Engineering Senior Design Business Plan

BUS 357 Business for Engineers
Calvin College
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Submitted By:

BioBit
A team-oriented fitness tracker

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For Review By:

Calvin College Business Department
Attn: Paul Holtrop
Executive Summary

Company name
BioBit

Company Leadership

- **President**: Head of the company and the main decision maker and supported by six Vice presidents (VPs) who assist in the decision making process
  - **VP of Engineering**: Manages the hardware (HW) and product development teams
  - **VP of Software and Product Testing**: Manages the software (SW) and testing the products quality
  - **VP of Research, Development, and Project Manager**: Manages research and project developments
  - **VP of Finance**: Manages the stabilization of the company’s financials and works for consistent growth of the company while adhering to ethical and strategic standards
  - **VP of Marketing**: Manages the driven focus for market acceptance and reputability through the company’s image and its products
  - **VP of Sales**: Leads operations to maintain the image of the company through managing a sales division and its respective geographical regions
  - **Head of Facilities and Production Manager**: Manages the company’s internal communication and production facilities and be knowledgeable in the engineering field

Company Brief

BioBit is an engineering design firm that specializes in team-oriented fitness tracking devices. BioBit was founded on the principles of trust, integrity, and caring. BioBit product is a wearable team-oriented fitness tracking devices. The product is design to send real-time data to an Android app where the user can see the entire team’s fitness data for comparison and analysis.

Market

The company’s target customers will be sport teams, coaches, and trainers. This device will give the customers an efficient means of both tracking and managing data for a given group. The size of the market is expandable as the main focus will remain on both high school and collegiate sports teams.

Business Strategies

BioBit strives to promote a company image of quality and reliability. In addition, BioBit aims to continually be on the cutting edge of technology through innovation and research, thus providing a unique and valuable product that can compete in the current market.

Financials

BioBit is requesting $170,000.00 as startup capital. It will be used for both additional design of prototypes and the first production models that will be sold. This capital will also support the salaries of the designers, workers, facilities, marketing, and raw materials. Through growth and additional production, BioBit plans to be debt free by its 3rd year, giving the company greater flexibility and cash flow to continue into the future.
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1 Vision and Mission Statement
For further information regarding the company's vision and mission through its core values and principles, please refer to the content herein.

1.1 Entrepreneur's Vision and Mission Statement for the Company
The vision of BioBit is to become a standard in group workout sessions by supplying a need through innovation, while remaining competitive and relevant. The mission of the company is to make a reliable, yet cost effective product.

1.2 Values and Principles on Which the Business Stands
BioBit values teamwork, honesty, efficiency, and sustainability. The company also strives to develop a design team that is established under the principles of integrity, stewardship, transparency, and caring. BioBit wants the information from our devices to provide the users clear and concise data, along with a simple and user friendly interface in the partnering Android app.

2 Industry Profile and Overview

2.1 Industry Background and Overview
The sophistication of data compilation and analysis has certainly seen major growth in the past century as electronics and automation have quickly dominated a large spectrum of markets. Specifically, the market of athletics and training has shown their need for technological advancements in order to better understand biomechanics and conditioning of athletes and trainees. That being said, BioBit looks to fill a void in this market by allowing a training group or team to compile and analyze data as both a single unit and individually.

2.1.1 Major Customer Groups

Trainers and Coaches
Both trainers and coaches would look to utilize the device as a tool to give to their workout participants and players. By doing this, they would be able to compile and analyze data on a real-time basis in order to be able to make educated and quick decisions when regarding the output of the individual. By allowing trainers and coaches to have this information readily available, the participant is the benefactor as performance may be maximized. These types of customers would be looking for high reliability and precision when using a device such as this.

Academic Research
In an academic application, researchers and professors could utilize this device in human performance labs and classroom settings. By allowing these types of customers to use the BioBit, students and researchers have another avenue to explore the exercise sciences. Because BioBit can be used in both individual workouts and groups settings, the end-user would be able to analyze the effects and differences in different types of workout settings, a dynamic that has seen minimal research thus far.
2.2 Regulatory Restrictions

For customers looking to use the BioBit in research or training applications, there are no known restrictions or regulations. It must also be noted however, the safety and health of the individual must be held prominent. The regulations and restrictions are established when a coach is looking to use the BioBit with their team, depending on the level of competition in which they participate. The National Collegiate Athletic Association (NCAA) states that no wearable technological device may utilized in a competition setting in which to provide a particular party an advantage in performance or disclosed knowledge. These regulations are also upheld by most state high school athletic associations. That being said, the BioBit is intended by its designers to be utilized by the end-user in practice and workout settings. By having this regulation established, the BioBit can be designed and marketed knowing the end application; not to be used in competition settings.

2.3 Significant trends

Currently, the wearable technology market has quickly grown into an application for a single user in order to monitor themselves for both workouts and leisure. Current products which fall under the classification would include, but are not limited to, smart watches and sports bands. The increasing market value has shown that there has been significant growth in the past decade as the retail market value has increased ten-fold in less than four years\(^1\). Because of this, users have shown that they are willing to pay high prices for devices similar to the BioBit device, so the value and market need for an item such as the BioBit certainly exists, and this is where the BioBit looks to thrive and capitalize on a market opportunity such as this.

