Simulating Next-Generation Public Safety User Interfaces in Virtual Reality

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Goal

Design and simulate next-generation user interfaces that have the potential to increase safety and agility of first responders.

Motivation

Simulate future technology into first responder's routine while the technology is still under development and not ready for the consumer market.

Contributions

- User interface designs informed by the needs and culture of first responders.
- Two virtual reality scenarios where public safety procedures are enhanced with simulated augmented reality.
  - **Law Enforcement: Traffic stop scenario**
  - **Firefighting: Search and rescue scenario**

Traffic Stop Scenario

User Interface Features

Real-time data gathering

The interface automatically identifies the vehicle's plate and searches for its information.

Situation awareness

The interface sends visual and haptics alerts to inform the status of the findings.

Arm-mounted tracking device

The virtual display follows the position and orientation of the arm-mouted tracking device.

On-demand information display

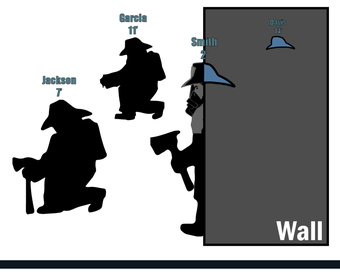
The arm-mouted display shows relevant information about the traffic stop.

Search and Rescue Scenario

User Interface Features

Team Identification

- Names and distances overlay
- Icon representation when occluded

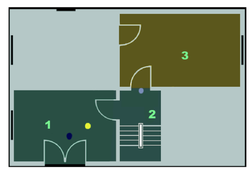


Environmental Information

Room Temp	Air Bottle Level
133°F	Air Level 80%
Orientation	**Floor level**
N	1st Floor

Mini-map

- Real-time map generation
- Room coverage
- Room identification
- Team members location



Alerts

Environment issues

Peripheral View Color change

Normal | Medium | High

Team-member issues

Normal | Asking assistence | In danger

Markers

Hazard

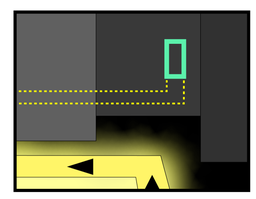
Fire Source | Dangerous Chemical

Information

Exit Route | Victim Found | Blocked Path

Indoor Guidance

- Path Generation
- Path Overlay
- Exit Route



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