VIRTUAL REALITY HUD
NAVIGATION CHALLENGE

VIRTUAL REALITY TECHNOLOGY UNIVERSE

LOOKON MEDIA

CONTACT

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ABSTRACT

Using the latest in UE4 and VR technology along with our highly experienced subject matter experts, our team will design a clear, simple, and effective firefighter HUD solution for sending and receiving critical information in the field. This solution is designed around challenges related specifically to firefighters in emergency situations such as loudness, low visibility, and limited movement – which when successfully implemented will improve the safety and efficiency of first responders.

PROJECT DESCRIPTION

What is the challenge for firefighters our HUD solution will solve?

How to send and receive clear communication of information about team and environment in chaotic situations to improve crisis outcome.

Primary Goal for Our HUD Solution

To Improve communication of situational information between team members and dispatch to prevent on site confusion, improve response times, and prevent firefighter and civilian injury.

Solution Overview

The HUD is a very simple to use User Interface firefighters can use to send and receive information easily and quickly using a combination of throat microphones and AR projected interfaces. The interactive AR interface will be docked above the left forearm with the option to undock and float at eye level if needed. This interface is split into two primary screens – one for information coming in and one for information going out. All interactions with the interface can be done via voice or gesture control, whichever is most appropriate in the given situation. The passive AR interface will be mapped onto the surrounding environment and will convey information such as exit points, team member location, and breadcrumb trail.

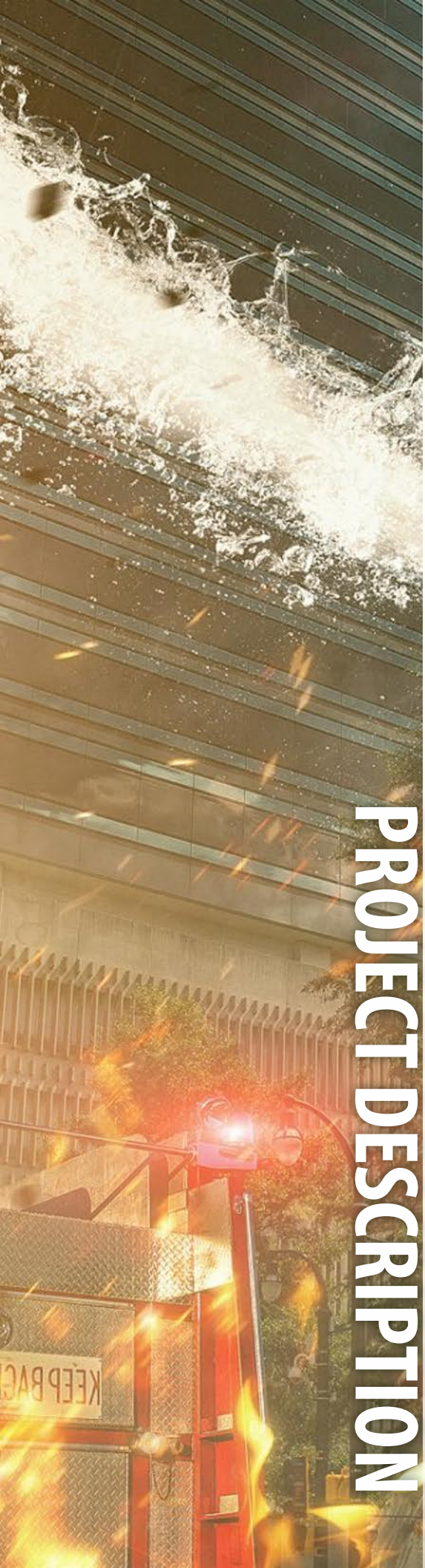
Design Elements and Features

Throat Microphone (Simulated in VR)
The Throat Microphone is connected directly to the AR hardware and allows for clearer voice communication for both the interface commands and direct radio transmissions. Noise cancelling algorithms will aid in filtering sounds of unwanted extraneous noise to improve voice clarity.

AR Hardware (Simulated in VR)
Built into the helmet visor, this allows for the projection of graphical user interface for receiving and sending information. This hardware can receive commands from voice or via gestures.

