

# PSCR 2020:

## THE DIGITAL EXPERIENCE



NIST

#PSCR2020



# Tech to Protect – Year in Review

## Recap of the past year and progress made by the Tech to Protect Challenge



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**\* Please note, unless mentioned in reference to a NIST Publication, all information and data presented is preliminary/in-progress and subject to change**

# Agenda



**PULLING  
THE FUTURE  
FORWARD**



## Introduction

Welcome, Overview, and Introduction



## Technical Lead Panel

An in-depth discussion with a panel of experts who helped create and implement the Tech to Protect Challenge.



## Contestants Panel

A discussion with a panel of contestant teams, focused on what they learned, what they created, and what is next for them after the Tech to Protect Challenge.



# The Beginning of Tech to Protect

- In September of 2018, a group of about 40 NIST PSCR Researchers, First Responder Network Authority Advisors, and First Responders from Law Enforcement, Fire and EMS backgrounds met in Boulder, Colorado.
- At the meeting, 25+ early concepts for future contests within the Tech to Protect Challenge were reviewed, vetted, and discussed.



# Contest Snapshots



## CONTEST 001//

### 360 Degree View: A Mobile Dashboard for Your Network Security

Build a centralized mobile data dashboard to keep emergency responders continually aware of the security of their connections.



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## CONTEST 002//

### No Need To Repeat: Delivering Mission Critical Communications

Strengthen voice communications with push-to-talk technology for mission-critical response.



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## CONTEST 003//

### Looking Under the Hood: Using Augmented Reality to Help Save Trapped Passengers

Use AR to map the safest way to extricate passengers in critical vehicle collisions.



First Responder  
Network Authority\*



## CONTEST 004//

### Got You Covered: Mapping LTE Capabilities to Save Lives

Expand mapping capabilities to better assess LTE network coverage.



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# Contest Snapshots



## CONTEST 005//

### Fire Safety in 3D: Incentivizing Homeowners to Create Pre-Incident Plans for Firefighters

Design a prototype app that incentivizes homeowners to upload 3D floor scans in order to create fire safety checklists and pre-incident plans.



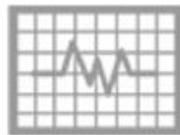
## CONTEST 006//

### Voice Commands to Virtual Assistants: Hands Free Device Control

Create a customized, voice-activated virtual assistant fit for emergency response.



First Responder Network Authority®



## CONTEST 007//

### Sensor Integration: Monitoring Emergency Responders' Health

Leverage emergency responder sensor and sensor networks to support on-the-job safety.



First Responder Network Authority®



## CONTEST 008//

### No Coverage: Placing Deployable Networks in Emergencies

Develop a diagnostic tool that informs emergency responders on the expected and current coverage and services of LTE deployable networks.



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# Contest Snapshots



CONTEST 009//

## Making the Case: Proactive Image Protection

Enhance digital security by creating software that detects image tampering and manipulation.



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CONTEST 010//

## Organizing Chaos: Calming Catastrophe by Tracking Patient Triage

Improve response for locating, tagging and tracking patients in mass casualty incidents.



First Responder  
Network Authority



# Program Schedule



# In-Person Regional Codeathons

- In April 2019, the Tech to Protect Challenge invited innovators and members of the public safety community from across the country to team up and create prototype software solutions for emergency responders.
- In the fall of 2019, ten regional codeathons were hosted to encourage participants and public safety to interact at in-person events and work collaboratively.



