sleep/how-much-sleep-do-you-need.htm>. [Accessed 20 February 2015].
- [4] National Institute of Neurological Disorders and Stroke, "Brain Basics: Understanding Sleep," 25 July 2014. [Online]. Available: http://www.ninds.nih.gov/disorders/brain_basics/understanding_sleep.htm. [Accessed 12 March 2015].
- [5] C. Winter, "Personal Sleep Monitors: Do They Work?," 28 April 2014. [Online]. Available: http://www.huffingtonpost.com/dr-christopher-winter/sleep-tips_b_4792760.html. [Accessed 20 February 2015].
- [6] Men's Health, "Wake Up - Without Hating Everyone!," [Online]. Available: <http://www.menshealth.com/health/morning-exposure-blue-light>. [Accessed 12 March 2015].
- [7] Mayo Clinic, "Disease and Conditions - Insomnia," [Online]. Available: <http://www.mayoclinic.org/diseases-conditions/insomnia/basics/definition/con-20024293>. [Accessed 21 March 2015].
- [8] National Sleep Foundation, "Sleep Aids and Insomnia," [Online]. Available: <http://sleepfoundation.org/sleep-disorders-problems/insomnia/sleep-aids-and-insomnia>. [Accessed 12 March 2015].
- [9] Pew Research Center, "Tracking for Health," [Online]. Available: <http://www.pewinternet.org/2013/01/28/tracking-for-health/>. [Accessed 12 March 2015].
- [10] NPD Group, "Wearable Technology - Get Ahead in This Booming Market with New Information Straight from Consumers," [Online]. Available: <https://www.npd.com/latest-reports/wearable-technology-study/>. [Accessed 12 March 2015].

- [11] NPD Group, "Wearable Tech Device Awareness Surpasses 50% among US Consumers, According to NPD," [Online]. Available: <https://www.npd.com/wps/portal/npd/us/news/press-releases/wearable-tech-device-awareness-surpasses-50-percent-among-us-consumers-according-to-npd/>. [Accessed 12 March 2015].
- [12] R. Nauert, "Women Experience Sleep Disorders 40% More Than Men," [Online]. Available: <http://psychcentral.com>. [Accessed 21 February 2015].
- [13] T. Roehrs, F. Zorick, J. Sicklesteel, R. Wittig and T. Roth, "Age-related Sleep-wake Disorders at a Sleep Disorder Center," *Journal of the American Geriatrics Society*, vol. 31, no. 6, pp. 364-370, 1983.
- [14] Centers for Disease Control and Prevention, "Sleep and Sleep Disorders," 1 July 2013. [Online]. Available: http://www.cdc.gov/sleep/about_us.htm. [Accessed 21 February 2015].
- [15] American Sleep Apnea Association, [Online]. Available: <http://www.sleepapnea.org/i-am-a-health-care-professional.html>. [Accessed 21 February 2015].
- [16] M. Smith, L. Robinson and R. Segal, "Restless Legs Syndrome (RLS)," February 2015. [Online]. Available: <http://www.helpguide.org/articles/sleep/restless-leg-syndrome-rls.htm>. [Accessed 21 February 2015].
- [17] eMEDTV, "Statistics on Narcolepsy," [Online]. Available: <http://sleep.emedtv.com/narcolepsy/statistics-on-narcolepsy.html>. [Accessed 21 February 2015].
- [18] Pew Research Center, "Mobile Technology Fact Sheet," 2012. [Online]. Available: <http://www.pewinternet.org/fact-sheets/mobile-technology-fact-sheet/>. [Accessed 21 February 2015].
- [19] L. Eadicicco, "FORGET THE APPLE WATCH: Here's The Wearable You Should Really Buy If You Care About Fitness Read more: <http://www.businessinsider.com/jawbone-up3-vs-apple-watch-features-2014-11#ixzz3UVYjVyTS>," 5 November 2014. [Online]. Available: <http://www.businessinsider.com/jawbone-up3-vs-apple-watch-features-2014-11>. [Accessed 21 February 2015].
- [20] S. Cromwell, "Wearables are hot: Here's who invested and who got the most VC funding," 9 September 2014. [Online]. Available: <http://www.bizjournals.com/sanjose/news/2014/09/09/wearables-are-hot-heres-who-invested-andwho-got.html?page=all>. [Accessed 22 February 2015].
- [21] D. Primack, "Exclusive: Jawbone raises more than \$100 million," 12 September 2013. [Online]. Available: Exclusive: Jawbone raises more than \$100 million. [Accessed 22 February 2015].

