

2017 APTA Rail Conference

Technology and Safety in the Rail Industry.

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Vice President
Protran Technology





PROTRAN
TECHNOLOGY

A Harsco Rail Company

Track Workers & First Responders: **SECURE.**

With a system as simple
as just two devices.

Personal
Alert Device

Wayside
Unit

See what WMATA, SACRT, and Denver are
doing to keep track workers and first responders safe.

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Newest Safety Technology for Track Worker Safety



CPUC, NTSB, FRA and FTA Approvals and recommendations

Track Worker Fatalities

- 2017 4 + Worker Fatalities - Jan - March
- 2016 14 + Worker Fatalities
- 2015 21 + Worker Fatalities
- 2014 15 + Worker Fatalities

54 Workers Killed from 2014 - 2017

124 Workers killed since 2009

On Track Equipment Collisions

- 2017 – Approximately 75
- 2016 – Approximately 106
- 2015 – Approximately 182
- 2014 – Approximately 145

Most are not reported



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1. THE PROBLEM

- Track Worker Fatalities
- On Track Equipment Collisions



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Key Human Factors

- 12 top preconditions to unsafe acts
 - Fatigue
 - Stress
 - Complacency
 - Communication
 - Awareness
 - Distraction
 - Lack of knowledge
 - Teamwork
 - Lack of resources
 - Pressure
 - Lack of assertiveness
 - Norms

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2. THE CAUSE

- Safety Risks
 - Single Point Failures
 - Track Inspectors, Walkers, Lone Worker
 - Adjacent Track
- Human Factors
 - Dirty Dozen
 - 300 +



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3. REGULATORY RESPONSE

- NTSB – R-08-04
- NTSB – R-08-05
- NTSB – R-08-06
- NTSB – R-13-39
- NTSB – R-13-40
- FRA – 17-14
- CPUC – GO 175
- FRA CFR Part 214 Revisions



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Technology that adds **“WARNING” AND “REDUNDANCIES”**
will mitigate the 12 top preconditions to unsafe acts

What is better
Advance Warning?
OR
Redundant Signal Protection?