# Regional Codeathons

**Sept 27-29, 2019**

Denver, CO

College Station, TX

Chicago, IL

Washington, DC

**Nov 1-3, 2019**

New York, NY

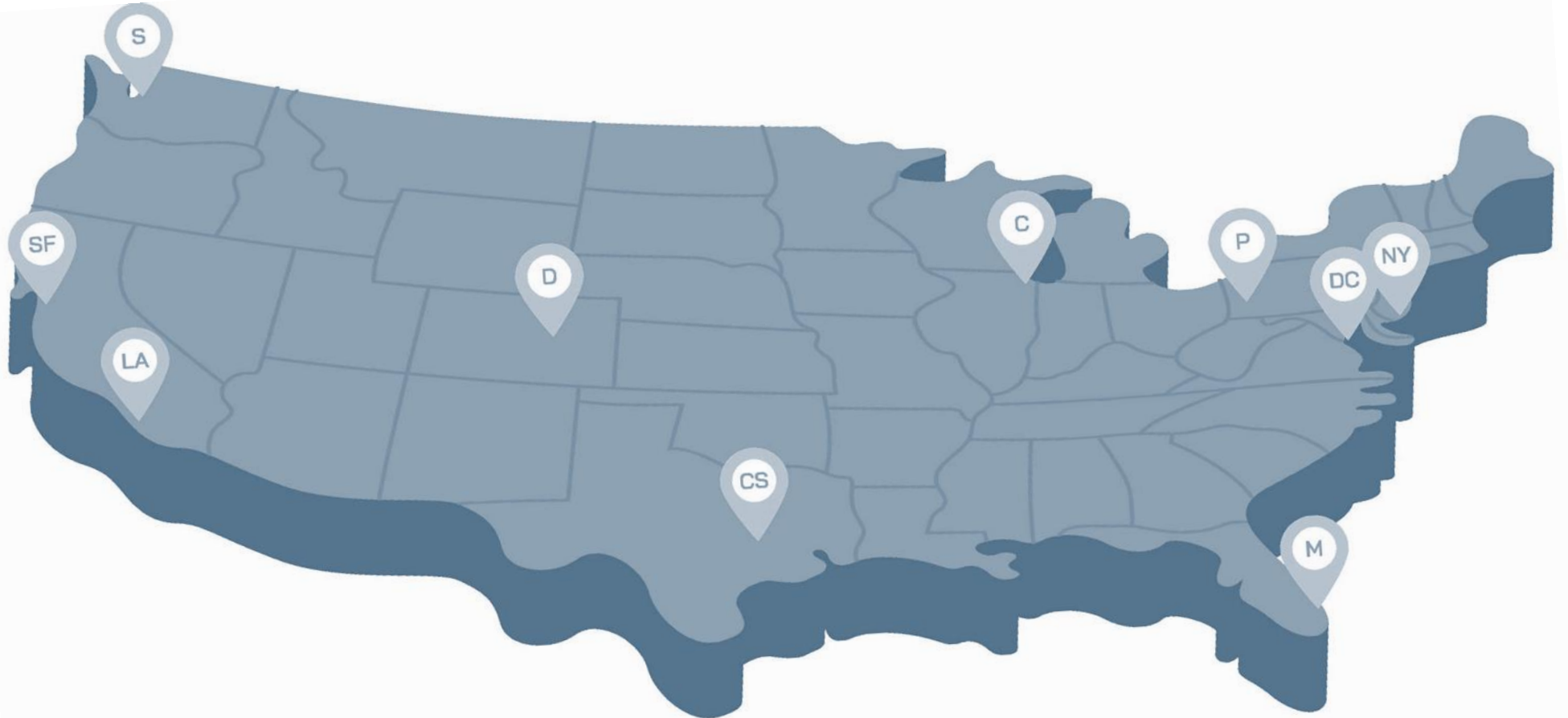
Seattle, WA

San Francisco, CA

Los Angeles, CA

Miami, FL

Pittsburgh, PA





# Online Contest

- In November of 2019, participants were encouraged to share their current work – having had the opportunity to make improvements and address recommendations from public safety.
- From the field, the top 25 were invited to the National Award Event.
- The cohort of participants represented all 10 contest areas and included a mix of individuals with different backgrounds.
- Contestants included: current college students, professors, industry professionals participating on nights and weekends, municipalities, and active duty first responders.



# The National Award Event

- Hosted by NIST PSCR from Boulder, CO as a 100% online event, the National Award Event took place Friday, May 1, 2020.
- The agenda included:
  - Welcome & Overview
  - A 12-minute presentation from each of the 25 finalists
  - FirstNet Built with AT&T lunch and learn session
  - Judge Panel Presentation
  - Contestant awards
- About ~240 guests joined us to see firsthand the progress made by participants as they completed the program.



