Safer Intersections with Digital Twin Technology

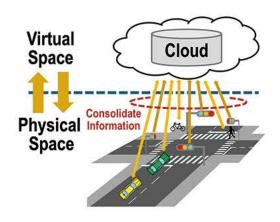
Background

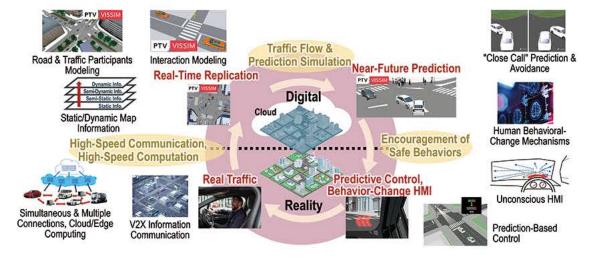
- Digital twins accurately replicate real-world conditions as virtual models, in real time.
- Toyota can use digital twins of intersections to provide new safety services, by predicting traffic risks for protecting road users and vulnerable populations in the traffic environment.
- The goal is a mobility society that enables all people to live safely and with peace of mind.



Technologies & Services

Concept





Technological Elements



Future Prediction & Traffic Simulations



V2X Communication Technology, Cloud/Edge Computing Technology



Dynamic Maps, Detailed Accident Data

Route & Traffic Guidance



Consumer-Accepted Behavior Change HMI & Predictive Control

Services





Situational Dynamic Congestion & Best-Traffic Control Route Guidance

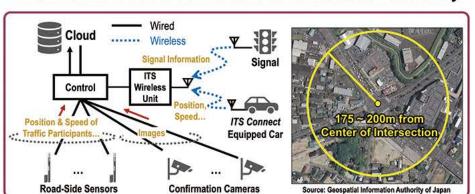
Evacuation Route Guidance ---- Protecting Communities

Protection of hildren & Elderly

Road Condition Monitoring

Future Action

- Build environment for collecting actual traffic conditions and replicating in a digital world.
- Steadily promote development of future prediction technology.
- Formulate business models and validate feasibility.

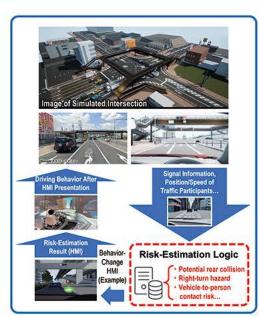


Conceptual Image of Current Development System

Input speed, position, and other information on traffic participants into a driving simulator.



Reflect information in driving simulator traffic flow, and in support provided to driver.



Driving Simulator Environment for Validation