



innovation proposal





“the greatest wealth is health”

-Virgil

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Dow Corning was established in 1943 specifically to explore and develop the potential of silicones. It has grown to become a global leader in silicone-based technology and innovation.

introductions

sponsor: dow corning

Dow Corning is a Michigan based company which provides performance-enhancing solutions to serve the diverse needs of more than 25,000 customers worldwide. A global leader in silicones, silicon-based technology and innovation, Dow Corning offers more than 7,000 products and services.

Dow Corning has developed several new materials and technologies (adhesives, sealants, coatings, emulsifiers, etc.) for a wide range of applications. Specifically for this project, many of these new materials and technologies will be applied to create an innovative, cost-effective, and feasible solution to the problem area.



vince burbes
Mechanical Engineer

alyssa yatabe
Graphic Designer

whitney pesek
Industrial Designer

matt kolano
Business

team: figment effect

Figment Effect is a transdisciplinary team of passionate, creative, and innovative students from business, engineering, graphic design, and industrial design backgrounds. The team combines experience and knowledge from all four backgrounds to approach and analyze problems from a systems perspective. Imagination is a key

component of the process, allowing the team to be creative and innovative in their efforts to create reliable solutions for the future. Figment Effect's ultimate goal is to provide attractive, cost-effective, and feasible solutions that fulfill the needs of the users and stakeholders.

explanation of the project area

Figment Effect is focusing on problems within the evolving and growing personalized medicine market. Personalized medicine is an emerging medical model that focuses on individualized treatment of a patient's condition rather than the use of generic procedures and drugs that are created for the disease. Previous healthcare models focus on cohorts, but this is costly, inefficient, and in some cases ineffective. Beyond diagnostics, combination devices that

administer new biological therapeutic agents will be needed in the future. Furthermore as diagnostics moves from in body to on body devices that monitor and transmit digital information, the need exists for designs that anchor or incorporate medical monitors or devices or sensors of varying sizes and composition in ways that permit everyday range of motion, but allow for read out display, digital transmission and physical comfort.

“innovation is not the product of logical thought, although the result is tied to logical structure.”



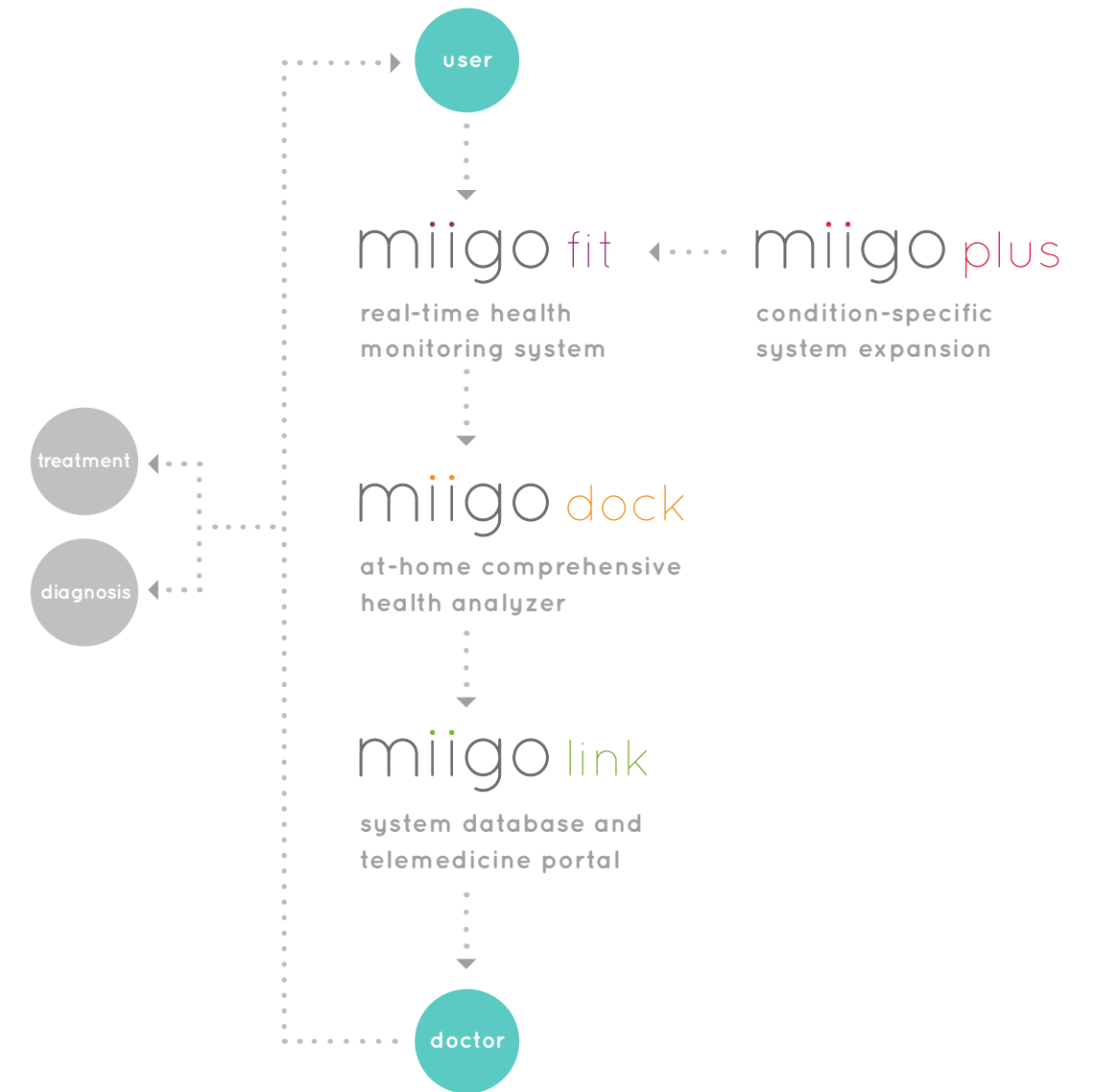
introductions

system overview

Miigo's main function is to monitor an individual's health condition(s) in a much more personalized manner by making important health-related information available to the user in real time, delivering medicine non-invasively, relaying information to health providers, and analyzing and tracking comprehensive health profiles of the individual on a consistent basis. Comprised of four components, three physical products and one digital information system, Miigo will

provide services that customize healthcare to the individual user. This system will utilize such technologies as micro-needles, micro-reservoirs, and flexible LCD's coupled with materials such as silicone and other polymers to create a simple, comfortable, and cost-effective method to achieve the main goal. Ultimately, Miigo will serve to create a healthcare environment in which patients are treated on an individual and personal basis.

system interaction



convenient healthcare, inspired by you

Healthcare is one of the most hotly debated issues in the political sphere today. The number of uninsured Americans is on the rise, healthcare is becoming more expensive by the day and there is a growing population of older adults. Within 10 years, for the first time in human history, there will be more people over the age of 65 than under the age of 5. And with this aging

population comes a high incidence of chronic conditions such as hypertension, diabetes and heart disease. However, new healthcare-related technologies are emerging on a regular basis and governments across the world are recognizing the seriousness of the situation. There is a dire need for cost control, improved policies and innovation in this industry.

user needs



Miigo Fit will serve as a convenient, noninvasive, and pain free tool for individuals to feel more in tune with their health.

Miigo Plus will further customize health monitoring to the individual by allowing that user to utilize additional technology for their specific condition(s).

Miigo Dock will provide the opportunity for individuals to gain a greater insight into their health profiles and truly personalize treatments and drugs to their individual case.

Miigo Link will connect the individual and their health information with their doctor virtually and eliminate the need for costly visits.



product design

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product design
language

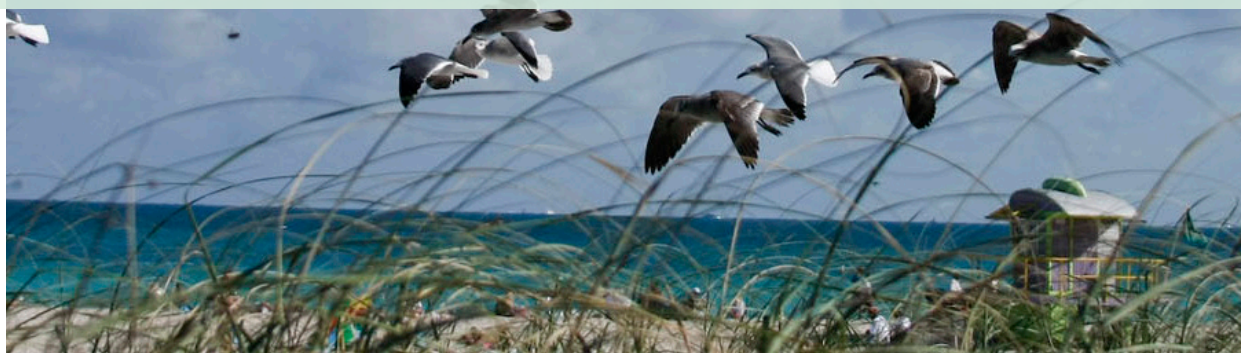


pure simplicity

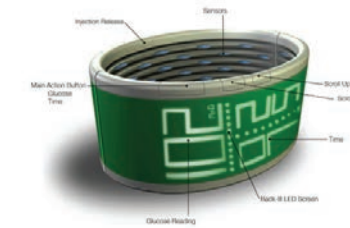
The product needs to be pure, clean, and clear. Creating a descriptive language using the word pure gives the user a clean and healthy feeling. Simplicity refers to the design and shape. It does not need to be complicated. Just a soft and easy design that is inviting to the eye and user.



“health is not simply the absence of sickness.”



Gluco(M)



The Gluco(M) is a medical product that provides diabetics with three functions: instant and noninvasive glucose readings, history of previous readings with averages, and an insulin chamber with a loaded syringe cartridge for injections

'yu:



Enables real time biometric feedback – the kind of information that could revolutionize medical diagnosis. It's a soft bracelet mesh that checks your vital signs and even draws painless blood samples. It interfaces with your computer and acts as an alarm.

Beam



Beam is a stylish wearable medical monitoring device that simplifies the way a user reads the displayed information such as low/high blood pressure, diabetes, or any heart condition.

Sleep Well

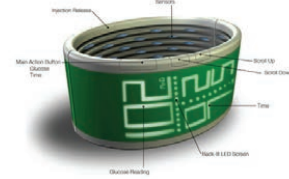


Sleep Well is a wireless blood glucose monitoring device concept comprised of a portable and lightweight monitor that parents keep with them and a wearable bracelet monitor that remains fastened on the child's hand to transmit the health condition to the monitor.

product aesthetic benchmarking

product

Gluco(M)



'yu:



Beam



Sleep Well



personality

● inviting ● aggressive



Simple and basic.
Non-aggressive but noticeable.

Calming, light, stark.

Stark, balanced, simple presence.

Playful, inviting, creature-like.

form

● organic ● geometric



Simple curve, flowing.

Bulky, angular, asymmetrical.

Symmetrical, elongated, negative space on band for vents. Bands frame screen.

Asymmetrical, simple band with oblong screen.

material

● flexible ● rigid



Sensory strip, flexible screen, plastic, silicone pads, blood sample device, metal snaps.

Mesh, plastic, sensors.

Plastic band, flexible clear screen, metal attachment.

Plastic band, small display screen, infrared blood glucose reader on backside of display.

color

● inviting ● aggressive



Silver, true green. Accents of light blue, Off-white display.

White.

Lime green body. Blue, red, and yellow accent buttons.

