STOPFIRE
AR FIREFIGHTING SIMULATOR

Introducing StopFire: The Future of Firefighter Training

Stopfire - Augmented Reality Firefighting Simulator

Integration of StopFire into training processes

AGENDA

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See StopFire in Action

STOPFIRE Firefighters Trainer Video Demonstration showing the augmented reality equipment in action

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Bridging the Gap Between Theory and High-Risk Practical Scenarios

Understanding the Challenges

Increased risk to life and health

Limited opportunity for live firefighters trainings

Health related problems due to unnecessary exposure to carcinogens and fatality risks[1]

High typical cost of live fire training event

Dedicated live fire training facility costs millions[2]

Operation costs per live fire training

High Complexity and Diversity of Fire trainings

Limitations of virtual reality solutions in realism and scenario customization

The lack of standardized metrics and consistency in measuring the effectiveness of hot firefighting training

High environmental impact

Carbon emissions and air pollution

Water consumption[3]

Runoff pollution

Sources: 1 - NFPA 2 - Fire Product Search, Frontiers 3

Effectiveness of augmented reality training

Mixed Reality*
- Teach students nozzle handling and correct body positioning
- Increase student engagement by teaching them what to look for in a real fire
- Expose students to many scenarios instead of one fire container
- Train firefighters more often without risk to equipment

On-site Training
- Real "hot" fire experience
- Real behavior of smoke and fire
- Psychological pressure of real fire

Mixed Reality Solution, theory and hot firefighter training are complementary training methods

Theoretical
- Online courses
- Books
- Video
- Tests

On-site Training
- Gas fire training complex
- "Real" training in buildings
- Cold Smoke Fire Training Buildings
- Fire Behaviour Training Units
- Aircraft fire trainer

	Mixed Reality*	Virtual Reality*	Theoretical	On-site Training
Cost per learner	🟢	🟢	🟢	🔴
Engagement, realism	🟢	🔴	🔴	🟢
Health | Training Time, including set up costs	🟢	🟢	🟢	🔴
Efficiency & Feedback, Time to Proficiency	🟢	🔴	🔴	🟢
Enviromental impact	🟢	🟢	🟢	🔴

*minimum of 5 000 hours of training delivered over total product's lifetime

StopFire System overview

At STOPFIRE we combine innovation with safety to transform firefighter training. StopFire integrates the real world with virtual simulation technology, offering unparalleled training realism and effectiveness.

Our unique mixed reality approach bridges the gap between virtual training and real-life scenarios, providing safe, comprehensive, and adaptable firefighter training solutions
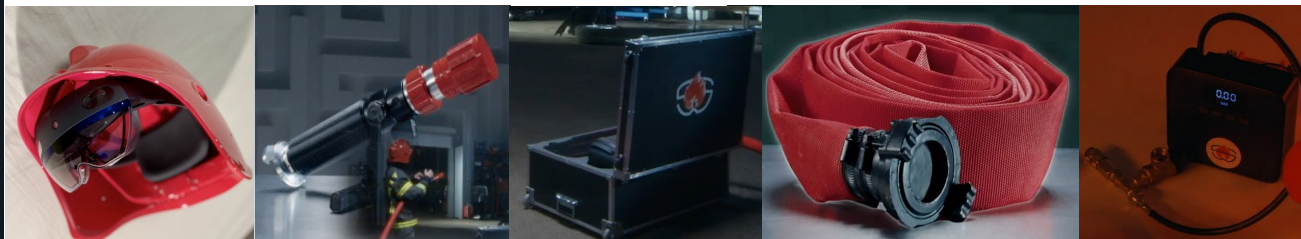
Helmet with Microsoft Hololens 2 Mixed Reality Glasses