# Contestant Awards

Team Name / Submission Name	Rating	Prize	Seed	Prize	Prizes Awarded
Zenext : Transforming Public Safety through AI enabled Hands-free Technology	Excellent	\$40,000	YES	\$30,000	\$70,000
Corroborator	Excellent	\$40,000	YES	\$30,000	\$70,000
Modern Triage Management by QuantaSTAT	Excellent	\$40,000	YES	\$30,000	\$70,000
NaT : SALT (Na) Triage (T) Intelligent Assistant	Excellent	\$40,000	YES	\$30,000	\$70,000
Next-Gen MCPTT	Superior	\$20,000	YES	\$30,000	\$50,000
AR Extrication Assist	Superior	\$20,000	YES	\$30,000	\$50,000
HC PIP	Superior	\$20,000			\$20,000
Authim	Superior	\$20,000	YES	\$30,000	\$50,000
CritSit Care	Superior	\$20,000	YES	\$30,000	\$50,000
Map my LTE (LTE Coverage tool extension)	Very Good	\$15,000	YES	\$30,000	\$45,000
Home Pro-Tech	Very Good	\$15,000	YES	\$30,000	\$45,000
Harris County Proactive Biometric Monitoring	Very Good	\$15,000			\$15,000
FireHUD : Biometric IoT System for First Responders	Very Good	\$15,000			\$15,000
vTriage   Calming Catastrophe by Tracking Patient Triage	Very Good	\$15,000	YES	\$30,000	\$45,000
Bio1 Systems' PhysioCap: clinical data capture and transfer system for mass casualty incidents.	Very Good	\$15,000	YES	\$30,000	\$45,000
Beam Reach	Good	\$10,000			\$10,000
Trailblazer	Good	\$10,000			\$10,000
Team Talk	Good	\$10,000			\$10,000
Critical Access	Good	\$10,000			\$10,000
MCPTT Application	Good	\$10,000			\$10,000
SIMBA	Good	\$10,000			\$10,000
Apollo A.I.	Good	\$10,000			\$10,000
Heart in Hand	Good	\$10,000			\$10,000
Front-Ranger	Good	\$10,000			\$10,000
ESafe	Good	\$10,000			\$10,000

\*Order of awards does not imply any ranking within adjectival ratings. The first team in excellent, superior, etc. is only listed first and does not imply a ranking. All teams listed within an adjectival rating are rated the same.



# Technical Lead Panel

An in-depth discussion with a panel of experts who helped create and implement the Tech to Protect Challenge.

# Technical Lead Panel



● **Craig Connelly**  
Public Safety  
Communications  
Research



● **Margaret Pinson**  
Institute for  
Telecommunications  
Services



● **Bill Schrier**  
First Responder  
Network Authority



● **Jason Kahn**  
Public Safety  
Communications  
Research



● **Charles Hardnett**  
First Responder  
Network Authority

# Questions for the Technical Lead Panel



- What did you learn as a Technical Lead in the process?
- How did being a technical lead help you achieve your R&D goals?
- How did being a technical lead provide opportunities for growth?
- How do the prototypes created by TTP teams matter?
- What does the outcome of TPP mean for your organization?



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# Contestant Teams Panel

A discussion with a panel of contestant teams, focused on what they learned, what they created, and what is next for them after the Tech to Protect Challenge.

# Contestant Teams Panel



● **Gary Howarth**  
Public Safety  
Communications  
Research

● **Lauren Shluzas**  
Bio1 Systems

● **Austin Handle**  
Apollo AI

● **Levi Adissi &  
Francis Lin**  
AREA

● **Zack Braun**  
FireHud



# Questions for the Contestant Teams Panel



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● Can you tell us more about your team that worked on the TTP challenge?

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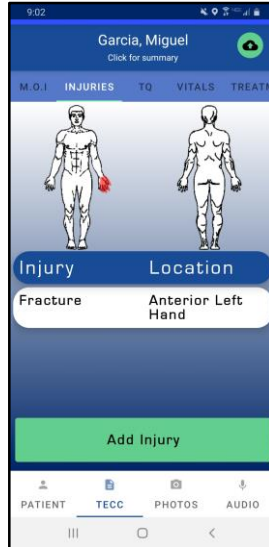
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# Bio1 Systems Clinical Data Capture System