It depends on the Agencies Standard Operating Procedures

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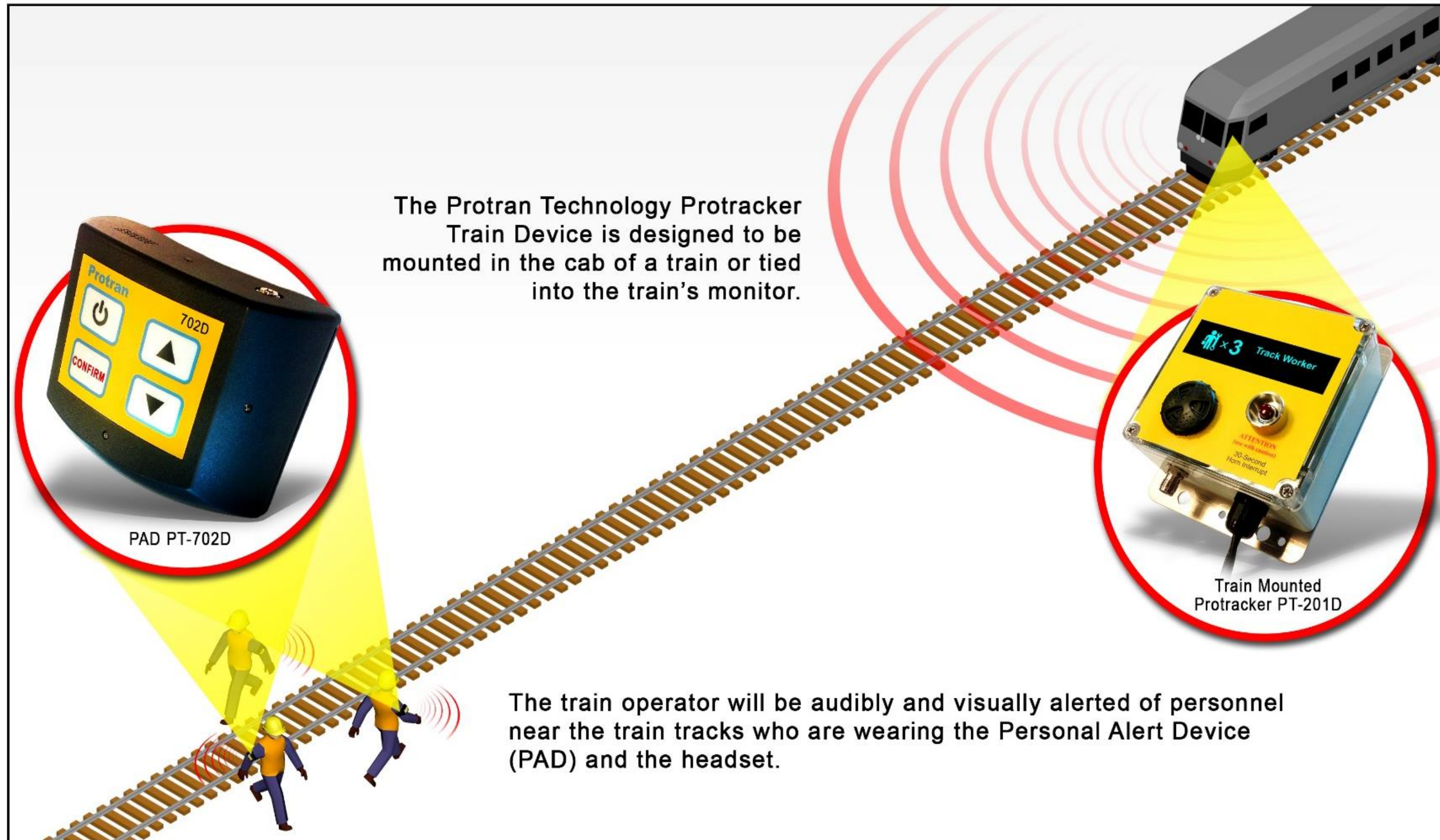
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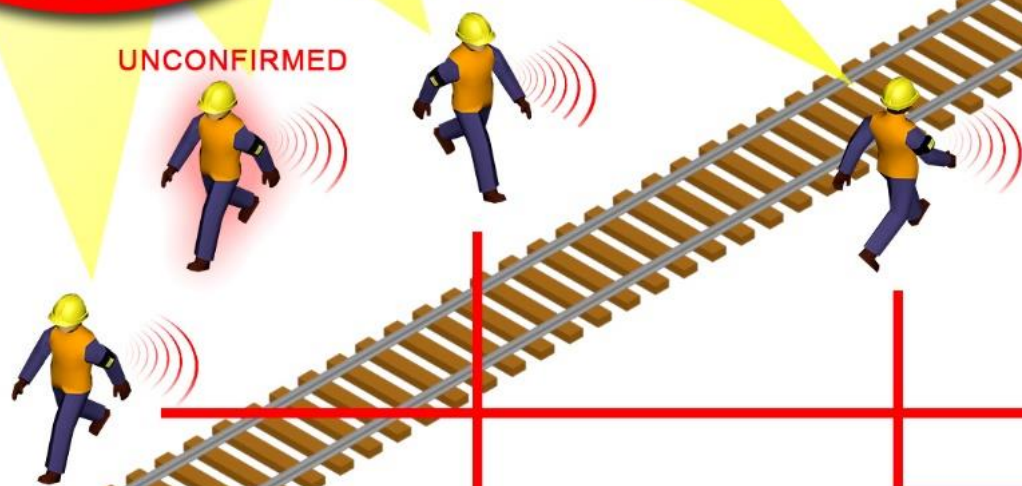


The train operator will be audibly and visually alerted of personnel near the train tracks who are wearing the Personal Alert Device (PAD)



