

Sparx Holdings Group, Inc.

Fighting Fires with Innovation

Our company is dedicated to creating state-of-the-art **fire sprinkler technology** that is tailored to the needs of modern warehouses, storage facilities, and industrial customers. We are developing a system utilizing advanced electronics and software that can **detect fires more rapidly** than traditional fire sprinkler systems and **activate the most effective sprinklers** to fight the fire. This innovative approach enables us to expand our reach beyond the limitations of traditional fire sprinklers and pursue new markets. We aim to empower businesses and building owners to achieve their visions of higher ceiling heights, unique storage configurations, and dynamic building architectures, even in environments that involve the storage of hazardous commodities.



Our Team



Cassie DeNunzio, age 30, attended the University of New Hampshire on a full merit-based scholarship and graduated Summa cum Laude with her Bachelor of Science Degree in Electrical Engineering (BSEE) in 2014. In 2016, she received her Master of Science Degree in Electrical Engineering (MSEE) from Columbia University in the City of New York, and in 2019 she received her Master of Business Administration (MBA) Degree from Arkansas State University. In February of 2016, she took a position as an Electrical Engineer for Johnson Controls International Plc (JCI), formerly Tyco Fire Protection Products. During her tenure at JCI, Cassie designed and developed new technology products, worked alongside approval agencies to test ground-breaking ideas, and assisted customers in implementing solutions. Her accolades include presenting and winning awards for her works at internal research conferences and receiving recognition as an inventor on numerous patent applications filed with the United States Patent and Trademark Office (USPTO). Cassie left her position at JCI in October of 2020 and worked for Science Applications International Corporation (SAIC) as a defense contractor. She held the position of Senior Electrical Engineer for SAIC for about 9 months while working on projects and contracts for the U.S. Navy. On August 22, 2021, Cassie founded Sparx Technologies, LLC, an emerging fire protection technology company committed to developing innovative products to protect businesses and building owners against highly challenging fires. Cassie filed a provisional patent application on January 28, 2022 with Sparx Technologies, LLC to protect the company's commercial vision to employ software and electronics in fire sprinkler design.



Jeffrey DeNunzio, age 32, graduated Cum Laude from Roger Williams University in 2012, with a double major in Legal Studies and Psychology. Prior to his graduation, and to the present day, he has acted as a research specialist and consultant for numerous publicly traded companies as well as private developmental stage companies. His experience spans from small start up stage companies, to multi million dollar publicly listed companies. His business acumen and customized consultation strategies have spanned across various industries, including, but not limited to, hemp, crypto currency, real estate and healthcare. He has resurrected defunct corporate charters, originated Form 10 Shell Companies, written and filed S-1 Registration Statements, Form 1-A Registration Statements and also prepared the ongoing SEC filings necessary for companies to remain in good standing with the Securities and Exchange Commission. Jeffrey has vast experience in corporate structuring, reverse triangular mergers and spearheading the business operations and trading processes of various companies of both domestic and foreign origin.

From 2012 to Present, Jeffrey has served as President of V Financial Group, Inc. where he assists issuers with edgarization services and various related consulting services.

We Believe There is a Better Way to Safeguard Against Fires



| | |
|---------------|-----------------------|
| 125,500 | Non-residential fires |
| \$3.6 billion | Property damage |
| 1,100 | Civilian Injuries |
| 130 | Civilian deaths |

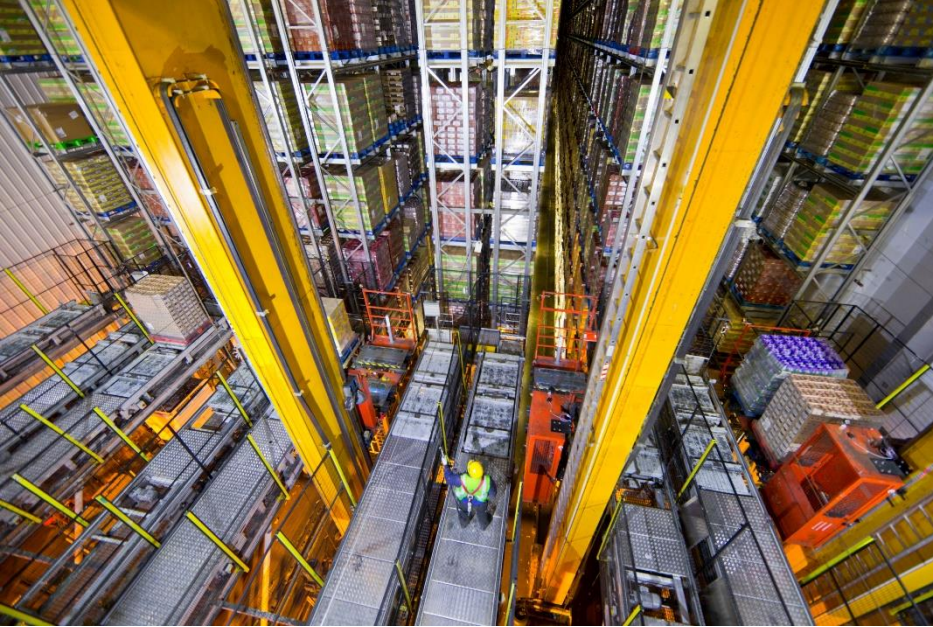
[2021 NFPA Report](#)

While most technologies have advanced dramatically over the decades, fire sprinklers have remained largely unchanged.