Docked AR User Interface (Simulated in VR)
Docked above the left forearm this UI uses simple graphic elements to convey critical information to the firefighter such as vitals, oxygen levels of SCBA, team requests or commands, and warnings. The firefighter can also use this interface to send out information to the team such as low visibility, structure collapse, civilian found, assistance needed, and evacuate now. Each command is graphically represented and can activated by touch (gesture to the graphic as if pressing a button) or by voice if hands are unavailable. The entire UI can be undocked from the forearm by voice command and floated at eye level if needed.

Mapped AR Environment Information (Simulated in VR)
Some information will be automatically mapped (over overlaid) over the environment such as a breadcrumb trail, exit points, and team member locations.



PROJECT DESCRIPTION

VR Testing Environment

This HUD solution will be built and tested in a VR simulation in UE4. This will allow for establishing an effective UI graphical language, optimizing functionality, and gathering data based on how users interact with the HUD solution when in virtual emergency scenarios.

Data Gathering for Performance Metrics

The VR scenario will have data gathering nodes built into simulation which will include: benchmarks for scenario time completion with HUD vs. without HUD, tracking which features are interacted with most, and A/B testing for completion times with/without certain features to determine which are most critical to include in final design and which can be refined or eliminated.

Competitive Advantage of Our Approach

Both Look On Media and VRT-U have interviewed multiple subject matter experts in the field to identify the key challenges for firefighters in the field and the results came back unanimously – clear communication of critical information. Look On Media's leadership team has extensive background in game design and a deep understanding of clear, easy to use User Interfaces which partnered with the ongoing research of VRT-U makes for a strong, realistic, and goal oriented development team.

Development Challenges

Time allocation of development team for creating the VR HUD simulation is the biggest challenge as this project must be completed in a tight deadline alongside studio client projects. This will be solved by leadership working nights and weekends along with offering team overtime rates for those willing to put in extra hours. Also coffee.

Compatible Platforms

Oculus Rift, HTC Vive

Scope of Work

Task	Hours
Project Management	24
Discovery	16
Concept	24
Interactivity Design	24
Interactivity Engineering	40
UI Design	40
Environment Design	40
3D Modeling	40
Model Materials	24
Model Textures	24
Lighting	24
3D Animation	24
Sound Engineering	8
Audio Implementation	8
Total Project Hours	360

LOOKON MEDIA

Finding and Creating Virtual Reality Solutions Across All Markets

Look On Media creates compelling custom Virtual Reality (VR) experiences for education, healthcare, and enterprise organizations. Composed of a dynamic and skilled team, they are exceeding expectations and pushing VR boundaries with industry leading clients and projects.

Look On Media is working with the Chicago Fire Department on VR training solutions for RIT emergency responders and has successfully launched pilot programs with Johns Hopkins Hospital using VR environments to manage stress for children undergoing uncomfortable procedures and long-term patients. They are working with the Kennedy Krieger on an eye tracking game that teaches children with Autism critical social eye movement utility that is already being tested for broad use. On the enterprise side Look On Media has partnered with VoiceVibes to create the most effective VR media training ever built with real-time audience feedback and in-depth voice analysis after every session. No matter what the field, Look On Media is passionately innovating with VR for solutions that have real-world impact.

Education

Healthcare

Enterprise

JOHNS HOPKINS MEDICINE

Kennedy Krieger Institute

LIGHT CITY BALTIMORE

89.7 WTMD

BROKEN LIZARD

BALTIMORE OFFICE OF PROMOTION & THE ARTS

Bithenergy

POWER 52

MOTOR HOUSE

MAGFEST

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LOOKON
MEDIA

Jonathan Powell

President/Co-founder

Jonathan Powell is a catalyst between creativity and production. With over 15 years experience in graphic/web design, UI/UX, application design, and dual degrees in Marketing and Digital Media from Colorado State University, he combines these skills to conceptualize and execute projects that are effective, purposeful, and impacting. Having worked with clients such as Johns Hopkins, Kennedy Krieger Institute, Chimes International, and Ray Lewis, Jonathan's passion for creativity is matched only by his drive to complete projects and exceed goals. Analyzing challenges and crafting elegant solutions helps him consistently grow in new fields and combine the worlds of business and art. He recently left his position as Design Director at Bithenergy, a multi-million dollar and Forbes-voted number one fastest growing inner city business in the nation, to co-found Look On Media.

