

CASE STUDY

SOFTSERVE'S VR GYM BRINGS A NEW LEVEL OF VIRTUAL REALITY TO BOXING

Background

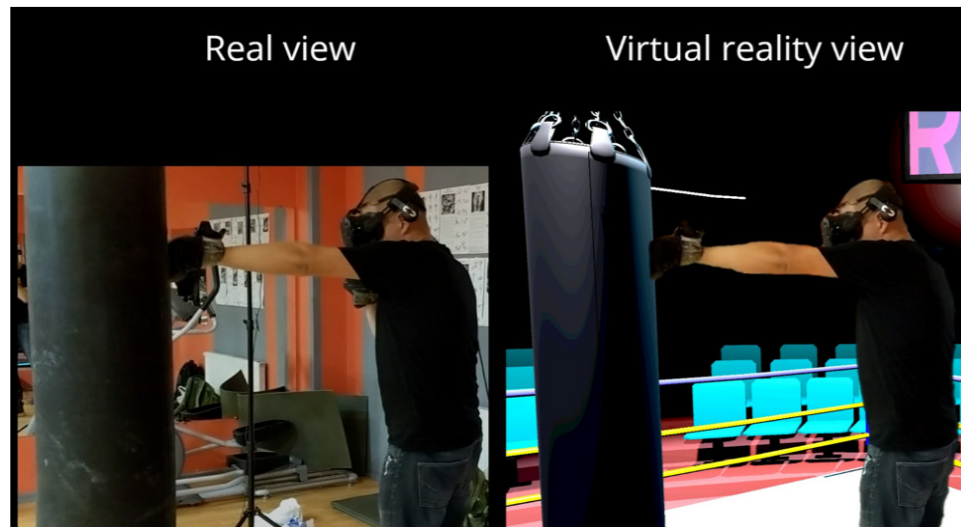
SoftServe is taking the world of sports to a new dimension with help of VR and body tracking in its VR Gym application developed by the company's R&D division. In this case study we will explore how boxing training is being enhanced with the help of VR tracking as the user is taken to a new virtual training gym.

softserve

Project Description

SoftServe developed a cutting-edge boxing application that merges sports equipment with virtual reality (VR) devices to discover new interactions in the virtual world utilizing physical objects.

SoftServe's R&D team conducted initial research on ways of uniting physical interactions with virtual reality. In their research, the team explored the idea of transferring contact with a physical object tracked to its full virtual copy in virtual reality, giving the user the physical interaction with the object while staying in virtual reality.

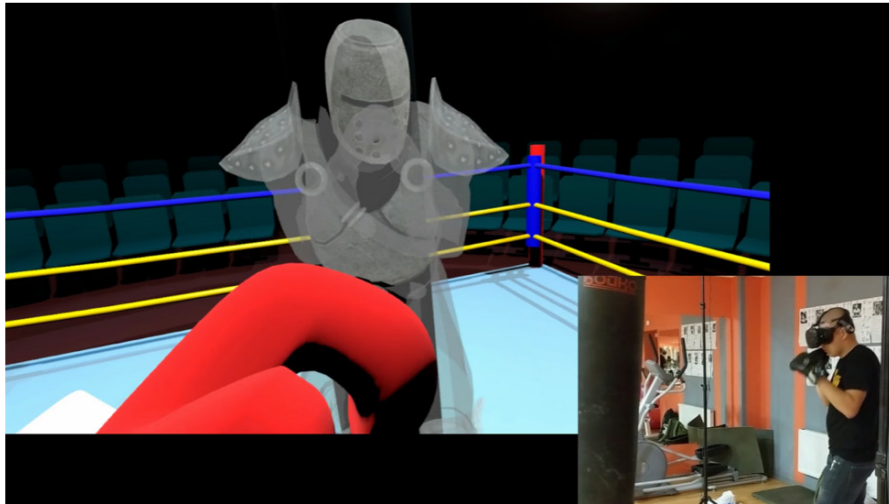


The primary obstacle was the physical interaction component as there was no simple way of transferring hand touch sensing due to the inability to track fingers and objects in the real world with sufficient accuracy. However, interaction with objects is not limited to gentle touch and can include interactions with applied force. In such cases the user's sensory inputs are limited to resistance and surface hardness as a result of their interaction.