Heart rate monitor

Modified firehose nozzle with force feedback
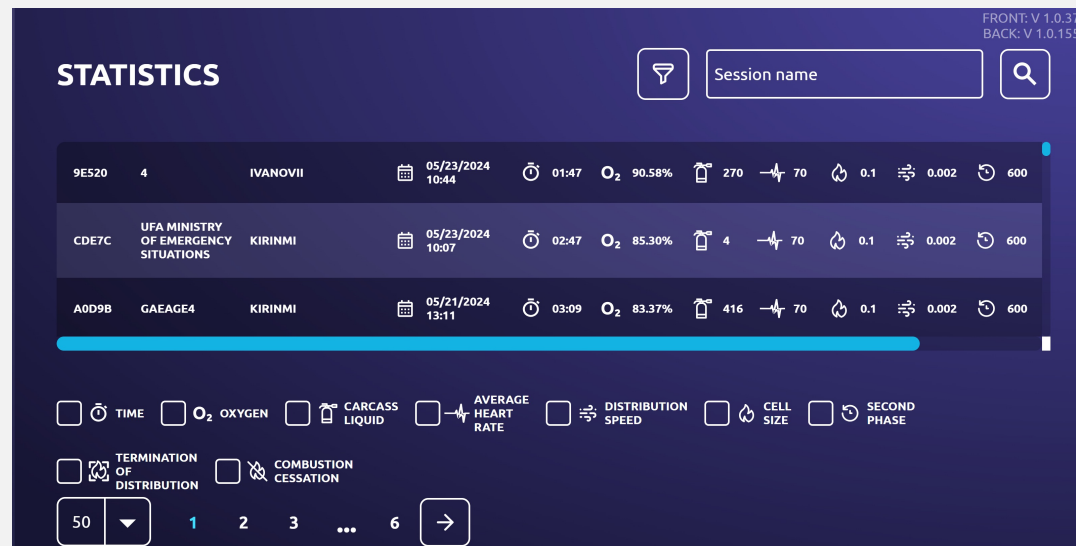
Vest with Heated Elements

Fire Hose

Compressor

Main features and technologies

→ Use of augmented reality to create realistic training scenarios

→ Possibility of integration with training 3D scanning technology

Advanced Analytics to track performance

## Innovative Features for Realistic Training

Real-time Mesh Creation

Our technology scans and converts any physical space into a detailed 3D training environment, allowing for scenario customization and flexibility

Visualization and Integration

Leveraging Microsoft Hololens 2, StopFire offers a seamless integration of real and virtual elements to create the most realistic training scenarios possible

Simulation step-by-step

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1

2

3
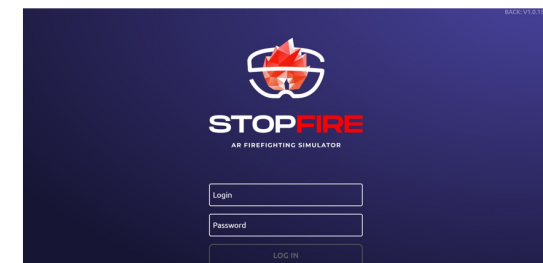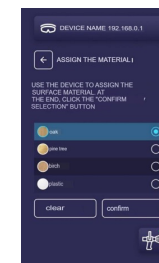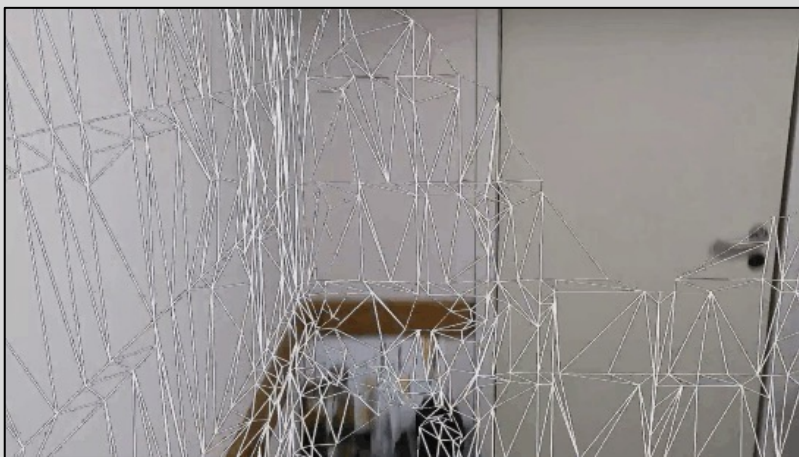
Creating the mesh for any office, industrial environment, where the training should be done

