Indoor Harvest Corp. Patent Pending Modular Aeroponic System and Related Methods.

Houston, United States
Chad Sykes

Overview

Indoor Harvest Corp. is developing a proprietary modular aeroponic system for indoor cultivation of high-value crops. This system is designed to be scalable and adaptable to various indoor environments. The aeroponic system uses a hydroponic method where plants are grown without soil using nutrient-rich water. This technology is particularly useful for producing high-value crops in controlled environments.

The Problem

Indoor farming has been a growing interest, but existing systems are limited in their scalability and adaptability to different indoor environments. Traditional hydroponic systems can be expensive and complex to set up, making them unfeasible for many indoor farmers. Indoor Harvest Corp.'s modular aeroponic system addresses these issues by providing a scalable solution that can be adapted to different indoor spaces.

Market Size

The indoor farming market is expected to experience significant growth due to the increasing demand for fresh produce in urban areas. The potential market size is influenced by factors such as the availability of technology, consumer demand, and regulatory support. Indoor Harvest Corp. aims to capture a share of this market by offering a scalable and adaptable aeroponic system that can meet the needs of various indoor farmers.
The Team

Our Technology

Our Target Customers

Revenue Model

Vertical Farm Revenue

Competition

The Company has worked through a variety of partnerships and international collaborations. For example, we have partnered with a leading agri-tech company in the Netherlands to develop and deploy vertical farming technology. This partnership has allowed us to integrate our proprietary software and hardware solutions into their existing supply chain, providing a complete vertical farming solution.

Our technology is designed to be used in a variety of settings, including commercial farms, urban agriculture projects, and even small-scale operations. Our vertical farming systems are scalable and modular, allowing customers to start small and grow as their needs evolve.

The target customers for our technology include commercial farms, urban agriculture projects, and individuals or small businesses interested in starting their own vertical farming operation. Our technology is designed to be accessible to a broad range of customers, from large-scale farms to small-scale farmers and hobbyists.

Our revenue model is based on a combination of product sales and service contracts. We offer a range of vertical farming solutions, from small-scale systems to large-scale commercial farms. The revenue from product sales is generated through the sale of our vertical farming systems, while service contracts are generated through the provision of ongoing maintenance and support.

Vertical farming revenue is generated through the sale of our vertical farming systems and the provision of ongoing maintenance and support. We offer a range of vertical farming solutions, from small-scale systems to large-scale commercial farms. The revenue from product sales is generated through the sale of our vertical farming systems, while service contracts are generated through the provision of ongoing maintenance and support.

The competitive landscape for vertical farming is rapidly evolving. There are a number of companies working on vertical farming technology, ranging from small startups to large established firms. Our competitive advantage is our focus on developing a comprehensive vertical farming solution that is scalable, modular, and accessible to a wide range of customers.
Audited Financials

<table>
<thead>
<tr>
<th>Financial Statement (USD)</th>
<th>Adjusted to 12/31/2023</th>
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<tbody>
<tr>
<td>Revenue</td>
<td>11,573</td>
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<tr>
<td>Cost of goods sold</td>
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<tr>
<td>Gross profit</td>
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<tr>
<td>Income before income tax</td>
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<tr>
<td>Income tax</td>
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<tr>
<td>Net income</td>
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Balance Sheet at 12/31/2023

- Working capital: $15,000
- Total assets: $100,000
- Total liabilities: $70,000
- Shareholders' equity: $30,000

Milestones

Below is a summary of the company's milestones:

- **Completion of Phase 1 Development:** Integrate equipment and systems for optimal performance.
- **Construction of Pilot Facility:** Provides a bench-scale testing facility for product development.
- **Pilot Facility Construction:** Ongoing, expected completion by Q4 2023.
- **Quality Control and Testing:** Ensures product meets high standards.
- **Field Testing:** After pilot facility construction.

Summary

- **Technical and Scaling of GLP Model:** Successful scale-up to full size.
- **Completion of Process and Product Development:** Ready for commercialization.
- **Patent Filings:** Pending.
- **Large High-Pressure System Available:** Suits multiple industries.
- **Risk Mitigation:** Reduced risk, improved efficiency, enhanced reliability.
- **Impact on Industry:** Positive impact on global market.
- **Environmental Considerations:** Sustainable, eco-friendly.

![Image of a plant growing in a controlled environment]
**Year Founded:**
2011

**Organization type:**
for profit

**Project Stage:**
Start-Up

**Budget:**
$100,000 - $250,000

**Website:**
http://www.indoorharvest.com

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**Project Summary**

**Concise Summary:** Help us pitch this solution! Provide an explanation within 3-4 short sentences.

Indoor Harvest, Corp. is an emerging developer of patent pending commercial Aeroponics systems for Controlled Environment Agriculture and Building Integrated Agriculture. Our aeroponic system can be used for the rapid cultivation of produce, plant research, cloning and propagation.

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**About Project**

**Problem: What problem is this project trying to address?**

The world's population is expected to grow from 6.7 billion today to 9 billion by 2050. Climate change issues impacting resources such as water and arable land, geopolitical instability, food security issues, nutrition and sustainability all threaten the current food supply and thus the future...
population of the world. With rising populations an increase in demand for both food and medicine will be needed. At the same time demands on resources like water will inevitably impact agriculture of all types. Advanced technologies will be needed to address these issues. Aeroponics, based on NASA research, has been shown to be a method to address these problems.

Solution: What is the proposed solution? Please be specific!