PAD PT-704

UNCONFIRMED



Ranging Train Mounted
Protracker PT-206



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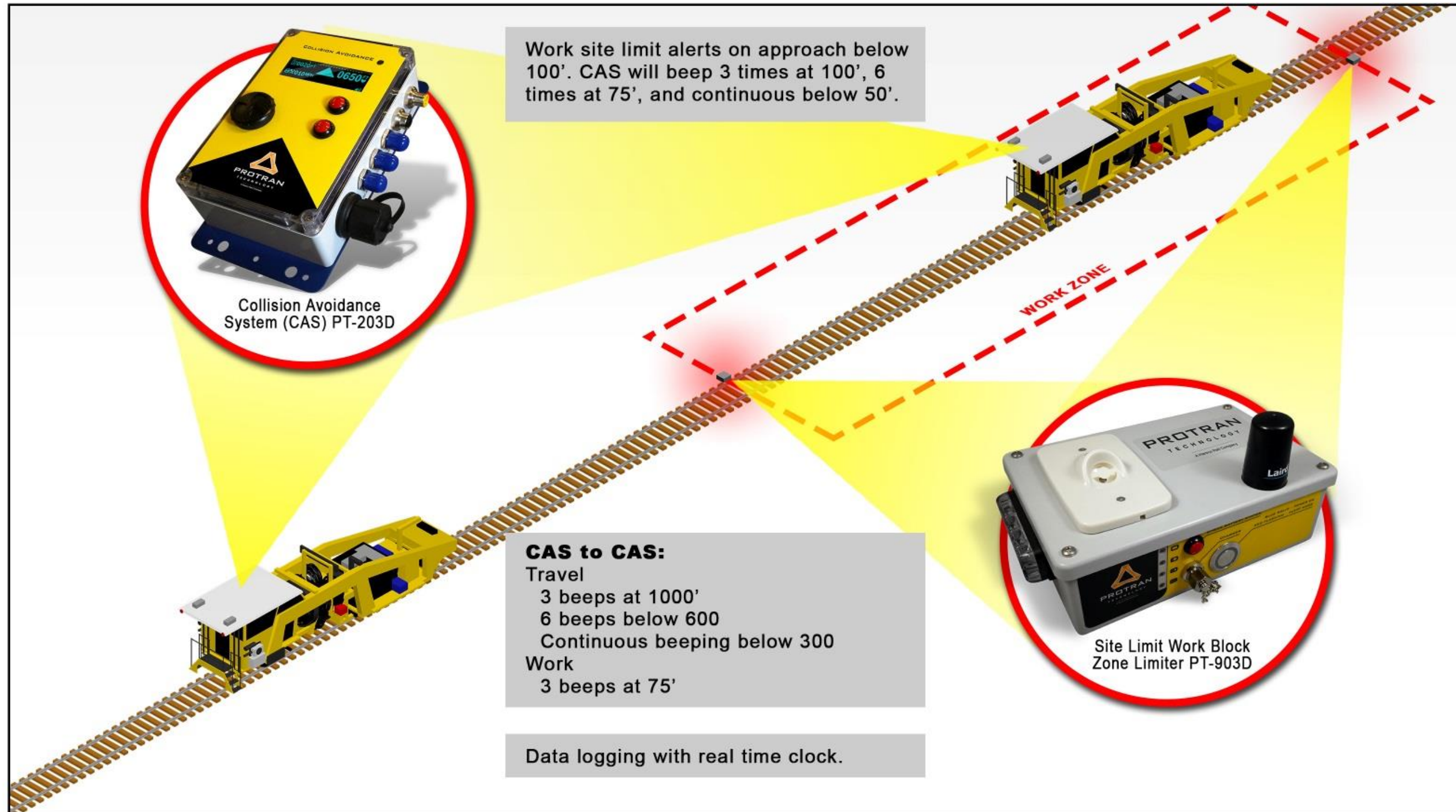
Collision Avoidance



