

A blurred, high-angle photograph of a crowd of people walking down a set of stairs. The image is overlaid with a semi-transparent orange filter. The motion blur suggests a busy, crowded environment.

# COVID-19 REOPEN STRATEGIES

**RELY ON AI-DRIVEN DATA  
REOPEN WITH CONFIDENCE  
REBUILD TRUST**



The risk of contracting COVID-19 should create a new social contract between event and venue operators and the people who work at and attend them.

**Event Safety Alliance**



# **RELY ON AI-DRIVEN DATA**



# ARMORED THINGS SOLUTION OVERVIEW

Armored Things is the market leading crowd intelligence solution, proven at scale, with deployments across major universities, pro sports venues, and corporate campuses.

By combining data from your existing security and IT systems with our predictive analytics, we provide a real-time visual representation of people within any campus or venue space.

Our heatmap technology delivers powerful insights that our customers rely on to plan everything from security details to vendor kiosk placement, when to open and close common areas, and how to plan for special events.

## Solution Highlights

- Easy-to-understand dashboards
- Command center or mobile view for improved incident response
- Real-time, historical and predictive analytics
- SaaS solution fuses data from existing hardware (wi-fi, video)
- 100% remote deploy capability

## Navigating COVID-19

Ways our technology helps you reopen safely:

- **THRESHOLD ALERTS**  
for Capacity and Overcrowding
- **DISCOVER QUERIES**  
for Compliance and Documentation
- **SPACE UTILIZATION**  
for Occupancy and Vacancy
- **SANITATION SCHEDULING**  
for Facilities Calendars