## DATA CAPTURE

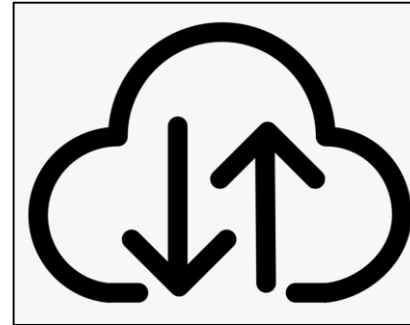


**Wrist-worn Tag:**  
LEDs for triage and QR  
code (for patient ID)



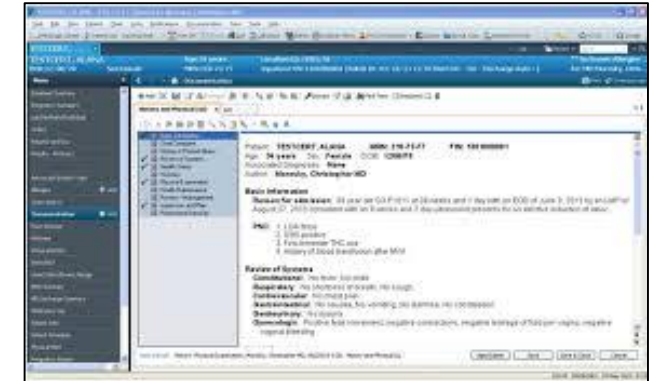
**Smartphone UI**  
(TECC data capture)

## DATA STORAGE

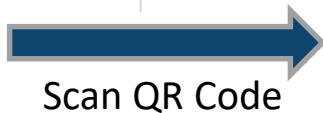


**Data storage cloud**  
(HIPAA compliant)

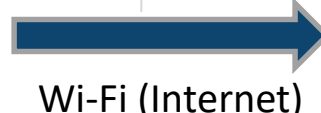
## DATA UPLOAD



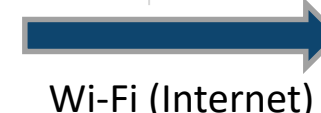
**Hospital EHR**



Scan QR Code



Wi-Fi (Internet)



Wi-Fi (Internet)



AS ENDORSED BY THE  
**SAFE AMERICA FOUNDATION**



VISIT US AT: [HTTPS://APOLLODAI.IO](https://apollodai.io)



**CURRENT STATUS:**  
**SEEKING PRE-SEED FUNDING**

**FUNDING GOALS:**  
**1. EXPANDING TEAM**  
**2. PRODUCT PILOT PROGRAM**  
**3. FURTHER EXPANSION / OUTREACH**

FOR BUSINESS INQUIRIES: [CONTACT@HANDLECONSOLIDATED.COM](mailto:CONTACT@HANDLECONSOLIDATED.COM)

## A HANDS-FREE SMART VOICE ASSISTANT FOR **FIRST RESPONDERS**

### • PROJECT SUMMARY

- A cloud-based, scalable, hands-free focused voice assistant for all first responders.
- Accessible via progressive web app or verified messaging platform.
- Compatible with any bluetooth headset or hands-free device.

### • PARTICIPANT SUMMARY

Austin S. Handle | BS Criminology | Police Officer

Apollo AI was developed over a period of two years while I worked full-time as a sworn law enforcement officer in Metro Atlanta, Georgia. During that time period, Apollo AI was touched, improved upon and developed by suggestions and ideas from first responders **from over (30) different agencies.**

### • SOME TECHNOLOGY KEYNOTES

- Actively **translating** for first responders as they speak to individuals of various backgrounds and languages.
- Automatically **providing audible alerts and info** for first responders as they respond to an incident address with a recent alert or history. (I.E. Domestic Disputes)
- Automatically utilizing third-party applications (I.E. Google Maps or Waze) to **update traffic conditions for critical incidents** to assist the public in getting to their destinations quickly should a roadway be shut down.
- **Calling back 911-callers** to seek more information, provide status updates (ETAs) of responders and to verify incident addresses.
- Providing hands-free access to summary reporting of incidents to all first responder son a scene with person details, identifiable information and other as necessary **to complete/generate automatic reports.**
- Providing **hands-free access to Criminal Justice inquiry systems, communications and even medication databases** for overdose or active ingredient information.
- **Smart-Reminders** for law enforcement to patrol critical areas of their assigned beat based on crime statistics and time of day.



# AR Extrication Assist

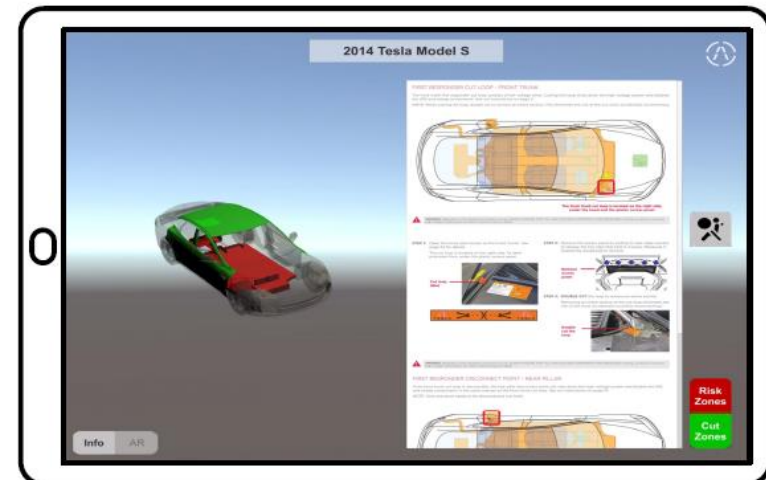
AREA provides first responders with critical vehicle information through augmented reality and accessible 3D/2D models.

