DMS 104

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Marketing Requirements Document (MRD) Light Rink

Interactive LED light ice rink

The *Light Rink* (working title) is an ice rink that controls multiple Light-Emitting Diodes (LEDs) underneath an ice rink to help solve problems that athletes, coaches, and audiences alike face when using regular ice rinks. There could be multiple applications for this product such as improving the efficiency and entertainment value to theater on ice, hockey plays, and open skate entertainment.

The first version of the Light Rink will come equipped with the following capabilities…

- A rainbow of LED color selections
- An app / interface where the coach can draw on the ice with the LEDs
- Pre-set individual moves to assembly for a unique routine

The interactive touchscreen will..

- Connect to Spotify, Youtube and Apple Music so the user can log in with their credentials and select a song from their personal library
- Allow the user to select the LED light color
- Allow the user to select their saved drawings to light up on the ice again

Revenue or Cost Focus

In order to fully understand a product you need to look at the business value of it. As for the Light Rink, this product was made as a revenue generator. This product itself will create a basis of trust and professionalism that individuals will back as the company grows. Light Rink will be a company that generates from the sales of their product but also will assume any risks in the installation and utilization of the Light Rink.

Desire to Innovate

The Light Rink is completely unique because no ice rink has ever been this technologically advanced and interactive. Coaching ice skating can become more efficient and more fun for ice skaters. This product could revolutionize figure skating from introductory level all the way up to the Olympics.

This product could also be further developed for other entertainment purposes. Using the Light Rink to teach kids how to skate and learn routines is just the beginning for this product. The Light Rink could be used to help hockey teams learn plays, used for entertainment events such as theater on ice or even create an interesting and fun display for guests during open skating.

The Light Rink is a new innovative product in the world of ice skating.

Length of Time Horizon

Targeting a beta test over the summer, the stakeholders of the Light Rink have established the summer of 2020 as the target for launch.

The set-back schedule for the design, development, manufacturing and installation for the Light Rink is as follows:

- Design Process: February through the end of April 2020
- Prototype development and manufacturing: May 2020
- First Light Rink Installation: June 2020

Design Schedule Detail

Activity	Timeframe
Design Research	February 2020
User & Domain Analysis (U&DA) Complete	February 28, 2020
Development of Requirements and Context Scenarios	March 2020 (first half)
Development of Framework and Design Language	March 2020 (second half)
Form & Behavior Specification (F&BS)	March 28, 2020
Detailed Design Development	April 2020
Delivery of final design and presentation	Late April 2020

Understanding of the Problem

There are a plethora of problems that athletes, coaches, and a normal audience face when using ice rinks on a daily basis to which the Light Rink could offer solutions. One of these problems is attempting to keep certain groups of students on different sections of the ice than other students based on skill level. This could be accomplished more easily with the engaging and entertaining light patterns that our product has to offer. For example, different sections of the ice could be colored with different LEDs. The coach could then use those colors, i.e the ‘blue’ group to differentiate between skill levels and corral the kids.

Another common problem that the Light Rink would help resolve is the problem of lack of bright/ visible projects during theater on ice performances, such as Disney on Ice, because these events usually take place in a dark arena. For instance, the Light Rink could allow for captioning of these shows for the deaf or hard of hearing audience members. These LEDs could be programmed with multiple visual assistants for this showing, adding to the economic gain and aesthetic appeal of these performances.

Yet another issue that the Ice Rink could resolve is in training hockey players/ figure skaters to learn certain plays or moves. If these lights can be programmed by a coach in order to communicate with their students which path they should take during a play, there would be a very useful educational tool to use in the world of ice skating. This would significantly reduce the time spent on choreography or rehearsing plays and ultimately help the athletes and coached to have more efficient practices.

Willingness to Invest

The overall investment we will make in this product will vary based on the scale of the Light Rink to produce. A larger rink intended to provide training help for professional hockey players will demand a higher budget than a rink designed for children beginning to learn how to skate. For example, a large rink could take up to 2 million dollars to create, while a children's rink could take up to 500-700,000 dollars. A team of about 12 engineers could be a meaningful investment as dividing engineers into specialized groups such as lighting, pressure sensing, and safety mechanisms could speed up and improve the quality of the creation process

Risk Factors

The biggest concern of this product is the number of demand. Although the LED light will be fancy to use while ice skating, there might not be a lot of people willing to purchase this product. Only people who work at an ice skating place or companies that are preparing for big events need this kind of LED light.