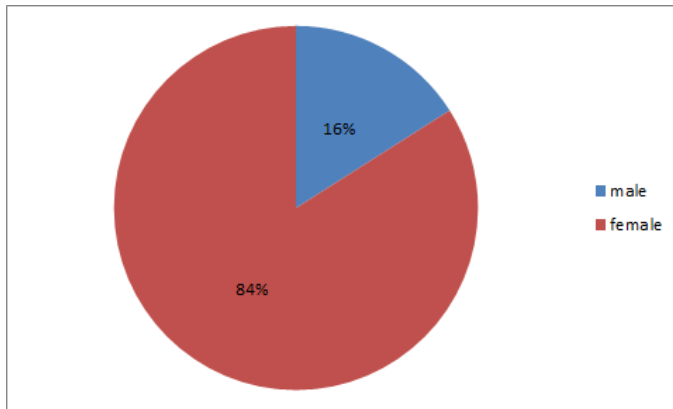
- [22] K.-M. Cutler, "Beddit: A Proper Sleep Tracker That Uses An Ultra-Thin Film Sensor In Your Bed," 8 August 2013. [Online]. Available: <http://techcrunch.com/2013/08/08/beddit/>. [Accessed 22 February 2015].
- [23] A. Pai, "Sleep sensor startup Beddit hits \$8M in funding after latest round," 8 September 2014. [Online]. Available: Sleep sensor startup Beddit hits \$8M in funding after latest round. [Accessed 22 February 2015].
- [24] Sleep Cycle, "How it Works," 2015. [Online]. Available: <http://www.sleepcycle.com/howitworks.html>. [Accessed 22 February 2015].
- [25] B. Dolan, "Fitbit, Jawbone, Nike had 97% of Fitness Tracker Retail Sales in 2013," [Online]. Available: <http://mobihealthnews.com>. [Accessed 21 February 2015].
- [26] Fitbit, 2015. [Online]. Available: <https://www.fitbit.com>. [Accessed 22 February 2015].
- [27] D. Primack, "Fitbit raises \$43 million in new funding," 13 August 2013. [Online]. Available: <http://fortune.com/2013/08/13/fitbit-raises-43-million-in-new-funding/>. [Accessed 22 February 2015].
- [28] P. Thurrott, "Microsoft Band Tip: Monitor the Quality of Your Sleep," 24 November 2014. [Online]. Available: <http://winsupersite.com/microsoft-band/microsoft-band-tip-monitor-quality-your-sleep>. [Accessed 22 February 2015].
- [29] WikiMedia Foundation, Inc., "History of Microsoft," [Online]. Available: http://en.wikipedia.org/wiki/History_of_Microsoft.
- [30] S. Gaglani, "Re-Timer Sleep Device Helps Reset Your Circadian Rhythm," 25 April 2013. [Online]. Available: <http://www.medgadget.com/2013/04/re-timer-sleep-device-helps-reset-your-circadian-rhythm.html>. [Accessed 23 February 2015].
- [31] E. Charrison, "Re-Timer Light Therapy "Sunglasses" May Help Regulate Circadian Rhythms," 23 July 2014. [Online]. Available: <http://www.sleepreviewmag.com/2014/07/re-timer-light-therapy-circadian-rhythms/>. [Accessed 22 February 2015].
- [32] Wikipedia, "Philips," [Online]. Available: <http://en.wikipedia.org/wiki/Philips>. [Accessed 17 March 2015].