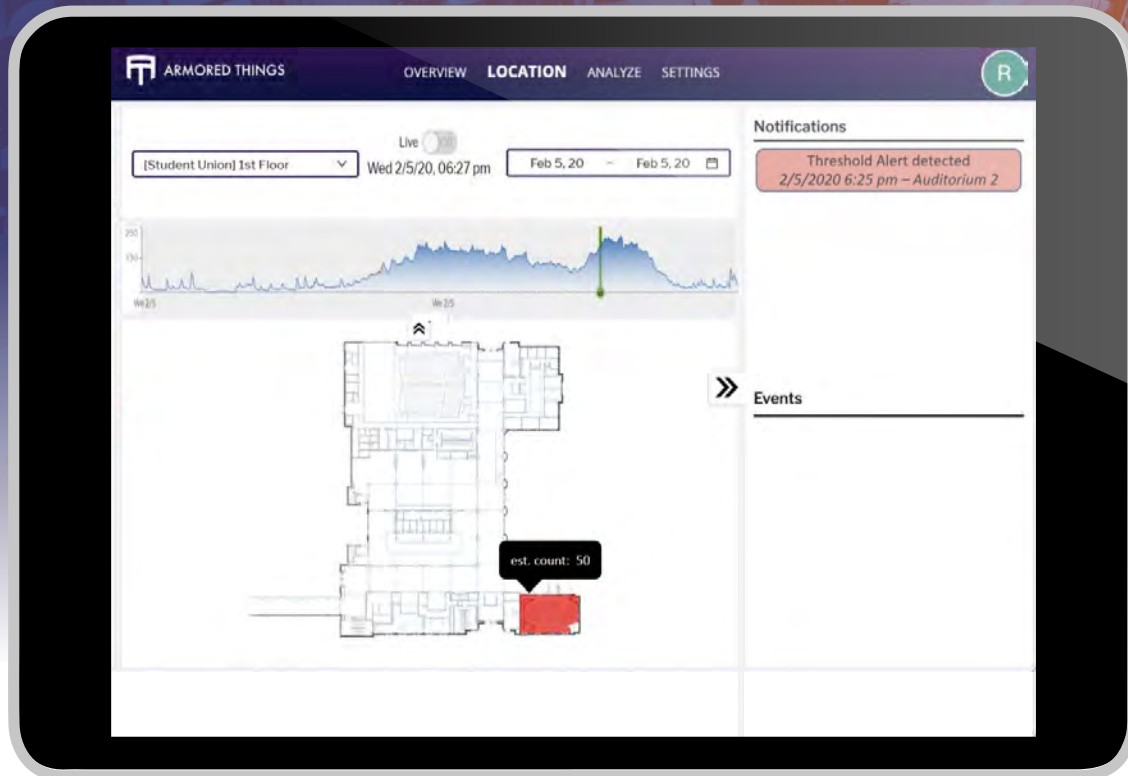
# COMPREHENSIVE COVID-19 SOLUTION

## 100% Remote Deploy Capability for COVID-19 Crisis Teams



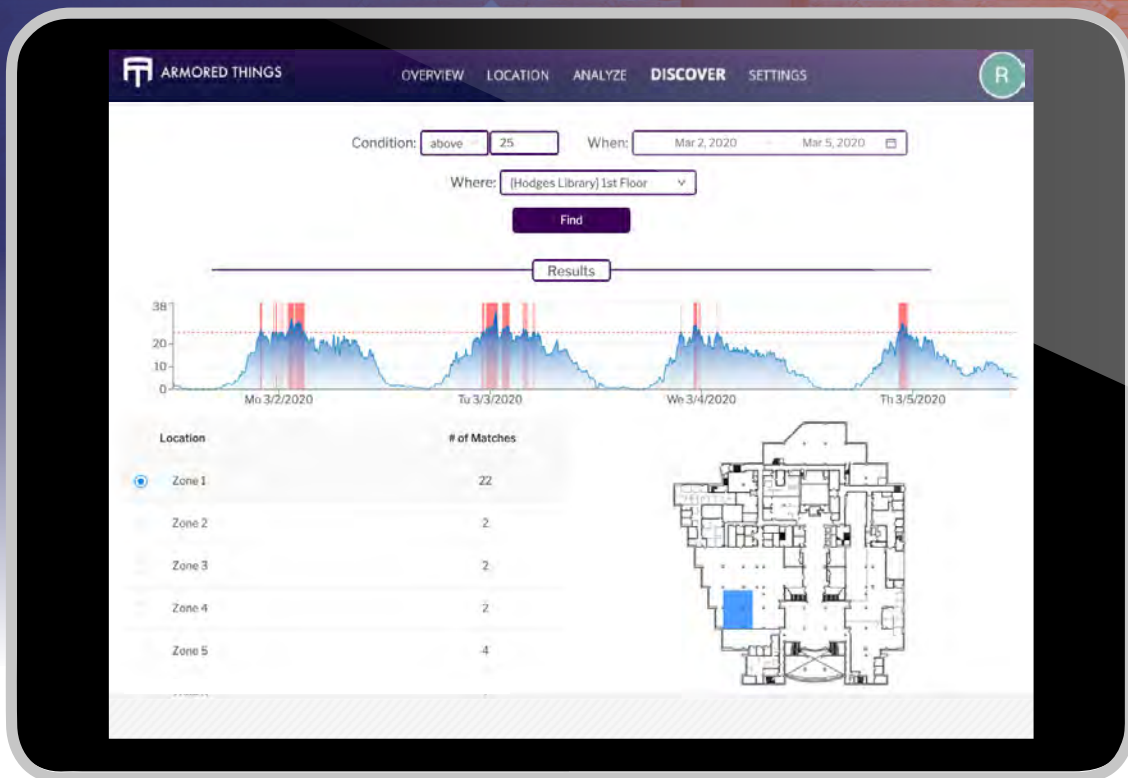
Armored Things already helps monitor the density of people in a space so you can receive alerts when a section of a venue no longer meets distancing requirements. And we're adapting our technology to keep track of the space between people—not just the number of people.

