



# **FROST CONTROL SYSTEMS**

MEDIA KIT

## ABOUT OUR COMPANY

Frost Control Systems (FCS) is a USA-based manufacturer and service provider of fixed Road Weather Information Systems (RWIS). We manufacture, install, and maintain our patent-pending sensors and pair them with industry leading route-forecasting software to give cities solutions just as powerful as other industry leading software.

Thanks to new advances in technology, previously cabinet sized electronics now fit in the palm of your hand. These extremely powerful sensors are capable of sending data across five different network types at once to ensure the data can be received at nearly any location.

After years of university and city-based research, we have refined our services to enable cities to proactively and sustainably place their de-icing materials with the same levels of sophistication as the nations leading Departments of Transportation.

Our Mini RWIS is a non-invasive road temperature sensor that measures air temperature, humidity, and dew point. Each unit is equipped with an integrated RPU to allow operation at nearly any location with either direct or battery power, offering maximum flexibility. Our data is communicated through cellular, Radio, Sigfox, Bluetooth, and Wifi with brand new LTE Cat M1 and NB IOT networks offering multi-carrier worldwide coverage. Our units utilize industrial sim cards with a 400x longer lifespan than normal sim cards and will operate in temperatures as low as -40°C. Our patent-pending optics have allowed FCS to eliminate all moving parts and extend the range of measurement to 100ft.

## OUR STORY

Founded in 2017 at [enFocus, was it there/do we want to plug enFocus or did you have the idea before you started working there?]



## **FCS RWIS MINI**

Showcase product, highlight functionality

How are we adding value

How do we stand out against other competitors

Think about the infographic, or what you could do for another version

Include photos

This shouldn't be term heavy, "for dummies"



# TIMELINE

**2017**

First sensor/trial installed in south bend, Ireland x York

**2018**

Hired Patrick

Connexion IoT Pitching Competition Winner

Blue Sky Pitch - Second Place

Four Contracts, n sensors installed

First sensor in Nebraska

First Sensor in Michigan

Moved into first office, 1400 E Angela

Hired Patrick

Hired Sarah

**2019**

Engineering interns (include, idk)

Hired Mario

Hired Sai

Elevate ventures grand prize winner - Best Community Venture

Indiana Innovation Showcase - 3rd Place

Irish Angels Award

n Contracts, n Sensors installed

First Sensor in Illinois

First Sensor in Wisconsin

First Sensor in Massachusetts

First Sensor in Washington

First Sensor in Canada

First Sensor in Missouri

Expanded into a second office



## CEO AND VICE PRESIDENT



**Bradley Tener**  
CEO & FOUNDER

Brad founded Frost Control Systems in 2016 with the purpose of helping cities find new and innovative ways for cities to create safer roadways and, in turn, create safer passage for their citizens. Brad is a Civil Engineering graduate from the University of Notre Dame and will be the primary Engineering contact on this project for the City of Columbia. Brad has half a decade of Municipal Project Management experience on complex and demanding city projects ranging from; siting and installation of dense RWIS networks, IoT Sensor Application, 5G Cellular Fiber Optic RFP Drafting and Design, Fiber to the Home Network design, Cellular Installations, Combined Sewer Overflow Solutions, and more. He is extremely adept at creating custom, effective, solutions that combine both traditional, established, technologies with much needed technological upgrades. As a speaker and panelist for various Smart City engagements, he is an innovator and leader in the industry.

**Patrick Baglien**  
VICE PRESIDENT | MARKETING & SALES

Patrick leads the Commercial Operations Team for Frost Control Systems, including Sales, Marketing, and Project Management, in addition to other functions. Patrick is a graduate of Michigan State University and has 15 years of professional experience. Patrick has held several regional and global leadership roles and has managed large teams and complex projects. For the City of Columbia, Patrick will be the Account Manager and facilitate the project for FCS. Prior to Frost Control Systems, Patrick was a Director at UL LLC (Underwriters Laboratories), the global safety-science company where he spent 7+ years working with cities, retailers and manufacturers on innovative ways to get products to market and create safe living and working environments for consumers.



## COMPANY INFORMATION

Currently Frost Control Systems has nine staff members of which there are five full-time staff, three part-time staff, and two interns.

How many investors?