1896 Grinnell sprinkler (left)
2020 Reliable sprinkler (right)

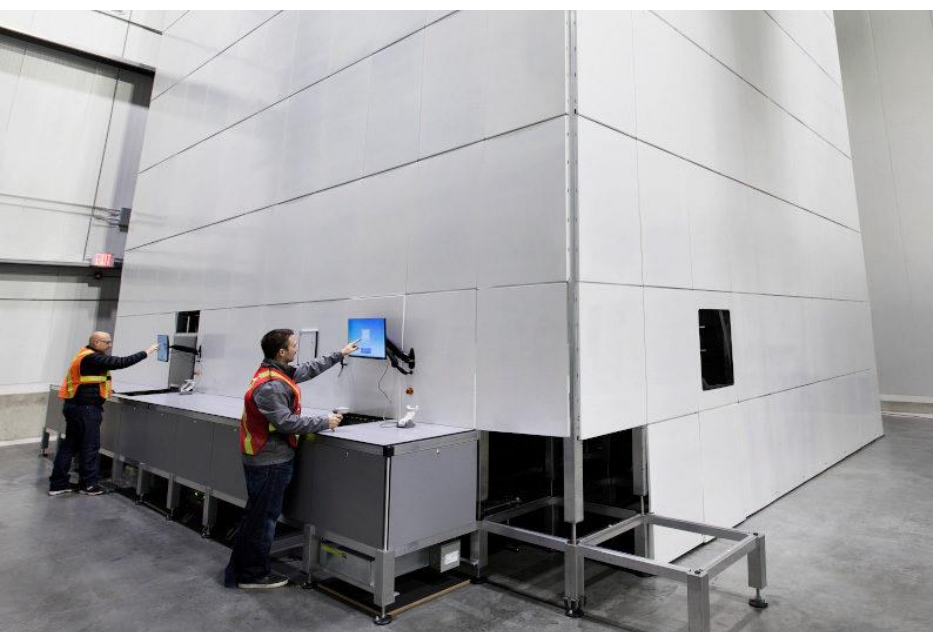
Courtesy: [Reliable Automatic Sprinkler Company Inc.](https://www.reliable-sprinkler.com/) and [csemag.com](https://www.csemag.com/)



The Growth of E-Commerce is Transforming Warehouses

“Fueled by the global pandemic, a study from US Census Bureau showed that e-commerce grew 43% in 2020. Two years later, it’s still going strong — and likely never to return to pre-pandemic levels despite some near-term signs of economic slowing.”

Courtesy: [Forbes](#)



Courtesy: [roboticsandautomationnews.com](#) and [Attabotics](#)



| Taller Ceiling Heights | More Automation | High-Hazard Commodities |
|---|---|--|
| Warehouse ceiling heights now average 36 ft. clear heights. An extremely large jump from the 20 ft. average clear height for warehouses in the 1970s. A warehouse with a 36 ft. clear height can increase their storage capacity by 10 to 25% as opposed to a 32 ft. clear height given the same footprint. | There is an increase in warehouse equipment and machinery like automated storage and retrieval systems (ASRS), robotics, and automated guided vehicles. Compact ASRS is a known challenge for traditional fire sprinkler systems. | The global lithium-ion battery market is expected to grow at 18.9% CAGR over the forecast period from 2022 to 2030. We predict this to create market expansion for the global fire sprinkler market. There are additional protection opportunities for tires, aerosols, and combustible liquids. |

Courtesy: [methodarchitecture](#) and [savills.co.uk/usa](#)

Courtesy: [McKinsey & Company](#)

Courtesy: [altenergymag.com](#)

We Want to Make Sure Our Customers Are Not Limited by Their Fire Protection Systems.

By leveraging cutting-edge electronics and software, we're focused on enhancing the capabilities of traditional fire sprinklers with our technology products, allowing us to protect the otherwise unprotectable.



Our Business Strategy



01

CREATE A SUPERIOR PRODUCT

Our solution offers superior fire detection capabilities compared to traditional fire sprinkler technology. Our fire sprinklers can also communicate and work together to optimally address fire hazards – something traditional fire sprinklers cannot do.

02

COMPLETE A TEST PROGRAM WITH A THIRD-PARTY AGENCY

The fire protection industry is highly regulated. Products must undergo testing programs at third-party approval agencies like UL Solutions or FM Global in order to gain market acceptance.

03

EMPOWER OUR CUSTOMERS TO REACH NEW HEIGHTS - LITERALLY

Our objective is to assist companies and property owners in realizing their desired outcomes of taller ceilings, customized storage arrangements, and innovative building designs, even in situations where highly flammable materials are stored.

Traditional Fire Sprinkler Systems



Courtesy: [The Perfect Man \(2005\)](#)

Smoke, flame presence, and gas concentrations have NO effect on the operation of traditional wet fire sprinkler systems.