# THRESHOLD ALERTING FOR OVERCROWDING



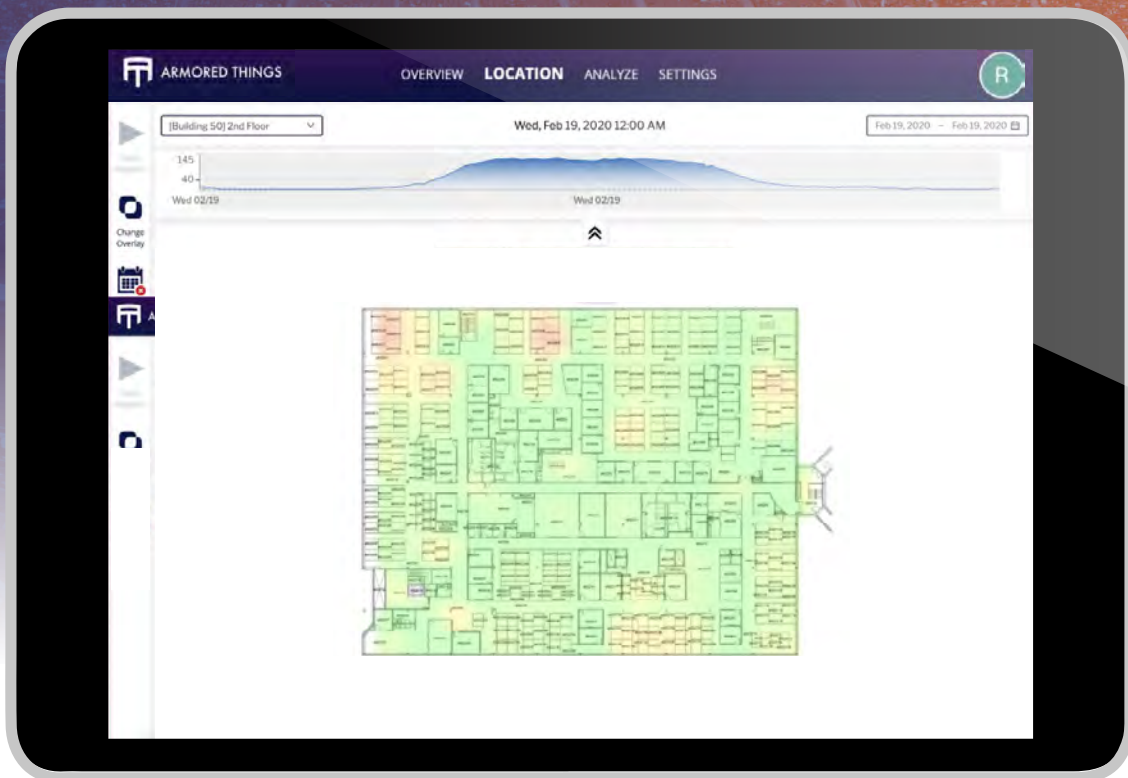
- Identify occupancy limits in zones or for an entire building and set alerts when occupancy nears or reaches those thresholds.
- Notify relevant personnel in the command center or their devices in order to enforce crowd reduction orders or social distancing.
- Adjust alerts and notifications based upon rapidly changing regulations and dynamics.

