



ReWire

BUSINESS PLAN

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Brenden Faherty | Shirli Samara

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FAST FACTS

Founded: 2019

Headquarters: Binghamton, NY

Founders: Center for Technology and Innovation (TechWorks)

Target Audience: Severe Stroke Patients and Physical Therapists

QUICK DESCRIPTION

The Center for Technology and Innovation is a Binghamton based technology company. We have focused on designing breakthrough technology to help stroke patients recover full mobility through engaging video games. ReWire is a video game product challenging patients to rebuild brain circuitry for movement of their affected arms and hands.

OUR MISSION

Provide a product and service to individuals who have suffered from severe strokes in an effort to help them regain mobility in their limbs and independence through the power of convenient technology.

OUR VISION

Improve the quality of life for our customers, and become the leading provider of therapeutic video games to severe stroke patients on a global scale.



EXECUTIVE SUMMARY

TechWorks goal is to continue developing ReWire, a video game designed to redevelop stroke-affected motor functions through the repetitive use of impaired limbs. This constant physical therapy encourages neuroplasticity, allowing for the brain to remodel itself after injury through the creation of new nerve cell connections.

ReWire has the potential to change the lives of those affected by severe strokes, ultimately making them more independent and aid physical therapists and patient families in helping their loved one gain a better quality of life.

With the successful communication between our Physical Therapist Team, Management Information Systems Team, and Computer Science Team, we hope to expand upon the current iteration of the game to ensure that it provides a novel outlet for independent rehabilitation.

ReWire is currently seeking a partnership with Shirley Ryan Ability Lab in Chicago. ReWire is willing to share 80% of the profits gained with their partner or have the TechWorks name cited for donations within each product. With this partnership, ReWire and Shirley Ryan Ability Lab will be able to provide both a product and a service to patients, their families, and their physical therapists.



TEAM OVERVIEW

Shirli Samara

Shirli is currently a graduate student at Binghamton University in the One-Year Master of Business Administration program with a focus on Healthcare, concluding her studies in May of 2020. She received her Bachelor of Science in Biochemistry in December of 2018 in conjunction with the Pre-Health concentration. Shirli's interests lie within the field of healthcare administration and she looks forward to learning more about the intricacies of administrative work that goes into achieving high-quality patient care. As a current Research/Teaching Assistant for the Healthcare Operations and Analytics course, Shirli is responsible for conducting literature reviews, comparing America's healthcare systems to other countries, including Singapore and Canada, in order to identify gaps in the system and determine potential solutions to increase the quality of patient care. Furthermore, Shirli has used her business knowledge to develop a strategy for an IT-related phone and earpiece application that would revolutionize the way individuals with auditory disorders sense the world around them using innovations in AI technology. She created a marketing plan, designed a business outline, and researched competitors and the market in order to determine the potential of product success. Shirli's team placed 1st out of 11 teams of graduate students.

Brenden Faherty

Currently, Brenden is a graduate student at Binghamton University in the One-Year Master of Business Administration program with a focus on Healthcare, concluding his studies in May of 2020. He has an undergraduate degree in Biomedical Engineering in conjunction with the Pre-Health concentration. He is deeply committed to contribute as much as he can to exceed expectations and make a lasting impact on the medical care industry. For his Senior Design Project in Biomedical Engineering, he helped lead a team of five individuals to develop a therapeutic device which aided children suffering from Sensory Processing Disorder. The Dizzy Disc device was aimed to stimulate children's vestibular and proprioceptive systems in order to develop their sensory-motor skills. His team worked alongside children, their therapists, as well as different processing labs throughout Upstate New York, in order to successfully create a functional device that is currently being implemented in therapeutic settings. His research experience has allowed him to work cohesively with a diverse team and directly interact with patients in order to ensure them the greatest happiness through the development of crucial learning and physical skills.

Project Abstract

The goal of this project is to implement a therapeutic video game system in the treatment of stroke patients. The onset of a stroke is caused by the sudden death of brain cells due to the lack of oxygen to a specific area of the brain from blockages or ruptures in brain arteries. Lack of hand-eye coordination and motor functions are a common symptom of stroke victims and can be split into two distinct subsets: right hemiplegic or left hemiplegic. Right hemiplegic patients have trouble moving the left side of their body as well as speech aphasia, while left hemiplegic victims have trouble moving the right side of their body and are constantly anxious with a limited field of vision.

