

# CheckPoint by Curoso Labs

---

For anyone struggling with chronic pain, our product is a wearable device that streamlines symptom tracking.

Unlike traditional journal methods, our product automatically associates a user's activities and environment with their symptoms, contextualizing pain episodes to help practitioners better understand injuries and patients recover faster.

Tristan Burgoyne, Abhilasha Gnawali, Suzanne Liu, Aftab Narsimhan, Armin Rezaiean-Asel, Alexander Toews

## 1. Executive Summary

Our company helps people with chronic pain analyze and report their symptoms more effectively. Our product is a wearable device that captures pain episodes with the click of a button. An accompanying app incorporates activity levels, heart rate and other factors to contextualize their pain symptoms. This data can be shared with healthcare providers to improve treatment and reduce recovery time.

To grow our business in a scalable manner, we will begin by focussing on patients suffering from mild traumatic brain injuries (MTBI). Patients suffering from MTBI commonly deal with memory issues, sensitivity to bright screens, and difficulty concentrating, making it hard for them to track their progress and communicate their symptom history to health care providers through traditional means. With our device, a simple push of a button is all that is necessary to record the onset or persistence of symptoms - the technology handles the rest.

## 2. Market Analysis

### 2.1. Problem

Our product addresses insufficient and inaccurate pain reporting from patients to their practitioners which hinders the recovery process. Often, patient pain reporting is heavily influenced by external factors such as the mood that the patient finds themselves in at the time and their memory of past events. Without accurate pain reporting, therapists are not able to provide the best treatment, lengthening the recovery process.

### 2.2. Market Need

The end users of our product are patients suffering from chronic pain. However, our initial target market is patients suffering from MTBI. This includes anyone who has suffered a concussion, head trauma, or brain injury, and needs to accurately track their pain to aid recovery. These patients commonly see multiple practitioners as part of their recovery process and struggle to recount symptoms consistently over time as a result of injury-related cognitive impairment. Patients' stories can be biased by the current pain levels that are not an accurate representation of a period of time. In identifying this problem we have conducted over 65 customer interviews with various stakeholders in this area (health practitioners, patients, physiotherapists) and have identified an opportunity for practitioners and patients to have a more accurate and easy-to-use pain tracking solution.

### 2.3. Market Size

In North America, there are approximately 110 million people who suffer from chronic pain conditions. The American Academy of Pain Medicine estimates that the cost of chronic pain based on health care costs and loss of productivity is \$560-600 billion annually in the USA. Based on these numbers, Canada's share of this cost is estimated to be between \$56-60 billion annually. For our initial target market, there is an estimated 2.2 million people in North America who suffer from MTBI symptoms. Our product will provide these patients, and the multiple practitioners they might see, with the information they required to improve treatment and speed up the recovery process.

## 3. Competition

### 3.1. How are Customer Needs Addressed Today

Currently, pain logging for patients is addressed through physical pain journals as well as mobile pain journal applications. These are manual and require many intermediate steps before accessing the relevant page and functionality to log pain. It is a cumbersome task for users to manually input pain episodes and as a result is normally forgotten. Practitioners, as a result, must use precious in-person treatment time to carefully ask the right questions and hope their patients' responses are accurate and complete. When working with MTBI patients, practitioners will test patients' heart rate during visits and compare it to past results. The issues is that

practitioners do not have accurate information about the time between visits. Our product would provide the patient's heart rate, activity levels and other lifestyle information to contextualize the patient's pain trends.

### 3.2. Environmental Scan

Despite the ubiquity of mobile apps and wearable technologies, there are currently no products on the market which provide an integrated wearable solution for tracking both symptoms and activity. An exhaustive search of the 450 wearables, in the Wearable Database powered by Deloitte, came up with no close competitor to our product. Activity-tracking wearables, like FitBit, measure step count, heart rate, and location, but provide no means of integrating these biometrics with a user's self-reported data, severely limiting their utility for injury rehabilitation. On the other hand, many low-cost mobile applications, such as My Pain Diary, provide frameworks for recording and tracking symptoms, but lack the ability to measure anything about the user's behaviour or environment. As a result, these services rely on the user to remember and diligently record the context of their symptoms. See Appendix 1 for a petal diagram illustrating the wearables market in relation to our new product offering.