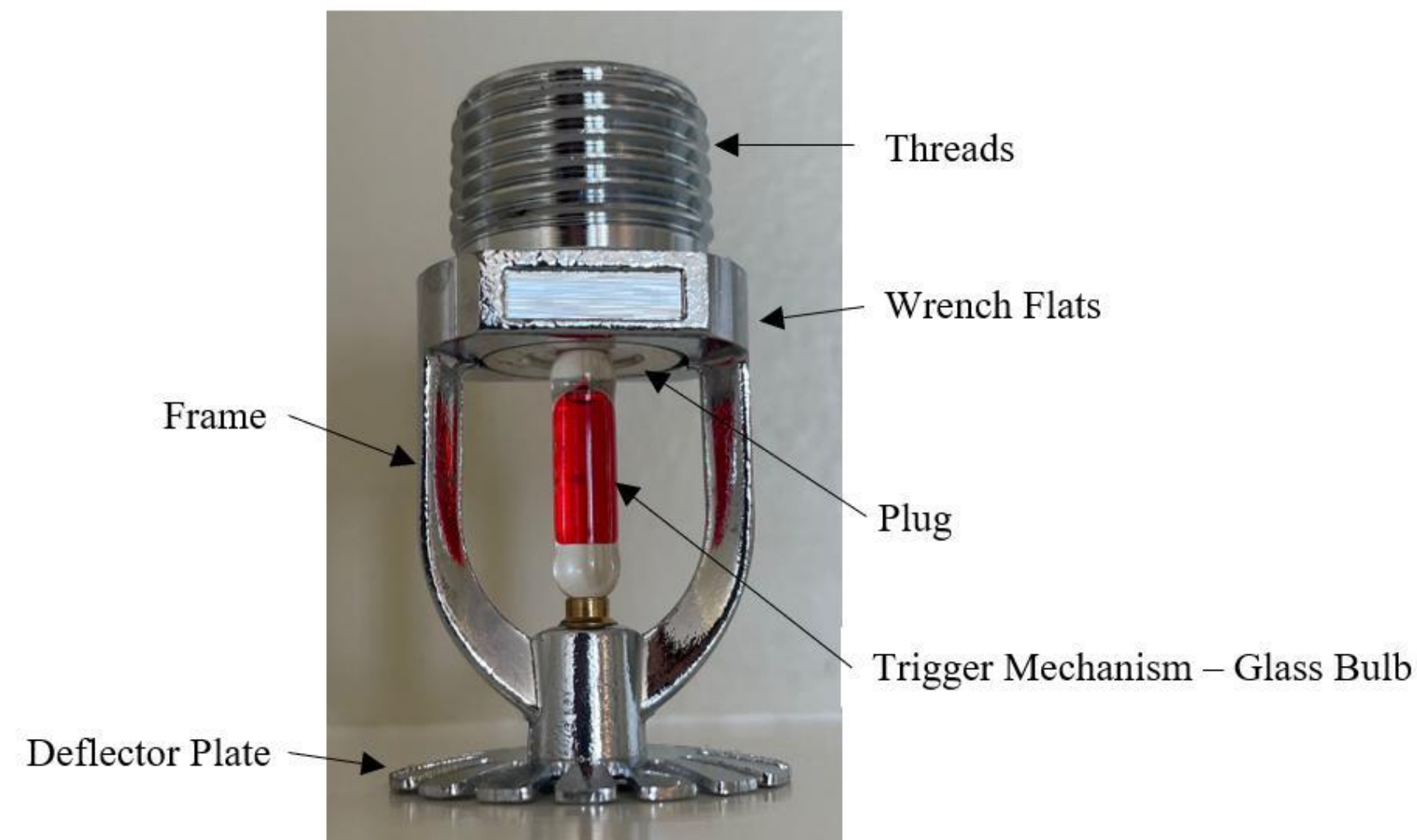
Many Hollywood films incorrectly portray how fire sprinkler systems operate. Let's shed some light on how traditional fire sprinkler systems actually work.

In reality, this woman's match would likely burn out before she could operate the fire sprinkler. Sprinklers have a response time index (RTI) which measures how thermally responsive the heat-responsive element of the sprinkler is. Even though the match burns at a hot temperature, the sprinkler will likely not activate before the match burns out.

If she did heat up the fire sprinkler enough to trigger sprinkler operation, *only* this fire sprinkler would spray water. Movies may make it seem like all of the fire sprinklers in a room or building operate at once, but this is an inaccurate portrayal of how traditional fire sprinklers function.

Each individual fire sprinkler in a traditional system operates **independently** when it reaches a **specific temperature threshold**, typically around 165°F.

Traditional Fire Sprinkler Systems



When a fire starts, the hot air rises and spreads along the ceiling until it reaches a sprinkler head. When the temperature threshold is met, the liquid inside the glass bulb expands and causes the glass bulb to shatter. The plug is then released, allowing the water to flow through the sprinkler head. The water hits the deflector plate, causing the water droplets to disperse over a larger area. The water will continue to flow until the water supply runs out or the fire department arrives and manually shuts off the water via the system's control valve.