# DISCOVER FOR COMPLIANCE AND AUDIT



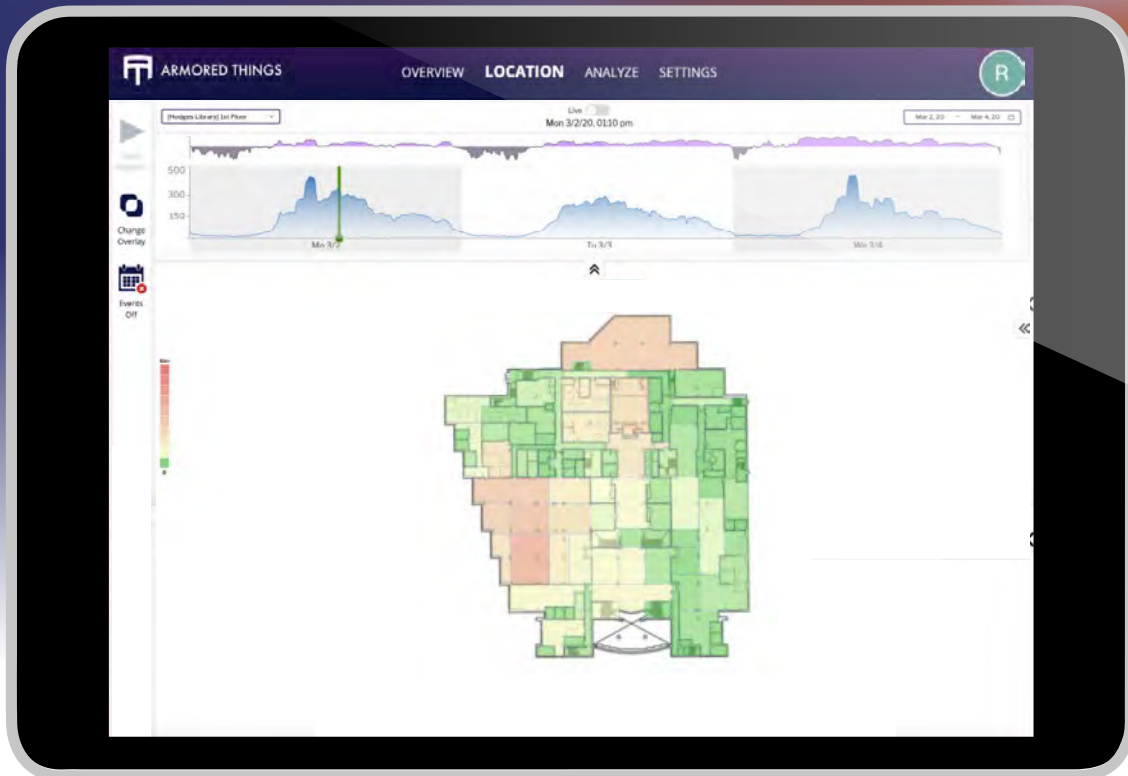
- Discover trends, anomalies and patterns.
- Choose a condition (number of people) location (conference room) and date range for a custom report that shows how often your “occupancy scenario” was met.
- Generate reports for key stakeholders as you track how teams and business units are complying with new administrative controls.

# SPACE UTILIZATION



- Identify what the new flow of people through your venue will look like, and re-organize space to maximize visitor experience and safety.
- Plan phased reentry (alternating days or teams) by referring to data points showing occupancy rates for office floors on specific date ranges.
- Utilize advanced analytics for decision support related to staffing and special event planning.

# SANITATION SCHEDULES



- Receive alerts when auditoriums and conference rooms clear so cleaning teams can be sent swiftly.
- Use change overlay feature to compare occupancy rates at times of day or days of week.
- Audit and review updated sanitation practices to ensure compliance with new guidelines.

Armored Things provides a crowd and spatial intelligence platform that shows where people are, where they are going, and where they are likely to be in the future.

The Armored Things platform delivers a common operating picture of people and movement in a facility, stadium, or campus through detailed live and historical heatmaps, visualizations and alerts on web-based dashboards and mobile apps.

The Armored Things platform is a distributed set of computing services running in the cloud and on analytics appliances in a customer environment. Collectively, these services turn raw sensor data into actionable crowd intelligence for different users and applications.

## Data-to-Dashboard Analytics

1

Real-time data streams are processed from existing security and information technology like access control, video surveillance, wireless infrastructure, and building safety.

2

Each type of data is analyzed on edge appliances using machine learning models and proprietary algorithms that produce a summarized and anonymous spatial representation occupancy and attributes such as position, location, and direction.

3

Spatial estimates are fused to generate a complete picture of live crowd activity across all covered locations. This is enhanced and overlaid with contextual and customer information like event schedules, room reservations, and real-time transit data.

4

Web and mobile apps bring crowd intelligence to users through visualizations, utilization reports, threshold alerts, trends analysis, historical playback, and workflow integration. Custom applications are enabled through data sharing and API integration.

# TECHNICAL DRILL-DOWN

## 1 How is **PRIVACY** maintained?

Armored Things analytics are done without personally identifiable information. We safeguard the privacy of customer data through a distributed design that processes sensitive data at the edge of the network where it is produced and retains only anonymous information about occupancy, movement, and location in the cloud.

## 2 How is **SECURITY** assured?

Customer data is logically separated and encrypted in transit and at rest. Appliance to cloud communication is over industry standard VPNs with uniquely provisioned certificates, and all transport-level communication is encrypted using TLS. Armored Things maintains controls and safeguards to ensure systems are protected against unauthorized access, disclosure, or damage that might compromise customer data.

