DSRC Enhanced Curve Warning System

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Project Background

- MSOE senior design program

- Partnership with TAPCO

- Goal: Explore connected vehicle technology

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Connected Vehicle Basics

- DSRC - Digital Short-Range Communication

- V2X - Vehicle to Everything

- V2V - Vehicle to Vehicle

- V2I - Vehicle to Infrastructure
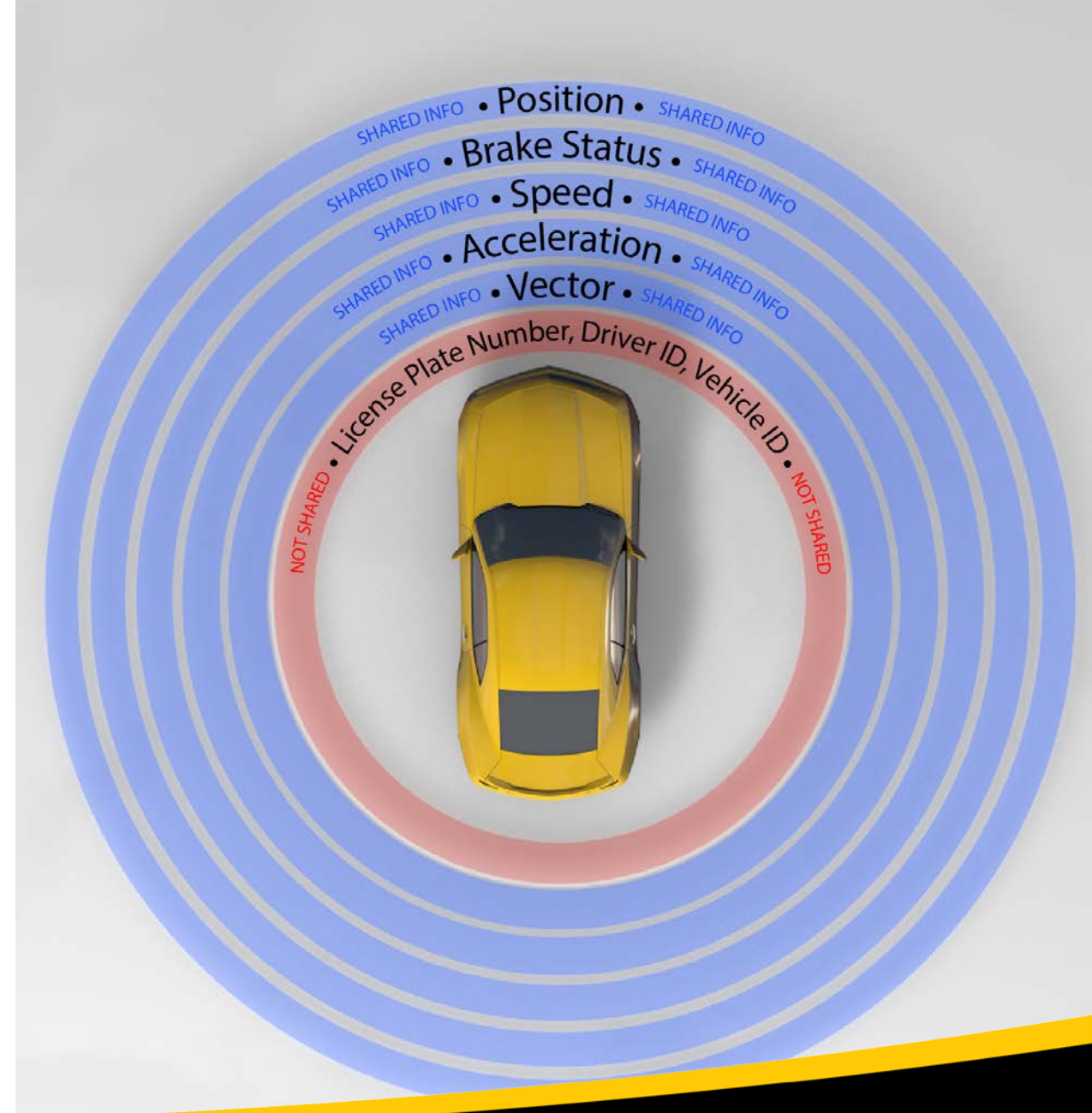
- Safety, commercial, environmental applications

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Hardware Breakdown

OBU
On Board Unit

RSU
Road Side Unit

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SAE J2735 Standard Messages

- Defines standard message formats

- BSM – Basic Safety Message

  - Position, motion, operational status

- MAP – Map Message

  - List of road geometry segments & speed limits

Target Application: Dynamic Curve Warning System

- Use BSMs for exact vehicle data

- Dynamic in-vehicle alerts

- Maintain original system functionality

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Curve Warning System with DSRC Communications

Test Results

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Future of Connected Vehicle Implementation

- Countless V2X applications

- Proposed NHSTA regulation for DSRC in all new vehicles by 2023

- Estimated 90% connected vehicles by 2040

- Build connected vehicle infrastructure while advancing other warning devices

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