Cemre Kavvasoglu
Product Management Director, NA

problem

CONGESTION

Elon Musk
@elonmusk

Defeating traffic is the ultimate boss battle. Even the most powerful humans in the world cannot defeat traffic.

9:06 AM · Mar 6, 2022 · Twitter for iPhone

CARBON EMISSIONS

CATA reduces MSU and Lansing bus routes due to driver shortage as classes resume

Mark Johnson
Lansing State Journal

Published 5:07 p.m. ET Jan. 28, 2022 | **Updated 5:27 p.m. ET Jan. 30, 2022**

DRIVER SHORTAGE

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solution

ADASTEC flowride.ai equipped buses transforming public transit

- Clear ROI
- Driverless
- Energy Efficient
- Ready for Deployment
- All Weather
- Factory Fitted
- Accessible
- Connected
- Globally Proven, Locally Available
- Flexible
- Safe

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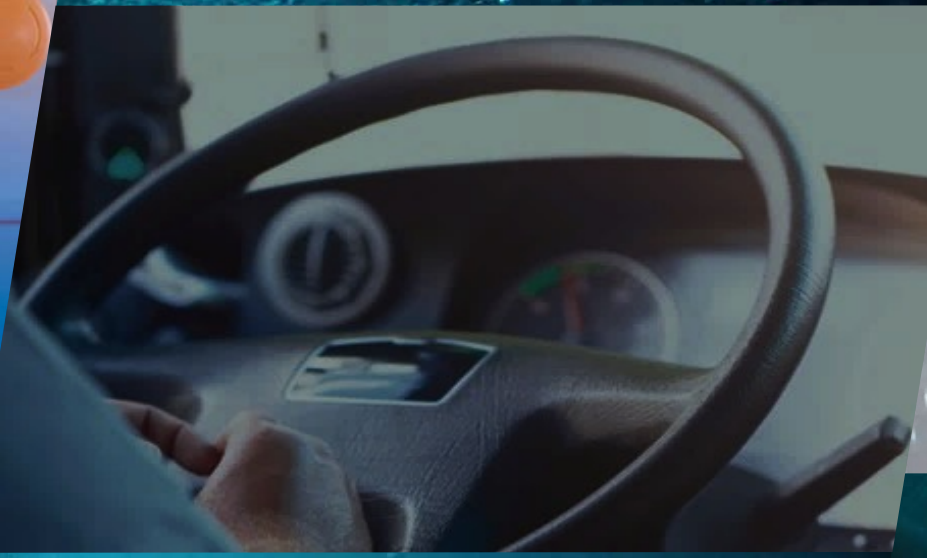
return of investment

Reduce Energy Costs

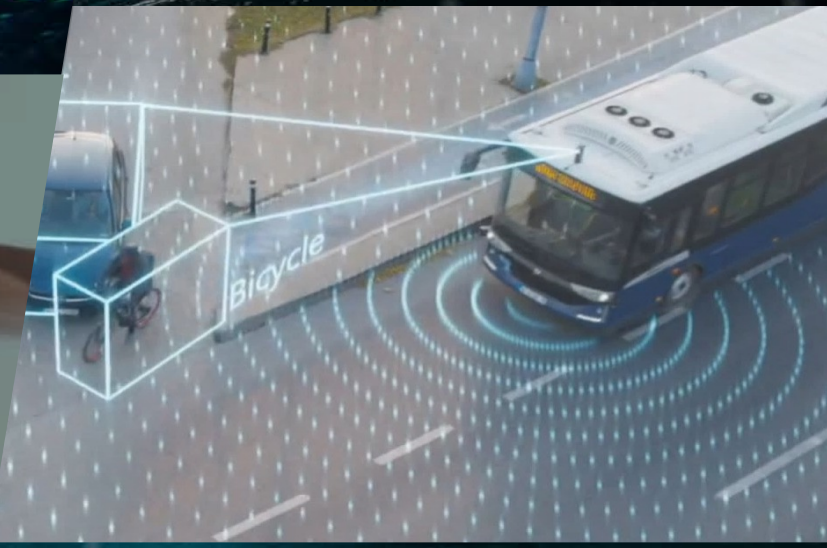
EVs reduce the cost of energy
AV optimizes energy usage ~8%