Over the past few semesters, Techworks goal has been to create a video game device designed to redevelop stroke-affected motor functions through the repetitive use of impaired limbs, ultimately making patients more independent. This constant physical therapy encourages neuroplasticity, allowing for the brain to remodel itself after injury through the creation of new nerve cell connections. While the game itself is in the final stages of completion, a business model must be laid out to properly test and market the device. Current issues with rehabilitation techniques stem from medical insurance only covering physical therapy up to certain milestones. These current treatments are known to be boring for patients who stop practicing treatments prematurely, preventing them from improving. Families have a limited amount of time that they can dedicate to their stroke-affected family member since they have full-time jobs. This gaming device will provide a novel outlet for independent rehabilitation while keeping stroke patients engaged.

While consulting with medical experts, physical therapists, management information systems members, and CS students will be able to complete the game and begin the initial phase of testing on stroke patient volunteers in the area. The second phase of testing will be implemented on a wider scale through the Chicago IT department.

Statement of Goals and Objectives

The goal of this project is to finalize and successfully test the ReWire stroke game so it is ready for implementation in a therapeutic setting. The objectives of this project are:

- Bridge the communication gap between Physical Therapists and Computer Science students in creating a game that provides a novel outlet for independent rehabilitation while keeping stroke patients engaged.
- Alpha Test the product to satisfy the requirements of physical therapists and current stroke patients in the Binghamton area.
- Involve the Chicago Team (IT department, neurologist, rehabilitation center) to help beta test the product with a larger group of patients (hopefully from the Shirley Ryan Ability Lab)

MARKET OPPORTUNITY

Our business has the potential to be very valuable because there is an urgent need for independent therapy for anyone who has suffered from a stroke. There is already an established ecosystem within the physical therapy community that is willing to expand its techniques in order to give clients the best possible care and rehabilitation. Our product focuses on players with very severe symptoms including paralysis and motor control impediments.

There have been several other video game systems developed for stroke patients, however, they are usually tagged with a price point way above the affordable range for an individual after they have completed their physical therapy with a personal therapist. The ReWire system offers a low price and allows for players to be independent in their rehabilitation process while keeping them engaged and motivated.

