

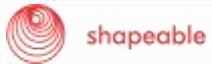
VOYAGE



Alan Mond

Head of Hardware

A Little About Me





Self-Driving Taxis

Working to create safer, more comfortable and more affordable automotive options for communities all across North America.

Currently deployed in **California and Florida**.

We integrate existing components into a vehicle for rapid development time.



The GEN1 Voyage Taxi

The generation 1 Voyage Taxi was started in June of 2017 and was driving autonomously

in 3 months.

Components of GEN1

2017 Ford Fusion Hybrid SE

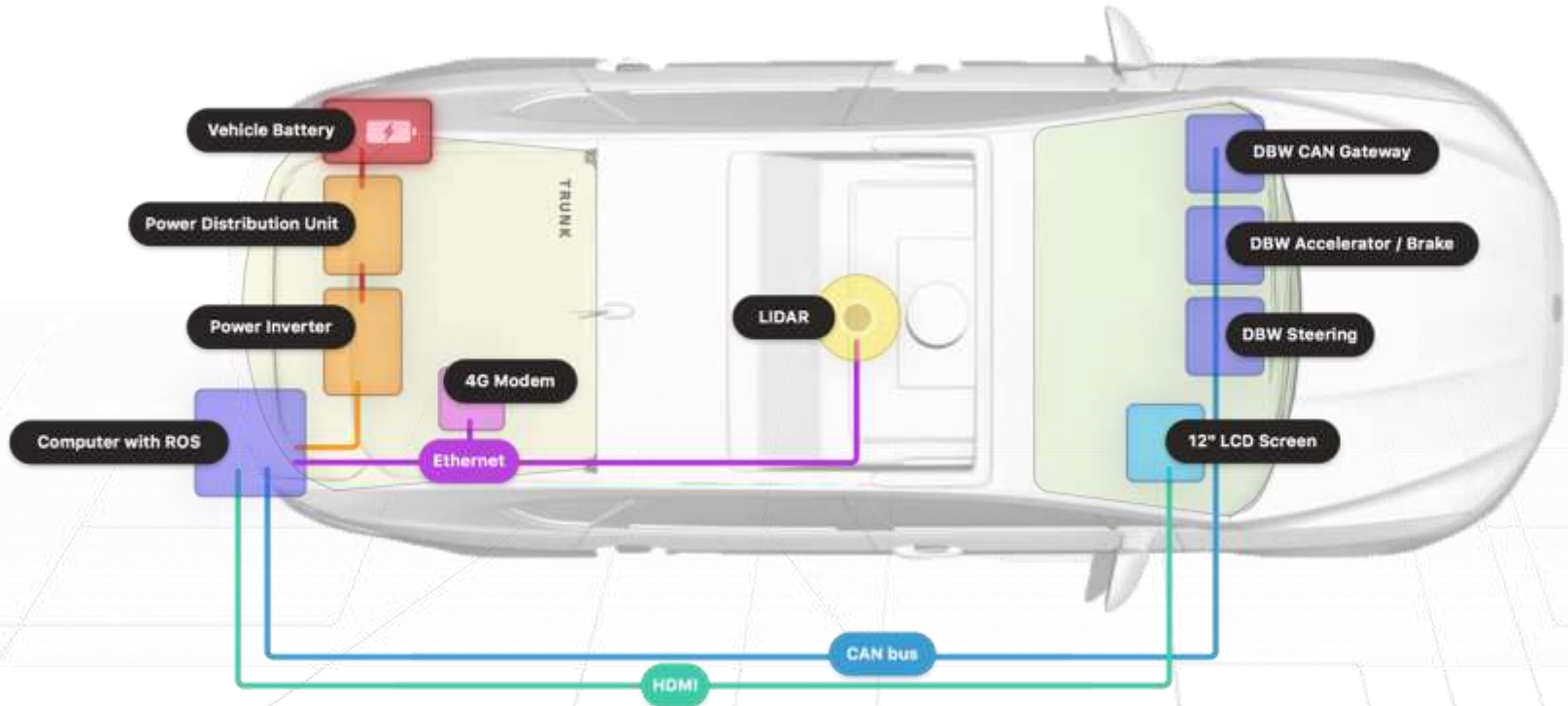
Dataspeed Kit

Velodyne HDL-64

Compute with ROS



System Overview of Gen1



Bounding the **Complexity of the Self-Driving Car**

Below, The Villages San Jose. Deployment 0001



Attempted 1st Solution

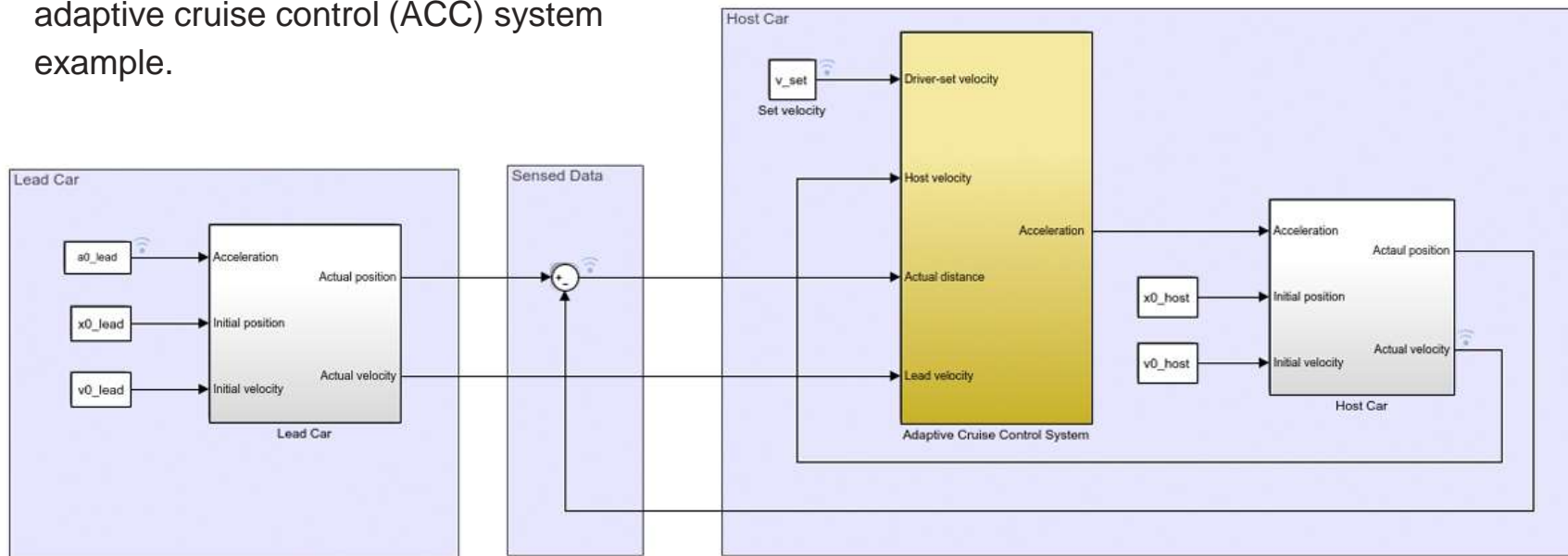
Existing controller from Dataspeed Kit - too rough

Open source modules were not working well for our application. Car was too jerky for human passengers.