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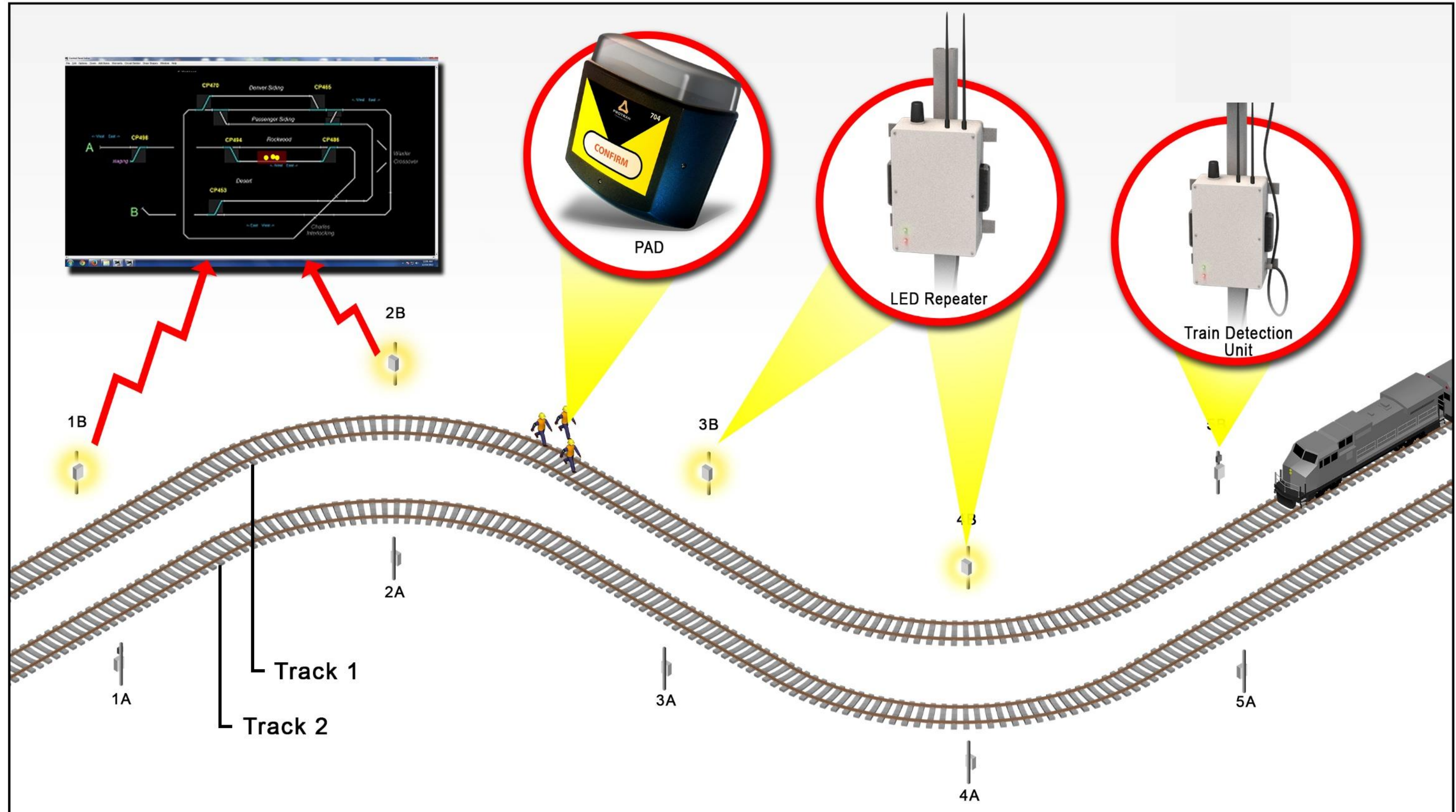
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Real Time Location Awareness



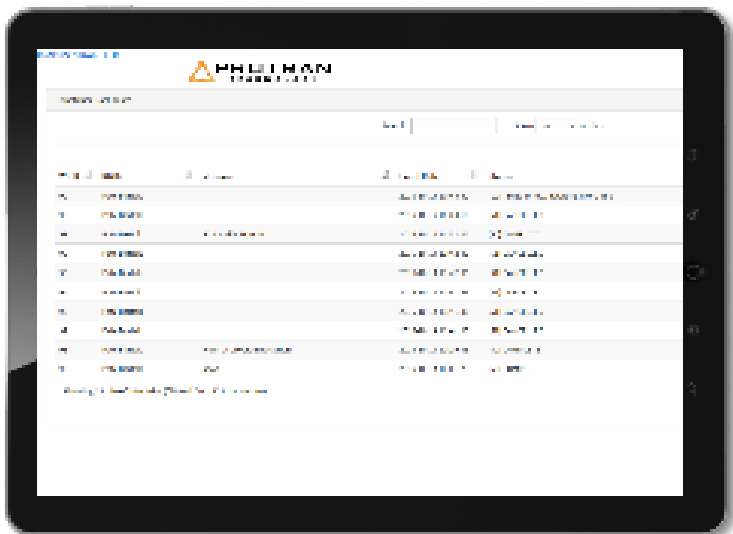
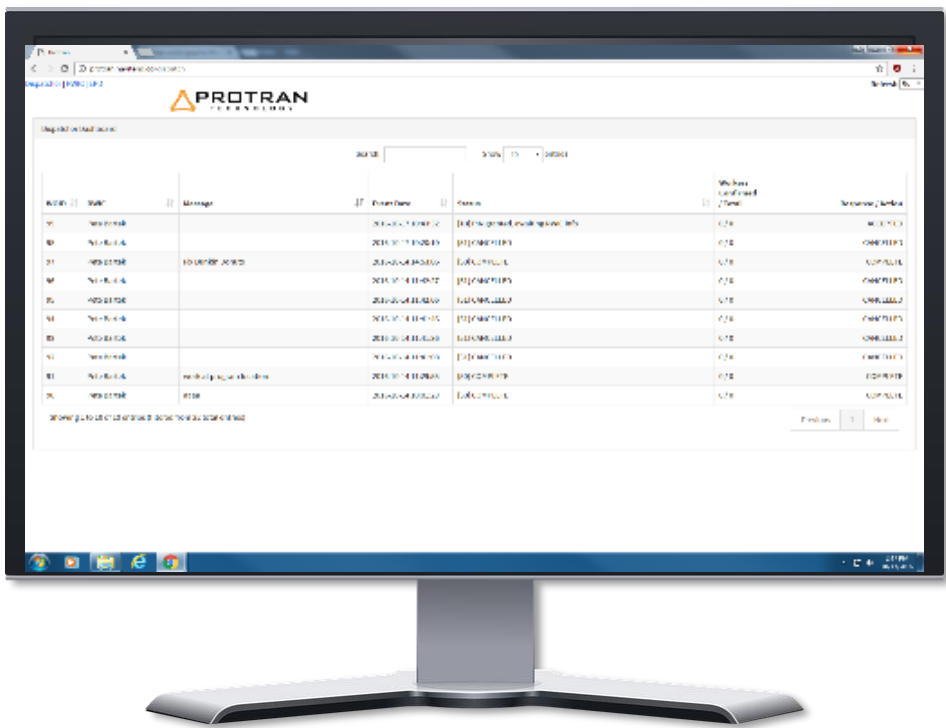