Reduce Labor Costs

AVs reduce the cost of labor

- Not enough drivers
- Labor costs : ~ 3.5 drivers per bus
- $250K – $300K per year per bus



Reduce Technology Costs

Sensor/Software costs are acceptable compared to the cost of an EV Bus

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automated

Operating Conditions

- Full Autonomous in the route
- Day/Night working capability
- Operation in Rain/Hazy/Snow
- Controllable Max Speed (25 ml/h)
- No Safety Driver on route (2024)

Routes

- Predetermined
- Pre-mapped
- Simulated
- Mixed traffic conditions
- Multiple Stops

flowride.ai

Supporting wide range of
Operating Design Domains

Automated Driving

- Bus stop handling
- Intersection handling
- Traffic lights
- Crosswalk handling
- Precise localization
- Traffic participants handling

Central Control

- Operation Management
- Mission Management
- Communication
- Data sharing

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factory fitted

OEMS

Globally Proven,
Locally Available

- **USA & Canada**
  2 Models
  FMVSS, CMVSS, ADA Compliant
  Buy America Compliant
- **EU**
  2 Models
- **Japan**
- **Australia**
- **Middle East and Asia**
  Coming soon

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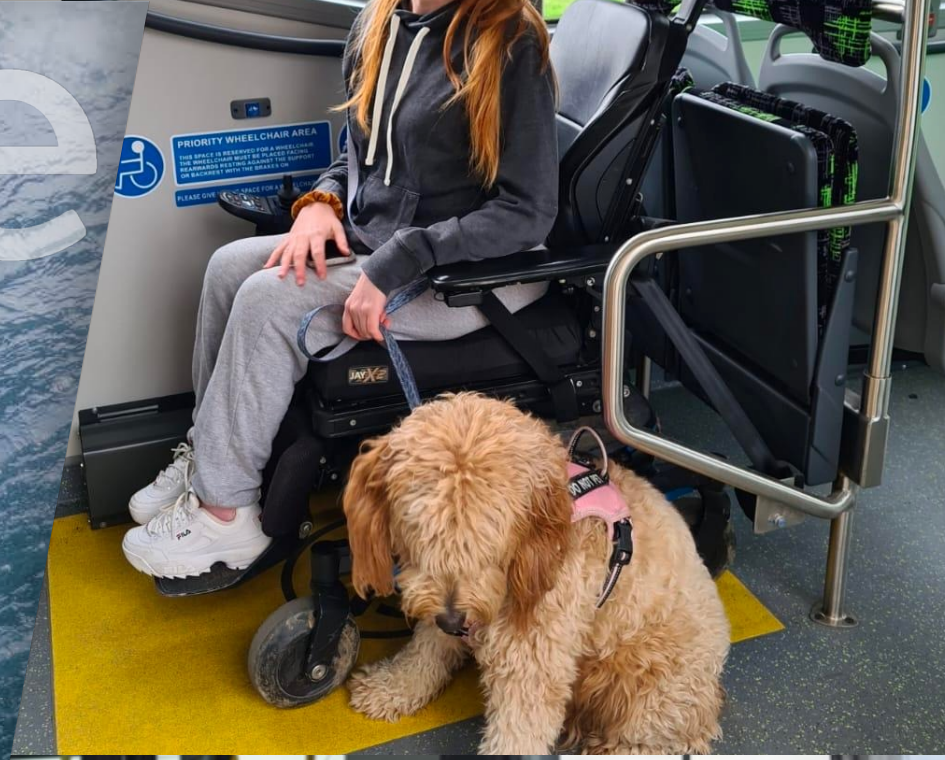
accessible

