

Agility3 and IPG Automotive: ViVID Visuals to Test a New Generation of Fords



At a Glance:

- IPG Automotive was selected for the ViVID consortium to enhance and accelerate virtual testing of Ford electric commercial vehicles and Advanced Driver Assistance Systems (ADAS).
- IPG's CarMaker solution, used in the project, needed innovative 3D visual scenarios to convincingly represent real-world driving conditions.
- Agility3 developed advanced 3D simulation visuals for IPG's UK team, who integrated them into CarMaker's MovieNX 3D engine to take realism to the next level.
- IPG's UK team describe Agility3 as "aggressive problem-solvers, really keen to do a fantastic job, easy to work with, super open and honest, and with high-integrity."
- Following the ongoing success of the project, IPG Automotive UK hopes to include Agility3's scenarios in future releases of CarMaker; MD Elliot Hemes says it will "blow customers' minds!"

The Client

A global leader in test driving technology, IPG Automotive (www.ipg-automotive.com/en/) develops innovative software and hardware solutions for autonomous vehicles, ADAS, e-mobility, Real Driving Emissions (RDE), and vehicle dynamics. Its virtual test-driving solutions enable seamless development, calibration, test, and validation of entire systems in the whole vehicle, in realistic scenarios. IPG Automotive UK is based in Solihull, West Midlands.

The Challenge

IPG Automotive UK's MD, Elliot Hemes, explains that the challenge Agility3 solved for his business was both an aesthetic and a technical one.

"We needed beautiful 3D visual simulation scenarios," he says, "that would not only enable us to more accurately model and explore the interrelationship between electrification and ADAS in the next generation of Ford Transits, but would be so stunningly realistic they would win the hearts, minds, and confidence of project stakeholders."

Virtual vehicle testing is typically more comprehensive, cost-effective, timely, and environmentally friendly than the physical variety, and it also tends to produce more robust answers at much lower risk. However, it's only as effective as its ability to simulate and visualise the full extent of possible scenarios.

In this project, this meant the ability to realistically visualise the complex compound effect on driving of factors like headlamp luminosity, reflection, surface wetness or degradation, bends and curves, crested hills, Automatic Emergency Braking(AEB), lane recognition, and so on.

"The scale of the testing opportunity was enormous" Hemes says, "but whilst CarMaker's well established IPGMovie was technically performant, moving to upgraded visuals in MovieNX enabled us to enhance them further."

"We then needed a solution that could create the beautiful and highly detailed visual scenarios that we knew MovieNX was up to handling and displaying, but of which few examples existed."

"For this, based on a recommendation from our international colleagues, we turned to Agility3."



The Solution

Working closely with the IPG UK team to establish their needs, time scales, and preferred approaches, Agility3 created two detailed 3D scenarios to represent a diverse range of driving conditions and challenges.

One scenario depicted a "rural route, with bends and curves, a roundabout at each end, a crested hill, and an entrance to a dual carriageway.

The other depicted a motorway with features designed to challenge systems such as lane keep assist, lane departure warnings, and Adaptive Cruise Control (ACC).

Hemes is clear that what differentiated Agility3's solution was the degree of detail and realism it brought to the visualisation process. This isn't just about the ability to, say, represent day and night or weather effects, but to accurately recreate all the deceptive and distracting features a driver experiences: worn road markings, cracks in the driving surface, illegible signage and gantries - even the waving of tree branches and the real-time movement of grass!

As to the experience of working with Agility3 to put the solution in place, Hemes describes it as a meeting of minds from the start. "Agility3 gelled with us immediately, even before we got into their really rather profound technical capability," he says. "We felt our strategies aligned, and that they were the kind of people we wanted to work with, because we needed things doing quickly and well."

"It was an incredibly collaborative working practice that we had with the Agility3 team," he concludes.



Outcomes and Results

Hemes highlights that just one of the Agility3-developed scenarios in the CarMaker product used in the ViVID project is capable of representing over 13,000 possible test variations, just for the environment itself, before even adding traffic. This is a capability that "gets you to test conclusions much quicker" and has been "of clear benefit for the ViVID project and its consortium, increasing both our and Agility3's visibility in the process."

But the project's continuing success has also created synergies beyond it. "CarMaker's absolute differentiator from its competitors," Hemes explains, "is that it delivers at all stages in the testing regime - virtual, physical-in-virtual, driver-in-loop. With Agility3 we can reuse, revisit, and rerun thousands of possible scenarios across all those stages without having to produce new high-definition visuals each time."

"This is why" he continues, "we hope to include Agility3's scenarios in future releases of CarMaker. In an industry where perception is critical - and camera-based systems of any kind are going to need high-end graphics - it's going to blow customers' minds!"

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Elliot Hemes
IPG Automotive

For more information on how Agility3's 3D simulation visuals can help your driving simulation project succeed, contact the team today.

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