True green, black.

detail

● heavy ● light



Sensory strip along half the bracelet. Inside of bracelet is grooved. Pivot point on bracelet to reveal a blood prick device. All buttons are flush with the form.

Beathable mesh, angular pods piece together to create a flexible band, no display.

Flush buttons, symmetrical form, color changing screen notifying user of issues. Snaps on, vents for skin to breathe.

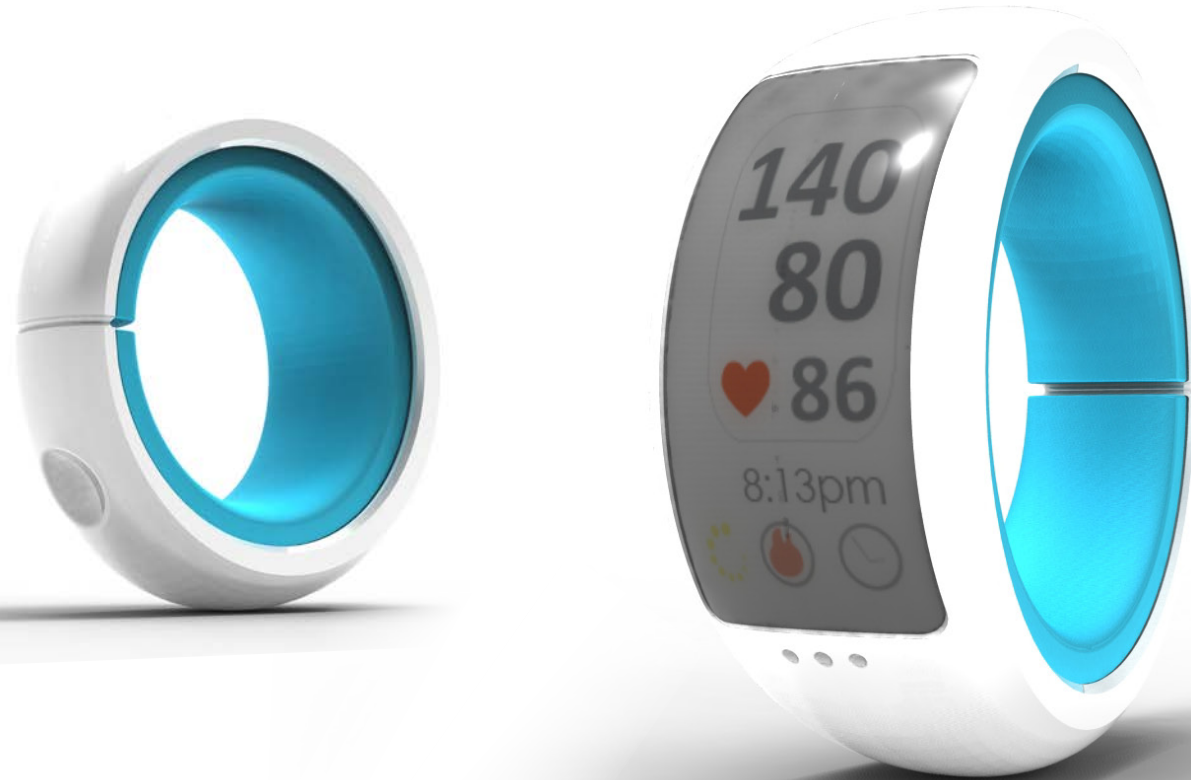
Adjustable notches, simple screen, links to computer, backlighting button.

description

miigo fit

Miigo Fit is the main product of the Miigo system. Its core functions will be general and targeted towards a large user base. These functions are centered on real-time monitoring of an individual's health factors (heart rate, blood pressure, caloric burn, temperature). Technologies used to make this device possible include flexible LCDs that allow for a large, readable, and interactive surface as well as

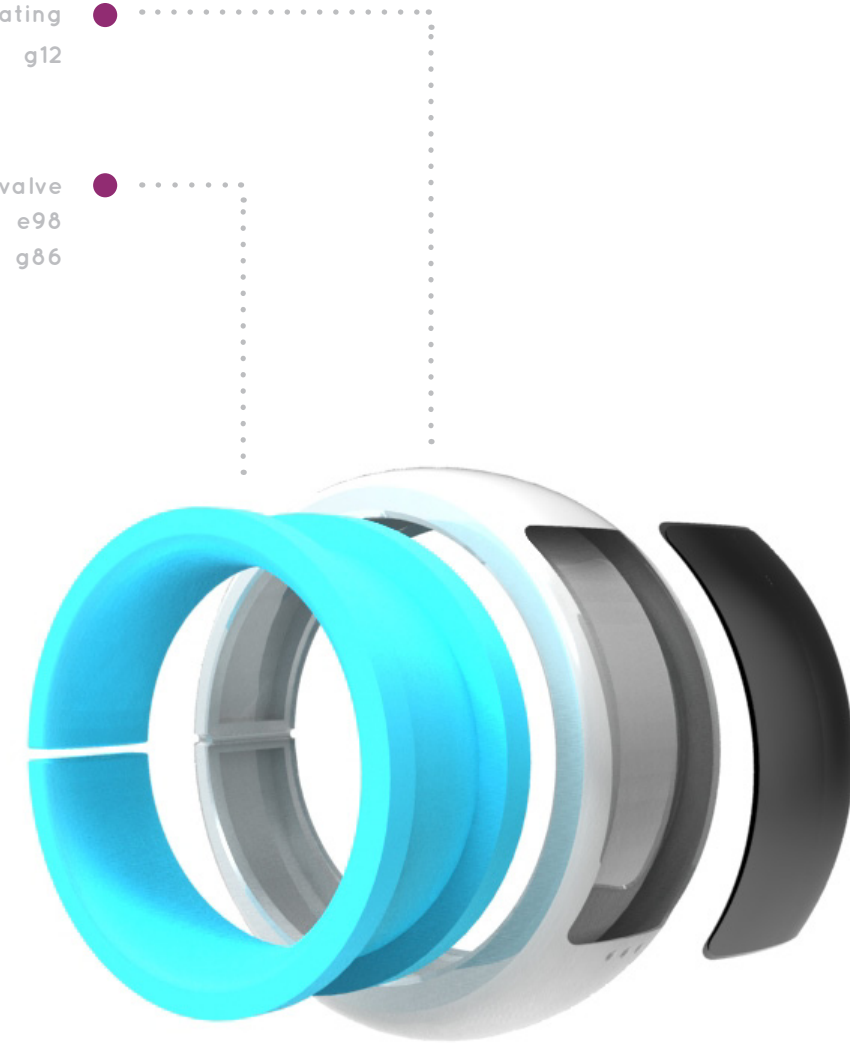
continual innovation in standard health devices that allow for greater functionality within a smaller physical space. Miigo is also purposefully small to provide a convenient approach to healthy living. An unobtrusive product is necessary for a seamless integration into an individual's lifestyle and result in consistent use. Miigo Fit will also have the capabilities of Miigo Link to allow for secure wireless transfer of information.



exploded view

abs with silicone comfort coating
g12

silicone foam with silicone valve
e98
g86



description

miigo plus

Miigo Plus products are individual attachments that provide specific functions for users. There will be a variety of Plus attachments available serving different capabilities such as monitoring t-cell count, checking blood-glucose level, or delivering drugs. Each Plus attachment has additional technologies that could not be successfully installed in Miigo Fit. These products utilize new technologies such as micro-needles

and micro-reservoirs to carry out their specific function. Plus attachments allow users to track their individual condition(s) without the necessary hassle, pain, and cost of traditional methods. Miigo Plus is also fully integrated with Miigo Link, allowing it to sync with Miigo Fit. Users will be able to interact with Plus through their Miigo Fit products.



exploded view

abs with silicone comfort coating
g12

silicone rubber with
soft skin adhesive
f31
e16



description

miigo dock

Miigo Dock is the ultimate at home health station. Dock's core function is to track and record health factors over long periods of time. This will allow individual users to gain a greater insight into their medical history as well as gain awareness of potential future conditions. Dock also has the capability of analyzing bodily fluid samples using new technologies and processes

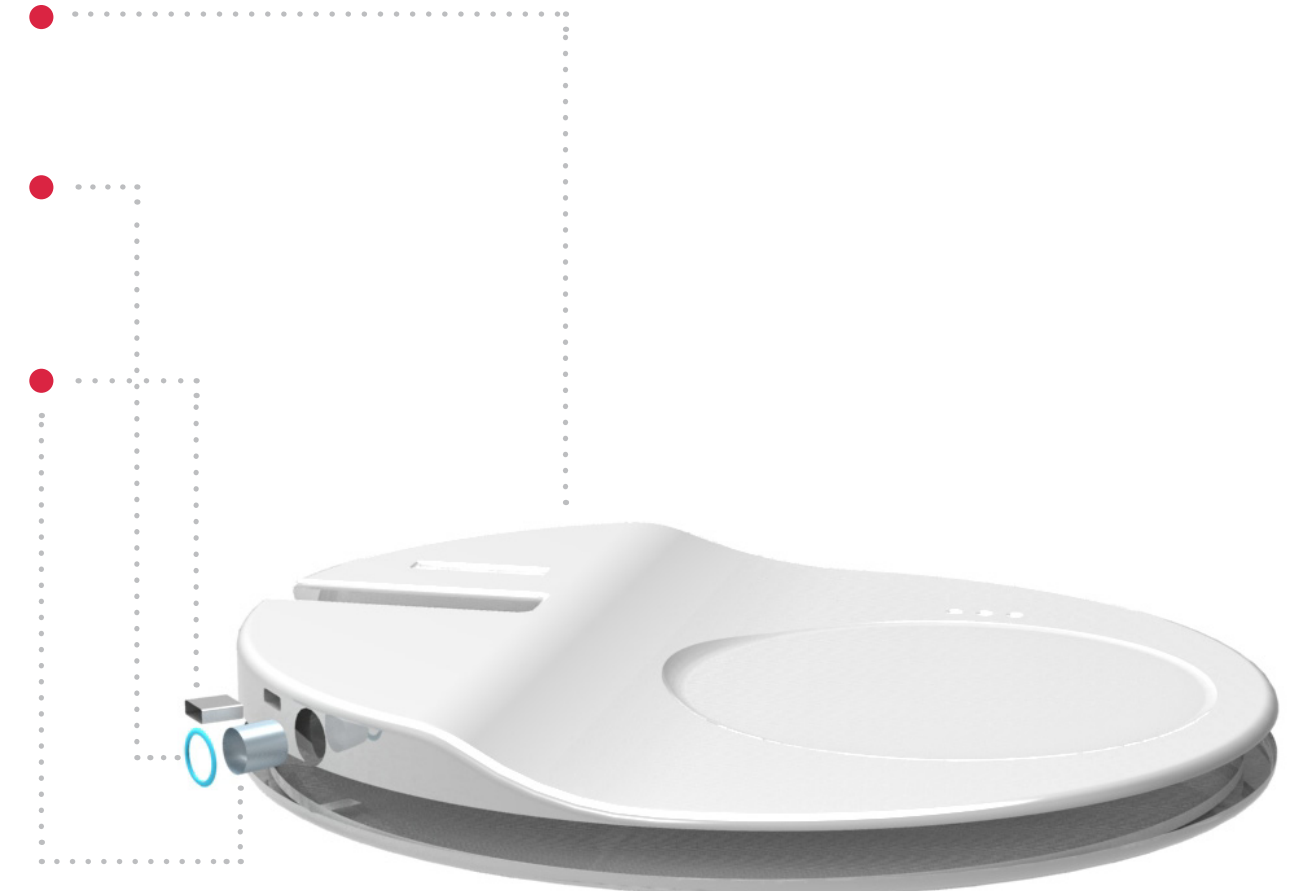
such as antibody analyses and biomarker analyses. Secondary capabilities will include a charging station for Miigo Fit as well as seamless integration with currently available electronics such as computers, cell-phones, tablets, etc. Miigo Link allows for the Dock to communicate with the other devices in the Miigo System.

exploded view

abs with silicone coating
g12

silicone rubber
f31

aluminum



description

miigo link

The last component of the system will be Miigo link. It is designed to provide the experience of a visit to an individual's doctor without leaving one's own home. The interface will come pre-installed on all Miigo products as well as available to install on a home computer.