- Low Floor
- Kneeling Capable
- Automated Ramp
- Automated Wheelchair Securement
- Up to 4 Wheelchair Locations
- Interior/Exterior Visual Support
- Interior/Exterior Audio Support
- ADA compliant



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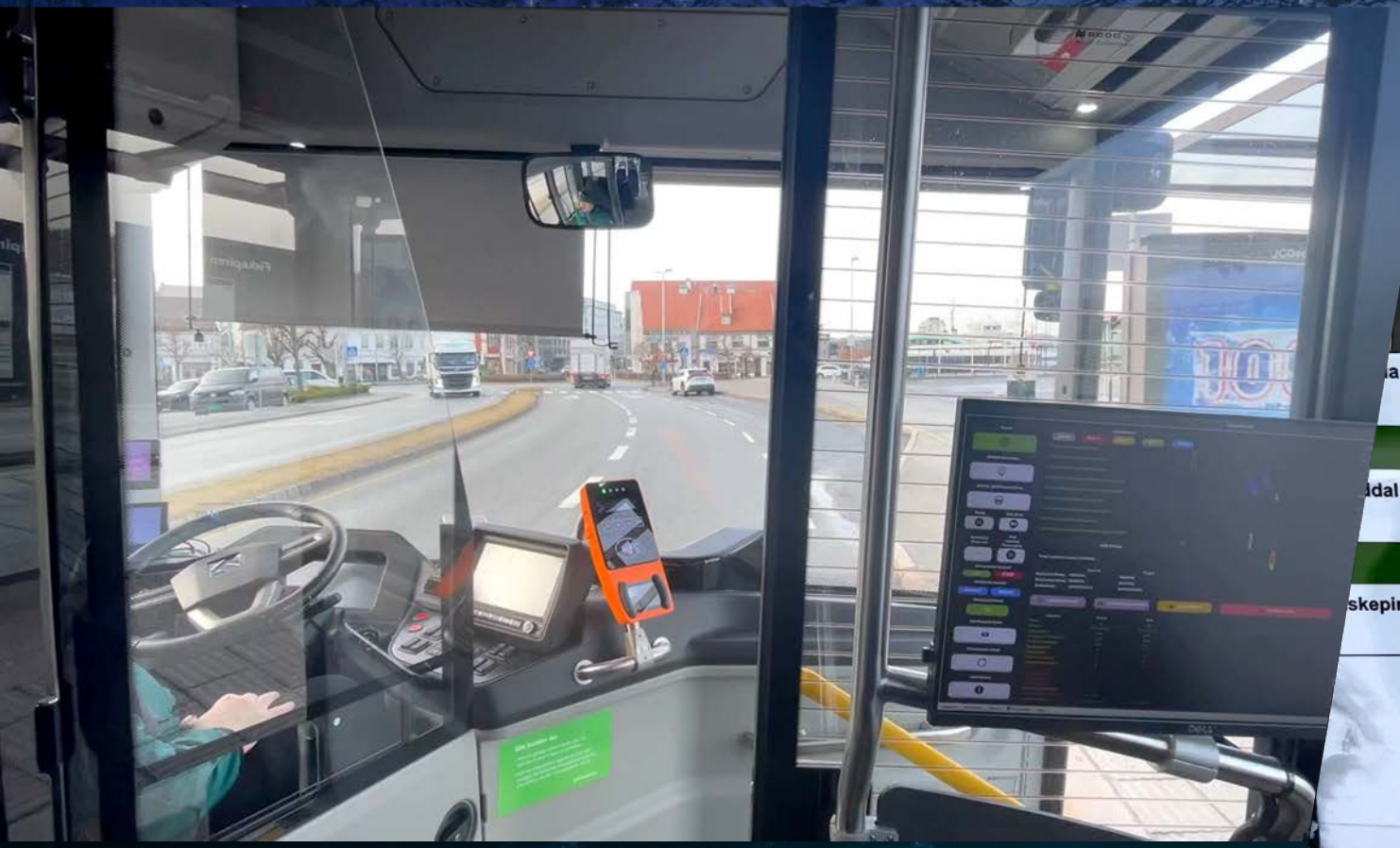
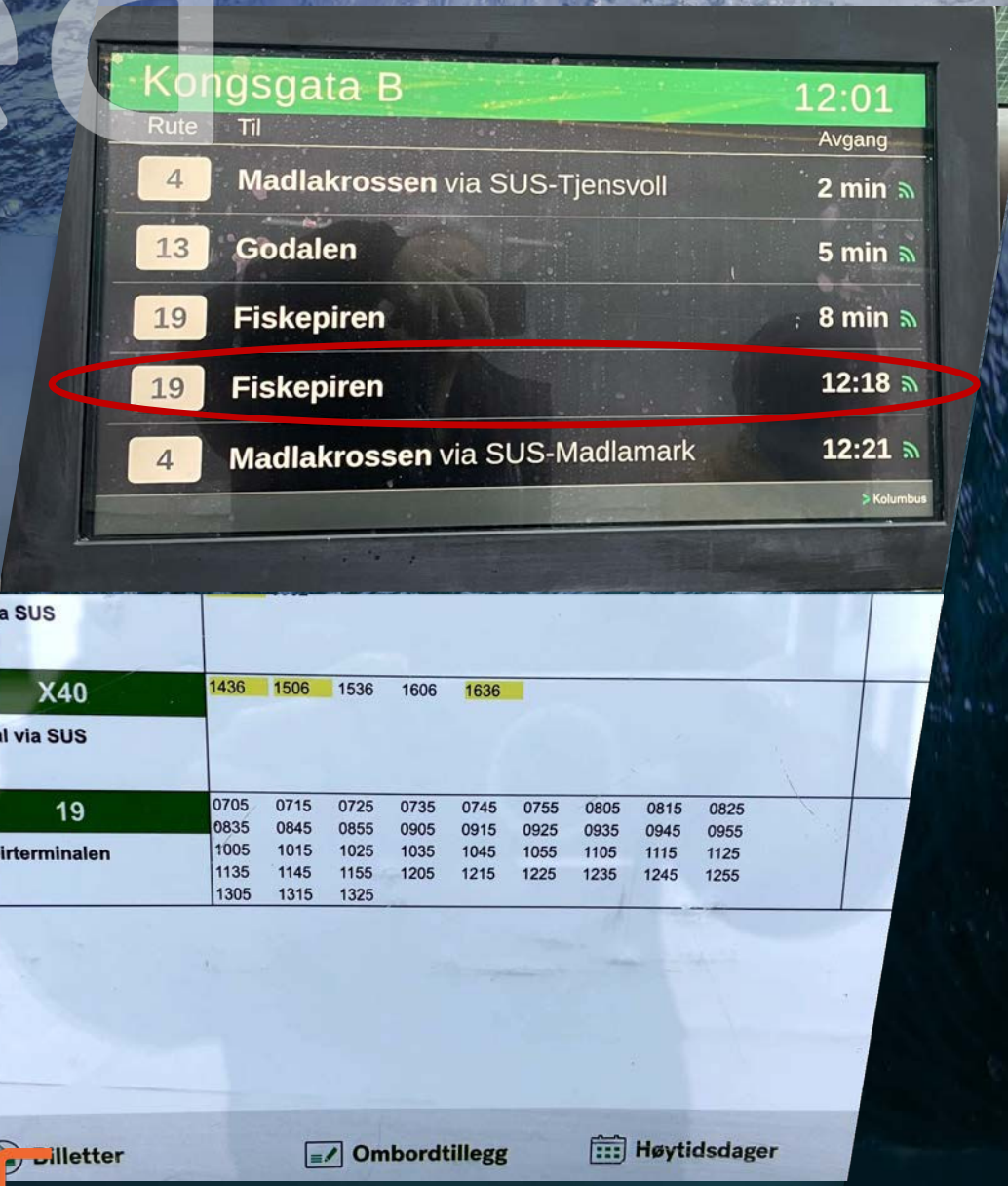
integrated