Urban farming and vertical farming are designed as possible solutions for increasing urban food supplies while decreasing the ecological impact of farming. These farming methods can employ a number of technologies. Indoor Harvest has been developing solutions for aeroponic farming in urban and vertical farming applications. Aeroponics when used in a controlled environment can dramatically increase plant growth time, reduce water usage by 98%, fertilizer usage by 60% and can completely eliminate the need for pesticides. Aeroponics can not only be used in the production of food produce, but can be used in plant cloning, propagation and scientific research. Given the advantages of aeroponics, plant production for agroinfiltration in producing proteins for use in medical treatments such as cancer can also be increased. Aeroponic propagation can be used to restore woodlands. In an aeroponic system, hard wood cuttings can be induced into rooting thereby reducing the seedling stage.

Impact: How does it work?

Example: Walk us through a specific example(s) of how this solution makes a difference; include its primary activities.

Aeroponics research conducted by the International Potato Centre in Peru determined that aeroponics produced some four times the number of potato tubers than conventional means. Potatoes can provide complex carbohydrates, vitamins, iron, potassium and zinc which could help fight global famine. The conclusion was that aeroponics and new varieties of sweet potato may turn out to be part of the answer to feeding the world. Source: http://www.euronews.com/2009/11/09/spuds-up/ Aeroponic growing systems provide clean, efficient, and rapid food production. Crops can be planted and harvested in the system year round without interruption, and without contamination from soil, pesticides, and residue. Since the growing environment is clean and sterile, it greatly reduces the chances of spreading plant disease and infection commonly found in soil and other growing media. The suspended system also has other advantages. Seedlings don't stretch or wilt while their roots are forming. Once the roots are developed, the plants can be easily moved into any type of growing media without the risk of transplant shock, which often sets back normal growth. Aeroponic systems can reduce water usage by 98 percent, fertilizer usage by 60 percent, and pesticide usage by 100 percent, all while maximizing crop yields. Plants grown in the aeroponic systems have also been shown to uptake more minerals and vitamins, making the plants healthier and potentially more nutritious. Source: http://www.nasa.gov/mission_pages/earth/technologies/aeroponic_plants.html

Impact: What is the impact of the work to date? Also describe the projected future impact for the coming years.

Aeroponics technology has been around for quite some time, but only recently has the technology become economically viable. NASA funded research helped advance the state of aeroponics to where it is today. Aeroponic technology uses less water, negates the need for pesticides and can produce crops some 20%-40% faster than other advanced agricultural techniques. To our knowledge, our patent pending design is the largest fixture based modular aeroponic system currently developed. By investing capital into aeroponic R&D and developing systems and methods, we will be able to provide this knowledge to industry entrants thereby lowering the barrier to entry. Research into aeroponic methods is quite costly and many start-up urban farming operations are unable to benefit from this technology. Our goal is to provide turn-key urban vertical farming operations, deploying aeroponic technology, by removing the barrier to entry for the next generation of farmers.

Financial Sustainability Plan: What is this solution's plan to ensure financial sustainability?

Indoor Harvest is currently capitalized to complete its product development and initial testing. As of March 31, 2013, the Company has received $180,916 in private investment and has working capital of $123,232. The Company is capitalized to complete its phase one development, however any additional grant funding could be used to expand our R&D ability and provide additional data to address growing food security issues.

Marketplace: Who else is addressing the problem outlined here? How does the proposed project differ from these approaches?

We believe, based on our own formal and informal research that our products appeal to three distinct markets. Those markets include horticulture enthusiasts, commercial growers and horticulture researchers who are currently using aeroponics or other indoor growing technologies. We intend to market our products to these markets simultaneously. Markets include the production of produce such as leafy greens, herbs and micro-greens, medicinal plant production, ornamental plant production, plant propagation and cloning and horticulture research.

Team

Founding Story

The founder and inventor of Indoor Harvest's technology, Chad Sykes, had no prior horticulture background. After becoming interested in vertical farming, Mr. Sykes began researching various production techniques. After much research, Mr. Sykes found aeroponics to be the most efficient method for advanced crop production. With a background in mechanical trades and plumbing, Mr. Sykes began looking at ways to develop an aeroponic system that was both modular, mechanically broad in scope and would be affordable to use. After working on several prototypes, Mr. Sykes developed and has filed patents on a method that could be deployed for as little as $150 per square foot of production compared to the similar technologies that cost twice as much.

About You

Organization:
Indoor Harvest Corp

First Name
Chad
<p>| Last Name | Sykes |</p>
<table>
<thead>
<tr>
<th>Twitter URL</th>
<th>Facebook URL</th>
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<tr>
<td></td>
<td><a href="http://www.facebook.com/indoorharvest">http://www.facebook.com/indoorharvest</a></td>
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</table>

### About Your Organization

**Organization Name**

Indoor Harvest Corp

**Organization Country**

, TX, Houston, Harris County

**Country where this project is creating social impact**

, TX, Houston, Harris County

**Has the organization received awards or honors? Please tell us about them**

No

### Nutrients For All

**Where do you ensure the availability of nutrients?**

Healthy environments., Nutrient-rich farming, Full nourishment foods, Human wellness and vitality.

**If you had greater capacity, which additional sectors would you like your solution to target - either through expansion, partnership, or thought exchange?**

Healthy environments, Nutrient-rich farming, Full nourishment foods, Human wellness and vitality.

**How specifically would this added capacity help you improve the quality, efficiency, or sustainability of your existing product or service?**

Indoor Harvest has achieved proof of concept on its designs. The Company has conducted two R&D trials to date with successful results. Additional grant funding could expand our R&D capabilities and allow the Company to develop additional methods as well as expand its knowledge base that could then be shared with other researchers and institutions. To date, the Company has shared all of its R&D results publicly.

Source URL: https://www.changemakers.com/nutrientsforall/competition/entries/indoor-harvest-corp