2.3.1 Growth Rate

The wearable technology market is growing so quickly that the manufacturers and retailers anticipate having a challenge in producing a high number of devices that continue to provide leading-edge technology. With the growth in the number of devices in the market, the price of each unit has also grown 20% in the past four years\(^2\). Providing insight that individuals are willing to pay for better technology even if that means it is at a higher cost\(^2\).

2.4 Barriers to Entry and Exit

A variety of barriers may prevent new companies, such as BioBit, from entering the wearable fitness technology market. Because wearable technology devices can quickly grow in sophistication and price, the priority to provide the greatest value for the lowest price possible is crucial in order to compete on a retail level. Dealing with electronics and wireless networks also increases the detail required for design and manufacturing of such device. This too can also exist as a potential barrier to a company looking to enter as the cost of a startup would be large and difficult to overcome without a predefined strategy. New companies may also have a tough time becoming a known participant in the marketplace as this takes both time and money to become established and respected among customers and competitors.
2.5 Key Success Factors in the Industry
The key to success for a business in the fitness wearable technology market is to be able to compete in two distinct ways at a very high level. A business can become successful when they compete on both cost and differentiation. The customers for these type of devices are looking for an intuitive and sleek design so as to minimize hindrance while receiving unique and value information that may not be otherwise obtainable. These factors quickly become obsolete however when the cost of the product cannot compete within the marketplace and thus, business must look to drive both value and performance through their product.

2.6 Outlook for the Future
Moving forward, the market only looks to grow in sales and diversify its services. The cost for components and sizing will decrease, while reliability and accuracy will continue to rise. When projecting towards the future, researchers expect a growth of 1,000% in retail market value of wearable technology over the next four years³.

3 Business Strategy
The purpose of the loaned fund is to help the company purchase the equipment and cover startup costs. The company is expecting a $70,000 equipment purchase to perform the initial production process. For a detailed explanation of the company’s objective, strategy, and internal analysis, please refer to the content herein.

3.1 Desired Image and Position in Market
The desired image of the company is to create a quality fitness wearable with a low cost that will be focused towards helping coaches, sport teams, and groups perform the exercises that they need by providing the real-time data through an Android app where the user can access the results with efficiency.

3.2 Company Goals and Objectives
While production and management are key factors in the success of a company, the financial goals and operations are also integral to a business' success. For an analysis of BioBit's goals and objectives, which are intended to lead to success in both short-term and long-term, please refer to the sections below.

3.2.1 Operational
The operational goal of the company is to bring a teamwork ethic with efficiency, sustainability, integrity, stewardship, and caring to the customers who will use the product. The product should be designed in such a way as to balance quality and low cost.

3.2.2 Financial
The financial goal of the company is to use the first generation design to make enough profit to repay both the startup loan and reinvest in the company for future growth. The company hopes to obtain
further gains to create a robust final prototype that meets all the customers’ needs. However, the main focus will be to repay debt in order to reduce the risk of the employees in the case of economic instability.

3.2.3 Other
The company hopes to support a company culture of precision and collaboration to help cultivate creativity and continuous improvement amongst employees.

3.3 SWOT Analysis
While many analytical systems are available for a company to self-assess themselves, the popular analysis known as SWOT, compiles information regarding strengths, weaknesses, opportunities, and threats. For the unique assessment of BioBit following the SWOT practices, please see the sections below.

3.3.1 Internal Strengths
The major internal strength of the company is its leaders; they are people who strive for quality and the needs of customers. Also, they are aware that the work they complete reflects them and the company’s image. Another strength is the product itself. The product will have high quality while maintaining a low cost, which creates a reputation in the marketplace of a well-engineered product. The product will be simple and easy to use, therefore reducing the complexities on the customer’s side.

3.3.2 Internal Weaknesses
There are several weaknesses that must be addressed in marketing the product. One weakness is the limited target market. For that reason, the company must aggressively market the product. A second weakness is the lack of experience in marketing and low name recognition. Since the company is a startup, the sales representatives will need to show strong confidence in the company’s products and use broad knowledge of both market and customers in order to win further business.

3.3.3 External Opportunities
First and foremost, the company hopes to move into a marketplace that is not highly developed. By starting off on a small scale, a team-oriented fitness device can exhibit high quality features and performance while still retaining a valued price in order to compete with larger, mass-producing, companies. With the wide popularity of sports and the increasingly competitive nature between teams escalating, the coaches will be looking for a way to improve their team. This is a golden opportunity for our company to promote our product.

3.3.4 External Threats
An external threat to the company is when competitors see the opportunity BioBit is exploring, and will attempt to make a similar product with a competitive price, which will reduce the company’s profit margin and force the company to sell at a lower price. Another threat is other startup companies with similar products. To reduce this threat, our company will sell the product as low as possible while keeping a suitable profit margin, which will drive competition and innovation.
3.4 Competitive Strategy

BioBit plans to stay competitive in the fitness tracking market by differentiating itself from similar competitors and providing a low-cost solution to fill market needs. BioBit will also have a focus on marketing to build a customer base. For further details please see the corresponding sections below.