Configuring the training session and running the simulation

Fire extinguishing MR simulation based on a real-time mathematical fire model calculated for a specific real environment

Roadmap

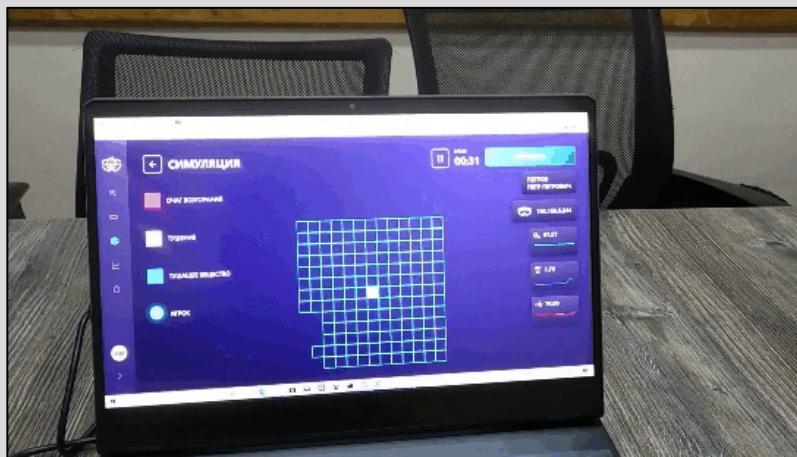**1th quarter 2025**

01
Creation of a version with a fire extinguisher

03
Research + Porting to Magic Leap glasses of the trunk version of the system

2nd - 3rd quarter 2025

05
Collective work of the trunk version of the system

1st quarter 2025

1th quarter 2025

02
Research + Porting to Meta Quest glasses 3 versions of the system with a barrel

04
Special versions of 4 systems (version with barrel, with fire extinguisher, version for MQ and ML) for exhibitions (in conditions of interference with Internet signal transmission)

1st -2nd quarter 2025

2nd - 3rd quarter 2025

06
Minor improvements (heart rate monitor, temperature control function of suit heaters) + improvements that will be revealed in the course of

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Benefits of the StopFire System

☑ **Enhanced Preparedness**: Better prepares firefighters for a variety of emergency situations with detailed, realistic training environments.

☑ **Resource Efficiency**: Reduces traditional resource usage (water, fuel) and associated costs while minimizing environmental impact.

☑ **Adaptability and Scalability**: Easily adaptable to different learning environments and scalable from individual training sessions to large-scale drills.

Leading with Innovation

StopFire offers a fully immersive training system that projects virtual fires onto real environments, allowing firefighters to engage in safe, realistic, and effective training scenarios without any associated risks. Unlike traditional training methods that rely on actual fire drills, StopFire's eco-friendly and safe alternative leverages a combination of physical and virtual elements to create a lifelike training experience. It integrates haptic feedback to simulate real heat, connects seamlessly with existing emergency systems, and employs analytics to evaluate performance, streamlining training with precision and efficiency.

- Improved response time and quality of decisions
- Safe and controlled training environment
- Cost-effective training

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Customer testimonials and effectiveness studies

Validated by academia

Comments:
"I did approach the fire in the same way as I would in hot fire training. It was very realistic, so I behaved as if I was in a real fire". - IVS-System, 23.05.2024

"Cooled the fire down and smoke first, then went closer to the fire. Very similar interaction, nozzle work and walking around scene". – SECURIKA Expo, 13.04.2023