## 3 Is the platform **HIGHLY AVAILABLE**?

Yes. The Armored Things platform is built around proven technologies and industry-leading cloud providers to ensure robust HA. The platform utilizes auto-scaling services with geo-redundant storage, service meshing to discover, connect and secure communications, and uses container orchestration for update, migration, and recovery.

## 4 How is **RELIABILITY** provided?

Platform software components are continuously monitored for operational health and all systems are instrumented for telemetry and traceability so that issues can be identified and resolved before they affect customers. Armored Things maintains a public-facing incident reporting and uptime measurement system for transparency.

# TECHNICAL DRILL-DOWN

## 5 What DATA SOURCES are used?

Armored Things leverages existing information and security technology like IP-based cameras, Wi-Fi, access control, people counters, ticketing, and scheduling systems. Data access is strictly read-only and is acquired using industry standard protocols (e.g. RTSP, SNMP, GTFS) or vendor-specific APIs (e.g. HTTP REST and Webhooks).

## 6 Where do I HOST the software?

The platform software use edge services running on one or more virtual or physical analytics appliances in a customer's environment, in the cloud, or in a hybrid between the two. Resources vary depending on the sensors and sources used but will typically require a recent generation Nvidia GPU, 24 CPU Intel Xeon or AMD EPYC cores, 64GB RAM and 512GB storage for every 75-100 devices.

## 7 HOW LONG does it take to deploy?

Getting up and running usually takes 4-6 weeks and consists of the following three steps:

1. **Planning:** Maps of the space and information on integrations provided.
2. **Setup:** Analytics appliance is installed, provisioned and data sources connected.
3. **Learning:** Machine learning models are trained and tuned for the environment.

After the last step, users will have access to web-based crowd intelligence dashboards and mobile apps.



**REOPEN WITH  
CONFIDENCE**





Reopening in stages will be critical.  
As will density. You will want to have  
a clear understanding of how your  
employees and visitors are  
utilizing campuses and venues.

**Juliette Kayyem**

**Faculty Chair of the Homeland Security Project  
at the Harvard Kennedy School,  
Armored Things Board of Advisors**

# REOPEN WITH CONFIDENCE

## Track occupancy, adherence to guidelines

Phased reopen strategies require clearly stated goals focused on things like physical distancing, density and sanitation—and the right technology to deliver on those stated goals.

### Reopen Strategy Statements → Armored Things

Know when common areas and offices are reaching capacity → Threshold Alerting

Determine whether new regulations are being followed → Discover Queries

Track room and building use for phased reentry → Space Utilization Reports

Plan cleaning and sanitation efforts through single view → Real-time Occupancy Counts

# REOPEN WITH CONFIDENCE

## VENUE SAFETY



University Campus



Corporate

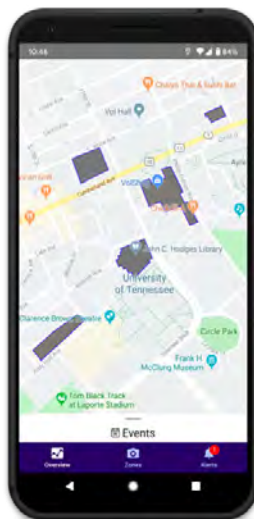


Stadium

Your Data.  
Our Streaming Analytics.

Your Infrastructure.  
Our Dashboards.

The more you use Armored Things, the more you see your venue in new ways. We can scale and grow with you, and our machine learning technology understands, and helps you understand, the data your venue is continuously generating.