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Enhanced Employee Protection Redundant Signal Protection



**Warning and Confirmations when Working Blocks are
Applied and Removed**

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Dispatcher | RWIC | EPD | [636] | Refresh 5s

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Dispatcher Dashboard

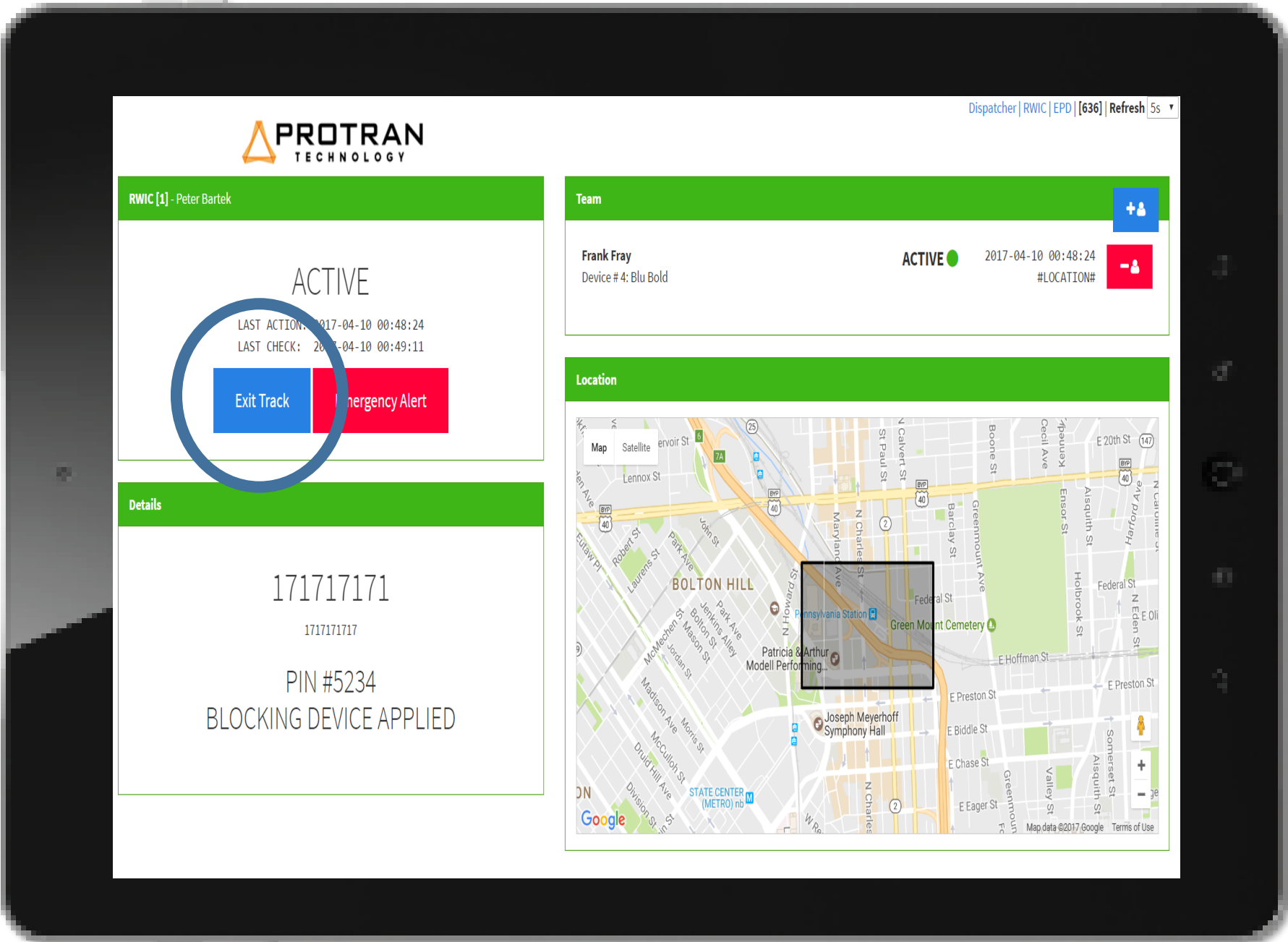
Search: Show 10 entries

WOID	RWIC	PIN	Message	Event Date	Status	Workers Confirmed / Total	Response / Action
199	[3] Joseph Riley	XXXX	RWP Track Inspection	2017-04-09 23:17:39	[32] EMERGENCY CALLED BLOCKING DEVICE APPLIED	2 / 2 EMERGENCY	EMERGENCY
198	[3] Joseph Riley	9527	Aaaaaa	2017-04-09 23:02:58	[50] COMPLETE BLOCKING DEVICE REMOVED	0 / 0	COMPLETE
197	[3] Joseph Riley	XXXX	N/A	2017-04-09 22:59:09	[51] CANCELLED	0 / 0	CANCELLED
196	[3] Joseph Riley	XXXX	N/A	2017-04-09 22:57:50	[52] DENIED	0 / 0	DENIED
195	[3] Joseph Riley	XXXX	N/A	2017-04-09 22:57:36	[51] CANCELLED	0 / 0	CANCELLED
194	[19] Manuel Galdo	2205	abc	2017-04-09 22:56:57	[50] COMPLETE BLOCKING DEVICE REMOVED	0 / 0	COMPLETE
193	[4] James Resio	XXXX	N/A	2017-03-24 14:37:46	[51] CANCELLED	0 / 0	CANCELLED
192	[1] Peter Bartek	6879	wwwwww	2017-02-15 12:27:28	[50] COMPLETE BLOCKING DEVICE REMOVED	0 / 0	COMPLETE
191	[1] Peter Bartek	XXXX	N/A	2017-02-14 18:43:10	[52] DENIED	0 / 0	DENIED
190	[3] Joseph Riley	9719	Aaaaa	2017-02-14 18:22:59	[50] COMPLETE BLOCKING DEVICE REMOVED	0 / 0	COMPLETE