How much have we recieved from investors?

also do we want to include this info ^ most other media kits I've looked at include investor information



## AWARDS

2019 Elevate Ventures Grand Prize Winner – Best Community Venture  
2019 Indiana Innovation Showcase – 3rd Place RSM Award  
2019 Irish Angels Award

2018 Connexion IoT Pitching Competition Winner  
2018 Blue Sky Pitch – Second Place

<https://www.elevateventures.com/elevate-ventures-announces-community-ideation-fund-awards-to-two-north-central-indiana-companies/>

<https://ideacenter.nd.edu/news-events/news/2019-mccloskey-new-venture-competition-results/>

CHECK if you are missing any awards, if you are also add them to the website

## PRESS

<https://wsbt.com/news/local/road-sensors-impact-on-how-south-bend-officials-decide-to-treat-roadways-in-winter>

[https://www.southbendtribune.com/news/business/south-bend-startup-looks-to-improve-winter-road-treatment-with/article\\_\\_e5b5f4f1-60a9-5e9d-b564-1620de4e6168.html](https://www.southbendtribune.com/news/business/south-bend-startup-looks-to-improve-winter-road-treatment-with/article__e5b5f4f1-60a9-5e9d-b564-1620de4e6168.html)

<https://builtin.com/internet-things/ind-startup-uses-sensors-enable-smart-de-icing-wintery-roads>

<https://hologram.io/blog/customer-spotlight-frost-control-systems/>

## QUOTES

“The real benefit comes in the safety. And making sure we’ve got safe roads for people because we’re preventing accidents and hopefully saving lives in the process,” said Horvath.

“One of the things we really liked was that it was something that was not only cool technology, it was something that was really helping the community and saving money,” said Ritchie, who serves as Notre Dame’s vice president and associate provost for innovation and leads the IDEA Center. “It seems like a triple-win, bottom-line kind of deal.

## CONTACT INFORMATION

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\*\* quotes from brad and patrick should be included in this document



## FAQ

### *Why Frost Control Systems?*

Here at Frost Control Systems, our primary line of sensors focuses on utilizing highly accurate infrared technology to create road temperature and surface state (bare pavement, wet, snow, icy condition state) cameras. These cameras are mounted on common support structures such as bridge trusses, traffic signal mast arms, and light poles to produce a comprehensive, real time, map of road temperatures.

For our municipal clients, we specialize in using this equipment to bring operations up to the same level of standards seen on our nation's highways and airports. Decade old safe and sustainable deicing techniques have yet to be adopted within cities due to rapidly changing and varied road weather conditions within city limits.

To solve this roadblock preventing safer, more effective and environmentally friendly road treatment, we install 2-4 road temperature sensors along each plow route. In addition, surface state, snow depth, and other various sensor types are placed in safety critical locations to ensure proactive treatment of highest risk areas.

For our commercial clients, the focus is getting individuals from their car to their end destination safely. This takes many forms. Common commercial systems include 2-3 surface state sensors and 1-2 snow depth sensors for each parking lot paired with some targeted sensors at troublesome sidewalk locations.

For some clients this means a strong focus on pre-emptive alerts produced by the installed hardware system. For others, it's about accountability and ensuring parking lots are cleared and treated within a specific timeframe of the 1st snow alert. A few select clients focus on efficiency and how sustainable deicing can be launched within parking lots.

### *What is an RWIS?*

A Road weather information system (RWIS) is a device contained within an Environmental Sensor Station (ESS). RWIS typically refers to the portion of the station focused on measuring atmospheric and/or pavement conditions. The RWIS device is able to collect and process the data collected to develop forecasts and relay information in an understandable format to aid facility managers and risk personnel in their decision making. As technology has improved, RWIS' have shrunk in size and can be deployed independently of an ESS station. These units focus on filling the gaps in road temperature measurement between larger ESS stations and are best deployed at a 10:1 ratio with ESS.

### *Why use an RWIS?*

Road temperature is the number one, most important piece of information when performing winter road maintenance because it is directly tied to the performance of deicer materials such as road salt. As road temperatures drop 5-10 degrees, you should expect to see road salt melting capabilities decrease by a factor of 5.

In cities it is even more important as the conditions are extremely varied. These increased variations are caused by differences in road composition, levels of traffic, building density, and microclimates that all contribute to massive 8-10 degree road temperature variations across plow routes.





MEDIA



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