Research papers:
- The Potential of Applying VR Technology in Petrochemical Fire Rescue Training, 2024
- Evaluation of a virtual reality training tool for firefighters, 2024
- Multi-User Simulation and Training for Forest Fire Management in Augmented Reality, 2023
- The Effect of Immersive Training on Emergency Preparedness for Interdisciplinary College Students, 2022
- Virtual reality for immersive multi-user firefighter-training scenarios, 2022
- A VR Multiplayer Application for Fire Fighting Training Simulations, 2022
- Immersive Virtual Reality for firefighter skills training, 2022
- Application of Augmented Reality in firefighters training, 2022
- Experiencing Immersive VR Simulation for Firefighter Skills Training, 2021
- Exploring Simulation-Based Virtual Reality as a Mock-Up Tool to Support the Design of First Responders Training, 2021
- Designing and Developing a VR Environment for Indoor Fire Simulation, 2021
- Extended Reality in Real-World Firefighters' Training and Cultural Applications, 2020
- Training Firefighters In Virtual Reality, 2020
- Exploring the possibilities of Extended Reality in the world of firefighting, 2020
- VR for firefighter skills training, 2020
- Virtual reality in training: an experimental study with firefighters, 2020
- Mixed Reality System for Education and Innovation in Prehospital Interventions at Peruvian Fire Department, 2020
- The use of virtual reality in the training of professionals: with the example of firefighters, 2020
- VR learners were 4x faster to train than in-classroom learners, 2020
- Virtual and augmented reality in education and training of firefighters, 2018
- Train and Equip Firefighters with Cognitive Virtual and Augmented Reality, 2018
- virtual and augmented reality in education and training, 2018
- Using Serious Games and Virtual Simulation for Training in the Fire Service: A Review, 2014
- A virtual reality based fire training simulator integrated with fire dynamics data, 2012

Proven Success in Diverse Settings

We simulate complex firefighting scenarios in industrial and urban environments using our mixed reality training platform, effectively merging virtual challenges with real-world settings for a comprehensive training experience.

Certifications and Compliance

List of international and local certifications that will confirm the quality and safety

Ensuring Excellence and Adherence to Standards

Soon: →
- ISO 9001:2015
- Patent pending

→
- NFPA - US reference standard
- ICAO - international organization

Value Proposition

Calculating savings from reduced costs of traditional training and accident prevention

Key Training Features:

360° Size-Up: Trainees perform a comprehensive evaluation of the fire scene, considering all safety and strategic factors.

Extinguishing Techniques: Choose the correct type of extinguishing media based on the fire's characteristics and location specifics.

Tactical Adjustments: Adapt tactics based on changing fire conditions and operational feedback to optimize suppression efforts.

Recruit training
Introduction to fire fighting
Nozzle / hose handling
Fire fighting tactics

Technology and Tools Used:

Augmented Reality Integration: Utilizes AR to simulate realistic fire scenarios, blending virtual and real elements seamlessly.

Real Equipment Handling: Combines training with actual firefighting gear, enhancing the tactile experience and realism.

Analytical Feedback: Provides instant feedback on performance, including extinguishing techniques, tactical decisions, and overall effectiveness.

Continued professional education
Team management
Scenario training

Learning Outcomes Across Various Scenarios:

- **Scenario customization:** Engage in scenarios that replicate high-risk industrial settings like oil refineries and chemical plants, focusing on specific risks such as explosive materials and toxic gas releases.
- **Dynamic Risk Assessment**: Trainees practice quick situational analysis and decision-making under pressure. Individual support and customization
- **Advanced Hose Handling and Water Application**: Emphasize precision in managing hose streams and applying extinguishing agents effectively.
- **Incident Command and Communication**: Develop skills in situation reporting and command adherence, crucial for real-life firefighting operations. Identify safe path of access and egress throughout the incident.
- **Advanced Extinguishing Techniques:**: Master advanced extinguishing techniques for specialized fires such as electrical fires, gas leaks, and metal fires, utilizing appropriate agents like foam, dry powder, or CO2. Trainees learn to choose appropriate extinguishing agents and methods for effective fire suppression.
- **Environmental and Safety Management**: Identify and manage potential secondary damages, including understanding the specific hazards associated with each fire type.
- **Entertaining learning for young generations** in schools and colleges to educate on safety and emergency response in a compelling manner

We specialize in developing immersive training solutions tailored to firefighters in the oil & gas industry. Our advanced mixed reality simulations offer a broad selection of extinguishing materials and fire scenarios, enhancing the preparedness of refinery firefighters to effectively respond to emergency situations.