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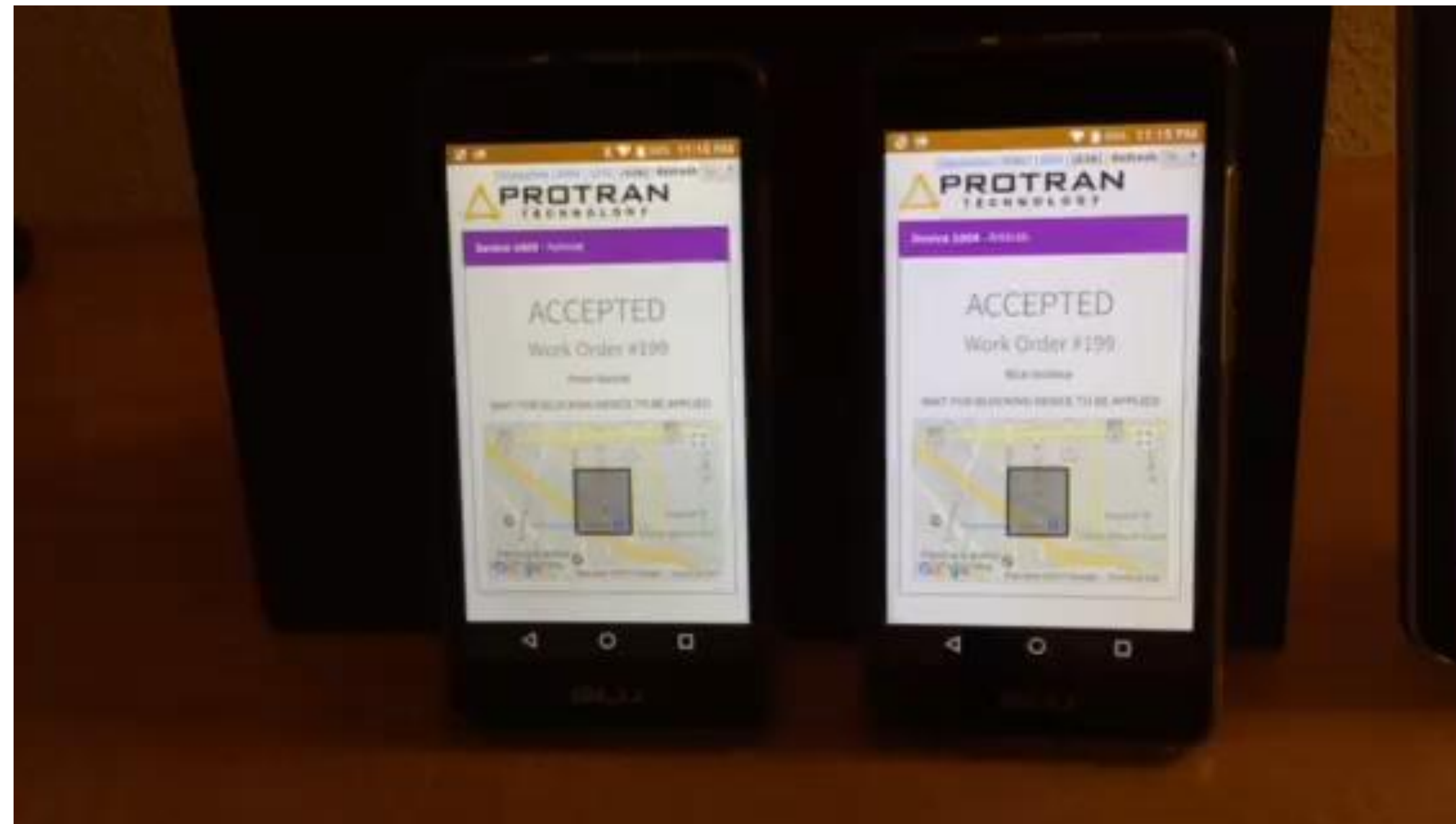
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