- [33] Philips, "Light Therapy," Philips, [Online]. Available: <http://www.usa.philips.com/c-m-li/light-therapy/wake-up-light/>. [Accessed 17 March 2015].
- [34] NeuroOn, 2015. [Online]. Available: <https://neuroon.com/>. [Accessed 22 February 2015].
- [35] E. Galston, "Shark Out of Water: A Chicago VC Breaks Down Shark Tank - EPISODE 15," 23 January 2015. [Online]. Available: <http://chicagoinno.streetwise.co/all-series/shark-tank-season-6-episode-15-chicago-vc-recaps-shark-tank/>. [Accessed 22 February 2015].
- [36] E. M. Rusli, "Sleep Tracker 'Sense' Raises \$13 Million, Without Venture-Capital Help," 22 August 2014. [Online]. Available: <http://blogs.wsj.com/digits/2014/08/22/sleep-tracker-sense-raises-13-million-without-venture-capital-help/?mg=blogs-wsj&url=http%253A%252F%252Fblogs.wsj.com%252Fdigits%252F2014%252F08%252F22%252Fsleep-tracker-sense-raises-13-million-without-venture-capital-help>. [Accessed 23 February 2015].
- [37] J. Carbone, "Expect Sensor Prices to Fall," 18 December 2013. [Online]. Available: <http://www.digikey.com/en/articles/techzone/2013/dec/expect-sensor-prices-to-fall>. [Accessed 25 February 2015].
- [38] "EXHIBITORS," 2014. [Online]. Available: <http://wearablesensors2014.com/exhibitors.html>. [Accessed 21 February 2015].
- [39] H. Basic, "Which E-Commerce Platform Is The Best Choice For Your Online Store?," 26 September 2014. [Online]. Available: <http://www.forbes.com/sites/allbusiness/2014/09/26/which-e-commerce-platform-is-the-best-choice-for-your-online-store/>. [Accessed 25 February 2015].
- [40] M. Duggan, N. B. Ellison, C. Lampe, A. Lenhart and M. Madden, "Social Media Update 2014," 9 January 2015. [Online]. Available: <http://www.pewinternet.org/2015/01/09/social-media-update-2014/>. [Accessed 25 February 2015].
- [41] Pingdom, "Pingdom," 1 March 2013. [Online]. Available: <http://royal.pingdom.com/2013/03/01/blog-readership-demographics-2013/>. [Accessed 26 February 2015].
- [42] crowdSPRING, 2015. [Online]. Available: <http://www.crowdspring.com/how-it-works/>. [Accessed 10 March 2015].
- [43] S. Fox and M. Duggan, "Tracking for Health," 28 January 2013. [Online]. Available: <http://www.pewinternet.org/2013/01/28/tracking-for-health/>. [Accessed 21 February 2015].

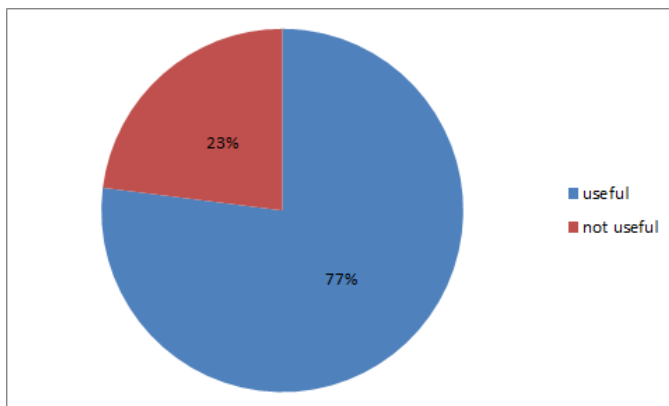
- [44] B. Dolan, "Fitbit, Jawbone, Nike had 97% of Fitness Tracker Retail Sales in 2013," 15 January 2014. [Online]. Available: <http://mobihealthnews.com/28825/fitbit-jawbone-nike-had-97-percent-of-fitness-tracker-retail-sales-in-2013/>. [Accessed 12 March 2015].

APPENDIX A: INITIAL MARKET ANALYSIS SURVEY RESULTS

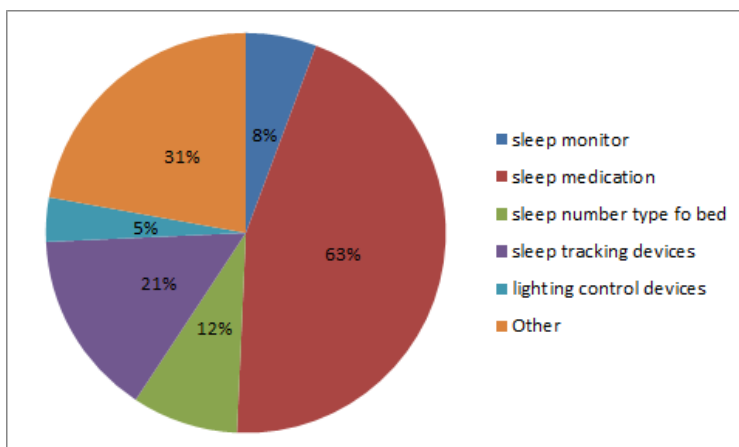
Do you identify as Male, Female, or Other?



