

Until recently few in the West had paid any attention to the UC Win/Road program from Japan. Though well known there as a virtual reality generation program for highways and railways it has made little impact abroad. A key problem has been language. But now a major marketing effort is being made to introduce this powerful tool to Europe.

In Japan the program finds widespread application for building VR models of complex roads and intersections in city spaces and landscapes, which are then used for public consultant and client discussions by engineers and designers; for driving simulations, including a "driving experience" simulator developed in conjunction with the Subaru Corporation.

It was developed initially in 2000 by a joint Japanese-New Zealand collaboration between a Japanese civil engineer chairman Wada of Forum 8 software house and Christchurch based Forum 8 programmer Jim Moesman.

The engineers were seeking to visualise 3D models developed in structural analysis programs initially but the program rapidly increased its use as a virtual reality tool for creating road 3D models, allowing real time interactivity and walk through capacity.

The program works by taking in basic landscape detail as a terrain model, map data or from lidar point cloud data, a feature recently added. Aerial photographs, textures, and so forth can be draped on this and then a road line imposed, either imported from a CAD programme or for some work,



Japanese VR

A virtual reality program well known in Japan is now being actively marketed in Europe

simply drawn freehand. Characteristics and components for the road can be added drawing on a library of nearly 5,000 elements including carriageway types, cross sections, bridges and tunnels. Banks and cuttings are created, while lane types, widths and sizes are set and elements like, road guard rails added.

Intersections are created by crossing two road lines and setting heights for both, while grade intersections are formed as junctions and over-crossings become bridges. Then bridge designs can be dropped into place using library elements manipulated to shrink or expand them, rotate around various axes and position them exactly on the road line.

Features such as traffic signs and electrical poles, including automatically strung wires, are added and a variety of landscape features, including trees placed singly or in groups as a 'forest' and easily resized and manipulated. Buildings can be either taken in as outside designs or come from the library and are also modelled.

As it has developed the program, the firm has added in capacities to model traffic with speed, density and other parameters, while the package can also be used as a driver's eye view simulator and driving instruction simulator.

Increasingly the developer Forum 8 is working with other road software producers to link the VR capacities of UC-Win/Road to design tools like microsimulation programmes from SIAS-Paramics

and Germany's Vissim program from consultant and software producer PTV. It would be used to give a more realistic view to simulations.

Britain's TRL, the now privatised road research laboratory, is also working with Forum 8 so that its well known junction modelling programs such as OSCADY Pro, which allows automatic setting of signal phase and arrangement to optimized signal capacity and congestion, can be added into the program to improve its traffic simulation.

Equally Forum 8 has been working with the Autodesk Civil 3D program to allow road designs from that to be imported and a more advanced fly-through VR representation be created than the basic Civil 3D render.

Other tools are being added to the basic program such as the UC-Win/Road web viewer which allows 3D VR data to be viewed on a browser like Internet Explorer(IE). Simulations and walk-throughs can be done without having the software itself installed.

The viewer is a small one-off download and then the data for a simulation must be downloaded also. It allows real time simulation by fly through, generates traffic, executes scripts and allows view changes by keyboard.

With an attached steering simulator drive simulations are possible. ■

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Faster and more powerful

Software producer 3am Solutions has upgraded its Dynamite visualisation program with a 64bit capacity that allows engineers to work faster and take advantage of the power of modern processors. Multi-core processors can also be handled. The capacity of the software now brings it in line with the Autodesk 3DS Max and 3DS Max Design programs that are its primary front end, Dynamite being an interface program allowing engineers more easily to use the complex 3DS Max tool. As an intermediate program it gives them a capacity to import their designs from programs like Bentley MX and Autodesk Civil 3D and semi-

automatically produce realistic visualisation populated with road furniture, textures and landscape features and even with moving car traffic. A new sight distance checking tool has been added for driver sight-lines. According to Bruce Harfield, managing director at 3am the tool is part of a move for the program to become orientated towards design validation as well as pure presentation for clients and public. An additional module of the program allows it to work with microsimulation programs; initially PTV's Vissim but shortly also Quadstone Paramics.

3am Solutions
www.3am-solutions.com