



Charity Consortium

The CHARITY consortium includes 15 partners from 10 countries, including 5 partners from the industry, 2 academic and/or research organization partners and 8 SMEs, which together bring to the project the full range of expertise to realize its ambitious objectives.



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CHARITY
Cloud for Holography and
Augmented Reality

The Next Step Towards Immersive Communication

Creating new business opportunities
for the European Industry

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Horizon 2020



Horizon 2020 project CHARITY develops an open-source framework and tools for enabling next-gen applications allowing immersive communication based on the intelligent use of network resources.

The project will prove the feasibility of its solutions via three use cases:

Real-time Holographic applications



Holographic Concert



Holographic Meeting



Holographic Assistant

Immersive virtual training



VR Medical Training



VR Tour Creator

Mixed Reality interactive application



Manned-unmanned Operations Trainer



Collaborative Gaming

CHARITY aims at bridging the gap between the capabilities of 5G networks and the huge resource demands of advanced holographic and Virtual Reality applications.

Tackling this challenge means to position Europe at the cutting edge of immersive communication solutions and will open up new business opportunities for the European industry.



Horizon 2020

Use Case 1

Real-time Holographic applications

Holographic concerts with remote musicians playing together in real-time pose huge technical challenges. CHARITY will tackle this challenge with intelligent network and end-user schemes for encoding/transcoding, compression, caching and synchronization. A holographic meeting use case is based on the same technical principle.

CHARITY also targets a holographic assistant use case, adopting the physical principles "diffraction and interference of light" to enable real 3D holography, based on very sophisticated custom optical components and algorithms. This lays the foundation for showing a butler-like avatar in 3D space on a holographic 3D display with true depth and true eye focus - for your eyes it is like natural viewing.

Use Case 2

Immersive virtual training

CHARITY will explore a VR Tour Creator software use case. It consists of a software as a service based in the cloud that allows anyone to easily create interactive and immersive 360/VR virtual tours. The creator can use the software to produce new marketing content that engages the user and potentially converts it into a new sale. The challenge is to make the software work smoothly and stream heavy media like VR video, 3D models and more.

Furthermore, a VR medical training use case will provide experiential simulation for medical training and assessment with cutting edge Virtual Reality (VR). The realistic surgical training modules will allow a large number of concurrent medical personnel-users to collaborate within a virtual environment interacting with 3D soft bodies of tissues, muscles, and more.

Use Case 3

Real-time Mixed Reality interactive application

CHARITY will explore two mixed reality (MR) interactive applications, which combine Augmented Reality (AR) and VR.

The first is a highly immersive multiplayer AR game. In order to provide players with sufficient immersion, CHARITY will develop a dedicated multiplayer engine which will be able to synchronise all dynamic game objects along with the user states.

The second is an operations trainer for helicopter flights in a search-and-rescue scenario with multiple collaborating manned and unmanned vehicles. Participants can virtually collaborate in a coordinated search within a largely synthetic environment including a free viewpoint and real equipment. This application will contribute significant advantages for future training and simulation systems by enabling the merging of synthetic and real imagery into the video stream as well as collaboration across multiple locations.