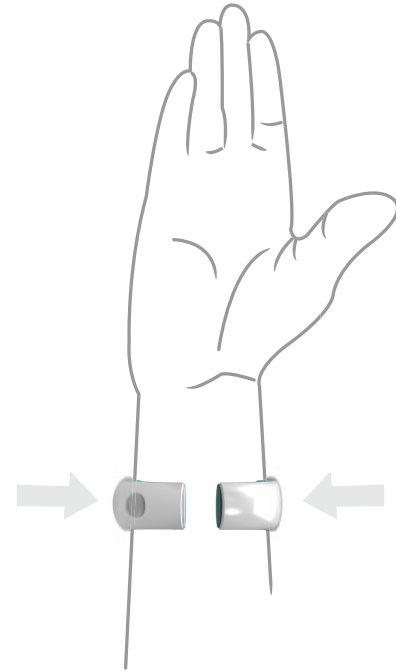
Link is a user-friendly, interactive program that communicates a user's individual health information to the user in a basic way and to their doctor in a more comprehensive way. Overall, Link leverages information technology in order to revolutionize healthy living.



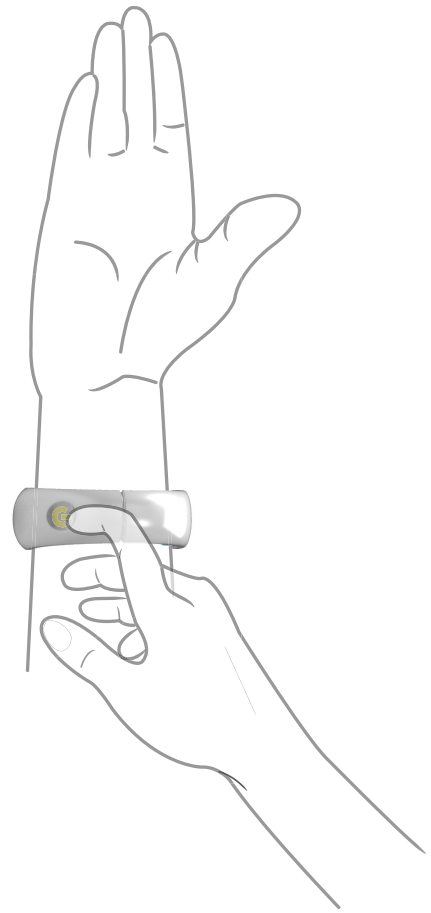
miigo link with family



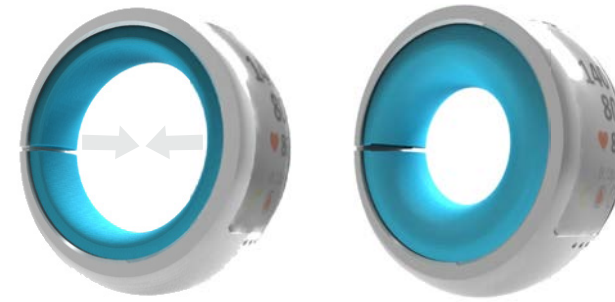
user experience:
miigo fit



The band clasps around your wrist,
and snaps shut.



Placing your finger on the power button for three
seconds will turn the band on.

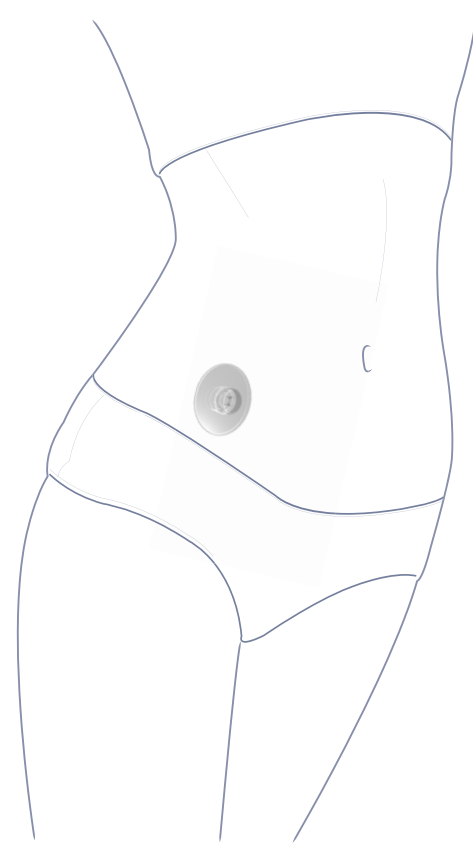


When Miigo Fit takes your blood pressure and
heart rate, the silicone foam expands around
your wrist.

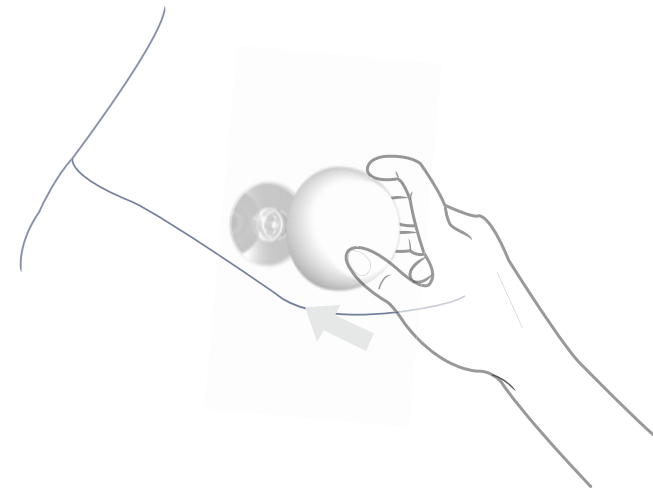


The touch screen allows for the user to
navigate the bands functions, as well as allow
for the information collected on Miigo Fit to
connect to Miigo Dock.

user experience:
miigo plus



Peel the seal and place silicone patch on body.



Additional attachments can be plugged in to the patch and administer drugs to the user.

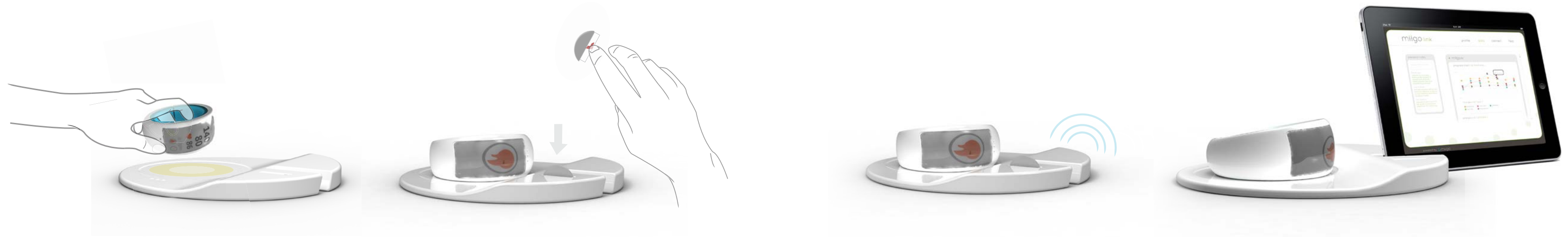


Miigo Plus links information to Miigo Fit.



Miigo Plus particles can be recycled once used.

user experience:
miigo dock



Miigo Dock acts as a charging station for Miigo Fit. When Miigo Fit gets close to Miigo Dock it illuminates letting the user know where to place Miigo Fit to charge.

Blood and saliva samples can be taken and placed into Miigo Dock to get detailed readings.

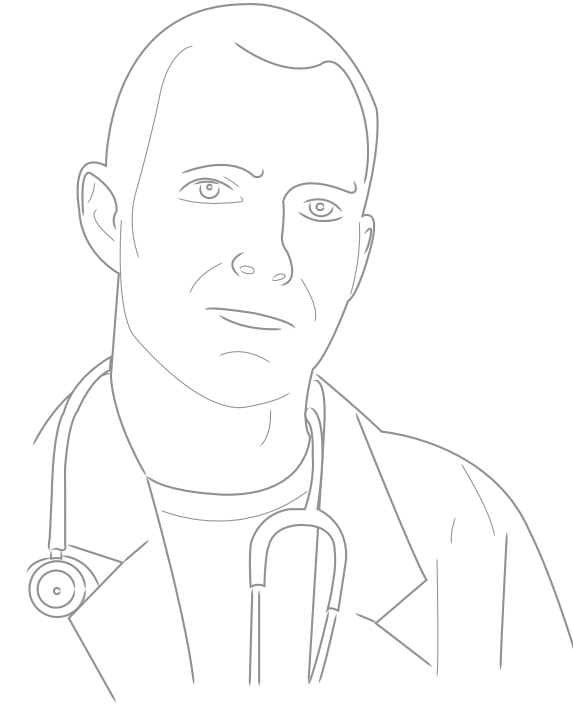
Miigo Dock links to Miigo Link, a software based telemedicine portal and can be used to sync all data from the three devices.

Miigo Fit is charging on Miigo Dock while the sample is being charted and the information is displayed on link.

user experience:
miigo link



Miigo Link displays the users health information.
It also links to the user's doctor or doctors.



Healthcare provider and doctor receives and
can track patient health through Miigo Link.

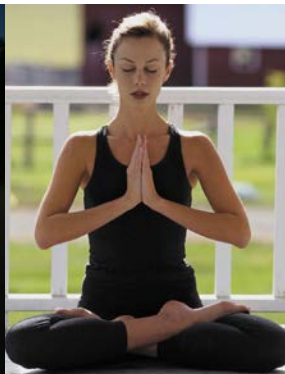


product branding

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 miigo



brand design language

empowering energy

The Miigo system of products is meant to decrease the inconvenience and costs of many aspects related to healthcare. We want the brand to give off a sense of freedom, friendliness, awakening, and the power to live your life as you wish – without the hindrance of intrusive medical devices and the inconvenience of multiple doctor and hospital visits.

the symbol

The symbol is inspired by the real-time monitoring ability found throughout the whole product system. The user has the ability to access their health information at anytime, so Miigo is always

The typeface of the logo is rounded, clean, and simple. It is very approachable and easy to implement onto a variety of different media. The colored dots over the two 'i's almost give the impression of two people, or friends. It also allows for distinguishability between the different products by changing the primary color.

turning and working for the user. This is where the inspiration for the growing dots came from. It gives the impression that the circle is both turning and growing infinitely.

brand standards

identity

The Miigo identity follows the brand standard color palette. The primary colors make up the main identity while each of the brand extensions has its own color for differentiation.



The color neutral logo variations can be used in any situation where a color-based logo is not an appropriate solution. For example, anything that will be purposely printed in black and white or if placed over a colorful image.

color palette

As a cohesive group, the colors of the system represent the upbeat, friendly, and full of “life” personality that the product has and promotes. The main color is turquoise, which means open communication and clarity of thought. A light shade of turquoise serves as an accent color.