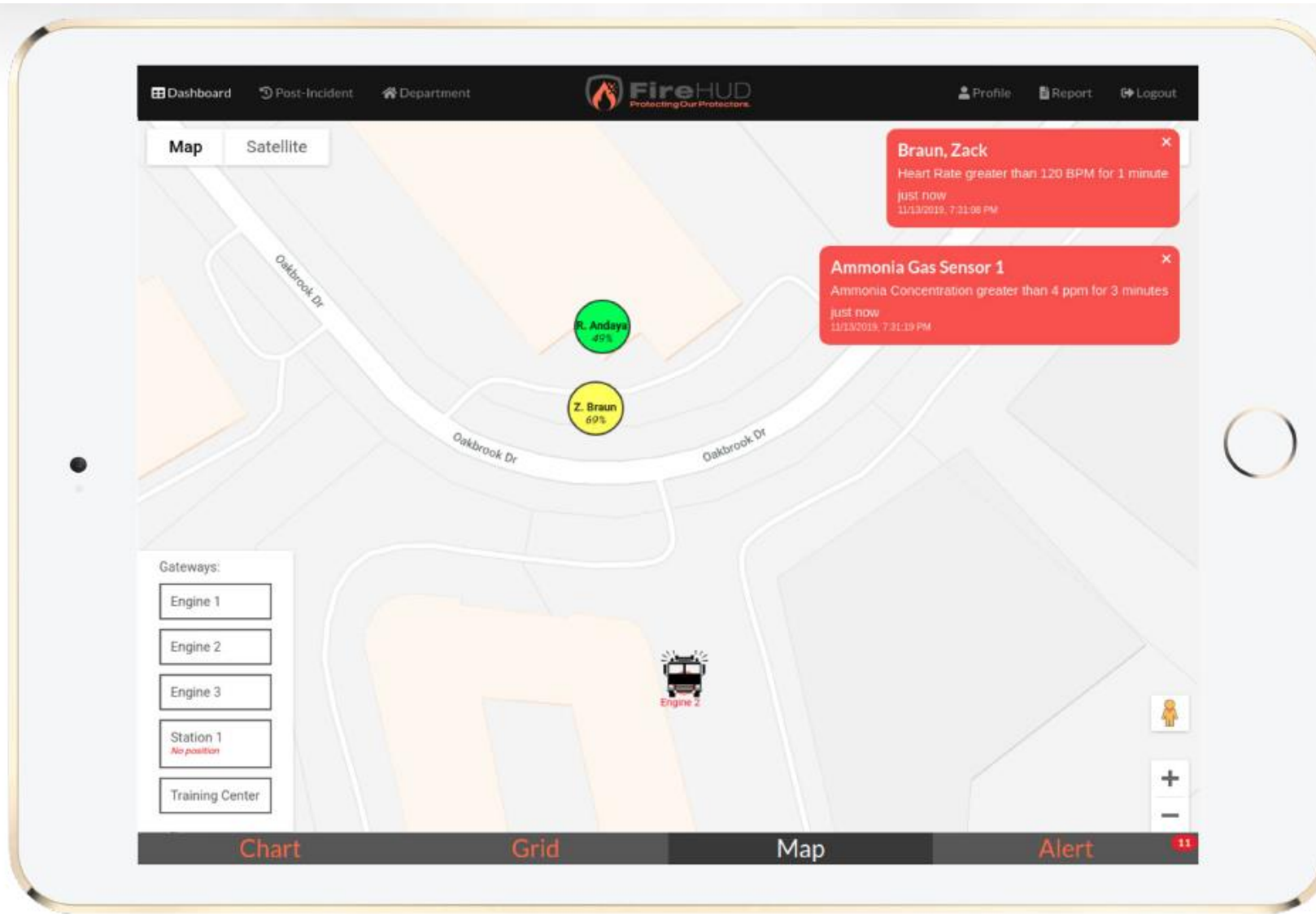
## FEATURES

- 01 | Augmented Reality: Immediate Critical Information
- 02 | Offline Solution: 3D/2D Modeling and Textual Info
- 03 | Vehicle Identification via VIN
- 04 | Cross Platform Functionality
- 05 | Scalable Development