3.4.1 Cost leadership and Differentiation

BioBit is looking to generate its own niche in the market by providing a low-cost solution and differentiating from other products on the market. The company is looking to have comparable quality to mid-range products while producing at a low cost. BioBit will compete with companies in this market, such as Polar described later in Section 6, based on differentiating with real-time analysis and selling a comparable package at a lower price.

3.4.2 Focus

The focus of the company is creating a quality product with a low cost. Currently Polar, BioBit’s main competitor in this market, provides an expensive solution for team-oriented fitness tracking. The company hopes to find a niche in this price range gap while providing a quality product. Most importantly, the company will focus on marketing to build trust with the customers and continue competing in the market. Once the company has a returning customer base it can use this leverage to get into other markets and build the BioBit brand.

4 Company Products and Services

BioBit will begin by selling one product in the form of a package of fitness devices, a central hub, and access to the mobile application. The subsections below will go into detail about the company’s product, the services offered, and some of the benefits that go along with it.

4.1 Description

4.1.1 Product and Service Features

The product will provide the coach or trainer to view real-time data from the player’s devices. These devices will track heart-rate, steps taken, calories burned, and distance traveled. The data will be displayed on an app that the coach or trainer can filter through and look at their desired statistics along with previous logged sessions.

The baseline package that will be available on the market will include 15 fitness tracking devices, 1 central hub, and access to the mobile application. This baseline package is customizable based on the number of devices the customer desires.

4.1.2 Warranties and Guarantees

BioBit will come with a limited warranty. This warranty will cover any issue that arises with the product that is determined not to be a customer related issue but is an issue with how the product was designed, fabricated, or assembled. This warranty will not account for any abuse of the product or if it becomes
broken from it being used outside of the directed method Customers will be given updates to the software of the tracking device and frequent updates to the BioBit’s tracking app. Should there be a design flaw in the product, BioBit will guarantee a quick and painless product replacement or a full refund.

4.1.3 Uniqueness
Our product will differ from our competitors because our product is a group-oriented fitness tracker compared to personal fitness trackers. Most fitness trackers currently in the market are for personal use only and link up to an app on the person’s phone. Our system will do everything a personal fitness device can do plus a few added features and have the advantage of grouping the data in one location and not requiring you to be in communication distance of a phone.

4.1.4 Customer Benefits
Not only will BioBit offer our customers the benefit of improved fitness and analytics, but BioBit will also give additional benefits to returning customers. These would include offers such as discounted pricing, early availability of new products, along with opportunities to be involved in beta testing.

4.1.5 Patent or Trademark Protection
Once the technology is available at a larger scale, BioBit intends on making a patent on mesh-networked Bluetooth Low-Energy communication for the purposes of a group-oriented fitness tracker. This would make for a reliable communication protocol, while significantly increasing the battery life of the tracking devices.

4.1.6 Future Product or Service Offerings
BioBit has plans to extend its reach into the fitness tracking market by offering other products that include, but are not limited to, a personal fitness device, variations on the group-oriented device, and equipment integrated fitness trackers. The knowledge that BioBit accumulates from making a group-oriented fitness tracker will make it very possible for BioBit to enter the personal fitness tracking market. It is also a goal of BioBit to be able to make customizable tracker, so the customer can track whatever data they desire. This could be achieved by getting BioBit to a price point where it can include all desired sensors. Another market BioBit would desire to implement technology is into activities that are not currently explored such as football or hockey. These trackers could be placed in the chest pads or in the helmet.

5. Marketing Strategy
This section will describe the goal of increasing sales and achieving a sustainable competitive advantage of the company. With this strategy, the company may be able to approach the market with a specifically designed tactic in order to set themselves up for the best opportunity to succeed. To view the details of this approach and the various components taken into account, please view the content herein.
5.1 Target market

5.1.1 Problem to be Solved or Benefit to be Offered

The problem that BioBit trying to solve is to make a team oriented fitness device. The majority of market currently offers individual devices which do not offer much variety concerning what data to track. The company’s focus customers will be sport teams, coaches, and people who work out as a group. This device will give the customers to ability to assess the data as a whole along with individual biometrics.

5.1.2 Demographic Profile

BioBit’s market demographic profile includes coaches, trainers, athletes, and educational research labs. Coaches and fitness trainers will benefit the most from this technology as they will be able to make adjustment real time in their sessions. They will be able to see how the group is doing as a whole and see who needs to work harder during the sessions. Athletes benefit from this system as they will be able to see their progress from session to session. Finally educational research labs can use this system to conduct scientific research for whatever application being researched.

5.1.3 Other Significant Customer Characteristics

The significant customer characteristics of BioBit’s product is that the unit can be used in a group setting, thus connecting multiple customers to the same network. This provides the opportunity for a cohesive and collaborative environment.

5.2 Customers' Motivation to Buy

The main motivation for customers will look to buy BioBit product primarily for one of two reasons. One such reason is that the device is a team oriented device with efficiency. The customer can track their data as a team and will be able to access that date from anytime anywhere. This will increase motivation to become more successful for our customers such as the workout groups or the sport team training.