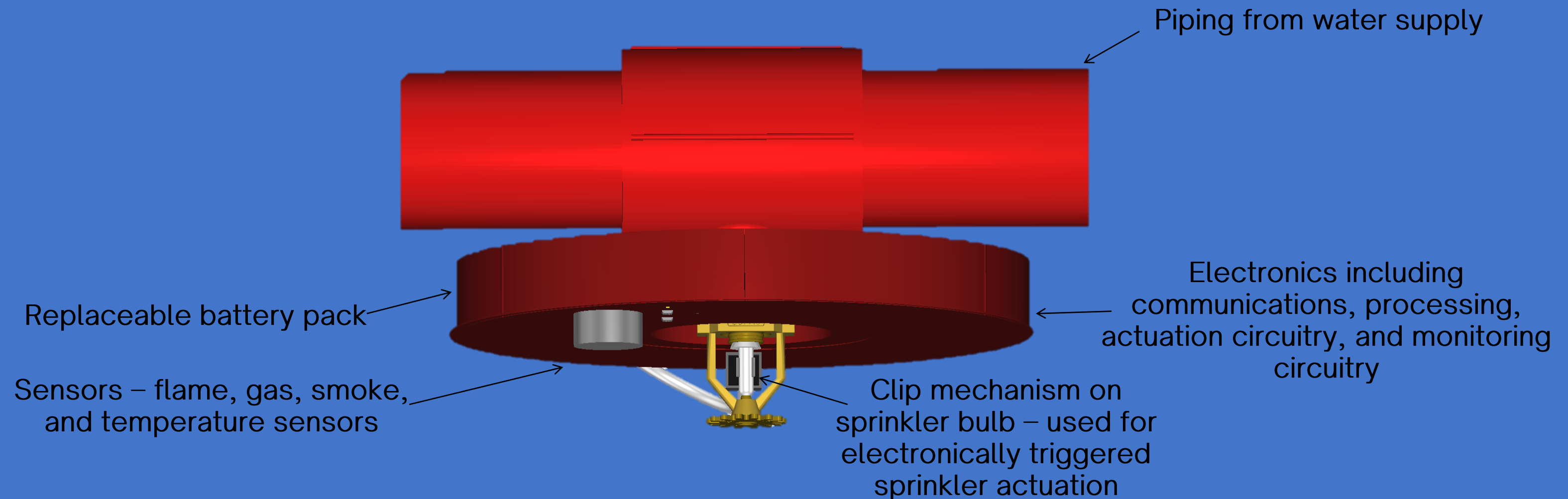
OUR UNIQUE VALUE PROPOSITION

We're in the business of providing effective fire protection beyond the capabilities of traditional fire sprinklers.



| FEATURES | | BENEFITS |
|--|--|---|
| Additional Sensors Faster Fire Detection Networked Communication Interfaces with Traditional Fire Sprinklers and Enhances their Functionality | The Sparx™ Smart Sprinkler System | Precise and Accurate Response to Fires Suppress Fires in Earlier Stages of Fire Growth Efficient Use of Water Predictably Activate the Best Sprinklers to Fight the Fire |

Sparx™ Smart Sprinkler System



We have a fully-functional physical prototype for the part of our system that mounts to traditional fire sprinklers, incorporating low-power sleep operation to enable a battery-powered solution. Our prototype successfully uses flame, gas, smoke, and temperature sensors to detect fires. Our prototype also wirelessly communicates with other sprinklers via a mesh network and allows for electronically triggered sprinkler activation. We are making another design iteration to adjust the mechanical form factor of the product, making it more aesthetically appealing and to make the installation easier. Our prototype is designed to be mounted to traditional fire sprinklers.

Additional system components including a base station that acts as the “brain” of the network and an installation and commissioning tool are in the works.

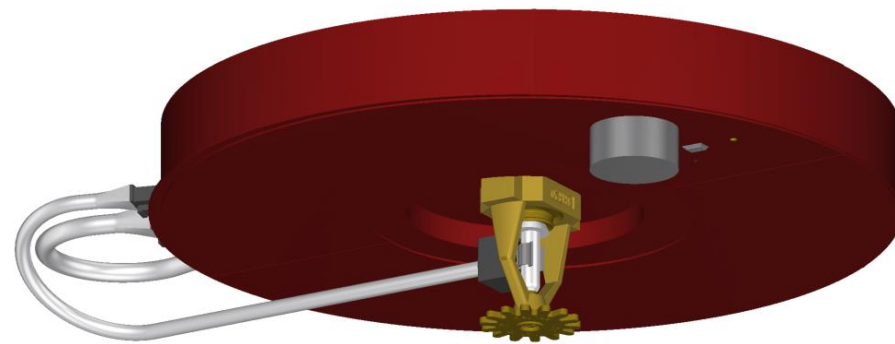
Intellectual Property

We have a [patent license agreement](#) with Sparx Technologies, LLC

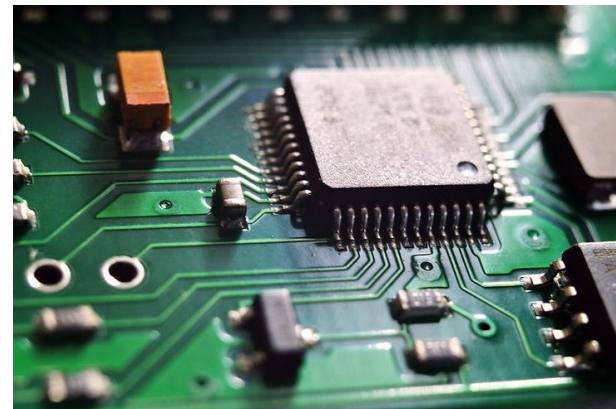
| Patent Serial No. | Filing Office | Filing Date | Patent Type | Patent Title |
|-------------------|---|-------------|---------------------------|---|
| 63/304,302 | United States Patent and Trademark Office (USPTO) | 01/28/2022 | Provisional | MESH NETWORK FIRE SUPPRESSION SYSTEM AND ASSOCIATED METHODS |
| 18/099,584 | United States Patent and Trademark Office (USPTO) | 01/20/2023 | Utility | MESH NETWORK FIRE SUPPRESSION SYSTEM AND ASSOCIATED METHODS |
| PCT/US23/11314 | United States Patent and Trademark Office (USPTO) | 01/23/2023 | International Application | MESH NETWORK FIRE SUPPRESSION SYSTEM AND ASSOCIATED METHODS |