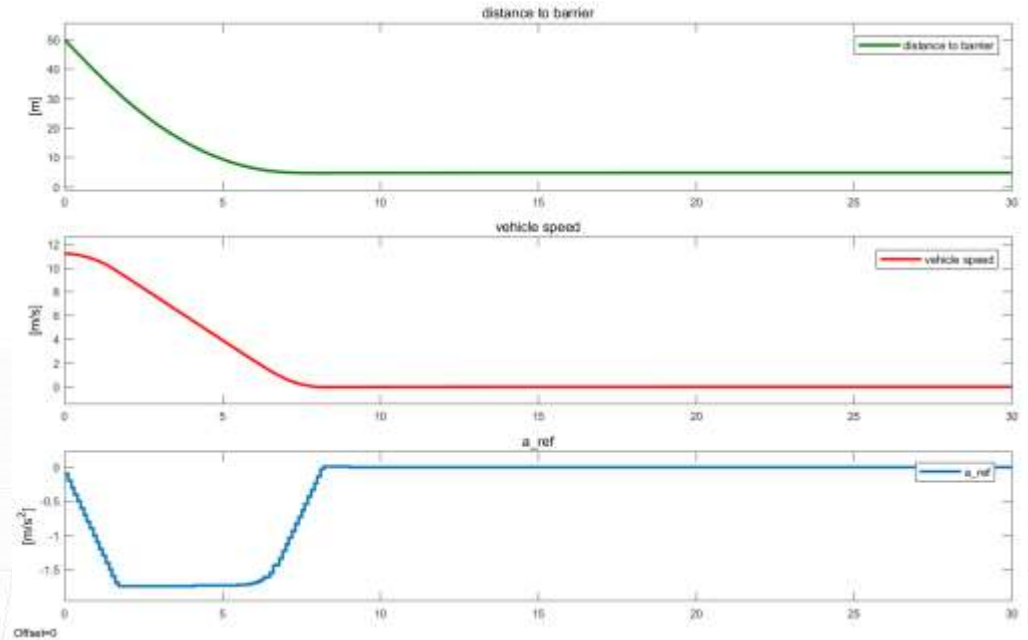
Jumpstarting Development

We decided to begin with the MATLAB adaptive cruise control (ACC) system example.



Tuning Our Own Model Predictive Controller From the Ground Up

Vehicle was too jerky when starting and stopping, and we found that riders are especially sensitive to this type of motion.



Always Optimize For Safety

We created a new type of ROS node to simulate a ghost barrier—essentially, a virtual vehicle that we could position at various distances from the taxi.



Sudden stop

Ghost Barrier

Open Autonomous Safety

oas.voyage.auto



Conclusion: **We Saved Time**

Ship a real product using existing modules and hardware components

Try existing modules before developing your own

Linux, Docker and ROS, allows for super fast development.

Simulink + ROS allowed us to deploy a Level 3 Autonomous vehicle in less than 3 months





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