



The City of Zurich: a glimpse of the past

The City of Zurich must surely grow and change, but it must also stay true to itself. The Zurich's City Planning Office helps to lay the foundations for such continuity by coordinating public/private interests and initiatives connected with architecture and urban planning, maintaining Zurich's historic fabric and making it possible to deliver pioneering construction projects. Access to communication channels that allow local people to experience projects for themselves adds real value, and augmented reality (AR) promises new and innovative avenues of opportunity here.

During construction work for the Opéra multi-storey car park, archaeologists found more than 20,000 items under the square at Sechseläutenplatz that could be dated using dendrochronology back to the year 3173 BCE. They even found a door that was more than 5,000 years old, making it the second-oldest door in the world. There was much local interest and the idea was developed at a relatively early stage to use new technologies to present the findings. During the exhibition, visitors would make use of HoloLens AR headset technology as they toured round the Sechseläutenplatz to see with their own eyes, in virtual reality, how the pile dwelling settlement had looked more than 5,000 years ago. But how could they enable people to experience both the past and future of the City of Zurich at will? A cost-effective field study was set up using pre-existing data and resources to find out whether AR might prove a viable option on mobile devices.

Cutting-edge technology for performance and pin-sharp detail

The pile dwelling settlement had been precisely surveyed and was available as a digital 3D reconstruction – and the City of Zurich also existed as a digital model; combining the two promised to open up new worlds, both real and virtual. Ergon worked with the GIS Centre of Competence at Zurich's City Planning Office to merge both systems and develop an AR app for mobile devices that uses cutting-edge technologies such as ARKit, Vuforia and 6d.ai. Thanks to AR, a world of pile dwellings will thus appear "live", overlaid extremely accurately onto the visitors' reality against the life-size, real-world outdoor backdrop.

To ensure high reproduction quality on mobile devices, the focus was on powerful representation of the virtual setting and a robust and stable link between the virtual and the real worlds. To achieve this, an on-site evalua-

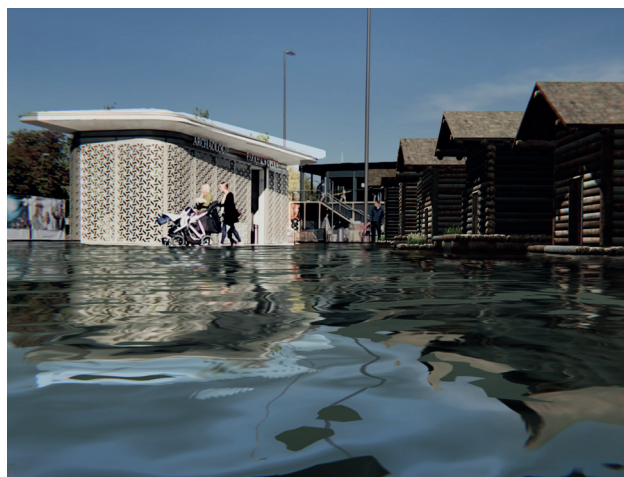
"We want to allow people to experience both the past and the future of the City of Zurich. Ergon has helped us here with its innovative and pioneering support."

Christian Hürzeler

Project Manager at the GIS Centre of Competence within the City of Zurich's City Planning Office

tion of the system's precision and durability was carried out, in conjunction with user tests for the representation of virtual objects.

Special attention was paid to faithful reproduction of visual details such as texture and lighting; the pile dwelling settlement is thus shown under real-time, natural light conditions, and meshing both worlds makes it possible to display the real-world environment in life-size dimensions on the surface of the virtual water.



Pile dwelling settlement and entrance to multi-storey car park on Sechseläutenplatz, Zurich

Shaping opinions and looking to the future with smart collaborations

The finished AR app, which is intuitive and can be used by anyone with a smartphone or tablet, is a sustainable, practical and cost-effective solution that is universally accessible at all times.

In line with the "Smart City Zurich" strategy, AR was used to exploit the opportunities presented by the digital transformation unfolding around us and field-test a promising technological innovation. These days, interdisciplinary cooperation (e.g. between IT experts and architects or planners and archaeologists) is becoming increasingly important in the city administration and can be further promoted using AR. The pile dwelling pilot scheme is a beacon project for the Zurich's City Planning Office to demonstrate how AR can be usefully deployed in other contexts; three-dimensional, scale renderings of future building and planning projects could be created like this, for example. This opens up new possibilities when it comes to shaping opinions – for local population and city administration alike.

About Ergon

Ergon is a Swiss leader in leveraging digitalisation to create unique and effective client benefits, from conception to market. We combine our extensive technological, security and business experience to design "smart" solutions from complex requirements. The company, which now employs more than 300 members of staff, was founded in 1984.

Ergon Informatik AG
Merkurstrasse 43
CH-8032 Zürich

+41 44 268 89 00
www.ergon.ch
info@ergon.ch