Technology Comparison

Sparx™ Smart Sprinkler System



By leveraging software and electronics we can **suppress or extinguish fires quickly and effectively**. Our patent-pending **multi-sensor technology** uses **flame, gas, smoke, and temperature** sensing which allows us to address hazards very early on in fire development.



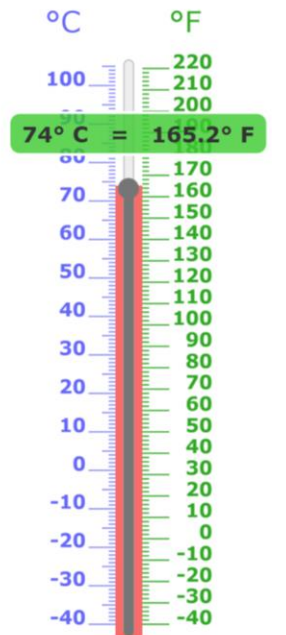
We can respond to fires by simultaneously actuating the **optimal group of sprinklers** surrounding the fire to best address the hazard.



Traditional Fire Sprinkler System



Uses **only a fixed temperature threshold** (for example, 165 degrees Fahrenheit) to trigger sprinkler activation. For a fire sprinkler installed at the ceiling-level, it can take some time for ceiling-temperatures to heat up to the temperature required for activation.



Sprinklers **operate independently of one another**. Fire sprinkler operations can cause cooling in the area and can also introduce a phenomenon called sprinkler skipping. This means that sprinklers that are farther away from the fire may operate before those that are closer. As a result, **sprinkler operating patterns can be unpredictable**.



Competition

Johnson Controls EAS-1



Courtesy: [Johnson Controls](#)

- Detects **temperature only** – a fixed temperature threshold and the rate at which temperature is rising
- Has **wired connections** between each sprinkler and a central control unit (the wires create a great deal of installation complexity and revenue that could be made on a superior product is lost to electrical unions and contractors)
- The system does not now know where each sprinkler is located, and the **sprinkler operating patterns** are still not fully **predictable or optimal**

Plumis Smartscan Hydra



Courtesy: [Plumis](#)

- Detects **temperature and smoke**, uses an **infrared sensor** to angle water spray
- Requires **wired connections**
- This is **watermist** which is not a fire sprinkler **solution** - the volume of water that the system can output is not necessarily a good fit for storage and warehousing
- The **product is intended for use in residential applications** and buildings with lower ceiling heights than storage
- Smartscan **spraying units** are not designed to **necessarily work together** to suppress fires – only one unit operates to suppress the fire

The Fire Sprinkler Industry is Made Up of a Relatively Small Number of Key Companies:

- AG Fire Sprinkler
- American Fire Technologies
- Api Group
- GW Sprinkler A/S
- Honeywell International Inc.
- Johnson Controls International Plc
- Minimax GmbH & Co. KG
- Robert Bosch GmbH
- Siemens AG
- SIRON Fire Protection

Courtesy: [Allied Market Research](#)

Size of the Market

Global Fire Sprinkler
Market: 12.49 Billion

Courtesy: [Straits Research](#)

