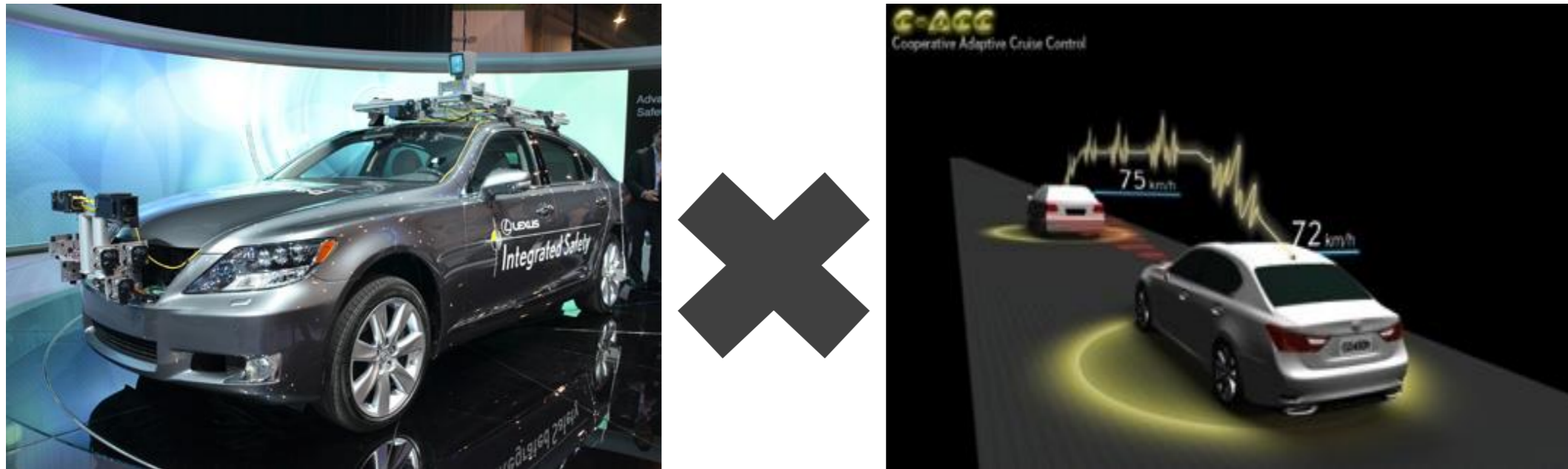




Communication System for Automated Driving



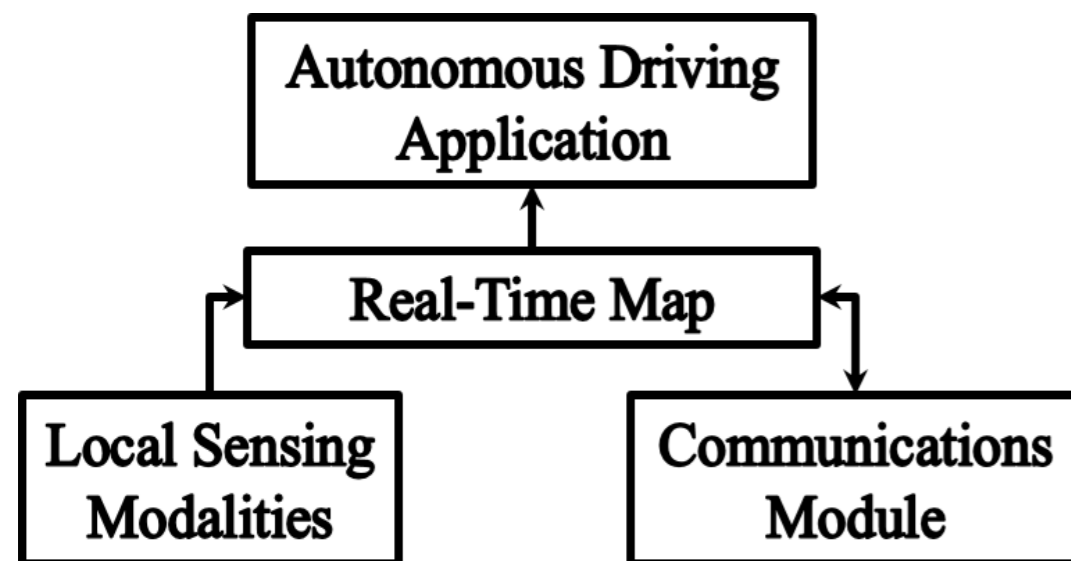
Motivation



CPS Project: **“CAREER: Multi-Resolution Model and Context Aware Information Networking for Cooperative Vehicle Efficiency and Safety Systems”**
&
Collaboration with Toyota ITC through project **“Communication of Multi-Resolution Information Maps for Automated Vehicles”**

