

COLUMBUS, OHIO

Sherry Kish, Deputy Director
Columbus Department of Technology

GLOBAL CITY TEAM CHALLENGE SUPER ACTION CLUSTER SUMMIT

February 1 – 2, 2017 | *Portland, Oregon*

NIST GCTC TECHNICAL CLUSTER: SMART SHUTTLE

A SCALABLE AND REPLICABLE AUTONOMOUS ELECTRIC SHUTTLE SYSTEM FOR SMART CITIES

CITY OF COLUMBUS: SHERRY KISH, RANDALL BOWMAN

OHIO STATE UNIVERSITY: LEVENT GUVENC, BILIN AKSUN-GUVENC, CARLA BAILO

GCTC TRANSPORTATION SUPERCLUSTER WORKSHOP, FEB. 1-2, 2017

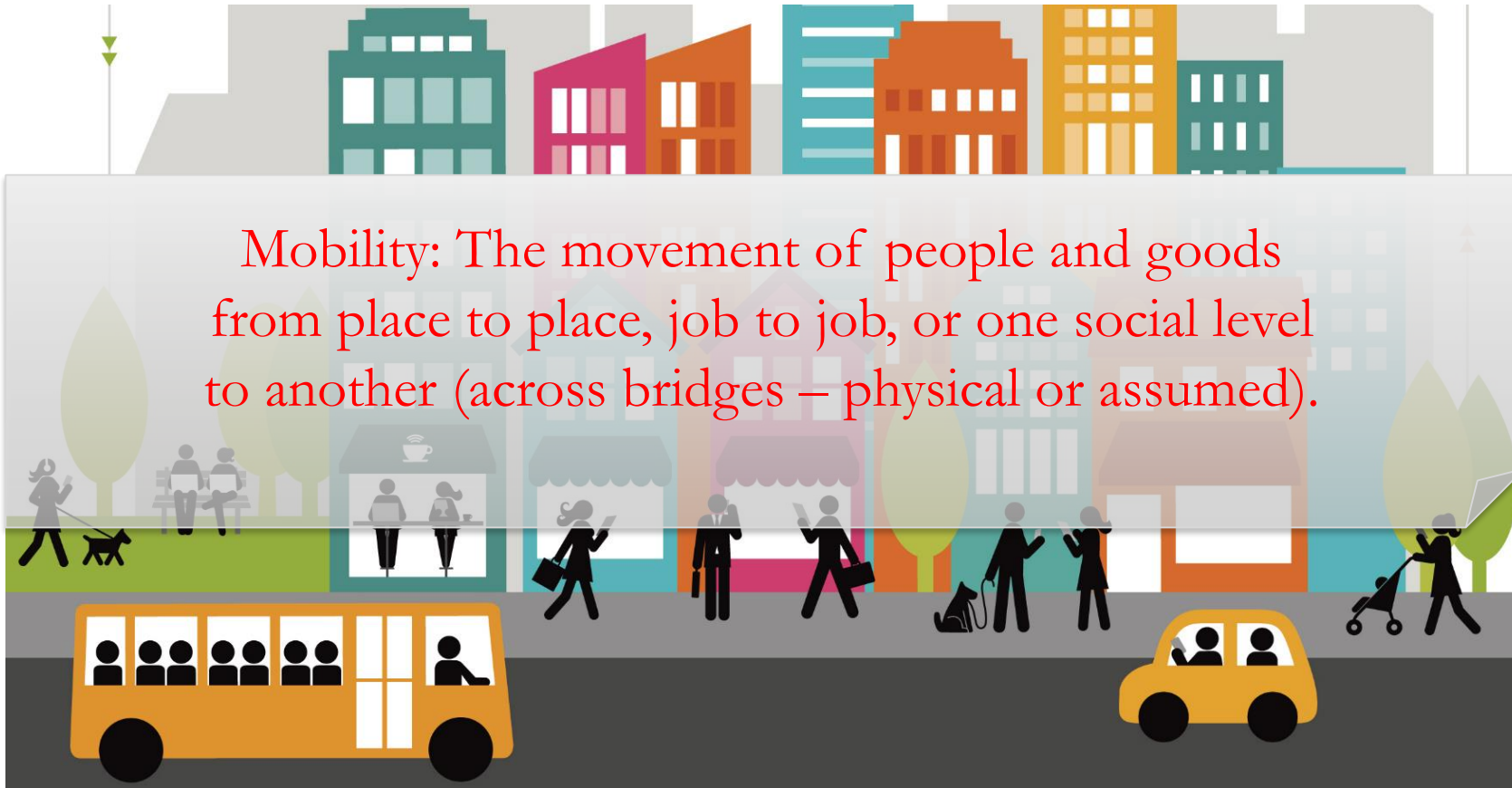
PORTLAND, OREGON

THE CITY OF
COLUMBUS
ANDREW J. GINTHER, MAYOR

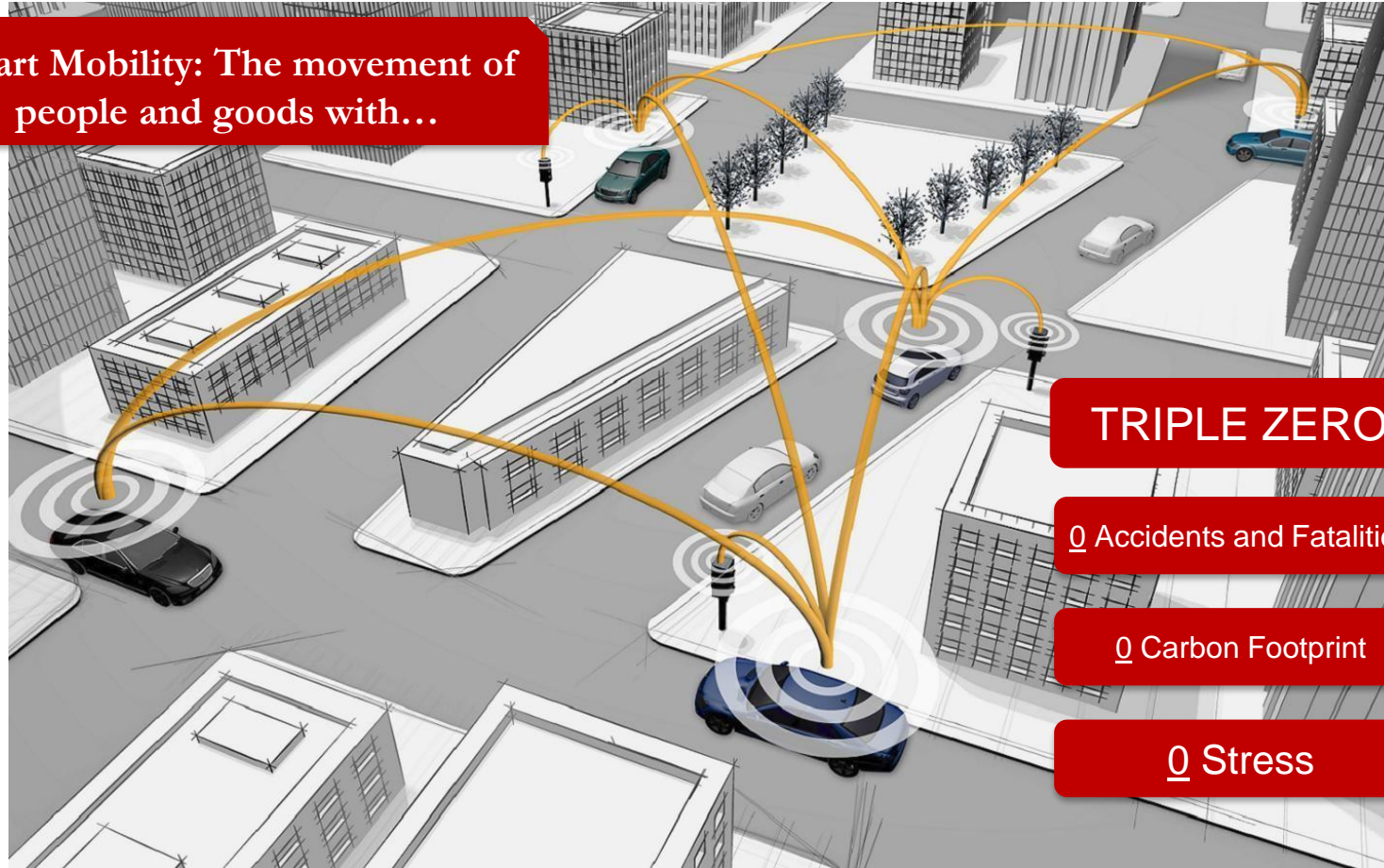


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Mobility: The movement of people and goods from place to place, job to job, or one social level to another (across bridges – physical or assumed).