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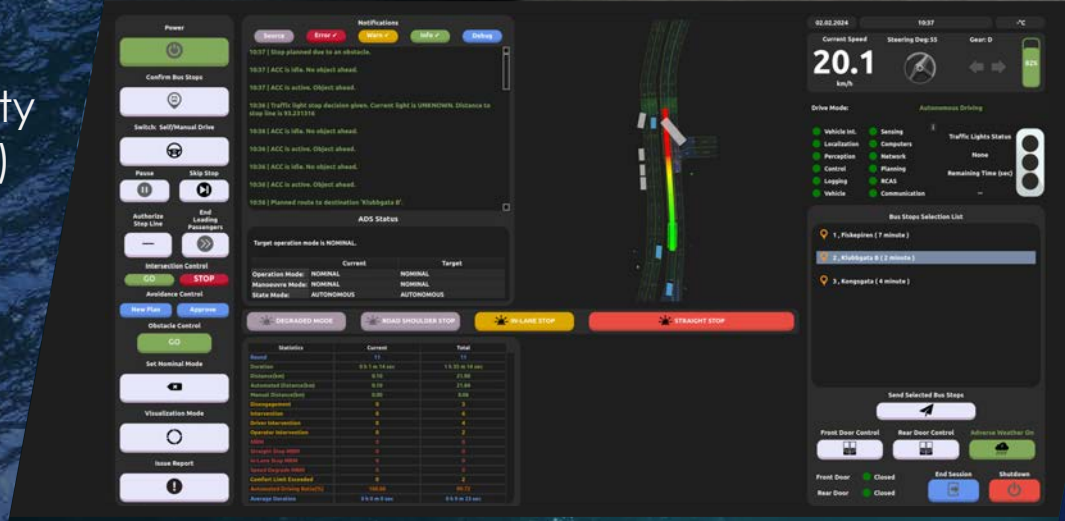
safe

- Fault Tolerant HW
- Fault Tolerant DBW & Braking
- Smooth driving (allowing standing people)
- Minimum Risk Maneuver

- Standards :
  - ISO 26262 - Functional Safety
  - ISO/PAS 21448 Safety of the intended functionality
  - ISO 22737 - Low-speed automated driving (LSAD) systems for predefined routes
  - ISO/SAE 21434 Cybersecurity
  - UL 4600 - The standard for Safety for the Evaluation of Autonomous Products.
  - PAS 1881 - Operational safety of automated
  - AUTOMOTIVE SPICE



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Deployments

Deployed

- Michigan State University, MI, USA
- Sleeping Bear Dunes National Lakeshore, MI, USA
- Stavanger, Norway
- Ploiesti, Romania
- Tampere, Finland
- Istanbul, Turkiye
- Ankara, Turkiye

Deployment Stage

- Hannover, Germany
- Michigan State University, MI, USA
- Buffalo, NY, USA
- Rotterdam, the Netherlands
- Arbon City, Switzerland

Pilot Deployments

- Busworld, Brussels, Belgium
- RNTP,Clermont- Ferrand, France
- Global Mobility Call, Madrid, Spain
- Istanbul Ataturk Airport, Turkiye
- Bogazici University, Turkiye
- Hannover, Germany
- Berlin, Germany
- Chateauroux, France

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first

First Automated Bus Deployment both in the US and EU

Forbes

reduce emissions and improve people's travel opportunities especially in urban areas. Self-driving buses can make it financially sustainable to create new bus lines with shorter routes to and from transit hubs.

A first in Europe

The test is a collaboration between transport companies Vy and Kolumbus using AI and sensor technology from Adastec and monitoring technology from Norwegian startup Applied Autonomy.

