

StratosShare UCR CE-CERT Demonstration

StratoShare has partnered with UCR CE-CERT to demonstrate hydrogen based car-sharing at the CE-CERT research facility. The demonstration team lead by StratosFuel will carry out the proposed HFCEV car-sharing program in the Riverside community using a small fleet of vehicles, with the support from a vehicle reservation and renting mobile application, Turo Rides. StratosFuel's approach to offering a zero-emission car sharing service is simple: place cars within close proximity of an existing hydrogen station, advertise a zero-emission car sharing service near commuter centric communities, and utilize existing technology (StratosShare) to vet drivers and process payments. Therefore, the goal of demonstration is to increase the utilization of public hydrogen stations by implementing a HFCEV car-sharing service in the new community with no or little access to AFV, which is also very likely to be a disadvantaged community which need clean energy technologies improve air quality and economic conditions. This strategy can be accomplished with the following objectives:

- Offer a zero-emission car sharing service to the public.
- Initially deploy the vehicles in disadvantaged communities.
- Deploy HFCEVs (Toyota Mirai).
- Utilize StratosShare's existing car-sharing platform.
- Monitor all traveled locations and fueling points of vehicles. Use this information to compile data to track emission reduction, vehicle use, and new locations.
- On top of Toyota's vehicle customer support, StratosFuel offers 24/7 station support, while Turo rides offers 24/7 car-sharing support.
- All vehicles are located near existing hydrogen fueling stations. These stations will serve as the vehicles designated fueling points.
- All Stations, and vehicle parking locations are publicly accessible and can be used by anyone who reserves the vehicle through Turo Rides.

In order to get riders into vehicles we utilize StratosShare's car share hardware and software platform. The StratosShare system allows users to reserve a vehicle, unlock, lock, and start the vehicle by using their phones. The strategy is to place vehicles in the targeted areas, which become available to the public through the app. We found that using StratosShare's existing car share platform is the easiest way to attract riders and process reservation request. The benefit StratosShare brings to the community is that they vet the drivers, reserve vehicles, process payments, and offer a \$1M insurance policy in addition to all drivers. StratosShare's system makes the sharing experience safe and convenient by allowing users to pay through the app, essentially eliminating cash and cumbersome credit card readers. In addition to the StratosShare app, every vehicle has a smart key box installed. This box is what enables drivers to use their phone as a key fob. For example, it establishes a signal between the vehicle and the phone. This signal will not be terminated until the trip is ended. A real benefit to StratosShare's platform is the user does not need cellular connectivity in order to lock and unlock the vehicle. StratosFuel installs Delphi OBD2 sensors in each of the vehicles in order to monitor location, fuel, and unlock the cars when a reservation request is sent. An example of this can be seen in the attached Figure . Furthermore, each vehicle is equipped with a fuel card that allows drivers to refuel a hydrogen stations on the fly.