MARKETING

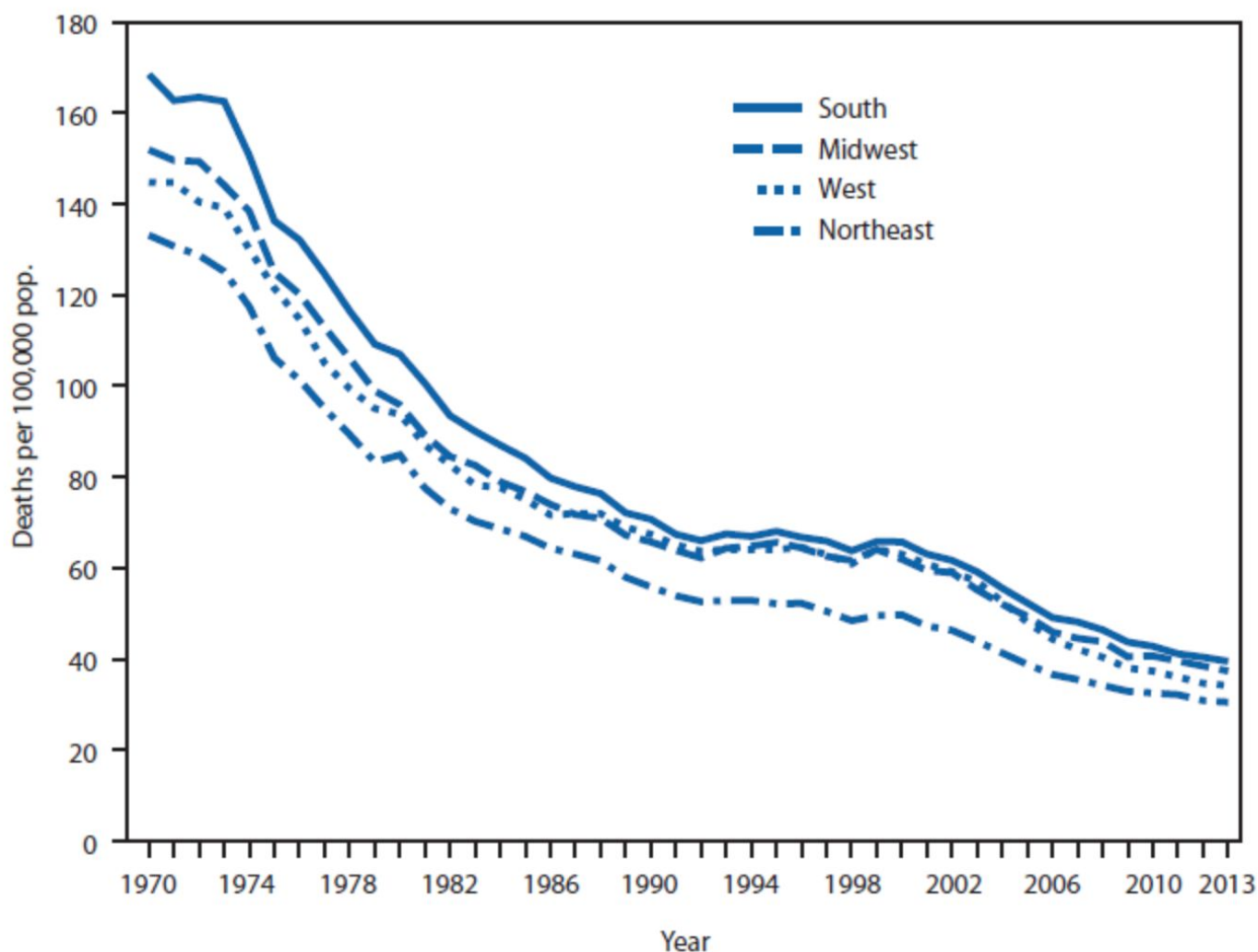
Our Customers

Our target market is english speaking families with access to either a laptop or desktop computer in the United States who have family members affected by a stroke. Our target market is a niche market aimed towards people with the most severe deficits after a stroke. The number one reason many patients stop their physical therapy is because their exercises are not stimulating enough to keep them interested. It is our hope that patients using ReWire will recover quicker when they are engaged and have the ability to continue practicing their rehabilitation from the comfort of their home. The game's easy-to-use interface supports individuals of all ages and tracks their progress as they continue playing.

After making contact and concluding negotiations with the Shirley Ryan Ability Lab, their physical therapists should be able to utilize our game software. With their credentials and testing backing our product, we will then be able to establish the ReWire brand for players outside of the facilities themselves. Players will then be able to independently play ReWire and work on their rehabilitation without the aid of family members and therapists. Our goal is to help seamlessly integrate people with these conditions into society so that they are able to function in everyday life.


Our Market

While the number of stroke patients per percent of the population has remained relatively stable throughout the past 50 years, the death rate due to strokes has significantly decreased. This means that because more people are surviving strokes, more people are in need of rehabilitative therapy. Our target market is steadily growing. The ecosystem for these technologies is also constantly expanding and becoming more developed as rehabilitation tools evolve with the growing number of people recovering from strokes.



* Per 100,000 standard population.

“QuickStats: Age-Adjusted Death Rates* for Stroke,† by U.S. Census Region§ - United States, 1970–2013.” Centers for Disease Control and Prevention, Centers for Disease Control and Prevention, www.cdc.gov/mmwr/preview/mmwrhtml/mm6413a9.htm.



As seen by the data, our product has a growing market. From 1970 to 2013, there was an increase in survival rates of stroke patients per 100,000 individuals. In the US alone, close to 800,000 patients a year suffer from strokes. Approximately $\frac{2}{3}$ of these patients survive and require different degrees of rehabilitation. Strokes occur when blood flow is blocked to the brain, or there is bleeding in the surrounding area.

Our Expansion

ReWire has many plans for expansion and growth. As illustrated by the previous data, the trend in our business ecosystem is on the rise as more and more families and physical therapists are seeking ways to help their surviving stroke affected family members and patients. Our current market is based in the United States, but we have plans to expand to Europe and other continents in the near future.

Our first plan for expansion is to develop the videogame into an app that can easily be downloaded through the app store. This will result in the use of ReWire on a larger scale, and include new monitoring systems for the physical therapists and family members. These additions would include using predictive AI software to generate high quality metrics and share that data with healthcare providers.

Our second plan for expansion is to create a 3D version of ReWire in order to provide an innovative and entertaining rehabilitation game to keep patients engaged during their physical therapy.

Our Pricing Strategy

Our pricing strategy has been devised by examining and analyzing the price of our competitors. For our video game, we have devised a strategy based on the tangible products in our competition such as other therapeutic devices. Our product is comparable in functionality to our competitors so we have priced our device at slightly below their range to increase market infiltration. Our product will sell at \$1,000 including the application subscription for the first year to large scale rehabilitation facilities.

We have priced our application for individual at home use to be \$10/month. Customers will begin paying \$10/month at the beginning of each month. Our competitors range up to \$300 for the application so we have devised this pricing method to keep it lower and more affordable on a monthly basis for these families. The total will be \$120/year for the user. As we devise plans for classroom use and for the app to be on a larger scale, app price will increase appropriately.

“ReWire: Rewire your brain like you’re Rewiring a circuit!”