V2V Communications can be very important sensor for automated driving

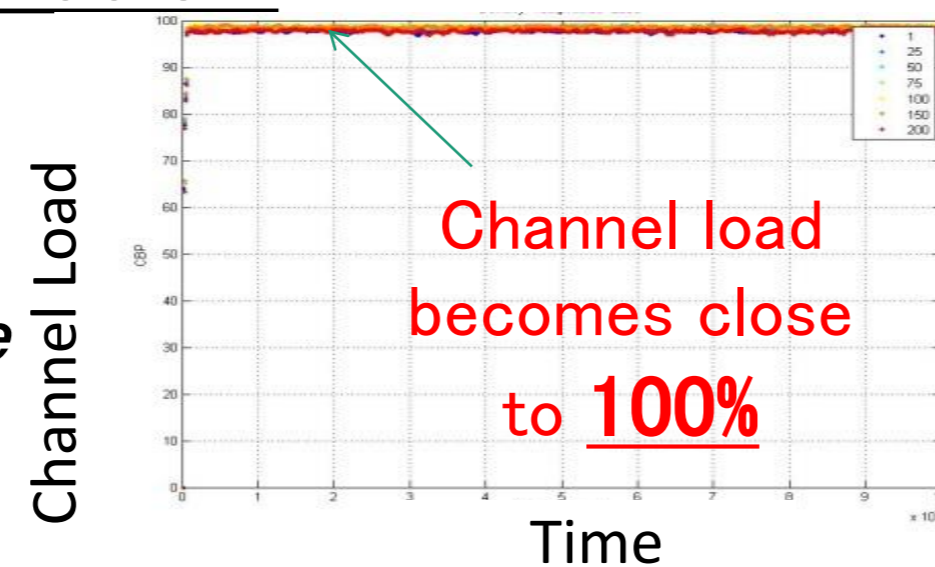
Proposed System Model



Real-time Map should be built and shared with the collaboration of communications and local sensors

