

Arian Kulp's Blog

opinion, insight, and occasional code

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[A \\$30 million driving simulator in Iowa?!?](#)

Wednesday, June 25, 2008 12:08 PM

Before the end of the school year (a few weeks ago already!) I took the kids from my Robotics Club to the National Advanced Driving Simulator in Coralville, Iowa. This is a pretty amazing place with the coolest driving game you'll ever see! We went through the control room and there were eight monitors displaying the various views around the vehicle. The vehicle itself is an actual car body inside of a half-dome with six projectors creating a seamless view around the car. Speakers, cameras, and instruments are everywhere to create a perfect simulation and capture every element of the driver's performance. They test the effects of alcohol, sleep deprivation, cell phone usage, people in the back seat, various ages of drivers, road conditions, and other things to see what happens -- but without any risk. Unfortunately they wouldn't let us actually sit in the car for a simulation, but we were able to enter the dome and look around. Very cool!

It was fascinating for me to see their software and hardware setup. The dome is actually sitting on a two-dimensional track to allow it motion and inertia for road handling and accident sensations. The dome can tilt in various ways to create the last part of the motion. Each vehicle that they simulate (we saw three car bodies and a John Deere tractor!) is painstakingly recreated with a physics model captured from the real vehicle. They know every aspect of its handling so they know that they are getting good feedback info.



The computer room was full of servers for the actual simulation, in addition to data capture and

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analysis systems. Everything was built in-house and certainly looked to rival any game out there. All computer hardware was commodity with rough-looking Java UI's for admin needs. I can only imagine the gigabytes of data that they need to process after a simulation!

I have a feeling that playing Test Drive or Need For Speed in a multi-projector dome setup like that would feel amazing too. Being totally immersed in any simulator is probably more important than the actual quality of the simulation itself. If the simulation is too laggy you can get sick, but even a blocky world, if smooth and responsive, will feel like your reality with sufficient immersion. I'm going to be watching the papers now to see when they put out their next call for volunteers. I'll get a ride in that eventually!

More Info: <http://www.nads-sc.uiowa.edu/>



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