### 3.3. Competitive Advantage

CheckPoint will be the first product to deliver an automatically contextualized record of the injury recovery process. By being first-to-market, we believe our competitive advantage will be the relationships we build with practitioners and patients. We expect to gain initial traction in our first year by partnering with private clinics specializing in brain injury rehabilitation. We believe that by partnering with practitioners, we will be able to build new product offerings with a customer-centric approach to meet other consumer needs and wants. Over time, the data we collect will be used to train machine learning algorithms to improve our product. In the long term, we envision transitioning to be a competitor with multiple product offerings in the health wearable space.

## 4. Commercialization Plan

### 4.1. Science / Technology Overview

Wearable Hardware:

- Button and dial to rate and record pain
- Heart rate monitor
- Bluetooth microcontroller

Mobile Phone Application:

- Bluetooth connectivity to hardware
- Syncs with GPS and step data from phone
- Visualizes symptom history and trends

### 4.2. Growth Strategy

We plan on initially providing discount hardware to health care practitioners, such as physiotherapists, to reach large amounts of patients with our device. By partnering with relevant practitioners, we'll be able to increase our adoption rate, spread the word of mouth and reach our target customers. As our company builds a reputation and our sales grow we will increase online e-commerce sales and begin to target other injuries associated with chronic pain in addition to MTBI.

In terms of intellectual property, we currently have freedom to operate in this space. We have conducted a patent search and analyzed over 450 wearables available in the market. We don't anticipate having any patentable IP in terms of the technology itself, but we will be collecting valuable injury recovery data on thousands of patients. We plan to leverage this unique set of data to train machine learning algorithms to further enhance the quality of our product's services down the road. This data may also be of benefit for fostering partnerships with companies in the health wearable space in the future.

#### 4.3. Milestones

- **April 2017 Milestone:** Finish the software and hardware for our MVP and produce 20 units for testing. To get enough data and feedback for revisions, we anticipate product testing for six months.
- **July 2017 Milestone:** Begin the upgrades for version two of our product. Software updates to the iOS and Android app stores and build version two of our hardware.
- **July 2017 Milestone:** Transition our focus to online e-commerce sales as a primary revenue driver.
- **May 2018 Milestone:** End of year one sales with 1200 units sold to date.
- **May 2019 Milestone:** End of year two sales with 6200 units sold to date.

### 5. Financial Plan

#### 5.1. Financial Needs and Justification

- **April 2016 Milestone:** Funding provided through our UBC NVD class, estimated costs of \$1500 for the initial 20 units produced.
- **July 2016 Milestone:** Estimated cost of \$15,000 to develop our version two product, assuming all funds are retained in the company to support future growth.
- **November 2017 Milestone:** Projected cash balance of -\$123,000 for year one. This includes all COGS, R&D, marketing and SG&A costs.
- **April 2018 Milestone:** Projected cash balance of -\$210,000 for year two.

#### 5.2. Fundraising plan

In the initial stages of our venture, we expect to need \$275,000 in order to fund our operations in the first two years (including a buffer). Between the six team members, we plan to reach out to our personal networks to raise roughly \$100,000 from family and friends. Next we will explore the option of crowdfunding to build our product awareness and raise an additional \$50,000. Our third round of fundraising would be through venture capitals that will align with our company goals. By year three, we expect to generate positive cash flows.

#### 5.3. Exit

We want to grow our company to maximize the number of people we can help with chronic pain. In the long term, our exit strategy will be to sell our company. We believe that our company and product offering will be attractive to sell to another company not currently in the wearable space or who might be looking to enter the health tech market. Our established relationships with both practitioners and patients and brand name within this space will be valuable assets as health tech continues to grow as an industry. In the short term, an investor would expect to receive a ROI after we become cash flow positive in year 3. Using modest growth projections, they would be able to recoup their investment within years 4 onwards and therefore a buyout from a larger organization wouldn't be necessary for an investor to see a return.

