Discussion Topics

- Driverless Vehicles 101
- Our Driverless Vision
- EasyMile and the EZ10
- What Now?
Driverless Vehicles 101
The U.S. Department of Transportation defines an automated vehicle system as:

“a combination of hardware and software (both remote and on-board) that performs a driving function, with or without a human actively monitoring the driving environment.”

Source: United States Department of Transportation Federal Automated Vehicles Policy, September 2016
SAE Levels of Automation
Is this a Level 5 Fully Automated Vehicle?
...and I should care, why?
Improved Safety
Better Mobility Options
Better Mobility Options (cont.)

Single Door-to-Door Journey ticket $$$
Reduced Car Ownership

What if this…

…increasingly became this?
Decreased Space Dedicated to Parking
Reduced Greenhouse Gas Emissions
So…. When are They Coming?
Why Aren’t Driverless Vehicles Here Today?

- Technology Readiness
- Insurance
- Regulation
- Infrastructure
- Human Acceptance
Our Driverless Vision
Scenario #1
Scenario #2
<table>
<thead>
<tr>
<th>Scenario Comparison</th>
<th>Scenario #1 (Nightmare)</th>
<th>Scenario #2 (Utopia)</th>
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</thead>
<tbody>
<tr>
<td>Safety</td>
<td>🟪</td>
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<tr>
<td>VMT</td>
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<tr>
<td>GHG Emissions</td>
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<tr>
<td>Urban Sprawl</td>
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<tr>
<td>Parking Requirements</td>
<td>No Change</td>
<td>🟧</td>
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<tr>
<td>Low Income Mobility</td>
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The Vision
EasyMile and the EZ10
Core Business:
- Develop open road driverless technologies
- Integrate these technologies into different vehicles to address a variety of use cases
- Develop methodologies to efficiently and safely deploy fleets of automated vehicles

Started in 2014 with offices in Toulouse, Singapore and Denver

Currently 70 staff:
36 R&D software engineers (target 50 by end of 2017), including 11 PhD’s

Establish partnerships to combine expertise to deliver a quality product and service
The EZ10

Driverless and electric shuttle

Can carry up to 12 people

(6 seating and 6 standing)

Built-in access ramp for passengers with reduced mobility

No need for additional infrastructure
The EZ10 Safety Features

Localization Using Data Fusion
1. Lasers 4. Odometry
2. Cameras 5. IMU
3. GPS

Decision-making Safety Chain
1. Emergency Stop Buttons X3
2. Certified Industrial Grade Safety Control Units
3. Obstacle Detection Lasers
4. Braking Systems & Failsafe Parking Brake
Current Applications for People Movers

Short Distance within Confined Sites

- Train Stations
- Airports
- City Centers
- Theme Parks/Cultural Sites
- Campus
- Industrial Sites
- Hospitals
- Retirement Homes

Service Mode

- Peak Hours: Calling at all stations
- Off Peak Hours: On demand

Increase Urban Mobility
Reduce Traffic Congestion & Pollution
Create “Last Mile” Connectivity
Save Costs Through Automation
EasyMile Projects
So… What Now?
Our Mobility Future

- Shared
- Autonomous
- Electric
### Establish Supportive Policies

<table>
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<tr>
<th>Update roadway policies and infrastructure to manage the VMT impact</th>
<th>Adjust land use policies to reduce urban sprawl</th>
<th>Adjust the tax/fee structure to dis-incentivize car ownership and/or parking</th>
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<tbody>
<tr>
<td>Alter parking policies to reduce the need for private parking</td>
<td>Incentivize electric vehicle usage/ownership</td>
<td>Change transit pricing</td>
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</table>
Start a Pilot!

- Build Awareness of Technology
- Educate Stakeholders
- Establish Partnerships
- Navigate Regulations
- Integrate w/ Transit
- Establish Insurance
- Inform Planning Process
Address a Mobility Challenge

- Train Stations
- Airports
- City Centers
- Industrial Sites
- Campus
- Theme Parks/Cultural Sites
- Hospitals
- Retirement Homes
Questions?

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