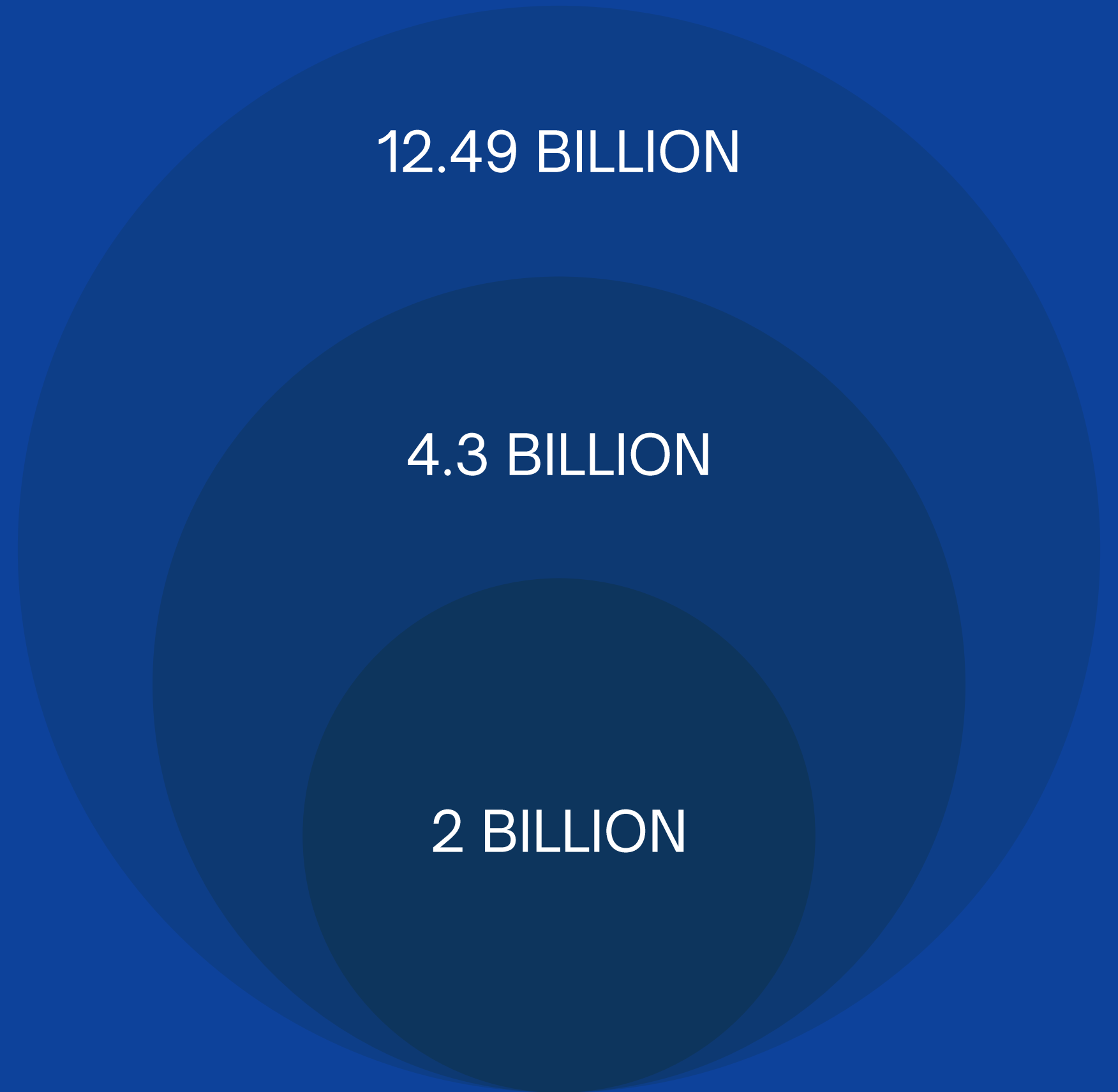
US Fire Sprinkler
Market: 4.3 Billion

Courtesy: [IMARC Group](#)

Initial Target Market – US
Fire Sprinkler Storage
and Warehousing: 2 Billion

Courtesy: [Newmark](#) and [Smoke Guard, Inc.](#)

2021 and 2022 Statistics



Target Customers



COMMERCIAL SEGMENT

The majority of our market opportunity lies within the commercial segment for warehousing and storage.

We are designing our products for the modern warehouse and storage customer.

Once we show our product can achieve a UL Listing for a particular storage configuration at a specified ceiling height with a specified commodity, we will consider pursuing other storage and warehousing applications like automated storage and retrieval systems (ASRS) and flammable commodities like aerosols or combustible liquids.