5.3 Market Size and Trends

5.3.1 Market Size

The marketing size is quickly expandable as the company grows and demand increases. With the focus leaning heavily on high school and college athletics initially, expansion into professional and private fitness groups can be explored. The reason BioBit is looking to focus on a smaller demographic initially is so that the demand does not outweigh what can be supplied. As integration of full production and operation is optimized, the marketing into larger sectors will be of high interest to the long-term success of the company.

This identified plan within BioBit correlates with how other similar companies have entered the market. As personal fitness trackers didn’t catch on until they were well established in the market, the majority of sales took off eight months after the device had been introduced.\textsuperscript{iv}
5.3.2 Rate of Growth
As the implementation of team-oriented fitness trackers into the market is still being introduced, much of the market comparison and research was done in the personal fitness tracking devices sector. When looking at the personal fitness device market, multiple sources are forecasting that the retail value is to continually grow by increasing 1000% in by 2018\(^4\).

5.4 Advertising and Promotion

5.4.1 Message
The primary message that BioBit wishes to deliver is simply its vision and purpose. BioBit wants to be known as an innovative company that is delivering a next-generation of fitness wear device that center on team oriented. Quality and integrity are definitely a part of that message, and helping convey a sense of trust in both the company and its products.

5.4.2 Media
BioBit will primarily use online and social media for these are affordable with the company’s budgets. TV advertising are expensive and it is not suitable with the customers that the company approach.

5.4.3 Budget
Since the available cash will be quite low in the first few years, BioBit hopes to primarily advertise through its own website and a few well-placed magazine ads for magazines articles are of no charge. Therefore, our goal is to be in as many articles for magazines that are interested a new fitness wear device. At the moment that business increases, and subsequent cash flow, the marketing budget will continue to grow. This would entitle the company for a greater visibility in both specific advertisements on print and on web.

5.4.4 Plans for Generating Publicity
The biggest way that BioBit plans to generate publicity is by showcasing and demonstrating the products. This will help the company to create a buzz about the features and abilities of the product. Top of this, BioBit will use social media to connect with people, share product demo, and get feedback on the product design.

5.5 Pricing

5.5.1 Desired Image in Market
The goal that BioBit strives to is to provide a high quality product that customers can rely and satisfy on with a relatively low implementation cost. BioBit wants to create a product and provide services that will create a loyal customer base that will keep returning when BioBit brings more products to market.
5.5.2 Comparison Against Competitors' Prices

Since BioBit is a low cost team oriented fitness wear device, there are no existing systems with similar specifications as BioBit to compare cost to. There are many fitness wear devices out there, however none of them are aimed for a team oriented device. That being said, the BioBit's device is on the high end of the fitness wear companies' prices even though it is aimed a team base fitness wear.

5.5.3 Discount Policy

Being a small startup company, BioBit will not offer discounts to the customers in the beginning years. However, this policy may be modified as the company growth warrants and more flexibility is available with pricing.

5.5.4 Gross Profit Margin % Anticipated

BioBit is anticipating a gross profit margin of 16% by the end of year 3 with all debts paid off. This number is perhaps optimistic, but due to conservative sales estimates, BioBit believes that this is achievable.

5.6 Distribution Strategy – Channels of Distribution

BioBit will initially be connecting with both private and public local high school and college sports team to get their products showcased. In order to gain popularity within this niche market, BioBit will look for teams based on reputation and geographic location to provide a partnership and benefits with the company. This could include features such as discount. By implementing this distribution strategy, the company hope to expedite the growth and community awareness of the business and its devices. Once the company deems the device to have been well established in a particular geographic region, it will look to replicate this distribution method to additional markets such as professional sports teams and larger fitness corporations.

6 Competitive Analysis

BioBit will have to remain competitive in a rapidly growing market. The subsections below will detail who BioBit's competitors are and who may become a competitor.

6.1 Existing competitors

6.1.1 Polar

Polar has a product called Team2 Pro which falls under the necessary classifications in order to compete directly with our product. This means it is a wearable tracking device that is team-oriented. However, the price and the lack of variety tracking methods are what holds this product back. The cost of a single unit is approximately $17,200; which includes a hub, computer, and numerous trackers. In order to compete with Polar, BioBit looks to provide a better value by lower price and increasing the variety of tracking sensors.

6.1.2 LUMO
LUMO has a product currently on the market named the LUMOlift. This is an individual-oriented device which helps aid in tips for posture and muscle energy longevity. The LUMOlift provides competition to the BioBit through its unique tracking and data gathering. However, this device is for an individual and thus is not team-oriented. The market price for a single LUMOlift is $210.00.

6.1.3 Mayfonk

Mayfonk is a vertical leap tracker with a direct focus towards athletes involved in high jump, basketball, and volleyball. The Mayfonk competes on the same level with BioBit through its intuitive design on a mobile application supported through iOS. This device is intended for a single person and is worn on the hip which tracks only vertical leap. The base price for a single unit and its accompanying mobile application is $180.00.

6.2 Potential competitors: companies that might enter the market

6.2.1 FitBit

FitBit already is a leader in personal fitness tracking wearables. If this company looks to enter the market of team-oriented devices, it could pose as a threat to BioBit. Fitbit has shown it is very detailed oriented and efficient in its current market and because of this, may look for additional avenues to increase their footprint in the fitness tracking market.