Both together and individually, the colors are lively and approachable. The palette is gender

primary






| | |
|---|-------------------------------|
|  | C: 90, M: 0, Y: 47, K: 0 |
|  | C: 16, M: 0, Y: 15, K: 0 |
|  | C: 15, M: 15, Y: 15, K: 50 |



neutral and attractive to those in the age range of 20 - 50 years. Also, the colors are a progression through the color spectrum, echoing the progressive nature of miigo.

The set of neutrals balance the palette and will be used for typography and graphic elements throughout the brand designs.

secondary

| | | | |
|---|-------------------------------|---|-------------------------------|
|  | C: 33, M: 91, Y: 10, K: 21 |  | C: 0, M: 52, Y: 100, K: 0 |
|  | C: 10, M: 98, Y: 76, K: 0 |  | C: 51, M: 0, Y: 100, K: 11 |
|  | C: 35, M: 36, Y: 37, K: 70 |  | C: 5, M: 5, Y: 5, K: 20 |

brand extension identities

miigo *fit* miigo *dock*
miigo *plus* miigo *link*

miigo *fit* miigo *dock*
miigo *plus* miigo *link*

color neutral identity



type treatment

Main typeface:

Quicksand Bold

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
a b c d e f g h i j k l m n o p q r s t u v w x y z
1 2 3 4 5 6 7 8 9

Used for headlines, quotes, etc

Secondary typeface:

Helvetica Neue Light, 9 pt / 14 pt

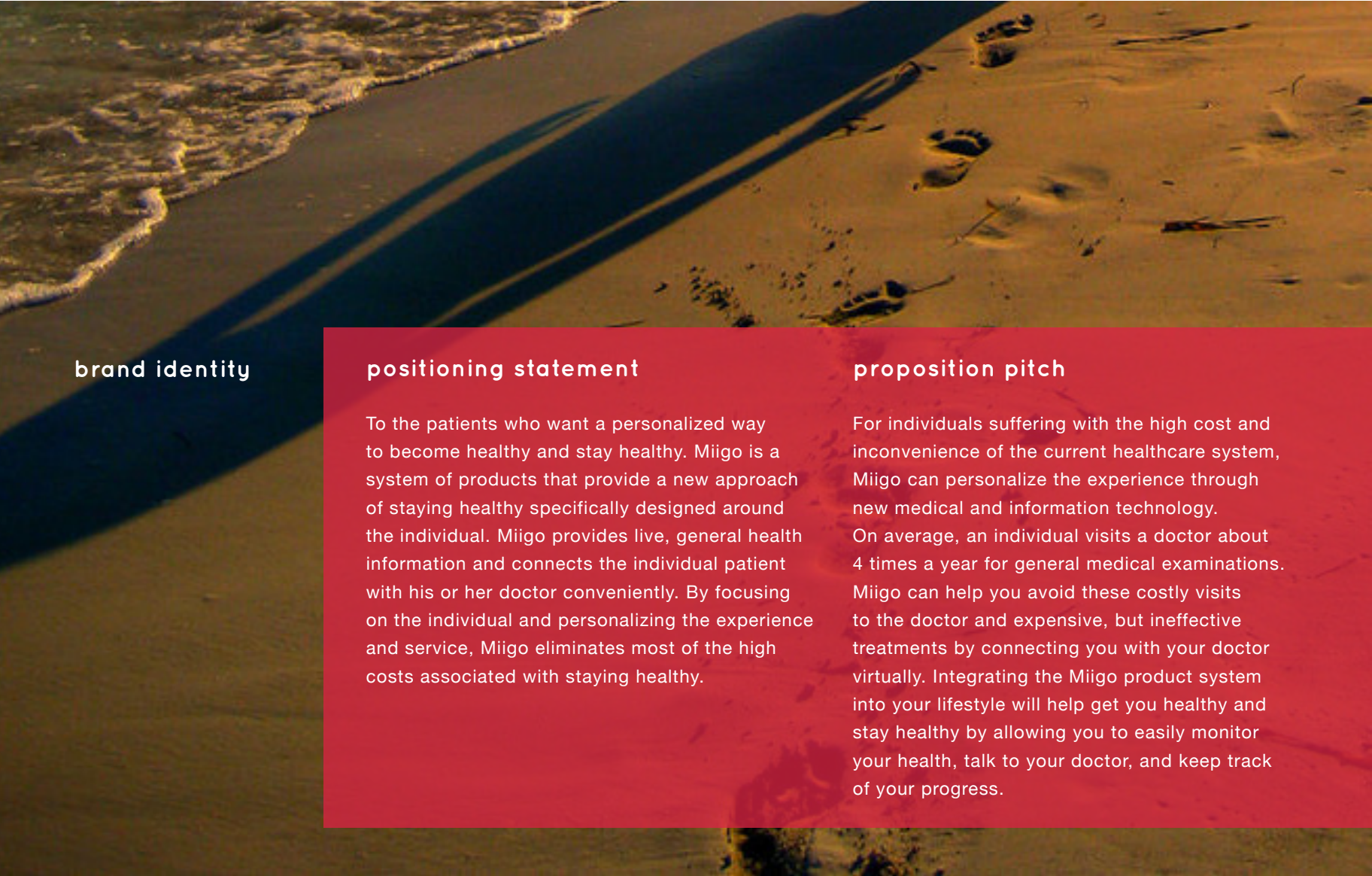
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
a b c d e f g h i j k l m n o p q r s t u v w x y z
1 2 3 4 5 6 7 8 9

Used for body text, charts, etc

clear space

The gray box surrounding the logo is the minimum amount of empty space required. This area should be free of any other logos, text, or images that the logo is not placed on top of.





brand identity

positioning statement

To the patients who want a personalized way to become healthy and stay healthy. Miigo is a system of products that provide a new approach of staying healthy specifically designed around the individual. Miigo provides live, general health information and connects the individual patient with his or her doctor conveniently. By focusing on the individual and personalizing the experience and service, Miigo eliminates most of the high costs associated with staying healthy.

proposition pitch

For individuals suffering with the high cost and inconvenience of the current healthcare system, Miigo can personalize the experience through new medical and information technology. On average, an individual visits a doctor about 4 times a year for general medical examinations. Miigo can help you avoid these costly visits to the doctor and expensive, but ineffective treatments by connecting you with your doctor virtually. Integrating the Miigo product system into your lifestyle will help get you healthy and stay healthy by allowing you to easily monitor your health, talk to your doctor, and keep track of your progress.

“health is a state of complete physical, mental and social well-being, and not merely the absence of disease or infirmity.”

verbal elements

Descriptor:
User-specific, portable healthcare and communication system

Positioning Tagline:
Convenient health, inspired by you.

Nomenclature:
Overall system – Miigo
Brand components – Miigo Fit, Miigo Plus, Miigo Dock, and Miigo Link

Voice/Tone:
Friendly, open communication, reliability

key features and benefits

1. Monitors general health factors
2. Monitors disease/condition-specific health factors
3. Diagnoses conditions or alerts users of potential risks for a condition
4. Drug delivery and treatment
5. Connects user to doctor
6. Connects doctor to user and user information
7. Improves portability and convenience of modern medical practices and routines



“there’s a real need, both from the standpoint of drug companies and society, to figure out how to tailor drugs to smaller populations.”

brand
benchmarking

summary

The brands listed here are companies that might potentially be competition for our company and products. This could be by specific products or services they offer, or the company in general.

In this section, we analyzed the visual identities of these companies in order to make sure we established our Miigo brand to be easily identifiable and distinguishable.



Intel-GE Care Innovations™ is aimed at being a catalyst for changing health care models. To do so, we create technology-based solutions that give people confidence to live independently.

SIEMENS

Siemens Healthcare is one of the first companies to bring together medical imaging and therapy, laboratory diagnostics, and healthcare IT solutions across the continuum of care – from prevention and early detection, to diagnosis, therapy and ongoing care.



Caring for the world, one person at a time... inspires and unites the people of Johnson & Johnson. Embraces research and science - bringing innovative ideas, products and services to advance the health and well-being of people.



Health Monitoring Systems collects and analyzes health-related data in real time via a Software-as-a-Service model. HMS is committed to improving healthcare by providing better information and tools to individuals and institutions.



Remote Medical International was founded on the principle that wilderness or ‘remote area’ care requires a unique skillset, techniques and experience. They work with you to develop real solutions that increase safety and reduce both loss-of-life and injury.



Today, PMC represents a broad spectrum of over 200 academic, industry, patient, provider and payer communities, as they seek to advance the understanding and adoption of personalized medicine concepts and products for the benefit of patients.

brand
benchmarking

company



overview

Friendly logotype with a lightly curved sans serif typeface. Warm blue and orange color combo.

Classic and comforting script type. White on a red background, although there are other variations.

Bold sans serif type in all caps; hard edges. Dark turquoise color. Professional.

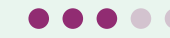
Main logo features capital letters surrounded by ellipses. Dark blue is primary, a tint of that color in the ellipse.

All caps acronym with angular type. Name is featured to the left. Color is a yellow-green color.

Blocky text featuring a medical cross symbol all contained within a black outlined box. Red and black.

personality

● friendly ● serious



form

● soft ● hard



color

● cool ● warm



typography

● heavy ● light



implementation

materials

Physical:

1. Packaging (for each product)
2. Posters
3. Billboards / Building sides
4. Brochures + Info Packet
5. Quick Info Cards
6. Point-of-Purchase Kiosk + Display
7. Brand Collateral
 - Tshirt, pen, etc

Digital:

1. Website
2. Computer Application (Miigo Link)
3. Phone App
4. Web Banner
5. Facebook & Twitter Page
6. Video



billboard

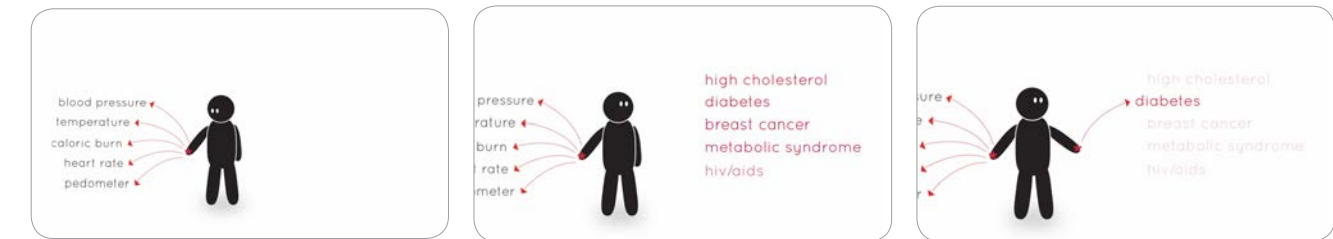
miigo link interface



miigo website

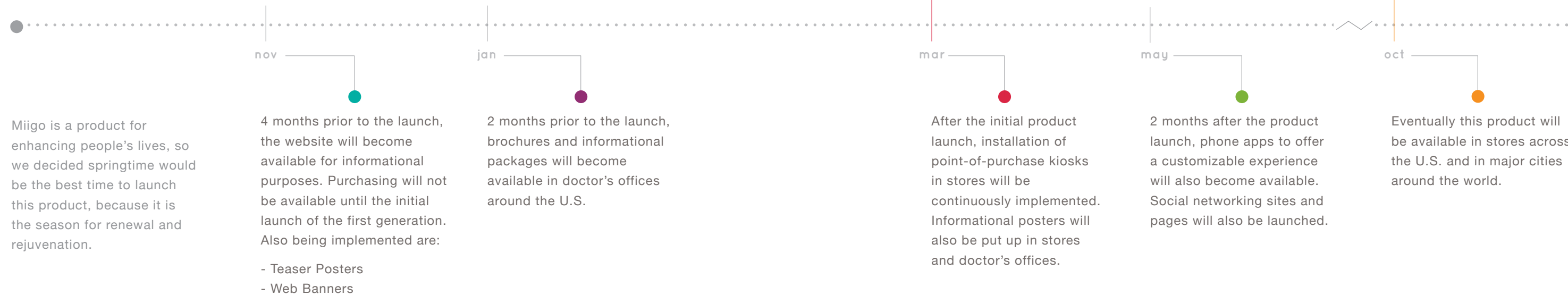


screen captures from video





product launch timeline





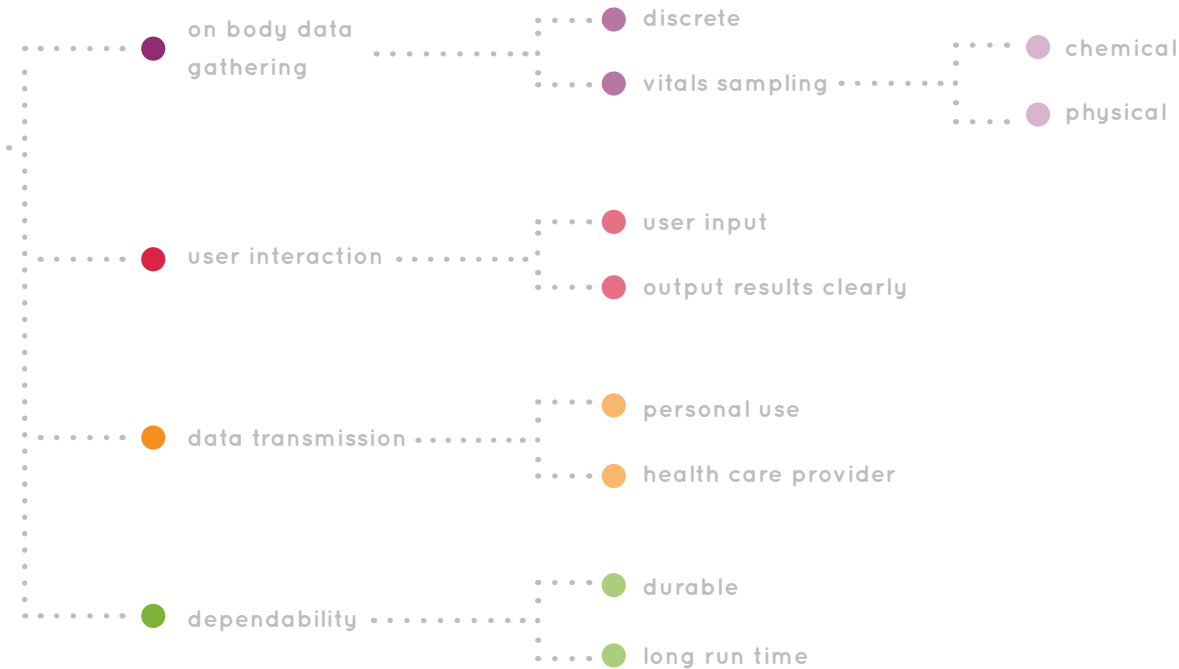
product engineering

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function tree



miigo fit
real-time health monitoring system

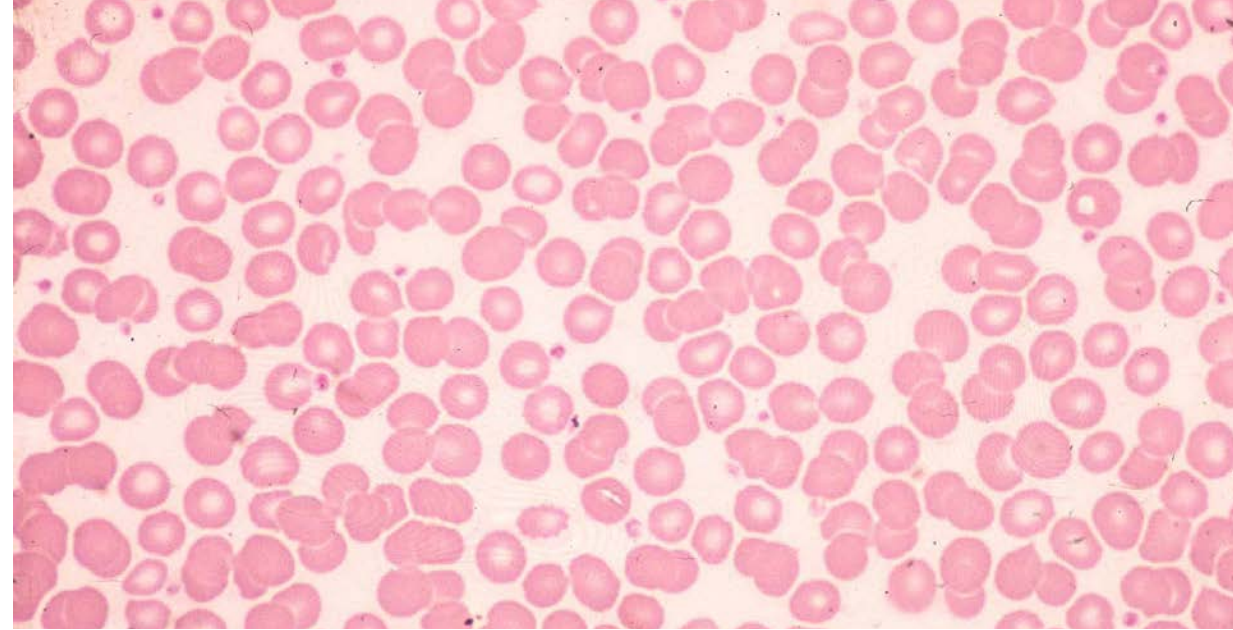


morphological chart

product sub-function

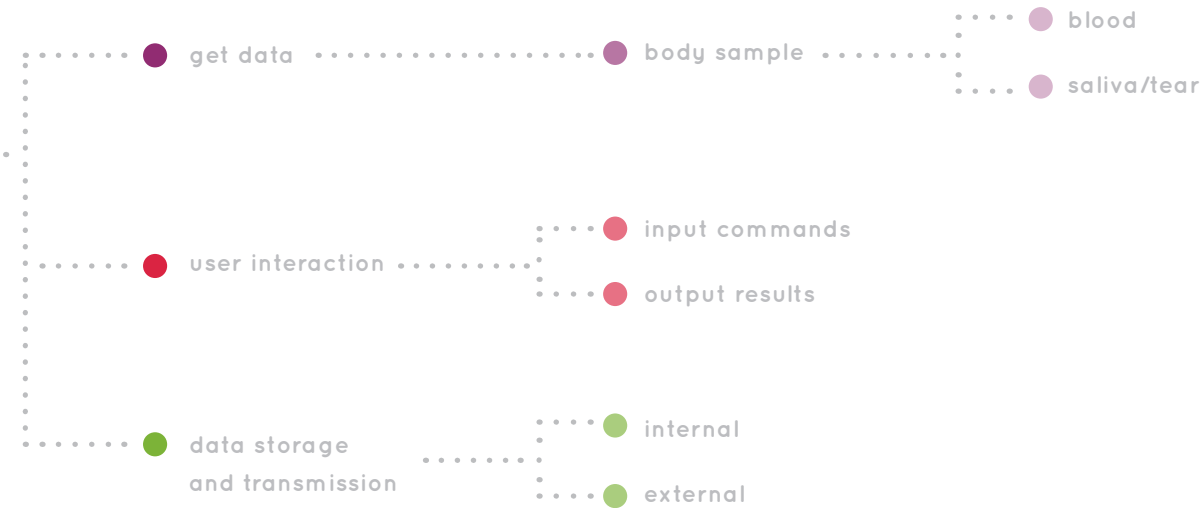
| | 1 | 2 | 3 |
|--|--|---|--|
| discrete | Thin silicon patch with integrated microprocessors | Disguised bracelet / watch worn on arm with embedded data capturing devices | Embedded into clothing article worn regularly, ie shoes |
| chemical data | Microneedle blood sample | Blood sampling via cannula | Breath sample |
| physical data | Heart rate / blood pressure via onboard sensors | Body temp from skin temp | Skin perspiration |
| user input | Touchscreen device | Voice command | Pre programmed inputs from secondary device |
| output results clearly | On-screen readout of data results | Voice output to user | Color changing to indicate overall health status |
| personal use data transmission | Results sent to personal cell phone for storage and long term trending | Daily wireless syncing with personal computer | --- |
| health care provider data transmission | Daily syncing with personal computer and results sent via application | Real-time link with cell phone for live updates with provider | Real-time link with cell phone for scheduled updates with provider |
| durable | Encased from the elements in silicon | Water resistant with silicon | Shock resistant by rigid structure bonding microprocessors and frame |
| long run time | High-capacity lithium ion batteries | Photo voltaic cells on device to recharge batteries | Charging system, capturing energy from motion of body |

function tree



miigo dock

gathering biomarker data from users



morphological chart

product sub-function

● blood fluid sample

● saliva / tear fluid sample

● input commands

● output information

● internal storage and transmission

● external storage and transmission

| | 1 | 2 | 3 |
|-------------------------------------|--|--|--|
| ● blood fluid sample | Needle and syringe | Microneedles | Pin prick device |
| ● saliva / tear fluid sample | Cheek swab | Tongue lick strip | Micro tear collector |
| ● input commands | Hard tactile buttons | Touchscreen LCD | Voice commands |
| ● output information | Visual results via LCD | Results spoken to user from device | Device interfaced with computer and results seen from computer |
| ● internal storage and transmission | Internal hard drive storage with hardwire to internet connection | Internal hard drive storage with wireless internet connection | --- |
| ● external storage and transmission | Device interfaced with computer and results stored there | Direct internet connection to internet with online storage (cloud storage) | --- |

specification tables

miigo fit

real-time health monitoring system

geometry

- lcd screen width <2 in
- lcd screen length <4 in
- design depth <.3 in
- device water/sweat resistant >1 hour of contact

materials

- adhesive patch 7 day use
- silicon adhesive operating temp: 20F - 120F
- microneedle penetration <.005 in

testing

- battery required for testing last 1 month per charge
- on board storage >3 weeks

communication

- interface between device and computer/phone: bluetooth protocol
- sturdy modular clip mechanism up to 10 lbs

key:

- design demand
- design wish

miigo dock

gathering biomarker data from users

geometry

- lcd screen with touch input
- screen size of 6" with resolution > 800 x 400
- footprint less than 12" x 12"

materials

- structure and skin composed of 50% recycled materials
- sample strip holder to have silicon sealant for airtight storage
- sampling strips composed of 50% recycled materials

testing

- microneedles spread over area no greater than .0625 in²
- autoantibody resolution > 100,000 from one sample
- extraction blood sample: 1 micro liter