Other Opportunities

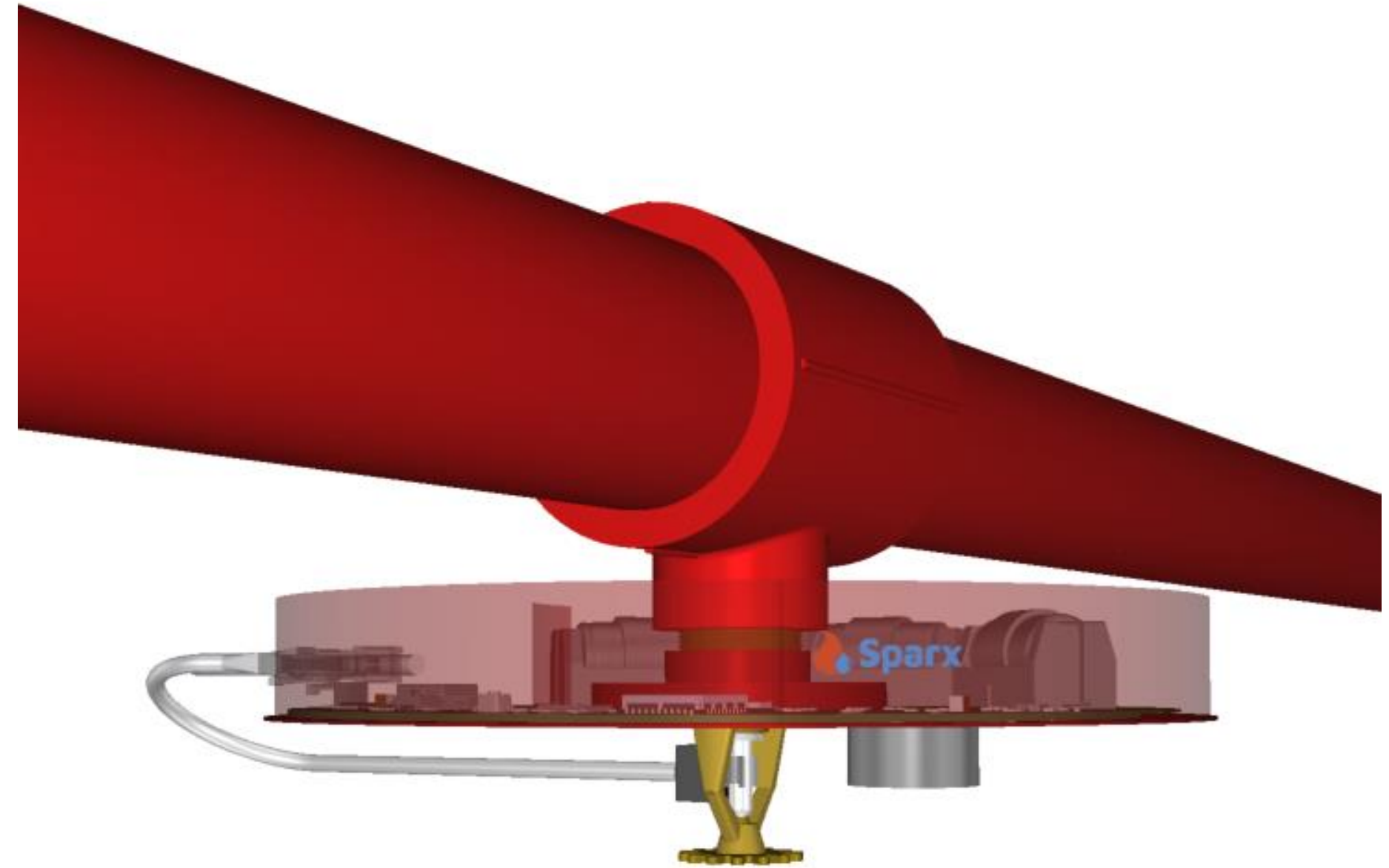
We believe our Smart Sprinkler™ System will be effective in applications including high ceilings, warehouses with tall rack-storage, tire storage, lithium-ion battery energy storage systems, buildings with sloped ceilings, forest product storage, tunnels, and more.

Partnerships and Joint Ventures

We will be seeking strategic partnerships with traditional fire sprinkler companies.

Our products are designed to interface with existing fire sprinklers by enhancing fire detection, responding to fires quickly and accurately, and allowing for simultaneous grouped sprinkler operation. We plan to use our technology in markets that require protection for highly challenging fires, fires that cannot be adequately suppressed or extinguished by traditional fire sprinklers.

We are exploring opportunities with fire sprinkler companies to partner with us. Many sprinklers have already undergone comprehensive testing, and their spray patterns have been carefully designed. With our added technology we would like to expand and grow the applications of traditional fire sprinklers.



Marketing Strategy



BUILD RELATIONSHIPS

By building strong relationships with our customers and providing critical solutions, we can increase the likelihood of repeat business and better understand their needs.



LEVERAGE SOCIAL MEDIA

We can use social media platforms to reach a wider audience and promote the safety benefits and business opportunities created by the Sparx™ Smart Sprinkler System.

We plan to release product videos and additional eye-catching content.



RAISE AWARENESS

We plan to exhibit at the National Fire Protection Association (NFPA) conferences and trade shows.

Reaching out to insurance companies, commercial customers and retailers, authorities having jurisdiction (AHJs), and code consultants will allow us to gain new customers, grow our brand, share our vision, and learn more about the industry.

We plan to release content and articles in media publications like *Sprinkler Age* magazine or the *Fire Protection Engineering* magazine (FPE).

Revenue Model

Product Sales

Our predominant revenue stream is based on differentiating our products as specialty goods. We believe we can charge a premium for what we believe is superior technology. Our selling proposition is unique, as wireless battery-powered electronic fire sprinklers do not currently exist in the market. We plan to launch our products in uncompetitive markets where traditional fire sprinklers cannot reasonably or adequately provide protection.



Software-as-a-Service (SaaS)

Our product offering includes the use of a software tool for our customers to gain insight to the health of their fire sprinkler system. We are planning to offer this service as a subscription to our customers. All fire sprinkler systems require inspection, testing, and maintenance. Our tool will allow businesses and building owners to receive notifications when inspection, testing, and maintenance is required and monitor the status of their sprinkler systems in real-time.



Plan of Operations

March 2023

- ❑ Prototype Development for the Sparx™ Smart Sprinkler System
 - Complete fire sprinkler prototype
 - Develop base station prototype
 - Develop installation and commissioning tool
- ❑ Launch internal verification and validation test program
 - The test program mimics some of the UL Testing to ensure our product will perform at agency testing as expected
 - Conduct small-scale fire tests

March 2024

- ❑ Initiate and schedule third-party agency testing with UL Solutions
 - Third-party testing is expensive (\$2-\$2.5 million), but required to effectively sell our products
- ❑ Make necessary design changes to the Sparx™ Fire Sprinkler system as a result of internal verification and validation testing
 - Start the process of getting the design ready for production

Sept. 2024

- ❑ Conduct third-party agency testing including a large-scale fire test series and mechanical and electrical testing pursuant to a UL Listing
- ❑ Start creating product marketing campaign