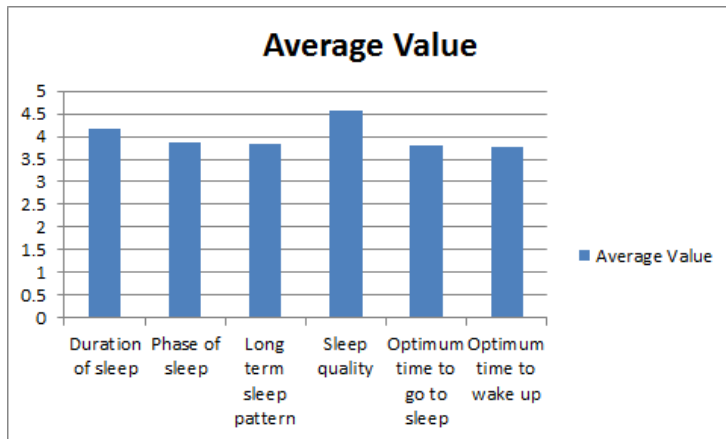
Would you find daily recommendations on your optimum sleep schedule helpful?



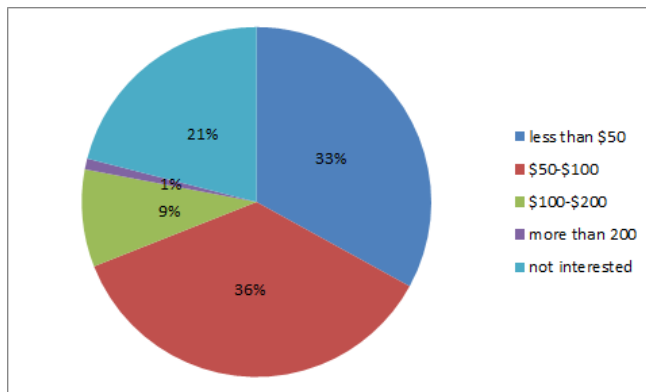
Have you previously purchased any of the below items to get more restful sleep?



How important to you are these types of data about your sleep? 0 stars is not important. 5 stars is very important