The R&D team's task then moved to selecting the appropriate intermediate tool that would let them maintain the interaction as close to reality as possible without limiting the user's sense of interaction. Martial arts by nature is a forced interaction with a set of equipment such as punching bags, wall bags, and intermediate sports equipment that protects the user from injury.

The Vive Tracker was selected for this application as it is a small device able to track its own position and report this to the VR environment. The equipment selected to exist in both the virtual and real spaces consists of a punching bag, boxing gloves and sneakers. To keep user motivated the team developed multiple modes of interaction and included gamified experiences to make the experience more engaging.

For software solution base, the team utilized Unity as a fast, reliable prototyping tool with additional assets for resolving separate tasks.

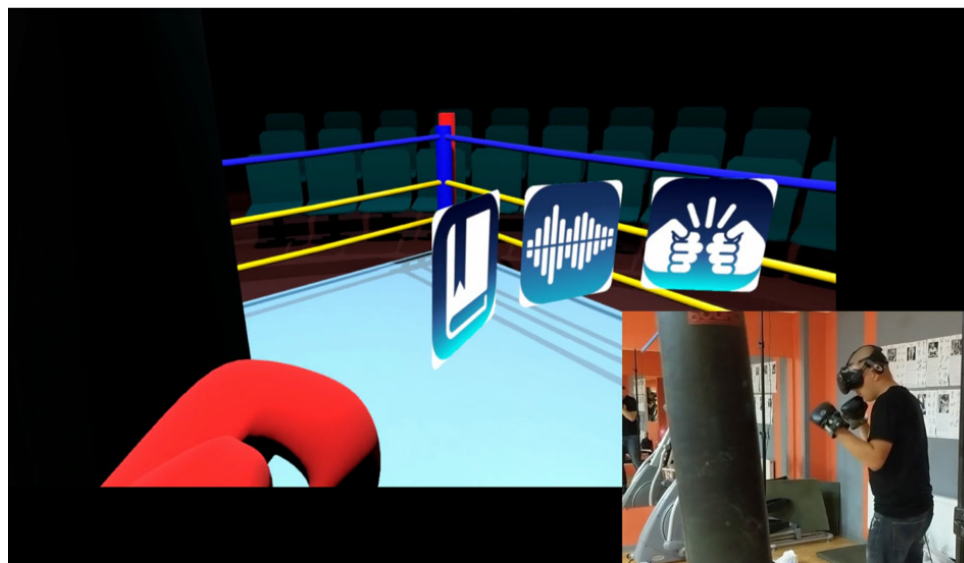


Value Delivered

The application is a virtual boxing ring experience with rich graphics and sound. The experience consists of predefined gamified modes to keep the user engaged.

It operates in three modes:

- Tutoring mode – teaching users to box with previously prepared hand recordings and visualizations.
- Rhythm mode – punching sessions aligned with song rhythms, creating an experience similar to dance arcades.
- Sparring mode – sparring with a virtual boxing partner.



This application is not limited to virtual reality for the martial arts sports, but also can be implemented in a wide range of uses across multiple industry verticals, for example:

- Healthcare – during post-injury medical rehabilitation it is important to monitor the progress of a patient visually using measurement tools. Tracking of the human body during exercise can provide critical information about the current state of rehabilitation and progress.
- Personnel Training - in industries that require the training of personnel, conducting this in virtual reality can reproduce a range of different environments in a safe manner - from everyday working conditions to hazardous environments. Scenarios can be arranged to teach, train, and evaluate skills; looking at the speed and effectiveness of the user's actions in real-time.

Future development for SoftServe's VR Gym is aligned to exploring how the efficiency of training increases for athletes in these environments and how multiple-users in VR environments can help single users take part in team-based sports.

ABOUT US

SoftServe is a digital authority that advises and provides at the cutting-edge of technology. We reveal, transform, accelerate, and optimize the way enterprises and software companies do business. With expertise across healthcare, retail, media, financial services, software, and more, we implement end-to-end solutions to deliver the innovation, quality, and speed that our clients' users expect.

SoftServe delivers open innovation—from generating compelling new ideas, to developing and implementing transformational products and services.

Our work and client experience are built on a foundation of empathetic, human-focused design that ensures continuity from concept to release.

We empower enterprises and software companies to (re)identify differentiation, accelerate solution development, and vigorously compete in today's digital economy—No matter where you are in your journey.

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