Flexible Pricing for Diverse Needs

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Transforming Firefighter Training Using Different Business Models

Streamlined Delivery for Rapid Deployment

→ **Pay Per Headcount - Firefighter Trained**
Tailored to scale with the size of your workforce, this model allows you to pay based on the number of firefighters trained, ensuring you only pay for what you need to train multiple team members without committing to long-term fees

→ **Rent with operator for 2 to 5 days**
Including on-site support by an operator and technical staff to set up and operate the STOPFIRE Trainer during firefighter training courses, excluding travelling expenses

→ **Rent without operator for 1 week to 1 month**
1-2 days on-site set-up and training allows for more extended use. Cost-effective for extended training periods with initial professional setup and training to ensure your team is comfortable using the system

→ **Lease for 1 to 3 years**
Designed to support long-term training needs and making the most of learning opportunities without initial purchase costs

→ **Buy Equipment Trainer-Kit**
with all components, transport cases, chargers and 2 battery packs
Including delivery and on-site training in UAE, including hardware warranty, software and scenario updates and technical support.
Scenario updates and technical support

→ **Subscribe for additional year Service & Upgrades**

→ Joint Venture Partnership
buy a stake in Stopfire and join us as a strategic joint venture partner. Ideal for investors seeking to engage in a growing market with a significant impact on safety and efficiency in critical industries

Rent, buy, lease

JOIN US in Transforming Firefighter Training

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Trial Test of our advanced simulation technology.
Experience first-hand how our system can transform your training sessions with realistic scenarios and cutting-edge features.

Request for feedback or a proposal to conduct a trial exercise at the facility.

In person Demo

Live Demonstration with the Fire Department
Proposal: "See our system in action with a live demonstration."
Details: "Gain a comprehensive understanding of our technology and its benefits through a real-time demonstration."

Do you need additional information or have specific questions? We are ready to provide a personalized Q&A session to discuss your unique needs and how our system can meet them. Schedule a follow-up meeting at your convenience, either at our office or at your facility.

THANK YOU
FOR CONSIDERING STOPFIRE

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READY TO START FIREFIGHTING TRAINING WITHOUT FIRE?

GET IN TOUCH

StopFire represents the next generation of firefighter training. Thank you for the opportunity to present its capabilities.

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CONNECT WITH US

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One Pager
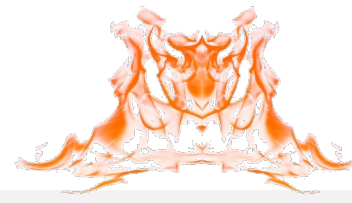
Company introduction
StopFire is a Complete Mixed Reality Simulator for 100% safe, effective and realistic firefighting training

Main components

- Virtual component visualization: flame, smoke and water
- Fire and smoke speed and volume of propagation in MR depending on the combustible properties of materials (more than 50 types of materials)
- Simulation of changes in water pressure in the fire hose depending on the selected type of water jet on the fire barrel
- Visualization of various types and pressure of the water jet from the fire barrel (solid/sprayed/off)
- Heating of the fire suit thermoelements depending on the proximity to the fire source

Solution overview

Mixed reality (MR) Firefighting simulator, which allows to train firefighters by overlaying the 3D simulation of fire event, extinguishing agent in any real environment

How it works

- Complex solution architecture
- Mesh building and Mixed Reality Visualization via Microsoft Hololens 2
- Fire Hose simulator with data processing unit, IMU and Wi-Fi inside
- 3D MR real-time visualization using NVIDIA RTX technology
- Real-time Fire Model based on heat transmission

Benefits and functionality

- Everyday firefighting high-realistic trainings in any real environment
- Realistic mathematical model of flame transmission in 3D
- Integrated fire hose with electronic communication/IMU module
- Built-in close cooperation with firefighters, based on real experience
- Each training session is unique, different from the previous one
- Cutting edge of Mixed Reality technologies
- Out-of-the-Box solution, ready for implementation

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