6.2.2 Nike

Nike also has gotten into the personal tracking systems and is currently in direct competition with the FitBit. If one of the two companies should choose to explore the production of team-oriented devices, the chances of the other company to follow would be very high. Nike currently dominates its markets through strong sales and marketing teams while following through on customer service. If Nike chooses to join, it could also implement its current products, such as shoes, into its design and essential double dip in the sales of a device and apparel. If this is the case, it could pose as a challenge for BioBit to compete on sales and marketing.

6.2.3 Samsung

Finally, Samsung may also be interested in similar markets as it has started to include sensors in its products, such as their smartphones. Samsung could potentially pose as a competitor as it would more than likely be very strong in its mobile application and intuitive design. While this is an aesthetic attribute it still hold weight as it bridges the gap between the technology and the user, allowing for ease of use and efficiency.
7 Description of Management Team

7.1 Key managers

7.1.1 President: Nick VanDam

Nick VanDam is a senior Electrical/Computer Engineering major with a designation in International Engineering. Nick is currently an employee under two different organizations. Since 2008, Nick has been working for Grand Rapids Christian High School Athletics as an Event Manager and Facility Caretaker. Nick also works as an intern at URS Corporation within the Intelligent Transportation Systems (ITS) division. He has held this position since May of 2013. This position is concerned with the technology behind roadways which helps to improve the safety and efficiency of our transportation systems. Surveillance systems, vehicle detectors, dynamic message signs (DMS), and their means of communication (Fiber & Wireless) are all things encountered through this position.

In his spare time, Nick is also working on side projects involving mechanical and electrical repairs for both the Calvin and local communities.

7.1.2 VP of Engineering: Brad Kunz

Brad Kunz is a senior Electrical/Computer Engineering major at Calvin College, who grew up in Hudsonville, MI. Brad has had two previous internship experiences. Most recently, in the summer of 2014, he was a part of the Digital Ventures team at Steelcase’s headquarters in Kentwood, MI. This Research and Development team was focused on finding new and insightful ways to integrate technology into the office space. He was exposed to various wireless communication protocols, along with the early stages of product development and design. In the summer of 2013 Brad worked with the Automotive Plastics team at Royal Technologies Corporation in Hudsonville, MI.

Brad enjoys staying active through playing sports such as soccer, tennis, golf, hiking, and going to the gym. He is also interested in audio projects and music production.

7.1.3 VP of Software and Product Testing: Carl Cooper

Carl Cooper is a senior at Calvin College studying Electrical/Computer Engineering. During the summer of 2014, he had the opportunity to work with Professor Kim in the Calvin College Engineering Department to develop a system that would monitor sustainable energy systems wirelessly with smartphone apps. He gained experience creating and sending data over wireless networks, programming microcontrollers and Android apps, and reducing power consumption on both microcontrollers and smartphones. He understands the benefit of being able to track players on sports teams from his experience of playing on sports teams all the way through elementary and high school in Chiang Mai, Thailand, including Varsity Basketball and Volleyball.

In his spare time Carl enjoys pursuing the outdoors through rock climbing and backpacking, as well as all things audio, from recording to building guitar amps and effects pedals.
7.1.4 VP of Research and Development: Jessica Par

Jessica Par is a senior at Calvin College studying Electrical/Computer Engineering. The past two summers (2013 and 2014), Jessica had the opportunity to intern at Koops Inc. in Holland, Michigan as a Control Engineer. At this internship, Jessica was involved in many different aspects of the design and building of factory automation solutions. She was also involved in the Controls Design department and developed electrical schematics, pneumatic schematics, and bills of material. Jessica gained experience building control panels in the Machine Assembly group and worked with Koops Launch Engineers to debug and prove out several different pieces of automation. She also learned to create documentation manuals for a variety of machines and be onsite at the customer’s facility performing service and support.

Jessica is currently working as a Student Office Assistance at the Engineering Department. She organizes documents, updates the engineering website, helps plan the department events, and assists professors when needed. She is also a student leader for Calvin’s Women and Engineering club. She plans social events and study groups for the women engineers.

In her spare time, Jessica enjoys being active through going to the gym with friends, rock climbing, camping.

7.2 Future additions to management team

7.2.1 VP of Finance

With the need of a Vice President of Finance, the company would look to stabilize their business financially and look for consistent growth in an ethical and strategic manner. An individual who is a Certified Public Assistant (CPA) and a Master of Business Administration (MBA) would best fit the requirements the company is looking for in this position.

7.2.2 VP of Marketing

In this role, the vice President of Marketing would take on a role to drive the market acceptance and reputability through the company’s image and its products. An individual who has had past experience in marketing technological devices and has received a Master’s in Business Marketing would best fit this role in the company.

7.2.3 VP of Sales

When looking to fill the role of Vice President of Sales, the company would look for an individual who can maintain the image of the company through managing a sales division and its respective geographical regions. The company would prefer to have an individual which has a minimum of 15 years of experience in a direct or related market.