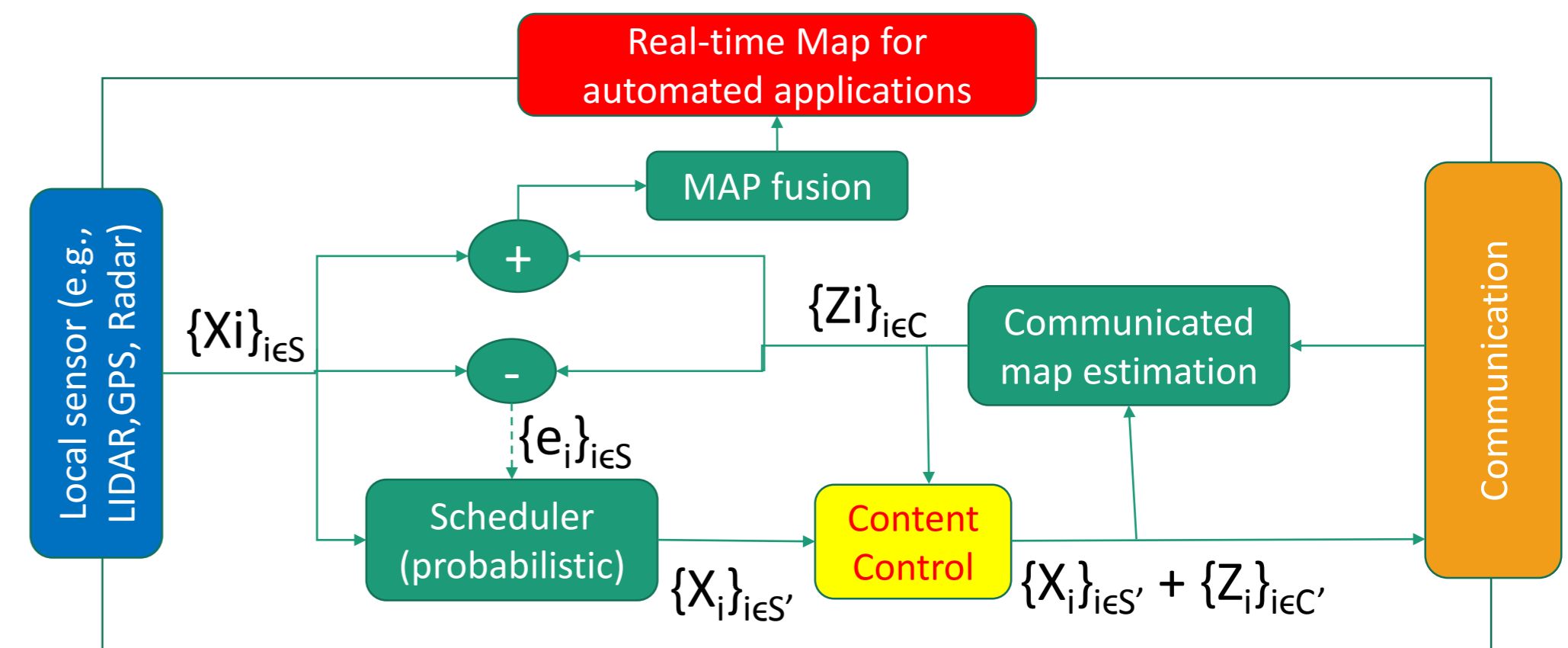
Research Problem

Present day DSRC is not sufficient for Automated Driving. *Challenging problem – innovative solutions are required*

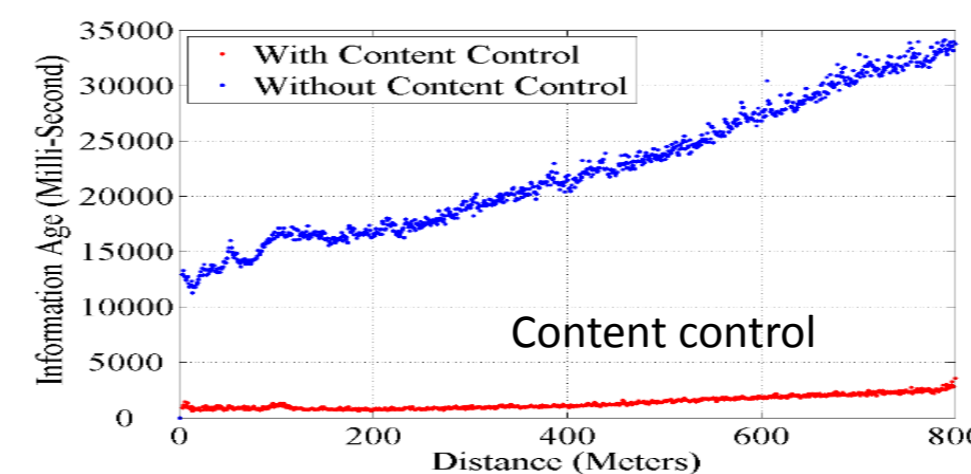


Proposed Algorithm

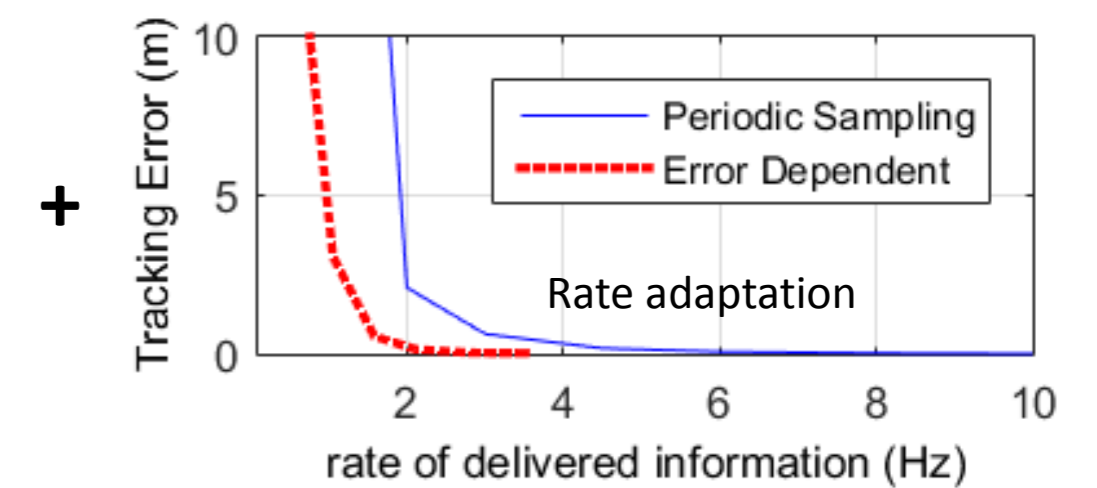
Innovative joint *Error-Dependent Rate & Content Adaptation* for map dissemination



S: set of locally sensed objects, C: set of objects tracked from communicated messages
S',C': subsets of S and C included in transmitted message



Information age is a measure of how quickly an automated car knows about the changes on the map



Correlating communication timing and estimation error reduces rate requirements