Smart Mobility: The movement of people and goods with...



TRIPLE ZERO

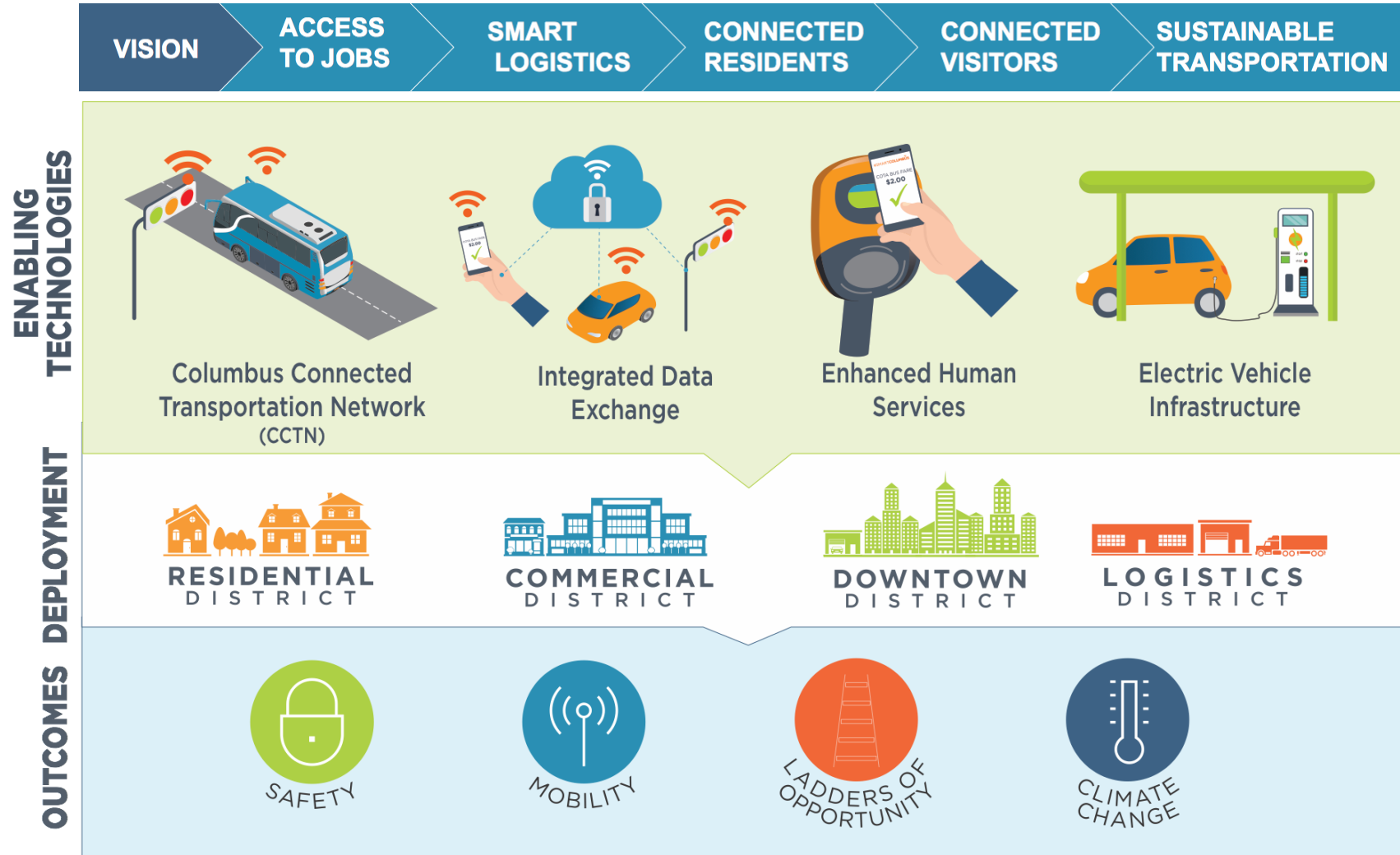
0 Accidents and Fatalities

0 Carbon Footprint

0 Stress

Mobility is a very significant part of a smart city.