7.2.4 Head of Facilities and Production Manager

The Head of Facilities and Production Manager would be required to communicate and manage the production facilities and be knowledgeable in the engineering field through previous education. With this
role, the individual may also be required to explore avenues to optimize production through equipment, facilities, staff, and materials.

8 Ownership and Legalities
The company will look to be a Limited Liability Company (LLC) as a high initial investment is required to enter the market. With the risk of high initial investment, the owners and operators are then protected by the form of ownership if the company cannot produce a profitable outcome through production and sales. Included in an LLC association, the company also has the ability to separate personal assets and company credit, thus meaning a catch-net is in place if the company chooses to foreclose. With this approach, the management team feels that an individual’s personal assets and way of life will not be tampered with. With this, in the event of exit from the market, the remaining assets and credit of the company can be readily unloaded and dispersed from the management team. Finally, an LLC will also provide the company to be taxed as a partnership, thus driving low cost towards taxes and deductions. Because the company is a LLC, a board of directors is not required as a business associated as a corporation would require such a team of advisors.

9 Operations

9.1 Legal Form of Ownership Chosen and Rationale
The members of BioBit have determined that it would be in their best interests to form a limited liability company, or an LLC. While there is more of a process to go through to become an LLC, the protection it adds to the employees’ personal liability in business related transactions is well worth it. While it is unlikely that the company would be sued, separating the employees from that liability is important in case legal action is taken. Furthermore, as BioBit will need a loan to get the company started, there is a need to separate the employees’ assets from the company’s. An additional benefit of forming an LLC is that the business would be easier to sell in the event of foreclosure or the owners decide to turn their efforts elsewhere. Additionally, BioBit will have more flexibility than a corporation and will be taxed more like a partnership, which puts less stress on the company.

9.2 Company Structure
BioBit will be a small company and as such there will initially not be many positions. There will be a president overseeing the whole company with 3 vice presidents below him. Each vice president will be in charge of a separate division. The company will start off with just three divisions related to production – engineering, software and product testing, and research and development – but as the company grows marketing, sales, and finance divisions will be added. Initially the vice presidents will oversee the entire operation of each division, but in the future it may be beneficial to add subdivisions with a head of each. The company structure can be seen below in Figure 1. Initially all members of BioBit will be owners of the company, but as BioBit grows only the president and vice presidents will be owners.
9.3 Decision Making Authority

Each vice president has control over the decisions made in their division and any minor decisions can be made by the vice president. However, any major decisions that will either alter the structure of the company or significantly alter the product must be passed by the president, who in turn must inform the other vice presidents. Transparency of each division is key in a small business so vice presidents must inform the other vice presidents and president of decisions that are made, but only significant decisions must be passed by the other owners.

9.4 Significant Compensation and Benefits Packages

Since BioBit will just be starting out and it will be a small company, we will not be able to pay as competitively as other companies but we will offer salaries of $55,000 a year to the president and vice presidents. Additionally, employees will receive two weeks of vacation a year, insurance, and a 401k plan. The salaries and benefits of employees can be seen in Table 1.
9.5 Description of Production

This section will discuss the process of producing and distributing BioBit. BioBit will have enclosures produced and printed circuit boards (PCB’s) printed and assembled by a supplier. BioBit will receive the PCB’s from the suppliers and have hourly employees program, assemble, and quickly test the product to make sure it is functioning properly. The devices will then be assembled into packages based on the number of devices the customer selects and finally the packages will be shipped to customers.

Key components in this supply chain that will increase lead time are the lead time from the suppliers, the assembly time, and the time to ship to customers. BioBit will choose a local supplier to decrease transportation times as well as be able to maintain a better relationship with the supplier. During assembly, each worker will have ten minutes to assemble each device. This includes downloading the program onto the circuit board, screwing the circuit board into the enclosure, and testing the functionality of the product. Once a package is complete, it will be moved to a shipping area to be shipped to the waiting customer.

9.6. Facilities:

9.6.1 Location: Where and Rationale

BioBit will be based out of Western Michigan because of the connections of the owners. As the owners are from the West Michigan area, the area is familiar thus making it easier to find customers and suppliers quickly, which is crucial in the first few months of a startup. For example, OSH Park is a company in the area that can build PCB’s. Furthermore, the owners have connections with some schools in the area who would be willing to be customers. Having a good relationship with customers and being able to be near sports teams is important because they will be able to provide quicker feedback and may even be willing to test new prototypes.

9.6.2 Layout: Type and Rationale

The company will be lease a floor of an office building to run the company from. The office will be set up with desks around the edge of the room with a space in the middle to meet customers and hold meetings. This larger area in the middle will also provide some space to quickly test new fitness tracking prototypes. Additionally, there will be a section serve as the production area. PCB’s that arrive from the supplier will be loaded with software and assembled in enclosures before they are tested for functionality and then packaged to be shipped to customers.
9.6.3 Possible Setup Constraints

Within the setup process, constraints may arise through the funds available on-hand and the space which is to be occupied. As there are large initial costs associated with starting up a company, some of which may be due to modifying the workspace, both time and money are certainly an area of focus as these two factors are the largest concerns to a newly-formed company. The quicker a company is able to get through the startup phase and being production, the better the financial stability for both the short and long term.

