

# Interactive 3D simulation for ITS

The combination of modern simulation and modeling technologies provides highway and tunnel designers, planners and operators with a means of building 3D environments quickly and easily, testing design ideas, building consensus, and even providing managers with training platforms.

As transport specialist Forum8 develops more software plug-ins for its interactive 3D simulation and modeling software, VR-Design Studio (formally UC-win/Road), more market opportunities appear.

In addition to plug-ins for civil engineering and BIM products from AutoDesk, Bentley, and Nemetschek Allplan, VR-Design Studio also accepts data from leading microsimulation pedestrian and traffic applications, as well as being able to turn raw point cloud data into usable, interactive 3D environments.

Pre-built 3D city models from around the world are available, along with a free database of over 4,000 CAD models of street furniture, vehicles, etc.

Forum8 and its partner companies are continuing to expand the data that benefits from being 'relocated' into an interactive 3D VR environment.

The ability to enable users, whether professionals or members of the public, to interact with 3D models of the real world is proving particularly popular in the process of consensus building and stakeholder consultation.

Apart from the ability to 'bring engineering drawings to life' within a highly photorealistic 3D space, the interactive nature of VR-Design Studio means that planners can test multiple design scenarios and stakeholders can interact with



Road operators are reaping the benefits of real-time, interactive 3D simulation

## Need to know?

### The latest product developments from an expert in interactive visual simulation

- ▶ How technological evolution has opened up more applications for 3D interactive simulation and modeling
- ▶ Road and tunnel operators can benefit from the latest technologies in terms of improving consensus building and stakeholder consultation
- ▶ Realistic simulation tools enable operators to efficiently train their staff on how to manage complex traffic events

proposed developments in ways not previously possible.

A recent development that makes such consensus building even easier is VR-Cloud. This new product enables VR-Design Studio interactive 3D environments to be broadcast over the cloud and accessed and interacted with by anyone with a PC or Android system. This

one development could revolutionize the whole concept of stakeholder consultation.

One of the many reasons for such new developments is the intrinsic flexibility and functionality of the software, plus the availability of a software development kit (SDK).

An example of this is shown by a partner company in the USA, Virtual Simulation & Training (VSAT). The company has used the SDK to integrate VR-Design Studio into its driving simulator package, which is designed to help reduce accidents by targeting one of the most high-risk groups – teenage drivers. In addition, VSAT is utilizing the power of the Eco Drive plug-in to record the actions of the driver as well as log fuel consumption and CO<sub>2</sub> output.

### Real-time simulation

Another collaborative development between Forum8 and French partner BMIA is the G'Val product. This provides real-time interactive 3D visual simulation of traffic for road and tunnel management, using either existing or proposed networks.

G'Val has been designed to overcome the inherent problems of highway and tunnel operator training and management. One

of the many problems with training operators – and indeed managing complex traffic events – is the inability to accurately visualize the events realistically in real time and in the classroom. G'Val solves these problems while delivering added value to highway and tunnel operators.

The realistic and accurate visual simulation capability of G'Val allows communication both internally, within the design team (prior to and during the project) and externally, with stakeholders and the media.

Driven by the SCADA system, G'Val allows tunnel and road operators to be trained in a realistic environment using the real operational HMI. A wide range of scenarios provides the ability to replicate and evaluate the impact of every conceivable potential emergency incident.

Customized to precisely reflect each project, G'Val provides invaluable benefits at every stage of the project, from initial study to final operation. ○

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