COMPETITION

	MusicGlove Hand Therapy (Direct)	FitMi Home Therapy (Direct)	Arm Skates (Indirect)	Mirror Box (Indirect)	ReWire
Price	\$349.00	\$349.00	\$100	\$80	\$15/month
No additional accessories required	✓ YES!	✗	✗	✓ YES!	✓ YES!
Can be used independently by player	✗	✗	✗	✓ YES!	✓ YES!
Engaging	✓ YES!	✓ YES!	✗	✗	✓ YES!
Targets most severe stroke cases	✗	✓ YES!	✓ YES!	✓ YES!	✓ YES!

“Tools to Spark Recovery.” *Flint Rehab*, www.flintrehab.com/.

Competitive Landscape

Direct competitors of ReWire include products that offer stroke therapy through the use of a computer system. We performed a thorough search using market research and found only a few products that would compete directly with ReWire, although no products had the features or price comparable to our product. Primary competitors for ReWire include MusicGlove Hand Therapy and FitMi Home Therapy.



MusicGlove Hand Therapy

MusicGlove works by motivating users to perform hundreds of therapeutic hand and finger exercises while playing an engaging musical game. To use the device,

you simply put the MusicGlove on your hand and press play. Then, follow along and make the appropriate pinching movements when each musical note floats down the screen. The player is incentivized to play as they can choose from a wide array of songs to perform providing a sense of familiarity. Songs contain different difficulty levels and can vary in speed between switching positions.

Strengths

Hand sensor glove that combines with a fun music game to keep players entertained during rehabilitation. The player can choose from a variety of songs.

Pricing

MusicGlove retails at a maximum of around \$349.00

Weaknesses

Can only be used on one hand. A separate device must be bought for the opposite hand. Only focuses on hand grip movement improvements.

FitMi Home Therapy

FitMi is a home neurorehab device designed for patient recovery from head to toe. It helps stroke affected patients improve their ability to walk and use their affected side by exercising the full-body, including hands, arms, core and legs.



Strengths

Device can be used to strengthen different types of body parts and can be used by players of all levels of recovery.

Pricing

FitMi retail at around \$349.00

Weaknesses

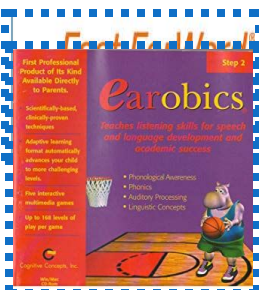
Requires multiple accessories to accommodate the player. Pieces need to be charged and can get lost.

Indirect Competitors

Indirect competitors are businesses that offer slightly different products and services, but target the same group of customers with the goal of satisfying the same need. These are sometimes also known as substitutes. Our primary indirect competitors include rehabilitation programs and devices that are not computer based.

Other stroke related disabilities including speech impediments are also targeted by this indirect

competitors. Speech therapy can improve reading and language comprehension. People with severe strokes have difficulty processing and repeating sounds they were previously familiar with. This Therapy includes a wide variety of exercises that target specific linguistic deficits and may range from computer-assisted software programs a speech and language therapist.



Arm Skates If you have restricted range of motion in your affected arm, then an arm skate can help introduce more movement into your arm. Arm skates are designed more for flexibility training than strength training. This device may act as a complimentary accessory for more severe cases where players can't pick up a mouse.



Mirror Box Mirror therapy can be used to help stroke patients struggling with different degrees of paralysis. When a mirror is placed over the affected hand, the reflection of the patient's functional hand can be used to “trick” the brain. Even though your affected hand may not actually be moving and you logically know better, this process can help retrain your brain to gain back functionality in your hand.

Speech Therapy Computer Programs

There are several “brain training” programs designed to build skills in identifying sounds and remembering auditory information, including FastForWard and Earobics

Advertising Strategies



The Shirley Ryan Ability Lab will be responsible for any advertising for this product after testing is completed.

How We Differ From Our Competitors

While our direct competitors are all of a substantially higher pricing point, our ReWire device is specifically designed to help the most severe stroke players at the lowest price possible.

SWOT ANALYSIS

STRENGTHS

- Established Ecosystem
- Motivated Team
- Diverse Experience
- Great Value
- Priced Right

OPPORTUNITIES

- New Market Segments
- Industry Technology Trends
- New Services
- New Innovations
- Key partnerships



WEAKNESSES

- Limited target audience
- No Budget
- Remote/Virtual Team
- Freelance/Volunteer workers
- Initial Marketing

THREATS

- Economy Movement
- CoronaVirus
- Coding Obstacles
- Competitor Actions
- Loss of key staff
- Market Demand