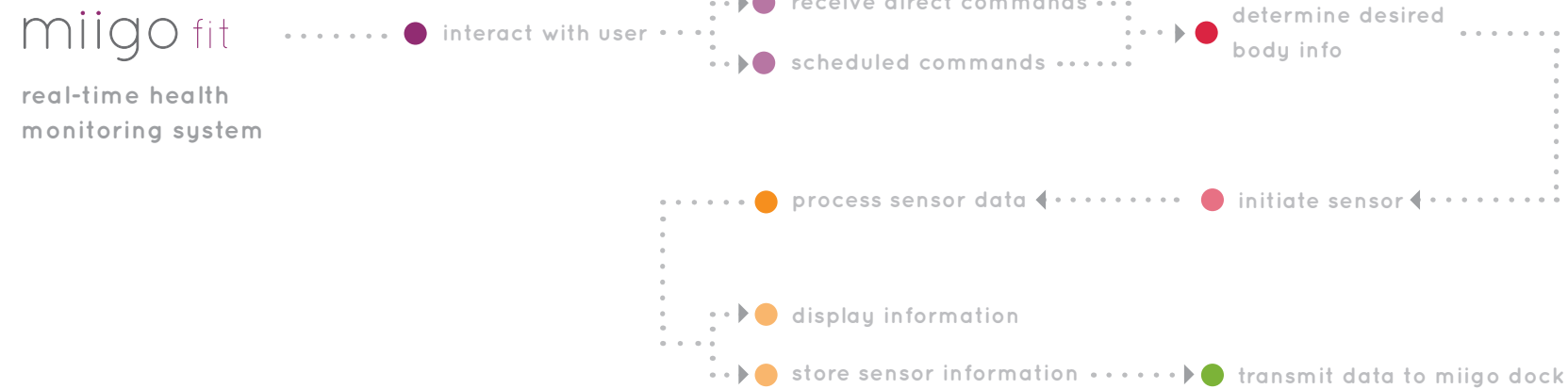
communication

- interface between device and computer: usb
- interface between device and computer: bluetooth protocol

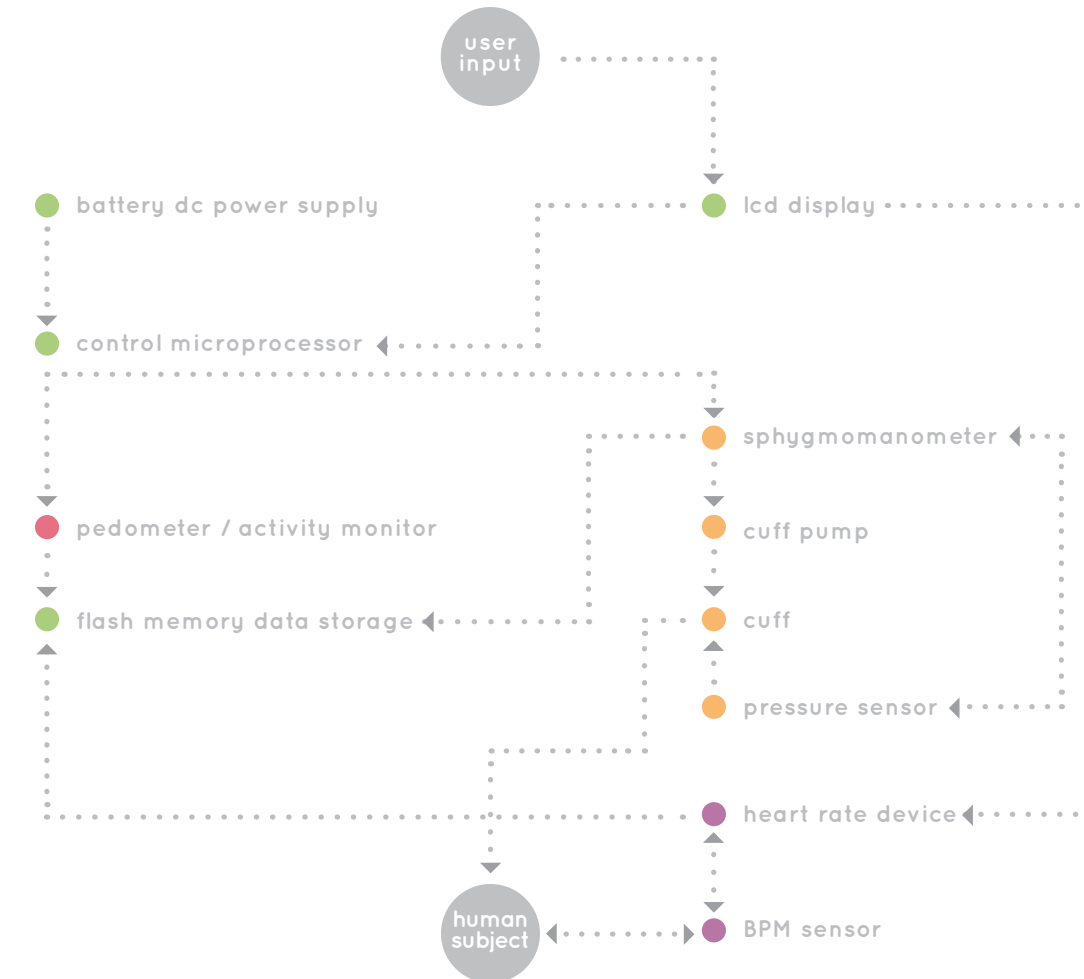
product architecture



functional elements block diagram



device interactions



physical elements & functions

- heart rate sensor**
Provide heart rate BPM
- sphygmomanometer**
Provide blood pressure
- pedometer**
Provide physical activity data
- microneedle patch**
Drug delivery system
- red & infrared LED's**
Provide blood oxygenation and blood glucose – attachment
- battery**
Provide system energy
- flexible LCD screen**
Display information to user
- SIMBAS (self-powered integrated microfluidic blood analysis system)**
Biomarker detection – attachment

bill of materials

| component | quantity | description |
|-----------------|----------|---|
| Glass Piece | 1 | Thin Gorilla Glass - Scratch resistant LCD screen protector |
| Outer Casing | 1 | Injection molded Silicon outer product housing |
| Inner Mesh | 1 | Expandable inner bracelet mesh, blown film manufacturing. |
| LCD | 1 | Flexible LCD display screen for vital information |
| PCB | 1 | Printed Circuit Board. Processing center for Miigo Fit |
| Battery | 1 | 3V Micro Battery to provide system potential, rechargeable Li-Poly |
| Bluetooth | 2 | Bluetooth micro receiver and transmitter. Link between devices |
| Pedometer | 1 | Micro Pedometer, measure physical activity |
| Heart Rate | 1 | Capacitive metal plates for heart rate measuring |
| Heart Sensor | 1 | Micro heart rate monitoring device. |
| Pump | 1 | Micro air pump, inflates inner mesh to provide blood pressure |
| BP Sensor | 1 | Micro pressure transducer to measure heart rate |
| Tubing | 1 | Extruded silicon tubing for pump pressurization system |
| Storage | 1 | Micro SD high capacity 512mb storage |
| Glucose Monitor | 1 | Micro needle blood glucose monitoring device |
| Pod | 1 | Removable Miigo Plus attachment pod. |
| LED | 1 | Infrared LED system, measure blood oxygen levels |
| SIMBAS | 1 | Self-Powered Integrated Microfluidic Blood Analysis attachment device |





business & marketing

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industry information

overview

About 595,800 establishments make up the healthcare industry making it an extremely large and diverse industry. About 76 percent of healthcare establishments are offices of physicians, dentists, or other health practitioners; therefore targeting those segments will help growth prospects.

The healthcare industry includes establishments ranging from small-town private practices of physicians who employ only one medical assistant to busy inner-city hospitals that provide thousands of diverse jobs. It is important to note that the various segments are interdependent and rely on each for different services and materials.

Miigo will provide value and to the following industry segments:

hospitals

Hospitals provide complete medical care, ranging from diagnostic services, to surgery, to continuous nursing care. The Miigo product system will be leveraged to make bedside patient care more efficient and accurate.

nursing and residential care facilities

Nursing care facilities provide inpatient nursing, rehabilitation, and health-related personal care to those who need continuous nursing care, but do not require hospital services. Miigo will provide value to this segment by eliminating tedious, painful, and costly methods of tracking patient health and allowing nurses and facilities in general to be more efficient.

home healthcare services

Skilled nursing or medical care is sometimes provided in the home, under a physician's supervision. Home healthcare services are provided mainly to the elderly. The development of in-home medical technologies, substantial cost savings, and patients' preference for care in the home have helped change this once-small segment of the industry into one of the fastest growing healthcare services. Miigo will serve to meet these needs.

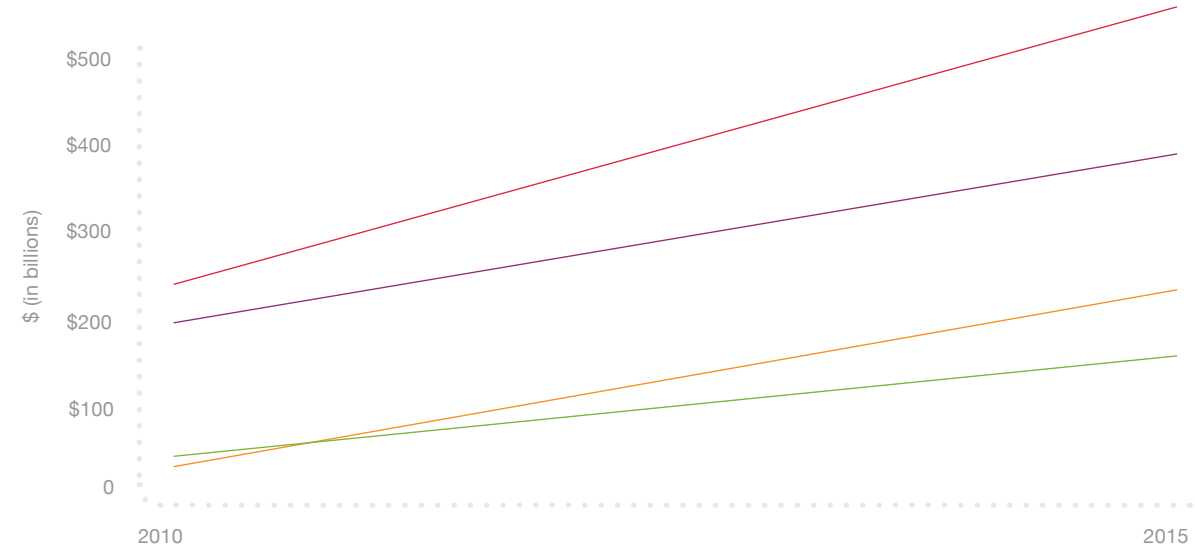
trends

Technological advances, clinical developments, advances in information technology, and an emphasis on cost containment are also shaping the future of the healthcare industry. Miigo has been developed to successfully meet these changing demands to ensure long-term success.

physicians' offices

About 36 percent of all healthcare establishments fall into this industry segment. Physicians and surgeons practice privately or in groups of practitioners who have the same or different specialties. This will be one of the most important segments as Miigo has the potential to provide the most value by connecting the physician and his/her patient virtually effectively saving on unnecessary costs, eliminating inaccurate information, and expediting information sharing.

overview



overall personalized medicine: \$232 billion to \$452 billion

core diagnostic and therapeutic segment: \$24 billion to \$42 billion

personalized medical care: \$10 billion to \$100 billion

related nutrition and wellness: \$196 billion to \$290 billion

The market for a more personalized approach to health and wellness will grow to as much as \$452 billion by 2015. Miigo will compete in the core diagnostic and therapeutic segment as well as the personalized medical care segment by introducing a new medical combination device that also has powerful health information technology capabilities. The core diagnostic and therapeutic segment of the market - comprised primarily of pharmaceutical, medical device, and

diagnostics companies - is estimated at \$24 billion and is expected to grow by 10 percent annually, reaching \$42 billion by 2015. The personalized medical care portion of the market - including telemedicine, health information technology and disease management services offered by traditional health and technology companies - is estimated at \$4 billion to \$12 billion and could grow tenfold to over \$100 billion by 2015 if telemedicine takes off.