9.7. Capacity issues and/or constraints

When looking to optimize capacity, BioBit sees potential for constraints in the facility utilized through a rental agreement. With a building being rented, there is no luxury of having a space that is optimized for our specific needs. The company will have to learn to best work with what is provided to them in a facility. It is also possible that there may be additional occupants to the same building, thus shipping and offices may have to accommodate accordingly. With these constraints, BioBit sees a possibility of not being able to optimize production through facility layout and features relating to capacity.

10 Financial Forecasts

The financial forecasts for the first three years of business can be found in the sections herein. These forecasts encompass the predictions of business for BioBit including annual income statements, balance sheets, quarterly cash flow statements, a break-even analysis, and a ratio analysis.

10.1 Key Assumptions

In order to complete a business forecast for three years, some key assumptions were made. A growth rate of 20% was assumed, which is a common growth rate for startup companies. It was also assumed that we would be able to sell all that is produced and that sales would be evenly distributed throughout the year. Furthermore, it was assumed that an average order would include 1 hub and 15 monitoring watches at a price point of $200 per hub and $130 per wearable resulting in $2,150 per order as shown below in Table 3. Given that there are thousands of sports teams across the country in both the collegiate and high school level that would benefit from this product, it was assumed that BioBit would have a starting annual sale of 800 packages. The number of teams across the country also justifies the growth rate of 20% because as schools see other teams using BioBit, they will want to buy the product in order to stay competitive. This sales volume forecast is shown in Table 2. Additionally, these forecasts are dependent on the ability to receive a loan of $170,000 with an interest rate of 15%.

<table>
<thead>
<tr>
<th>Packages sold</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales Volume Forecast</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>800</td>
<td>960</td>
<td>1152</td>
</tr>
</tbody>
</table>

Table 2 – Sales Volume Forecast

Table 3 – Sales Revenue
10.2 Financial Statements

To analyze the financial feasibility of BioBit LLC, several financial statements were used. The following sections go over the Pro-Forma Statement of Income and Cash Flow Statement.

10.2.1 Income Statement (Annual, 3 years)

The income statement in Table 4 shows the costs and revenues for the first three years of business. The bottom of the table lists the net income after tax for each year. As can be seen in the table, after the first year the company will be making about $177 thousand, which can be used to expand production and pay off debt. By the end of the second year, the net income will be around $267 thousand dollars and $391 thousand by the end of the third year.

<table>
<thead>
<tr>
<th>Sales Revenue</th>
<th>$ per unit</th>
<th># per pack</th>
</tr>
</thead>
<tbody>
<tr>
<td>Price Hub</td>
<td>200.00</td>
<td>200.00</td>
</tr>
<tr>
<td>Price Device</td>
<td>1,950.00</td>
<td>130.00</td>
</tr>
<tr>
<td>Total</td>
<td>2,150.00</td>
<td>per package</td>
</tr>
</tbody>
</table>

Table 4 – Income Statement for First Three Years

BioBit, LLC
Pro-Forma Statement of Income

<table>
<thead>
<tr>
<th></th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales revenue</td>
<td>1,720,000</td>
<td>2,064,000</td>
<td>2,476,800</td>
</tr>
<tr>
<td>Variable Cost of Goods Sold</td>
<td>896,227</td>
<td>1,075,520</td>
<td>1,290,624</td>
</tr>
<tr>
<td>Fixed Cost of Goods Sold</td>
<td>80,000</td>
<td>80,000</td>
<td>80,000</td>
</tr>
<tr>
<td>Depreciation</td>
<td>10,003</td>
<td>17,143</td>
<td>12,243</td>
</tr>
<tr>
<td>Gross Margin</td>
<td>733,770</td>
<td>891,337</td>
<td>1,093,933</td>
</tr>
<tr>
<td>Variable Operating Costs</td>
<td>36,000</td>
<td>43,200</td>
<td>51,840</td>
</tr>
<tr>
<td>Fixed Operating Costs</td>
<td>390,000</td>
<td>390,000</td>
<td>390,000</td>
</tr>
<tr>
<td>Operating Income</td>
<td>307,770</td>
<td>458,137</td>
<td>652,093</td>
</tr>
<tr>
<td>Interest Expense</td>
<td>12,750</td>
<td>12,750</td>
<td>-</td>
</tr>
<tr>
<td>Income Before Tax</td>
<td>295,020</td>
<td>445,387</td>
<td>652,093</td>
</tr>
<tr>
<td>Income tax (40%)</td>
<td>118,008</td>
<td>178,155</td>
<td>260,837</td>
</tr>
<tr>
<td>Net Income After Tax</td>
<td>177,012</td>
<td>267,232</td>
<td>391,256</td>
</tr>
</tbody>
</table>

10.2.2 Cash Flow Statement (Quarterly, 3 years)

The cash flow statement is an important document because it shows how the cash moves through the company. This statement for the first three years can be seen in Table 5 and it is expanded into each quarter in Table 6 and it should be noted that the company ends with a positive cash balance at the end of each year. The cash flow statement also lists the loan information, including receiving the loan and the payoff plan. As the company ends each year with a positive cash balance, BioBit LLC will pay off the loan.
in the second quarter split into four payments to be paid out each quarter. As the note under Table 2 states, there are no changes in assets and liabilities other than cash, notes payable, and equipment so a balance sheet is not needed.