GOAL

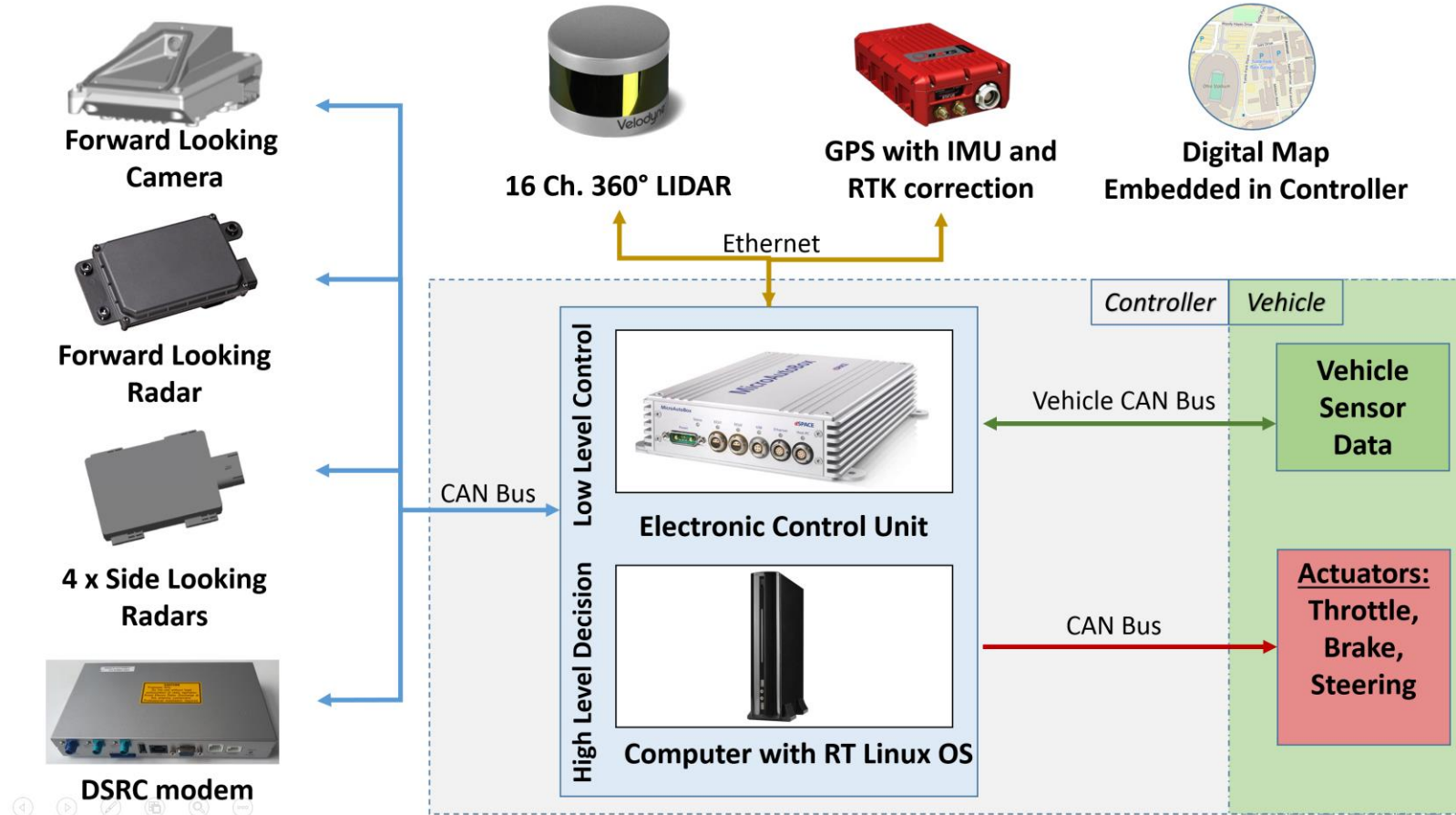
TO BUILD A SCALABLE AND REPLICABLE
ARCHITECTURE FOR LOW SPEED AUTOMATED
SHUTTLES IN SMART CITIES



2015 Ford Fusion Hybrid automated driving vehicle is being replaced with a 2017 Ford Fusion Hybrid. The new vehicle will additionally have shift-by-wire and short range radars on each corner.



COMPUTING, SENSING, COMMUNICATION AND ACTUATION ARCHITECTURE



Automation of electric shuttle is complete. Work is in progress on autonomous operation.