competitors

Personalized medicine is a disruptive concept that can benefit the pharmaceutical and biotech industries as a whole. Personalized medicine has potential to lower the cost, time, and risk inherent in FDA marketing approvals, increase safety and efficacy of marketed drugs, and increase consumer confidence in the industry. However, as with any disruptive innovation within an industry, the onset of personalized medicine has the potential to create winners and losers in healthcare. The early advantage in the pharmaceutical and biotech industries goes

to companies that have competencies in both drug and diagnostic development, since personalized medicines require companion diagnostics to guide their prescription. The development and prescription of personalized medicine requires genetic analysis technologies that can diagnose or characterize patients that are most appropriate for a given medication. Most of the market competition is currently in early stages of research and development and thus it will take some time for true leaders to emerge within the market.

market competition

| | targeted market | targeted condition | pricing | availability | accessibility | simplicity | accuracy | comprehensiveness |
|------------------------|--|--|---|--|--|--|---|---|
| | <ul style="list-style-type: none"> ● Healthy ● At Risk ● Affected | <ul style="list-style-type: none"> ● Obesity ● Diabetes ● Elderly | <ul style="list-style-type: none"> ● <\$1000 ● \$1000 - \$10000 ● >\$10000 | <ul style="list-style-type: none"> ● Available ● Not Available | <ul style="list-style-type: none"> ● Public ● Intermediary | <ul style="list-style-type: none"> ● User-Friendly ● Complicated | <ul style="list-style-type: none"> ● Low Error Risk ● High Error Risk | <ul style="list-style-type: none"> ● Detailed ● Limited |
| affymetrix | ● Healthy ● Affected | ● Obesity ● Diabetes | ● \$1000 - \$10000 | ● Available | ● Public | ● Complicated | ● High Error Risk | ● Detailed |
| amgen | ● Healthy ● Affected | | ● \$1000 - \$10000 | ● Available | ● Public | ● Complicated | ● High Error Risk | ● Limited |
| astrazeneca | ● Affected | | ● \$1000 - \$10000 | ● Available | ● Intermediary | ● Complicated | ● High Error Risk | ● Limited |
| celera genomics | ● Healthy ● At Risk ● Affected | ● Obesity | ● <\$1000 | ● Available | ● Intermediary | ● Complicated | ● High Error Risk | ● Limited |
| celidex therapeutics | ● Healthy ● At Risk ● Affected | ● Obesity ● Diabetes | ● \$1000 - \$10000 | ● Available | ● Intermediary | ● Complicated | ● Low Error Risk | ● Detailed |
| glaxosmithkline | ● At Risk ● Affected | ● Elderly | ● \$1000 - \$10000 | ● Available | ● Intermediary | ● Complicated | ● High Error Risk | ● Detailed |
| helicos biosciences | ● At Risk ● Affected | ● Obesity ● Diabetes ● Elderly | ● <\$1000 | ● Available | ● Intermediary | ● Complicated | ● Low Error Risk | ● Detailed |
| life technologies | | | ● >\$10000 | ● Available | ● Intermediary | ● Complicated | ● Low Error Risk | ● Detailed |
| medtronic | ● Healthy ● At Risk ● Affected | | ● \$1000 - \$10000 | ● Available | ● Intermediary | ● User-Friendly | ● High Error Risk | ● Limited |
| complete genomics | ● At Risk ● Affected | ● Obesity ● Diabetes ● Elderly | ● >\$10000 | ● Available | ● Intermediary | ● Complicated | ● Low Error Risk | ● Detailed |
| generation health | ● Healthy ● At Risk ● Affected | ● Obesity ● Diabetes ● Elderly | ● <\$1000 | ● Available | ● Public | | ● High Error Risk | ● Limited |
| integrated diagnostics | ● At Risk ● Affected | ● Obesity ● Diabetes | ● \$1000 - \$10000 | ● Not Available | ● Intermediary | ● Complicated | ● Low Error Risk | ● Detailed |
| knome | ● Healthy ● At Risk ● Affected | ● Obesity ● Diabetes | ● >\$10000 | ● Not Available | ● Intermediary | ● Complicated | ● Low Error Risk | ● Detailed |
| metabolon | ● At Risk | ● Obesity | ● \$1000 - \$10000 | ● Available | ● Intermediary | ● Complicated | ● High Error Risk | ● Detailed |
| navigenics | ● Healthy ● At Risk ● Affected | ● Obesity ● Diabetes ● Elderly | ● <\$1000 | ● Available | ● Public | ● User-Friendly | ● High Error Risk | ● Detailed |
| pacific biosciences | ● At Risk ● Affected | | ● >\$10000 | ● Not Available | ● Intermediary | ● Complicated | ● Low Error Risk | ● Detailed |
| proventys | ● At Risk ● Affected | ● Obesity ● Diabetes ● Elderly | ● <\$1000 | ● Not Available | ● Intermediary | ● Complicated | ● Low Error Risk | ● Limited |
| 23andme | ● Healthy ● At Risk ● Affected | ● Obesity ● Diabetes ● Elderly | ● <\$1000 | ● Available | ● Public | ● User-Friendly | ● High Error Risk | ● Detailed |



marketing strategy

overview

The marketing strategy is a process that will allow the team to concentrate its limited resources on the greatest opportunities to increase sales and achieve a sustainable competitive advantage. The marketing strategy will be centered on the key concept that customer satisfaction is the main goal. The marketing strategy outlined earlier is substantiated by the analysis of a variety

of internal factors such as the marketing mix and strategic constraints as well as external environmental factors including customer analysis, competitor analysis, target market analysis, and an evaluation of any elements of the technological, economic, cultural, and political/legal environment likely to impact success.

company information

Miigo will leverage the capabilities of Dow Corning, the project sponsor, to meet the needs of the stakeholders as well as to differentiate itself from its competitors.

expansive line of silicon products

Dow Corning has one of the most expansive lines of silicon products in the healthcare industry which will allow Miigo to be on the leading edge of technology and development.

extensive supply chain infrastructure

Miigo will utilize Dow Corning's extensive supply chain infrastructure to lower procurement costs around the world that will help establish a competitive price and greater potential for international growth.

emphasis on innovation

Dow Corning has emphasized innovation within its corporate strategy as is reflected by their mission statement, corporate values, and various corporate partnerships and initiatives. Miigo will always be one step ahead of the competition by utilizing new innovations earlier in the value chain.





“he who has health, has hope.
he who has hope, has everything.”

partnerships

Meaningful partnerships are the foundation for success. Partnerships are what enable many companies to make continuous improvements. By sharing with others, the team can direct resources and capabilities to projects considered to be the most important. In the new knowledge economy, the principles of business strategy are being transformed. Instead of a focus on physical assets and economies of scale, the drivers of success reside in connectivity and intangibles. Businesses increasingly need to develop and manage complex ecologies or organizations around themselves so as to succeed. The selection of strategic partners with whom to collaborate is now becoming a life or death issue for most firms. The team will leverage the advantages gained from partnerships to maximize the success of the product system.

co-branding:

Educating the public on personalized medicine is one of the critical aspects that will lead to its ultimate success or failure. The product will earn credibility by partnering with universities who are taking the initiative in personalized medicine and gaining their support such as Duke, Harvard, and the new medical school being constructed in Arizona to teach the field of personalized medicine.

funding:

Meeting the needs of the stakeholders and solving the problems presented by personalized medicine can only be done with adequate funding and support from both government and private sources. By partnering with organizations such as the National Science Foundation and Partnerships for International Research and Education, the team will acquire the necessary funding and support to pursue its product goals.

technology sharing:

A very high level of collaboration involving scientists and specialists from varying disciplines is required to integrate and make sense of all the information involved in personalized medicine. The team will consider partnering with key enablers of personalized medicine such as The Harvard Partners Center for Genetics and Genomics as well as The Laboratory for Personalized Medicine. These partnerships will help keep technology current and potentially further develop the products.

Supply chain systems within the healthcare industry are famous for their outdated, inefficient, and costly processes. Relative to other industries, supply chain has been overlooked within healthcare because of difficulties presented by regulation, cost, and the fact that opportunities for cost improvement can still be found in other operations. However, the strategy for the Miigo product system is to leverage supply chain as one of the key differentiating factors that will separate it from competitors.

The current supply chain environment is heavily regulated within healthcare, especially within medical device markets. The FDA regulations for medical devices define the requirements for supplier selection, management, and control. ISO 13485 includes similar requirements. In February 2009, the Global Harmonization Task Force (GHTF) released a guidance document on controlling products and services from suppliers. This guidance document has become the global de facto standard for supplier management. The regulations, however, will only serve as the foundation for the Miigo supply chain strategy.

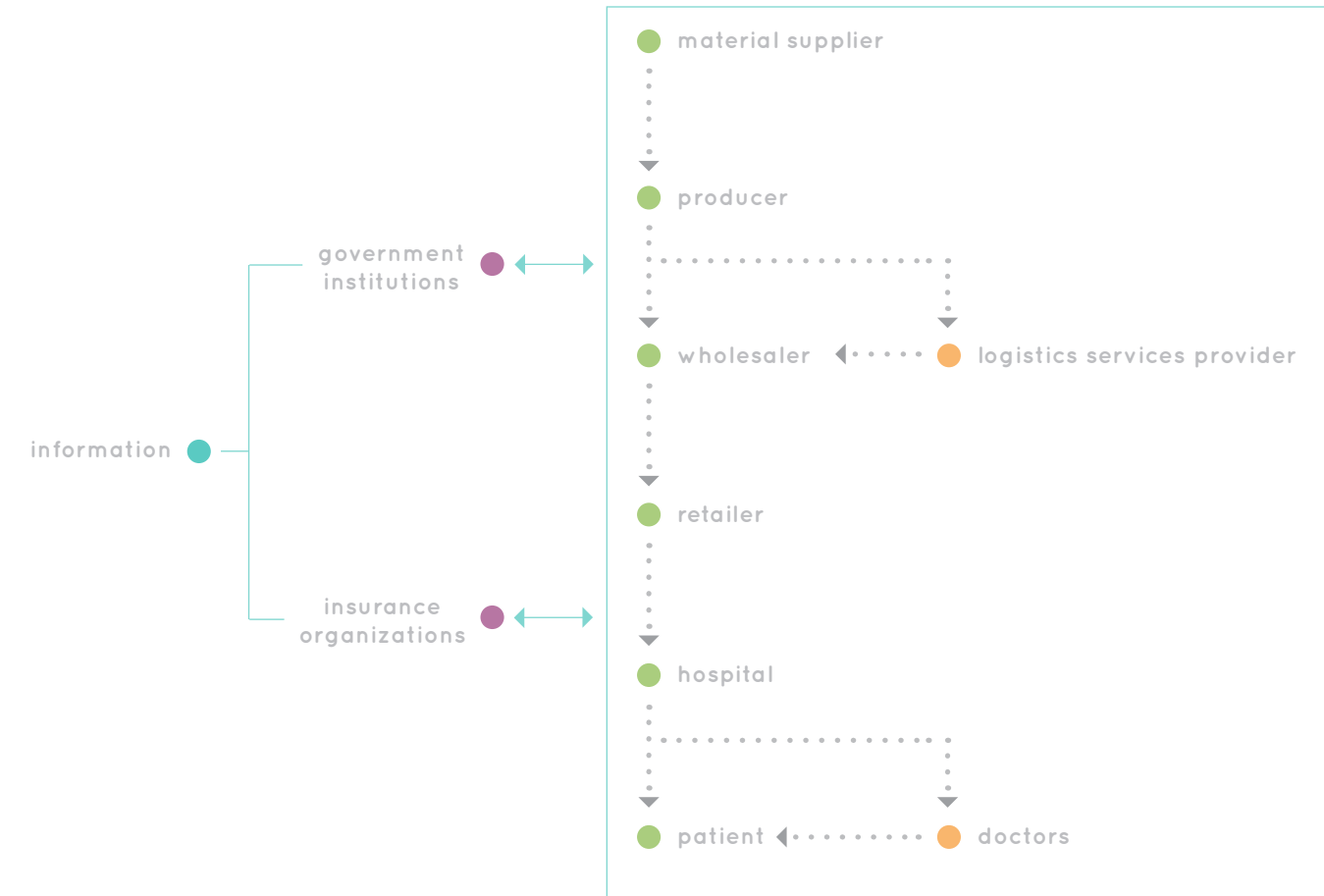
By analyzing current supply chain trends in healthcare, the Miigo system will extract higher value from its supply chain operations by adapting

to the conditions. This year's projection of the top supply chain trends for the U.S. health care sector highlights the challenges posed by the changing relationships between suppliers, physicians and hospitals. The two biggest trends facing the Miigo product system are:

Continued growth in overall supply chain costs. The Consumer Price Index for materials will continue to grow. From a supplier's perspective there will be few changes attributable to the overall difficulties faced by the economy. From the hospital perspective there will be increased difficulties related to the inability of patients to pay for care.