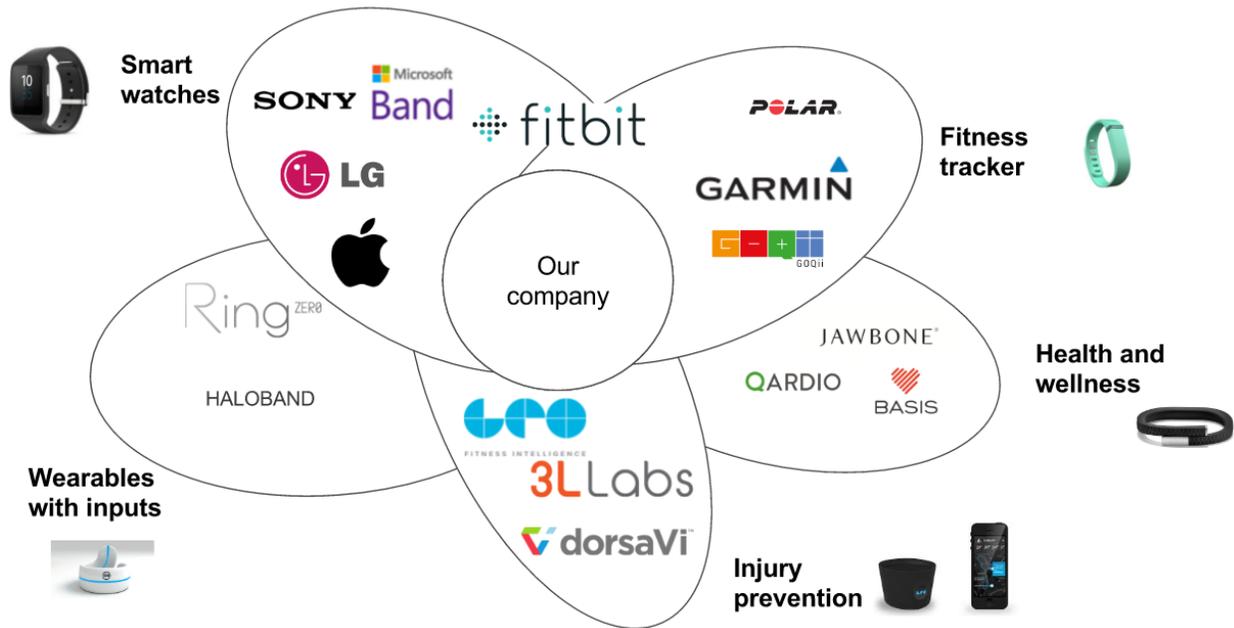
### 6. Team

Our team is comprised of six UBC undergraduate students, half from the Sauder School of Business and half from the Faculty of Applied Science. We have two students in marketing and one student in accounting to focus on customer development, market analysis, and financial planning for this venture. Our engineers' backgrounds are in electrical engineering, software engineering, and engineering physics. We anticipate no new hires needed over the next year period while our product launches.

We are currently engaged in correspondence with four advisors to this project. Thanks to the Life Sciences Startup competition, one of these advisors is e@UBC volunteer mentor Rob Fuller. Our other three mentors come from the New Venture Design program, namely Jay Rhind (Principal at Vancouver Founder Fund), Paul Cubbon (Marketing Faculty at UBC), and Prof. Antony Hodgson (Director of Biomedical Engineering at UBC).