HARDWARE-IN-THE-LOOP SIMULATOR IS AVAILABLE FOR UNIFIED, SCALABLE AND REPLICABLE AUTOMATED DRIVING SYSTEM DESIGN



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Carsim Real Time with Traffic and Sensors



dSpace microautobox



dSpace Scalexio Labbox



V2X communication

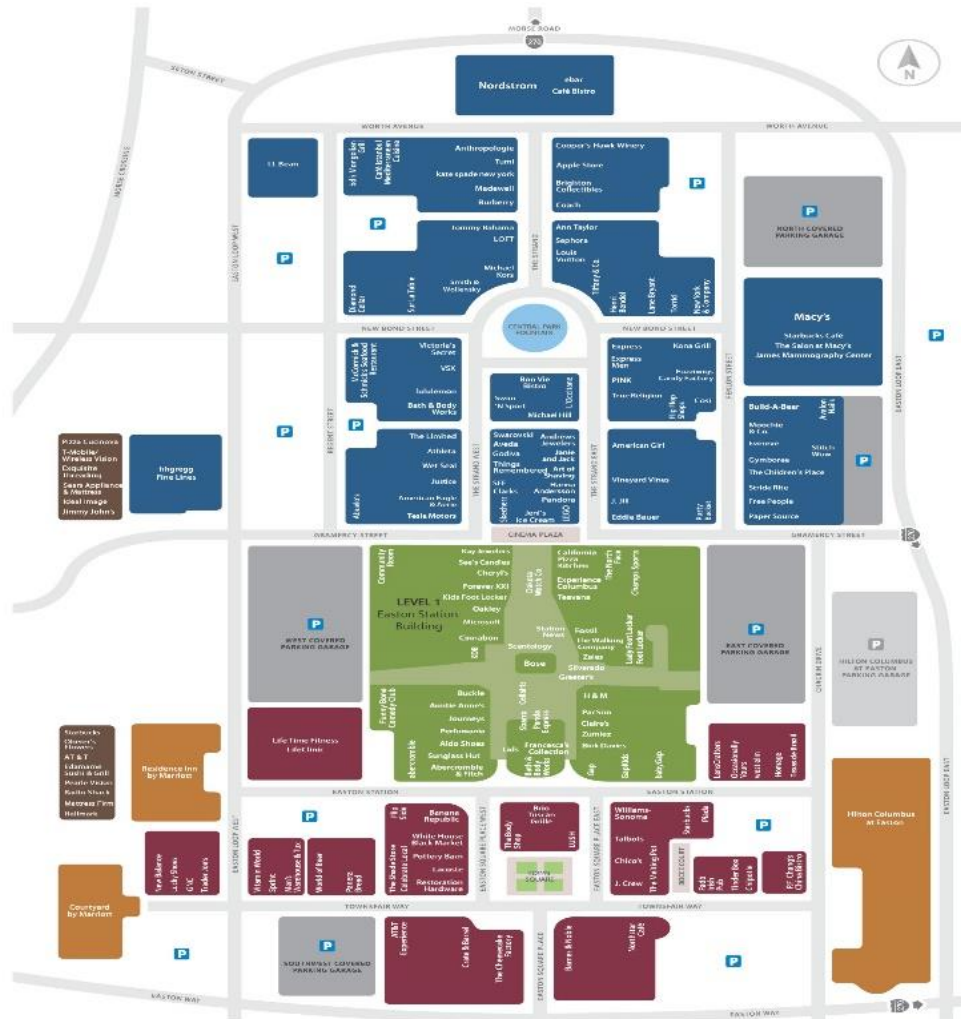
LOCALIZATION AND PERCEPTION SENSOR DATA PLANNED TO BE COLLECTED IN EASTON TOWN CENTER



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Deployment Sites

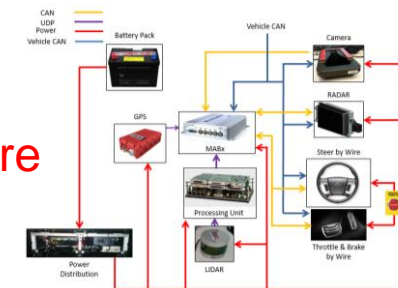


NSF CPS EAGER Project UNIFY
funding is acknowledged.

Different Vehicles



Unified Architecture



Power Distribution, MABx and GPS



Different Vehicles



CONTACT

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