Increasing focus on supply chain costs from payers. This awareness will lead to changes in reimbursement structure. Recognizing new levels of supply chain scrutiny, hospitals will develop new strategies regarding supply chain costing.

The focus is on providing maximum value to the end-user of the Miigo product system. However, there are many steps within the supply chain to get Miigo into the hands of the consumer and then to provide an opportunity to recycle/re-use the product once it has been discarded. The various vendors that will be involved in the process include the following:



preliminary financial plan

overview

The Miigo Product system and its success will be heavily reliant on the base Fit model. The additional secondary devices will serve as supplements to the base model. Therefore, the outlined preliminary financial plan is focused on the Miigo Fit product and not the supporting products. The forecasts are based on patterns in the medical device industry, historical competitor cash flow patterns, as well as assumed trends and growth.

s-factors

Miigo Fit’s financial plan stems from the fact that successful payback in medical devices rests on achieving innovation based on the four “S-Factors”.

1. Start-up costs determine how large a financial down payment the innovation entails. Start-up costs are heavily dictated by available technology and materials.

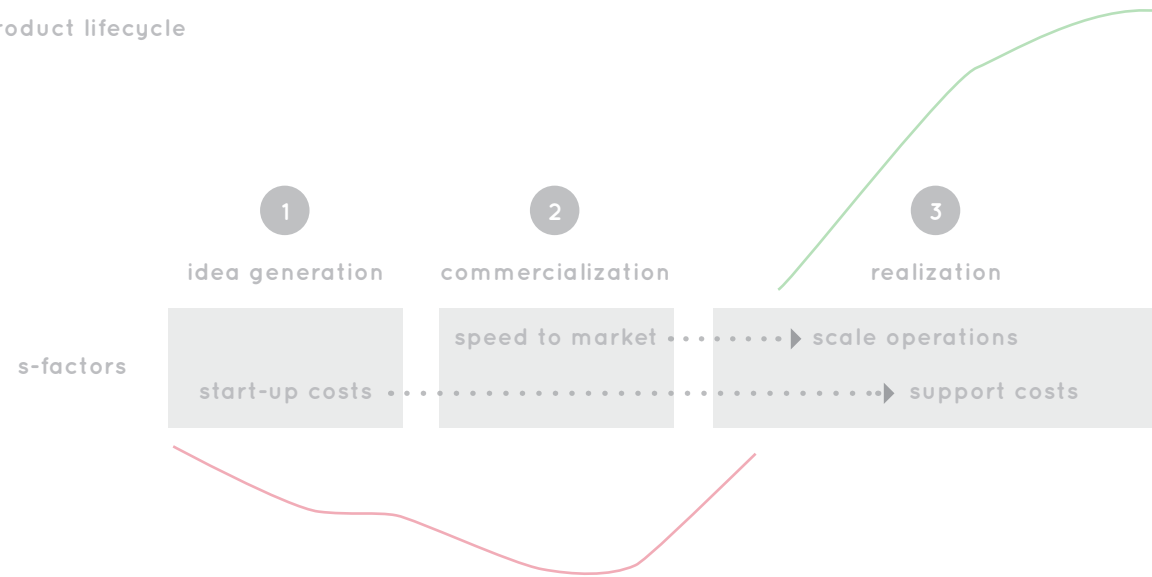
2. Speed-to-market dictates how quickly companies begin to register sales for their new product ideas. Medical devices generally hit the market quickly— often as little as 1-3 years.

3. Scale operations imply that the idea has passed the initial build phase and cash flows have reached an equilibrium state. For device companies, this may be a short-lived cycle as competitors continue to churn out incremental innovations that shorten product life spans.

4. Support costs include COGS, sales & marketing support, G&A and any ongoing R&D requirements. The hightouch sales model used by most device companies engenders loyalty but causes support costs to skyrocket.

The device industry has indeed shown itself to be a deft manager of the 4 SFactors, evidenced by the sector’s very strong returns.

product lifecycle



“the promise of saving billions of dollars by not prescribing the wrong drugs to the wrong people could make a compelling case for shift toward personalized medicine.”



| | | | |
|------------------------------------|---|---------------------|-----------------|
| sales | | | |
| unit price | \$500 | \$500 | \$500 |
| units sold | 10,000 | 11,000 | 12,100 |
| revenue | \$5,000,000 | \$5,500,000 | \$6,050,000 |
| growth | assumed to be 10% per year based on historical data and market trends | | |
| cost of goods sold | | | |
| manufacturing | \$4,000,000 | \$4,290,00 | \$4,658,500 |
| logistics/distribution | \$718,200 | \$415,000 | \$567,000 |
| other cogs expenses* | \$489,600 | \$307,400 | \$236,000 |
| total cogs | \$5,207,800 | \$5,013,200 | \$5,461,500 |
| gross profit | (-\$207,800) | \$486,000 | \$588,500 |
| general and admin. expenses | | | |
| r&d | \$850,000 | \$325,000 | \$125,000 |
| salary expenses* | \$270,000 | \$270,000 | \$270,000 |
| burden | \$61,560 | \$61,560 | \$61,560 |
| other ga expenses* | \$71,200 | \$71,200 | \$71,200 |
| total | \$1,252,760 | \$727,760 | \$527,760 |
| forecasted net income | (-\$1,460,560) | (-\$240,960) | \$60,740 |

*Other COGS expenses include:

Customs, catalogs, general marketing materials, and web design and maintenance.

*Salary expenses include:

A graphic designer, two engineers, an industrial designer, and a business manager.

*Other GA expenses include:

Accounting, allocated rent, travel, insurance, professional services, telephones, office supplies, office equipment.



biomimicry

88 Overview

90 Solutions



biomimicry

overview

InnovationSpace is committed to exploring new methodologies for sustainable product innovation. Biomimicry explores the materials, processes and functions of nature for clues to solving design and engineering problems. This new area of study can help designers and engineers to create innovative solutions that will minimize the environmental impact of new products.

Life's Principles are used to generate solutions to design, business and engineering problems and to evaluate their sustainability.

The goal of InnovationSpace is to develop a deployable methodology for using biomimicry in academic and business settings.

Processes and communicates intuitive and accurate information

- Easy to understand
- Simple System
- Intuitive
- Accurate
- Fast Processing/analysis
- Real-time feedback
- Reliable
- User-interface is user friendly
- Easy to read display
- Comprehensive data analysis
- Measures health factors
- Minimizes stress

Physical dexterity is strong

- Resists damage
- Resists water
- Resists wear
- Long battery life
- Doesn't overheat
- Appears hygienic
- Anti-microbial
- Safe
- Efficient
- Doesn't leak

Networking for efficient and effective product distribution

- Marketable
- Healthcare endorsements
- Institution or individual customers
- Makes a profit
- Minimizes shipping volume
- Minimizes shipping distance
- Minimizes number of suppliers

Device is physically comfortable and uses noninvasive transdermal penetration

- Comfortable
- Non-invasive
- Painless
- Doesn't cause irritation
- Safe raw materials
- Aesthetically pleasing
- Convenient
- Sustainable
- Ergonomic
- Self-functioning
- Lightweight
- Dexterity

Physically easy to manipulate

- Easy to add/remove components
- Enhances user identity
- Customizable
- Administers medicine accurately
- Easy to add/remove medicine/pharmaceutical drugs
- Gets you in contact with doctor
- Simple/intuitive controls
- Easy to clean
- Cohesive system
- Advises the user of emergencies
- Detects disease risks
- Easy to operate controls
- Life-saving, life-changing
- Works with most ages/users

Service is fully supported

- Repair possibility (warranties)
- Technical support
- Service support
- Medical support

biomimicry

In order to address both of the Life's Principles, we have developed two different packaging methods for our product that fit the needs of the user for the shelf life and biodegradable properties of each material. Both solutions fit well within both of the Life's Principles seeing as they address manufacturing issues in the creation of the material and recyclability of the materials when the need for the product's packaging diminishes.

refined function:

how does nature create "products" and "materials" while leaving little to no waste or by-product behind?

life's principles:

optimizes rather than maximizes:

recycles all materials

benign manufacturing:

life friendly materials



solutions

short-term packaging

The first user need is for consumers who are purchasing the product in the store. The packaging really only needs to last from the point in which production is finished, to the point in which the user transports it from the store into their home. After that, the packaging is of no particular use to the customer. The idea is that this packaging can be made of a molded

fibre composite material called AgroResin. The material is made with many different kinds of by-products from farming, which otherwise would have been incinerated. After the user has unpacked their new Miigo products, if they have no other use for the material, they can recycle the packaging material as if they would any other paper product.



long-term packaging

The second user need is for patients who are given the products from a doctor to use for a given amount of time, rather than going out to the store and buying it for themselves. Since the product needs to be transported back and forth between locations several times, it needs to remain very sturdy during the lifetime of the product. In this case, the packaging will

keep the same design as the store packaging, however it will be made with a plastic mixed with Eco-One, an organic additive that enhances the biodegradation process through a series of chemical and biological processes when disposed of in a biologically active landfill. This is under the assumption the packaging has sustained its maximum lifetime and can provide no further use.

eco one®

AgroResin®
Bonding with Nature



solutions

packaging logistics

Packaging for bundled products will also serve as a storage unit and carrying case. Bundled products will be primarily sold to physicians who will in turn allow patients to use the device for limited periods of time. The product will remain in the packaging as it is being stored awaiting patient demand, and when the patient 'rents' it from the physician, the packaging will serve as a carrying case for the products.

packaging form

The form of the product and packaging will fit the distribution functions to eliminate unnecessary costs and wastes resulting from unused products. Specifically, the product system will be shipped as a whole only to centralized locations (i.e. hospitals). On the other hand, the Miigo Fit and plus units will be sold on an individual basis directly to consumers reaching a broader market while avoiding the costs associated with many shipments of large and heavy products.

shipping

Shipping strategy will be based on a two-model approach. Rather than maximizing product distribution by utilizing the same shipping method for products that vary in size, shape, and weight; products will be shipped as bundled packages to a select few locations (doctor's offices, hospitals) or products will be shipped as small, lighter, individual packages to retail outlets (Walgreens, CVS) or directly to customer homes.



thank you

FIGMENT
EFFECT 
imagination brought to life