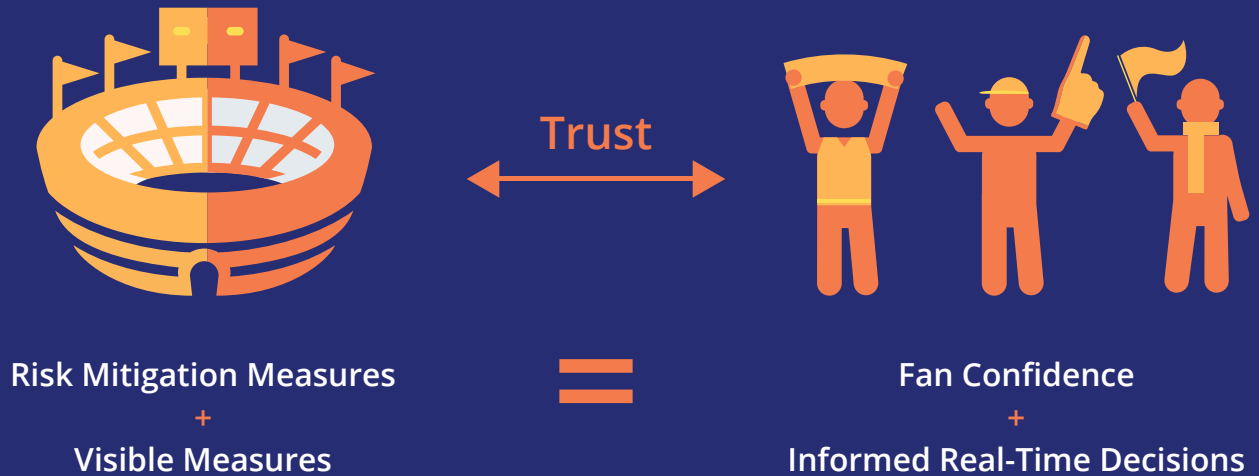




# REBUILD TRUST



## The Trust Factor



44%

Number of U.S. sports fans who reply 'I don't know' when asked about returning to favorite venues.<sup>1</sup>

A true return to venues will require communication, multiple phases, and trust. The owners and operators of venues will have to earn the trust of ticket holders and fans in order to draw them back, and they'll need comprehensive risk mitigation measures in place to make it happen. At the same time, they'll have to trust that employees and fans will follow the new guidelines, and take responsibility for real-time decisions they make about spaces they enter.

There are visible measures, such as signage, staffing, and sanitation stations—and behind-the-scenes operational measures such as Armored Things software that will provide operators and visitors alike with critical data points to help them navigate spaces safely.

<sup>1</sup> AV&Company 2020 Sports Impact Survey

## Project Highlights

- Provides historical, real-time and predictive analytics
- Leverages existing wi-fi and video systems
- 1-million-square-foot multi-sensor deployment
- Change overlay allows four display types
- Improves situational response with real-time visuals



## UNIVERSITY OF TENNESSEE, KNOXVILLE CASE STUDY

Armored Things has enabled our organization to take a huge step forward to becoming a smart campus. Their operations platform leverages a variety of components in our existing infrastructure to give us real-time views of people movement across campus at any time.

*—Joel Reeves, Assistant Vice Chancellor and CIO*

# ROAD TO REOPENING



## **Rely on AI-Driven Data**

Utilize Historical, Real-Time and Predictive Analytics to empower venue operators to comply with COVID-19 related restrictions.



## **Reopen with Confidence**

Protect your venues and visitors with a comprehensive risk mitigation strategy and a trusted technology partner.



## **Rebuild Trust**

Establish a new level of trust between venue operators and students and fans.



# Thank you!

To learn more about how Armored Things can help your campus or venue reopen with confidence, contact our Director of Sales:

**Jaclyn Smith**

[jaclyn.smith@armoredthings.com](mailto:jaclyn.smith@armoredthings.com)

571.221.9501

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## ABOUT ARMORED THINGS

Armored Things provides Software-as-a-Service (SaaS) solutions for crowd intelligence. By combining data from existing security and IT systems with predictive analytics, we provide facilities management teams with a real-time visual representation of people and flow within any campus or venue space. Easy-to-use dashboards equip clients to anticipate changes and inform decisions to improve service, operations, staffing and security. Since our founding in 2016, Armored Things has built a team of security and technology experts to deliver world-class solutions to stadiums, corporations, and campuses around the country. As a team, we're pushing technology towards a safer future.

For more information, visit <https://www.armoredthings.com/>



ARMORED THINGS

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