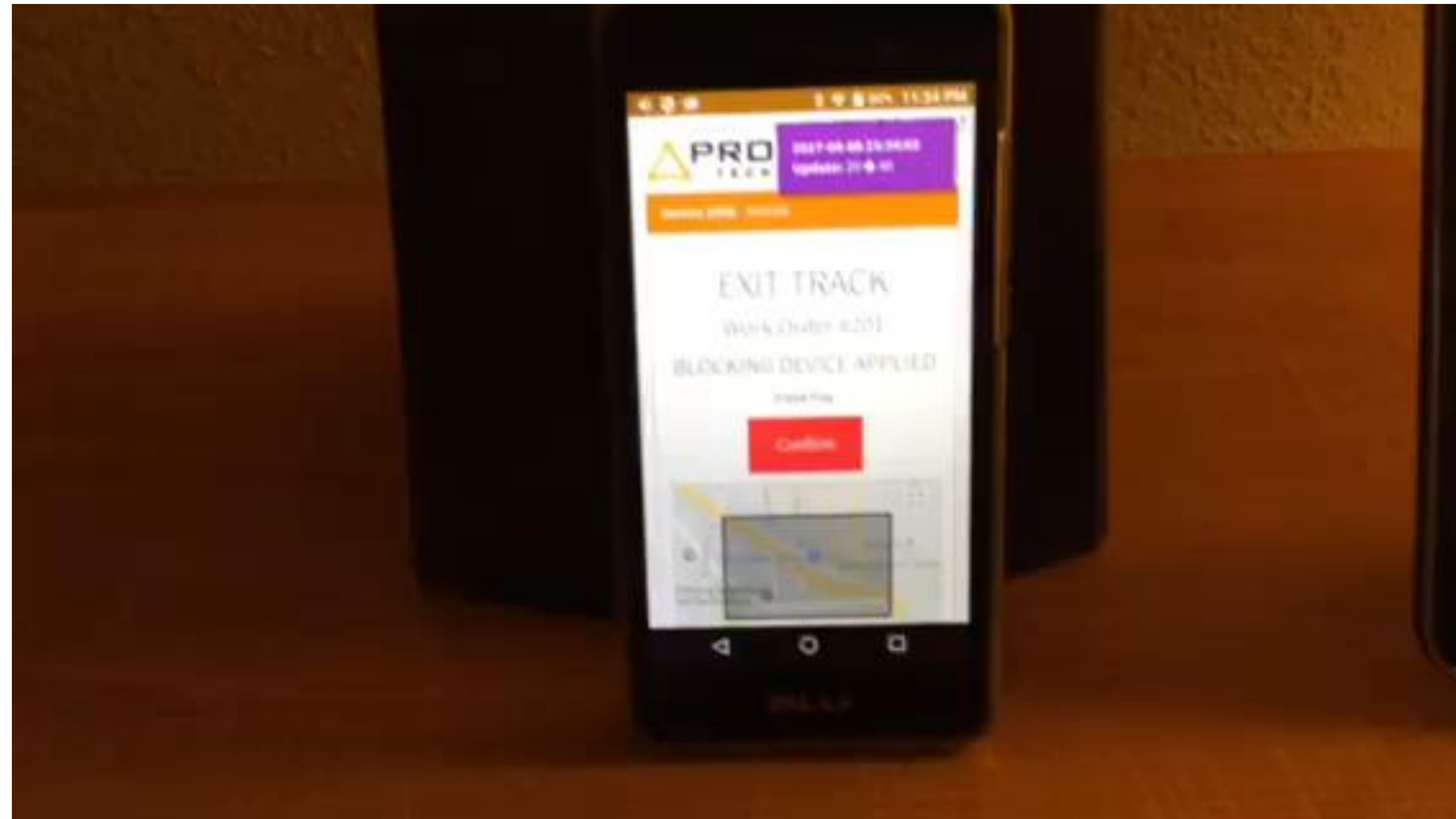
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Current Results