March 2025

- ❑ Finalize the Sparx™ Fire Sprinkler design for production
- ❑ Commence manufacturing and establish inventory
- ❑ Market the Sparx™ Fire Sprinkler System, sell products
- ❑ Start pursuing our next product application for a new target market based on industry guidance and trends



MINIMUM FUNDING REQUIREMENTS

Breakdown of estimated expenses

Costs through year-end 2023: \$200,000

- Product Development
- Internal Test Program
- Intellectual Property Fees as Needed
- General Administrative Expenses and Salary

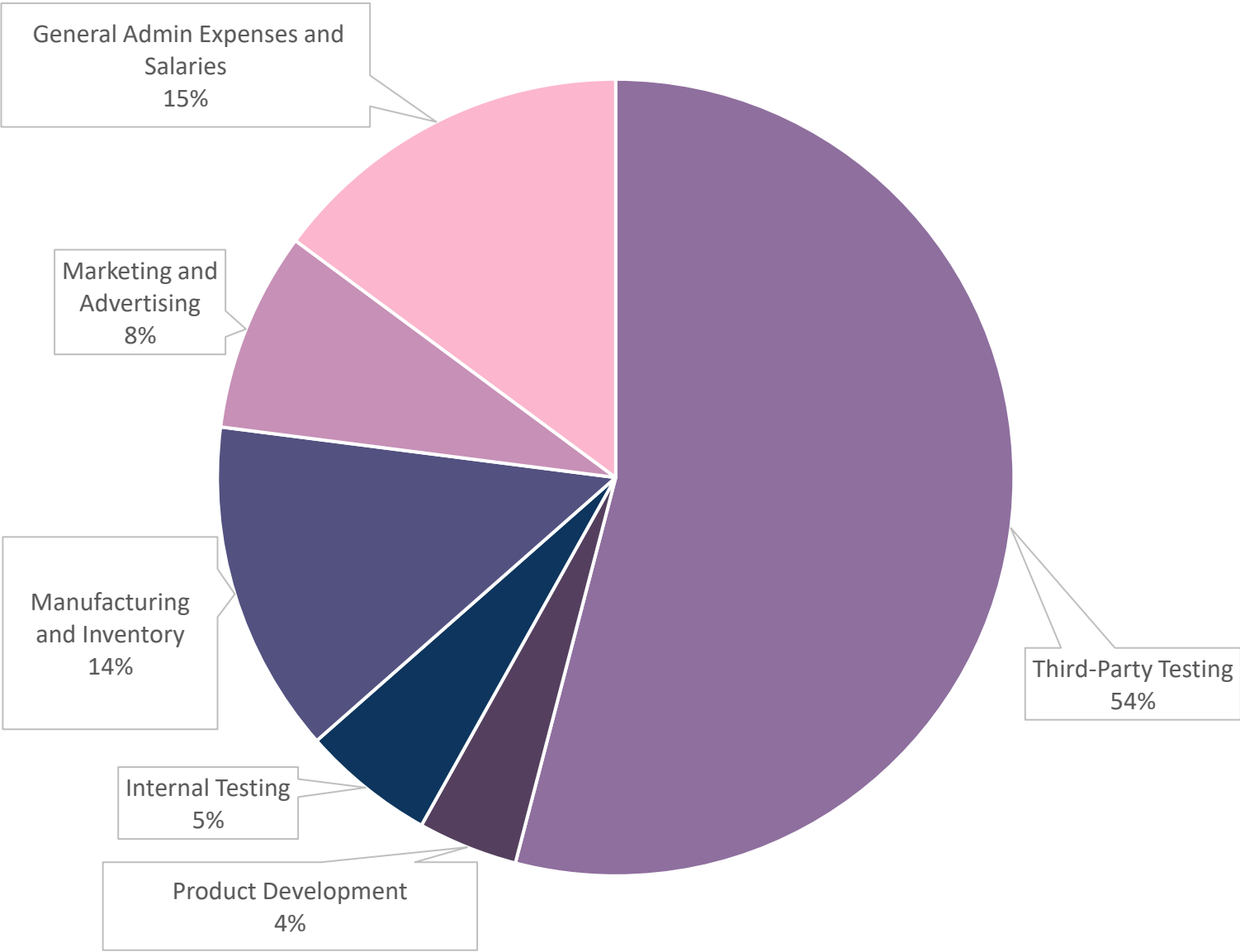
Costs through year-end 2024: \$2,500,000

- UL Testing
- Product Development
- Intellectual Property Fees as Needed
- General Administrative Expenses and Salary

Costs through year-end 2025: \$1,000,000

- Product Manufacturing and Inventory
- Marketing and Advertising
- Intellectual Property Fees as Needed
- General Administrative Expenses and Salary

Estimated Breakdown for Sparx Smart Sprinkler Commercialization by Percentage of Total Cost



MAJOR COSTS FOR THE
REST OF 2023

We’re using funding this year for developing our prototype Smart™ Sprinkler System and launching our internal test program.

Sparx Holdings Group, Inc.

We are quoted on OTC Markets under the Ticker Symbol SHGI

Our Regulation A Final Offering Circular:

https://www.sec.gov/Archives/edgar/data/1874138/000159991623000097/sparx_253.htm

EDGAR Company Search:

<https://www.sec.gov/edgar/browse/?CIK=1874138&owner=exclude>



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