

Mixed-Reality Traffic Experiment Space: – An Enhanced Traffic and Driving Simulation System –

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Mixed-Reality Traffic Experiment Space is an integrated ITS simulation system developed in ITS Center, composed of traffic simulator (TS), driving simulator (DS), and the latest visualizing technologies (IMG). Users can experience novel simulation in the realistic environment: inter-vehicle actions such as passing are well re-created for simulating traffic congestions, and the driving view is rendered with high photo-reality.

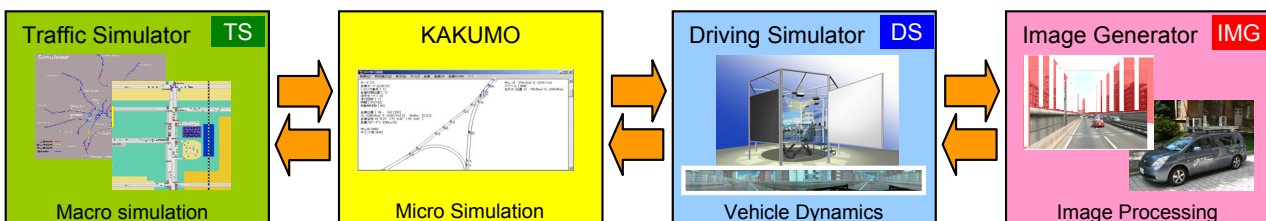
Our team is improving visualizing technologies, where image-based rendering is used for far areas including sky and buildings using real images captured in advance by our sensing vehicle, instead of conventional fully model-based CG which leads to less reality and huge human cost.

This year we installed whole the system to the fixed, practical platform with actual car body (Toyota Estima), and improved speed of rendering (data expansion) using GPU.

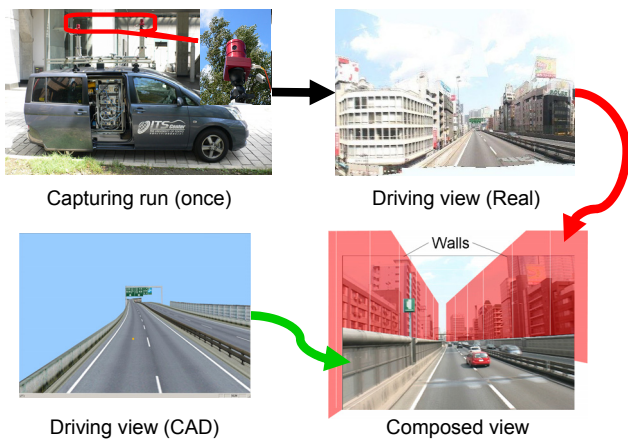
Publication

- [1] R. Sato, H. Kawasaki, K. Ikeuchi, "Photo-Realistic Driving Simulator using Eigen Texture and Real-Time Restoration Techniques by GPU," International Journal of ITS Research, vol. 6, no. 2, pp. 87-95, Dec. 2008.

Overall system



Basic concept of IMG



IMG on the practical platform



Free-point view & Data compression