NTSB R-08-04, R-13-39 and R-13-40

WARNING SYSTEMS RESULTS:

- ADD to Existing SOP as Secondary WARNING
- Over 6,000 Systems in Operation
- Over 8 Years of Revenue Service
- DATA Logging for Training and Investigation

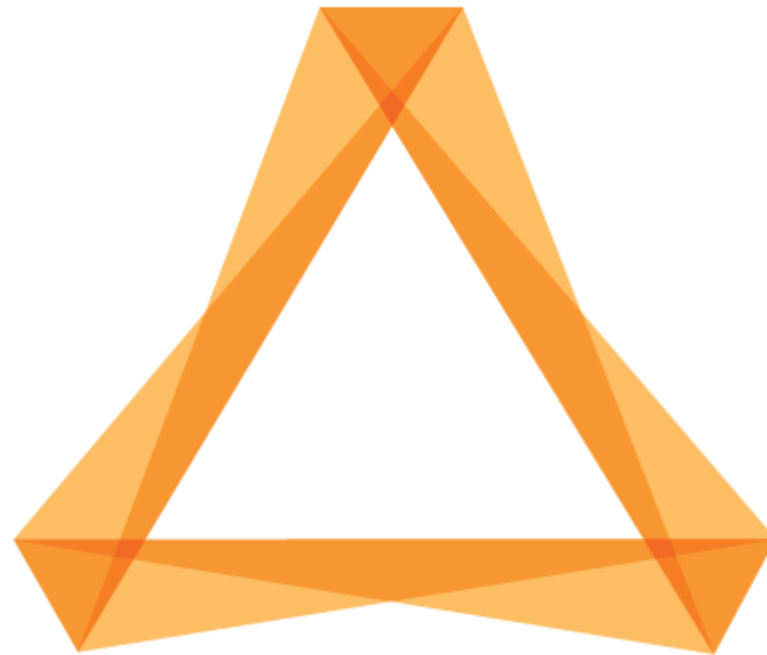
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ZERO CLOSE CALLS

ZERO FATALITIES



Thank you



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T E C H N O L O G Y