## Appendix

### Appendix 1 - Wearables petal diagram



**Smart watches:** Extensions of smartphones with email, messaging and other applications.

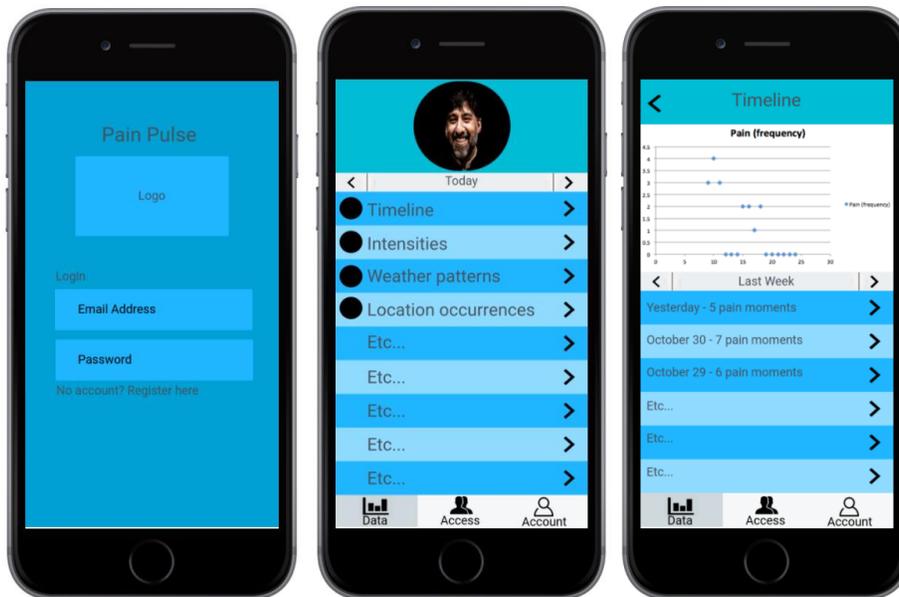
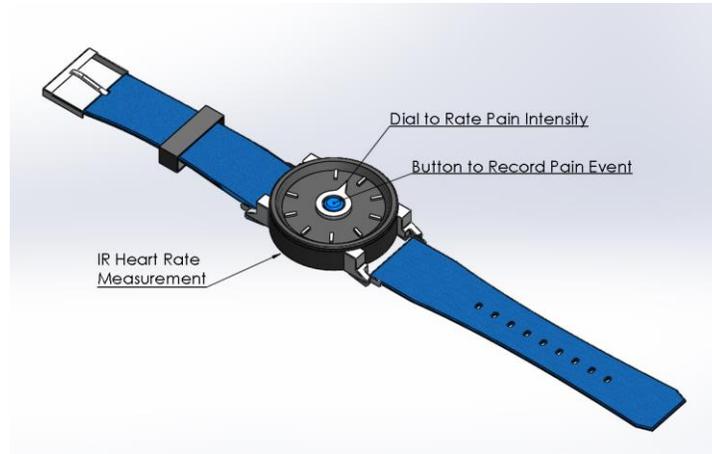
**Fitness trackers:** Focused on consumers with very active lifestyles, these devices typically track heart rate, GPS and step counts, but provide no means of manual input for tracking injury progression or recovery.

**Health and wellness:** These products help the user track various measures of wellness such as sleep and step count, promoting a healthier lifestyle through awareness and goal-setting. Health and wellness wearables are very similar to fitness trackers, but more geared towards average, sedentary lifestyles.

**Injury prevention:** Either receive information from certain part of the body or analyze movement to predict when injuries will occur.

**Wearable with inputs:** These wearables enable the user to communicate with another electronic device such as their phone via hand gestures.

## Appendix 2 - Visual mock-up of CheckPoint wearable and mobile application



## Appendix 3 - Financial projections yearly summary

	Year 1	Year 2	Year 3
<b>REVENUE DRIVERS</b>			
Product Price	\$ 100	\$ 100	\$ 100
Units sold	1283	4027	12063
Total Revenue	\$113,410.70	\$402,678.26	\$ 1,206,332.47
<b>COST DRIVERS</b>			
Product COGS	\$51,322	\$161,071	\$482,533
Shipping & Handling	\$ 12,830.57	\$ 40,267.83	\$ 120,633.25
<b>SG&amp;A</b>			
Marketing Costs	\$ 96,000.00	\$108,000.00	\$ 108,000.00
G&A	\$ 17,011.61	\$ 60,401.74	\$ 180,949.87
R&D	\$ 60,000.00	\$120,000.00	\$ 240,000.00
<b>Profit</b>	↗\$123,753.75	↗\$ 87,062.61	↗\$ 74,216.36
<b>Cash Balance</b>	-\$123,753.75	-\$210,816.36	-\$ 136,600.00