Table 5 – Cash Flow for First Three Years (Yearly Overview)

<table>
<thead>
<tr>
<th>BioBit, LLC</th>
<th>Pro-Forma Statement of Cash Flows</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Year 1</td>
</tr>
<tr>
<td>Beginning Cash Balance</td>
<td>-</td>
</tr>
<tr>
<td>Net Income After Tax</td>
<td>177,012</td>
</tr>
<tr>
<td>Depreciation expense</td>
<td>10,003</td>
</tr>
<tr>
<td>Invested Capital (Equity)</td>
<td>(30,000)</td>
</tr>
<tr>
<td>Increase (decrease) in borrowed funds</td>
<td>170,000</td>
</tr>
<tr>
<td>Equipment Purchases</td>
<td>(70,000)</td>
</tr>
<tr>
<td>Ending Cash Balance</td>
<td>257,015</td>
</tr>
</tbody>
</table>

Table 6 – Cash Flow for First Three Years (Quarterly)

<table>
<thead>
<tr>
<th>BioBit, LLC</th>
<th>Pro-Forma Statement of Cash Flows</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Year 1</td>
</tr>
<tr>
<td>Beginning Cash Balance</td>
<td>-</td>
</tr>
<tr>
<td>Net Income After Tax</td>
<td>44,253.05</td>
</tr>
<tr>
<td>Depreciation expense</td>
<td>-</td>
</tr>
<tr>
<td>Invested Capital (Equity)</td>
<td>(30,000)</td>
</tr>
<tr>
<td>Increase (decrease) in borrowed funds</td>
<td>170,000</td>
</tr>
<tr>
<td>Equipment Purchases</td>
<td>(70,000)</td>
</tr>
<tr>
<td>Ending Cash Balance</td>
<td>114,253</td>
</tr>
</tbody>
</table>

10.3 Break-Even Analysis

The break-even analysis is shown below in Table 7 shows the break even sales volume to be just over $1 million each year. BioBit plans on exceeding this point each year as there is a large market for the product.
The ratio analysis for the first three years of business can be seen below in Table 8. It should be noted that the profit margin ranges from 10% to 16%, which is not very high. This means that to improve profits, costs would need to be reduced. It should also be noted that the net asset turnover decreases because the company gains assets over the first three years so even though the revenue is increasing, the ratio decreases.
11 Loan or Investment Proposal

BioBit will be requesting a loan of $170,000 to help in early business operations, product assembly, and supplies. This will be paid back in full during the 2nd year of operation that will leave the company debt-free at the beginning of the third year of operation. The sections below will detail the loan, repayment, cash out schedule, along with the timetable for launching the business.

11.1 Amount Requested

There will be $30,000 worth of equity put up by the owners of BioBit. This is to show the confidence in the company’s future along with reducing the amount of fund requested. But this will not cover all of the expenses. Therefore, BioBit will be requesting an initial loan of $170,000. We feel like this is a conservative request that will still help the team cover the rest of the start-up expenses.

11.2 Purpose and Uses of Funds

The Purpose of the fund is to help the company purchase their equipment. This includes assembly machinery, shipping equipment, testing equipment, and office operational equipment such as desks, computers, printers, and the like. This will allow for the company to get a very basic business set-up up and running. The funds will go to physical things to help produce the product and get the business operating.

11.3 Repayment or "Cash Out" Schedule

According to the team’s calculations the debt will be repaid at the end of the 2nd year of operation. This is due to a high projected selling rate as the company gains traction within the market. The company will make quarterly payments back on the debt in the 2nd year of operation. This amounts to $42,500.00 a quarter accounting for a 15% annual interest rate.

The cash out schedule for the company is to sell off the brand, products, equipment, and any patents the company has to competitors in order to liquidate the company. Because the company is focusing on differentiating itself from its competitors on an aspect of the fitness wearable device that is patentable, the company could easily be sold for a profit and allow any remaining debts to be paid off.

11.4 Timetable for Implementing Plan and Launching the Business

With the expected continued growth of the market and the wide acceptance of our product, the ideal timetable is to launch and get a production running as soon as possible. There will be 1-2 month period to acquire the loans, equipment, production site, customers, find distributors, and get the product
production ready and up to speed to accommodate the demand for fitness trackers. This 1-2 month period is accounted for in the first year sales as the company will not be able to produce as full effective capacity during those first few months.

12 Conclusion
BioBit believes that it has found a niche market in which it can be successful within the fitness tracking industry. This will be accomplished by providing product differentiating on a team-oriented scale in which a group of users can track and analyze data in a single system. By becoming a Limited Liability Company, the risk of losing personal assets is minimized while still providing a platform for financial growth.

BioBit believes if it acquires a $170,000.00 loan from investors, it can successfully obtain a working site, equipment, and begin producing a product for market. Upon the financial forecasting of the company, BioBit will be able to pay back the loan by the end of the 2\textsuperscript{nd} year of operation, given a 15% annual interest rate.
References