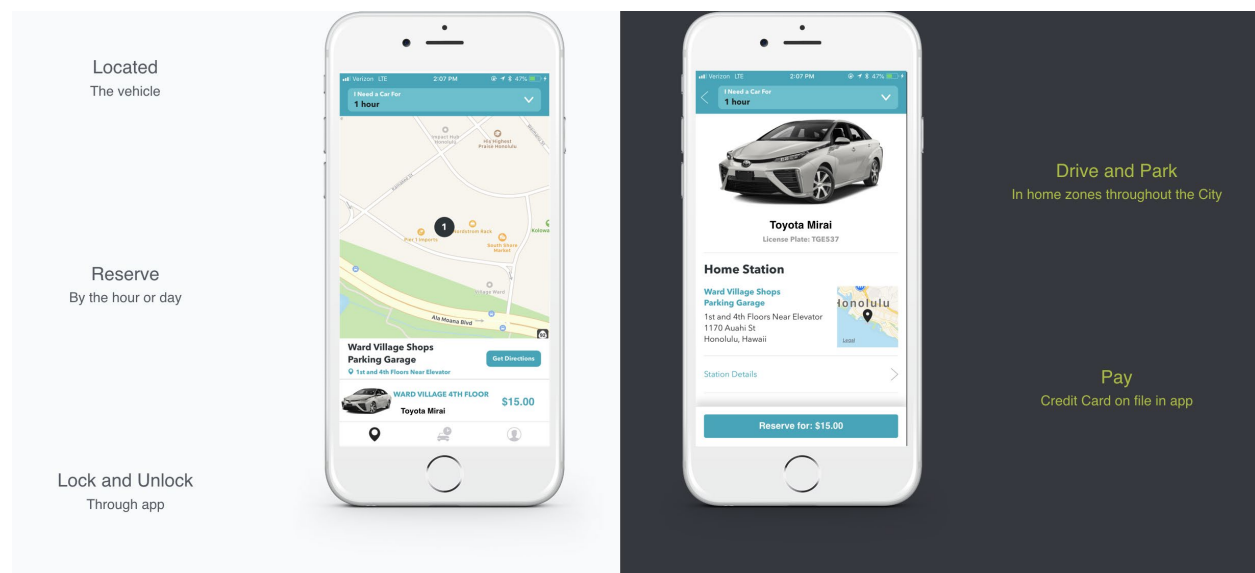



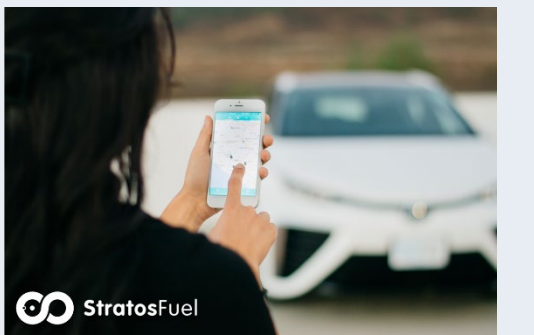
Figure: Interphase of the mobile application

The HFCEVs for the car-sharing fleet are Toyota Mirai's. Out of all the hydrogen cars available today, the Toyota Mirai is the most affordable, ubiquitous, and utilitarian. Purchasing a fleet of Mirai's has its own challenges, being that the vehicles are produced in limited number, but we found that Toyota already has experience with large fleets; they have delivered over 20 cars to Caltrans, and can surely meet our demand within the needed amount of time. The Mirai is also very convenient because it can seat up to four people at a time and travel up to 312 miles between charges. This is an ideal vehicle for the car-sharing service we are providing.

During the operation of the car sharing fleet, the existing HFCEV car sharing fleet information platform for performance monitoring, data collection and sharing, and fleet analysis will be maintained and upgraded. This back-end platform will also work with Turo Ride to further improve the driving experience of the car sharing users.

Project Name	Location	
Ref Pictures	Size of Project/Source	Tasks and Milestones Completed
Ontario H2 Station	1850 Holt Blvd Ontario, CA	

	<p>\$2.4M CEC funded project. This station is an onsite generation hydrogen station with augmented trailer supply.</p>	<p>Stratos successfully completed project management, and POS installation and integration. Stratos is also providing O&M services.</p> <p>Stratos completed their entire task in scope on time of before schedule.</p>
<p>Level 2 & 3 DC fast Charging Installs</p>	<p>1850 Holt Blvd Ontario, CA</p>	
	<p>\$300k CEC funded project. Installation of Level 2 & 3</p>	<p>In 2015 StratosFuel was a subcontractor for installing three electric vehicle chargers (2 level-2 chargers, and 1 DC fast charger). Under our scope they obtained the required permits to proceed with the install. Stratos completed their scope ahead of schedule.</p>
<p>Orange Hydrogen Station North Hollywood Hydrogen Station</p>	<p>1914 East Chapman Ave., Orange, 92867 & 5957 Vineland Ave., North Hollywood, 91601</p>	
	<p>\$3.4M CEC funded Grant under PON-13-607</p>	<p>Stratos tasks are to complete project management, secure proper permits, and construct, and install the required hydrogen equipment. Stratos will also continue O&M. They are currently finalizing permits for North Hollywood and are expect to begin construction June 2018.</p>
<p>Top Loader Mobile Refuel</p>	<p>Port of Los Angeles</p>	

	<p>AQIP funded project for Top Loader Vehicles</p>	<p>Stratos is a subcontractor for CTE and Eagle Marine to supply fuel and a mobile refueling solution for Top Load Vehicle at the Port of LA. This project will commence in Springs of 2019 and continue for over a year.</p>
<p>StratosShare- FCEV Car Sharing</p>	<p>San Bernardino & Riverside Counties</p>	
	<p>\$680k CEC funded Grant.</p>	<p>Stratos is launching a FCEV car-sharing platform with Toyota. These vehicles will provide zero-emission shared mobility in disadvantage communities, and increase throughput at HRS. Stratos scope is to operate the entire fleet. They have recently begun the project as of Feb 2018.</p>