## STAY CONNECTED

[www.arextrication.com](http://www.arextrication.com)





- Integration of Gas, Physiologic, and Location Sensors
- Real-time alerts sent to Dashboard
- Alerts are completely customizable
- Any third-party sensors can be easily integrated via software





# Questions for the Contestant Teams Panel



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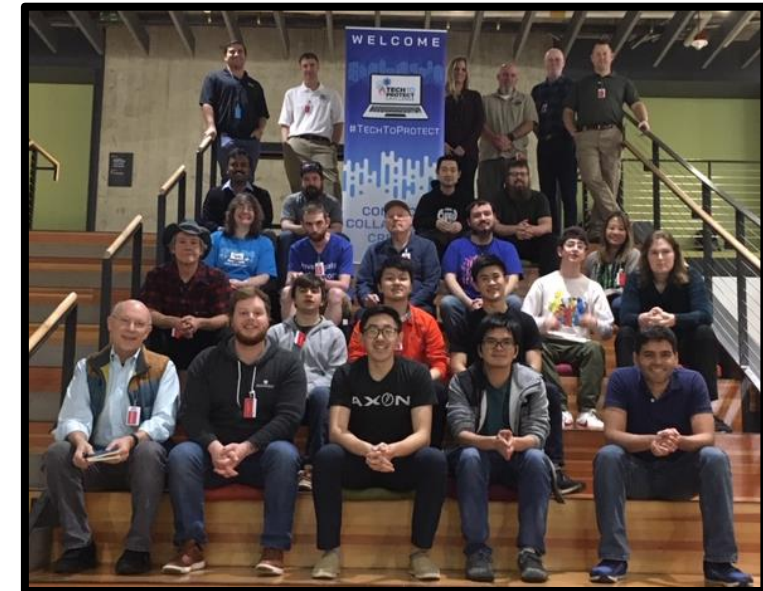
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# Closing Remarks

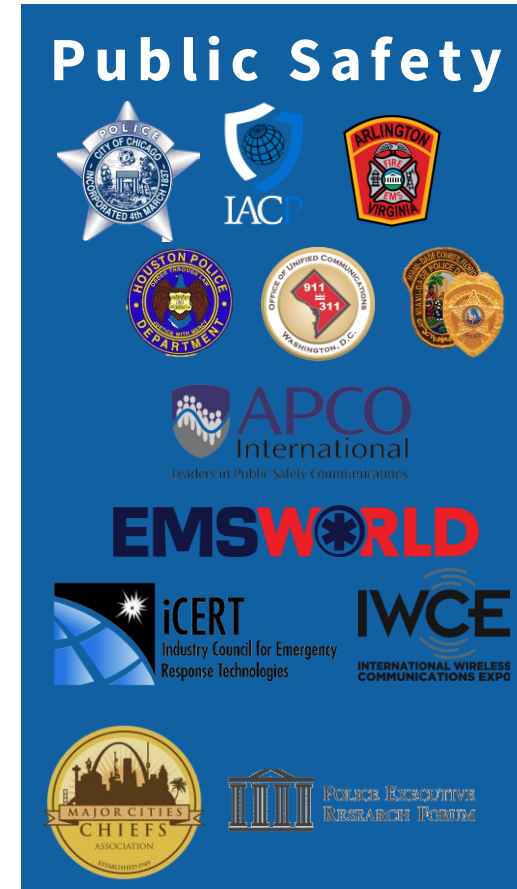
Wrap up, thank you, & closing remarks



# Thank you to our Judges, Reviewers, & Contestants



# Thank you to our Co-sponsors & Supporters





# Thank you Technical Leads

- Technical Leads for PSCR

- Chris Nelsen
- Jason Kahn
- Sam Ray
- Charlsea Hansen
- Max Maurice
- Margaret Pinson (NTIA/ITS)
- Michael Ogata (NIST/ITL)



- Technical Leads for FRNA

- Barry Leitch
- Shawn Shahidi
- Charles Hardnett
- Ray Lehr
- William Schrier



EMERGENCY  
911

THANK YOU

NIST

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