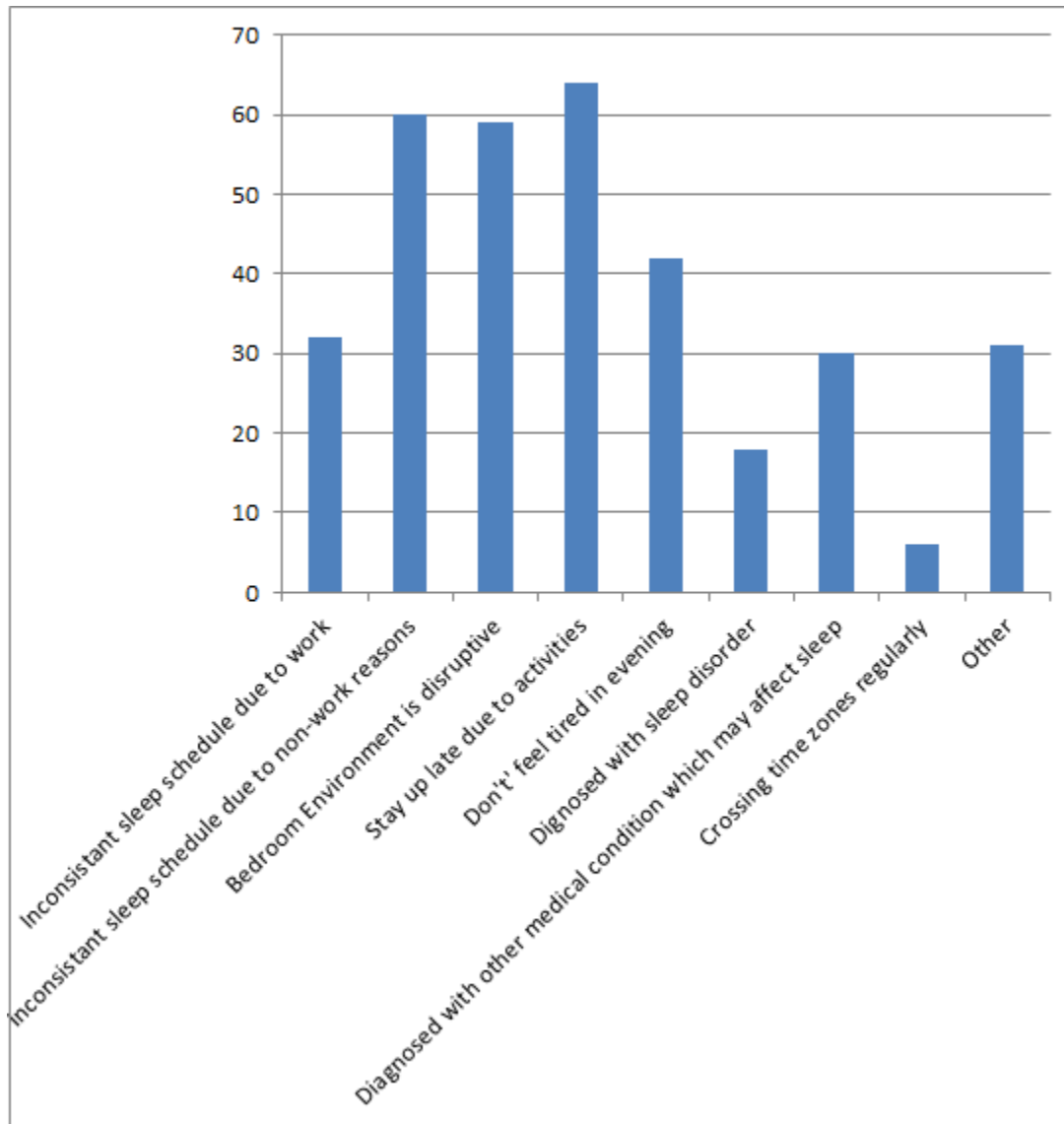
How much would you pay for a device which would precisely monitor your sleep and provide the data to you?



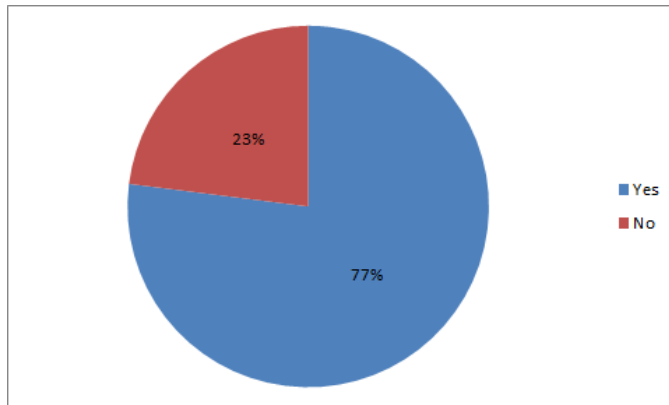
What features are most important to you when shopping for a device to improve your sleep?

Benefit/Feature Sought	Mentioned by No. of users
Performance	34
Cost	14
Ease of Use	34
Look/Feel/Comfort level	21

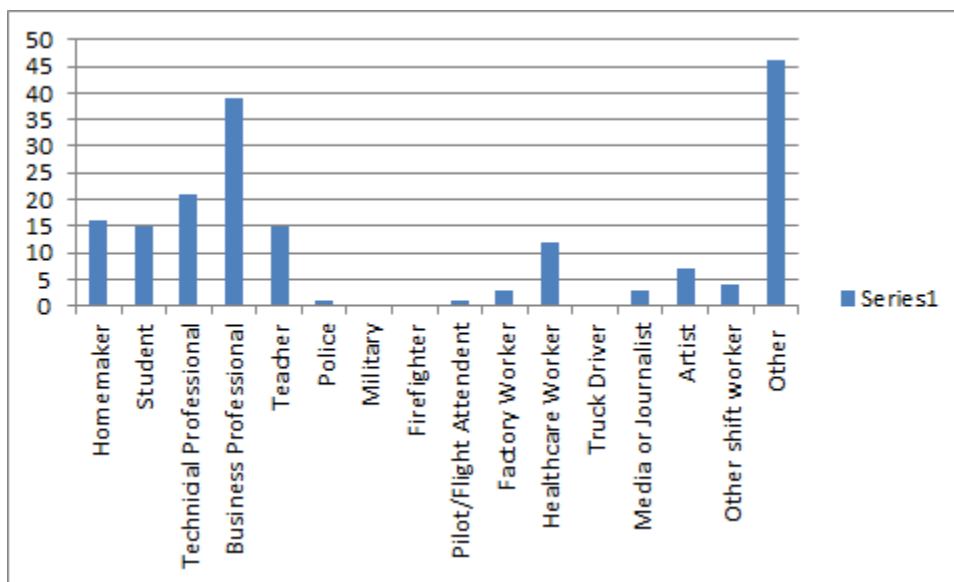
Do any of the below issues affect your sleep?