Public transit users in Stavanger, Norway, will soon get the opportunity to experience self-driving ... [+] GE

NHTSA

National Highway Traffic Safety Administraton

Ratings Recalls Risky Driving Road Safety

AV TEST Initiative

Automated Vehicle Transparency and Engagement for Safe Testing Initiative

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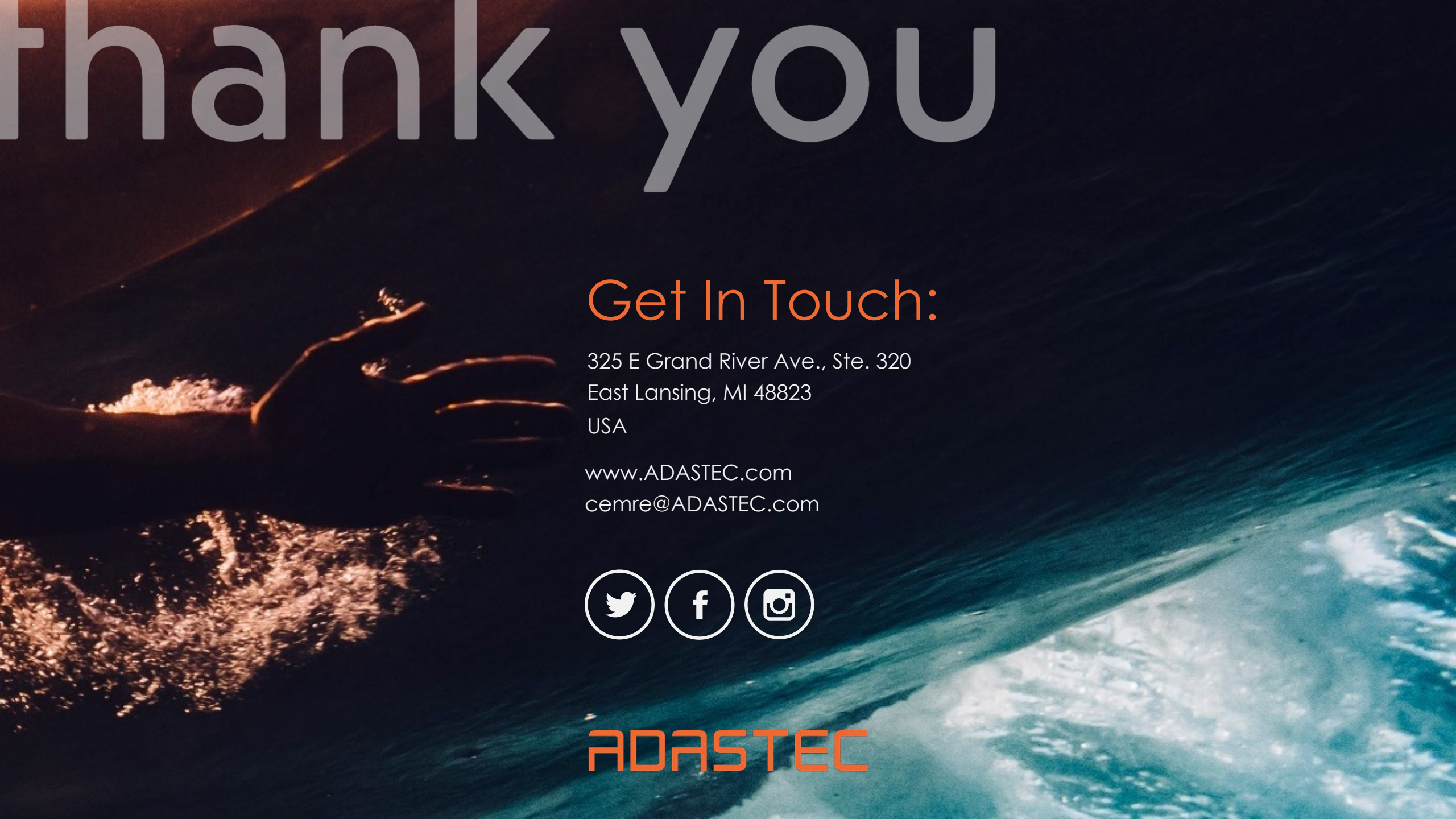
thank you



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