Brian Mahoney

Creative Director/Co-founder

Brian Mahoney is a professional dreamer with a drive and passion for all things VR. After graduating from MICA, he spent the last ten years at Firaxis, one of the most critically respected videogame companies in the world. During his time there he shipped 6 major titles all of which received critical and commercial success, earning many Game of the Year awards along the way. In those games Brian has worked with industry leading talent to create 3D environments and worlds that captivated millions of players all around the world. His passion is creating 3D worlds in Virtual Reality that truly inspire a sense of wonder as though the audience has been teleported to a place of enduring dreams and imagination. With this new technology the only limit is the power of the imagination and Brian will create worlds that truly transport audiences to places they've never been before.

Zeljko Strkalj

Technical Director

Zel is a technical wizard with unmatched ambition and commitment to excellence. Boasting a BA from The Illinois Institute of Art in Chicago, he combines artistic creativity with innovative tech savvy. For the past ten years Zel's uncanny capacity to master development environments has led to his key roles on over eight AAA games from industry leading studios such as Firaxis and Big Huge Games. He is fluent in over ten programming languages in addition to multiple leading 2D and 3D engines. Effectively collaborating with artist, programmers, and designers, his seamless capacity to determine and resolve problems with efficient workflows and tools is unrivaled. In short, Zel is the person everyone calls in to solve the hard development challenges and craft elegant solutions. His broad skillset coupled with passion and ingenuity make him invaluable to any team.

VIRTUAL REALITY TECHNOLOGY UNIVERSE

VRT-U (pronounced "virtue") is specialized in Virtual Reality, Augmented Reality and 360° video technologies for the best immersive and transformative learning experiences. Our approach is to design and integrate creative visual arts and innovative products and bring cost-effective learning solutions to the target market. We develop VR content custom-made for specific learning needs in an organization, such as an enterprise, an education institution, or a government entity. We also offer AR/VR products for consumer use worldwide and transmedia products for amazing learning experiences unattainable by standard video-based eLearning.

Hurriyet A. Ok

Hurriyet A. Ok, Founder of VRT-U LLC, is leading a startup technology venture focusing on Augmented Reality, Virtual Reality, and 360 Video for creating immersive learning content. He worked at the World Bank as a Senior Information Officer over 24 years until 2016. He held leadership roles and managerial positions in IT Learning and Professional Development, Cyber Security, Identity and Access Management, and Virtual Desktop Infrastructure (VDI) in Enterprise Computing Unit. Dr. Ok is an adjunct faculty in the Computer Science Department at GWU, teaching a graduate course on eCommerce Security. He is also the founder of Turkish American Television (TATV) and has been producing award-winning TV programs since 2005. Hurriyet was a software engineer at Alcatel-Rovsing in Copenhagen, Denmark, developing software for American Airlines Data Network between 1985 and 87. Dr. Ok holds a D.Sc. Degree (1994) in Computer Science from George Washington University, USA, and M.S. and B.S. Degrees in Computer Science from Hacettepe University, Ankara, Turkey.

Selim Yargici

Selim Yargici, MBA is a successful business executive who has founded BidBox LLC, a software development company based in Bethesda MD. BidBox focuses on mobile applications for the educational market. Selim is a strategy expert with extensive experience in the mobile technology environment. Prior to starting Bid Box, Selim worked as a management consultant at Deloitte. He led teams in post merger systems integrations, managing complex large scale projects. Selim is a high-energy leader with excellent interpersonal skills and a reputation for quality and integrity. His industry experience includes technology, media & entertainment, telecommunications, public sector, and education. Mr. Yargici holds an MBA from the Smith School of Business at the University of Maryland and a Computer Science degree from Georgetown University.

www.vrt-u.com