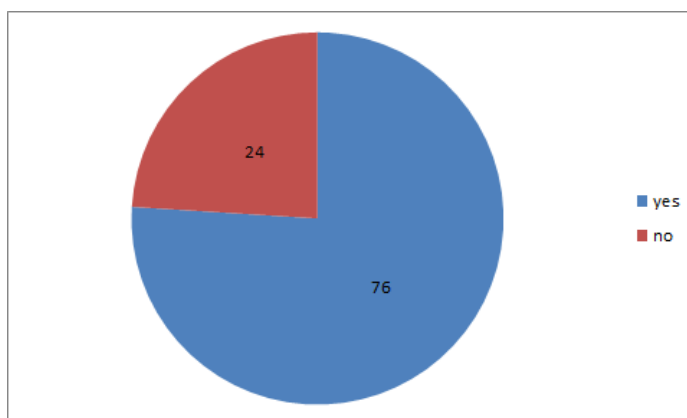
Have you ever had any sleeping issues on a regular basis (such as quality of sleep, lack of sleep, insomnia, sleep apnea, narcolepsy, etc.)?



What type of occupation do you do?



Our team is developing a highly sensitive sleep monitor. Would you find detailed information about your sleep patterns useful?



APPENDIX B: COMPETITOR PRODUCT ANALYSIS

Competitor Devices		Device Category		Product Focus/Value Prop		Price (\$)									
Competitor	Device	Category	Focus/Value Prop	Price (\$)	Available Today?	Smartphone compatible	Physical activity tracking?	Physiological Monitoring?	Monitors sleep/wake?	Sleep sensor sound-based	Sleep sensor movement-based	Environmental Monitoring	Sleep Coaching	Light alarm (simulated sunrise)	Form Factor
Fitbit	Fitbit	Fitness / Wellness + Sleep	Fitness tracking + sleep monitoring	\$99.95-\$249.95	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Wrist Wearable
	Jawbone		Fitness tracking + sleep monitoring	\$49.99-\$179.99	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Wrist Wearable
	Microsoft band		Fitness tracking + sleep monitoring	\$199.99	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Wrist Wearable
Re-Timer	Re-Timer	Light Therapy	Adjusting circadian rhythm	\$299	✓										Glasses Wearable
	Philips Wake-up light		Light alarm (simulated sunrise)	\$89.99-\$169.99	✓										Bedside Lamp
Sleep cycle	Sleep cycle	Sleep	Sleep monitoring and recommendations	\$0.99	✓	✓		✓	✓						Software
	Beddit		Sleep monitoring and recommendations	\$149-\$99	✓	✓	✓	✓	✓			✓			Mattress sensor
	Sense		Sleep monitoring and recommendations	\$129-\$99	✓	✓		✓	✓	✓	✓	✓			Bedside Sphere
REM ⁴	REM ⁴	Sleep + Light Therapy	Sleep monitoring and recommendations + Smart light alarm	\$149	✓	✓		✓	✓	✓	✓	✓	✓	✓	Sleep Mask Wearable
	Neuro:On		Sleep monitoring and recommendations + Smart light alarm	\$299-\$165	✓			✓		✓					Sleep Mask Wearable
	Napwell		Light alarm for napping (timer-based)	\$100-\$50											Sleep Mask Wearable
Glo To Sleep	Glo To Sleep		Fall asleep faster	\$29.95	✓										Sleep Mask Wearable