

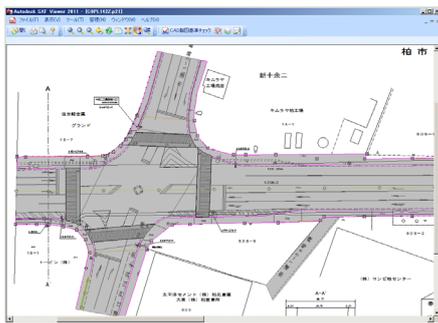
Constructing Road Structures for Driving Simulator from National Digital Map

– Improving Evaluation Accuracy of Traffic Measures using Fundamental Geospatial Data of Road –

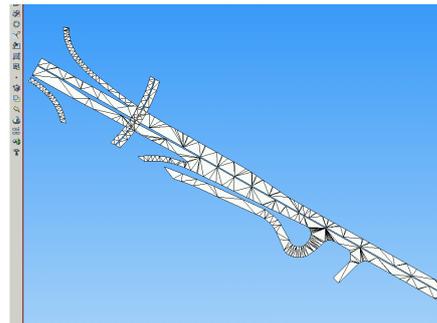
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Constructing interactive scenarios (driving view) for a driving simulator (DS) is a considerable challenge which requires large human cost and time in conventional CAD-based process. Although we have developed a real-video-based system for background area, there is still a need for efficient modeling for foreground area including road structures. The Japanese Ministry of Land, Infrastructure, Transportation and Tourism (MLIT) is developing the *Fundamental Geospatial Data* for national routes, based on a blueprint for road construction. Using this digital data, we succeeded to construct a simple DS scenario automatically, and confirmed that it can be rendered well in real time in the actual system, even after adding textures and other vehicles manually.

Using this DS system and our traffic simulator (TS), we assessed a new traffic measure targeting on the actual intersection on the National Route 16 in Kashiwa City, *Toyofuta Kogyo Danchi Iriguchi Intersection*, where traffic accidents often occur when drivers aggressively turn right (in Japan) and collide, or lapse into fender-bender after the turn. The DS experiment proved that the road markings and traffic signs before the intersection can shorten driver's reaction time, and also gave parameters in the gap-acceptance model. Besides, the TS experiment using these parameters showed that the number of near-miss events slightly decreased. Within the year of 2012, the measures are actually installed and we plan to make the posteriori evaluation.



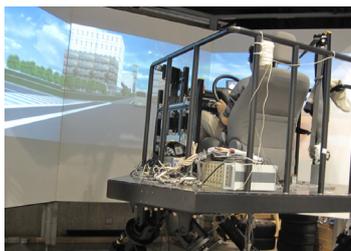
National Fundamental Geospatial Data of Road.



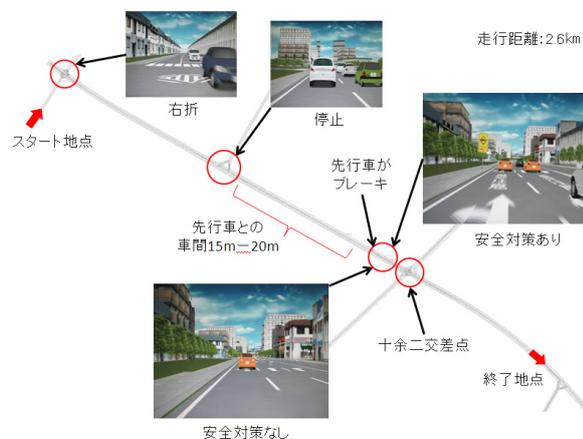
A simple DS scenario automatically constructed from the national geospatial data.



Traffic measures before the targeted intersection.



Experiment by our driving simulator.



Experimental DS scenario on National Route 16.

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