

The car:



The concept is this:

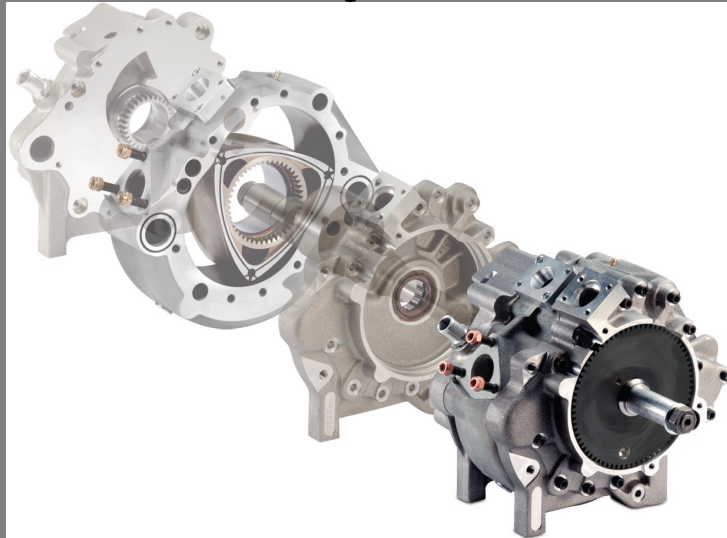
Perform a high quality, high performance EV conversion using the most efficient and powerful AC traction drive system possible. Use the latest and greatest batteries/capacitors to extend range and minimize recharge time. Install a genset in the trunk of the vehicle that automatically turns on when battery (or capacitor) capacity falls below a preset limit. Initially run the genset on its designed fuel only to work out any bugs and verify operation. Then apply hydrogen technology to extend the genset run time. Initial calculations based on fuel consumption of genset yields approximately 200MPG. Range with genset on projected to 350+ miles. Top speed - 100MPH+, 0-60 5 sec.

Imagine an electric vehicle that can be recharged anywhere, anytime independent of the grid. A rolling independent personal mobile power station. As long as there is fuel in the genset tank, the car can keep on going. The car can be fully charged overnight for the morning drive to work.

The mornings drain is replaced while you are working, and by the time you get ready to leave, you have a full charge again. All done without having to plug the vehicle into an electrical outlet. In fact, the user can utilize the car to power the house during power outages.

THIS IS HOW TOYOTA SHOULD HAVE BUILT THE PRIUS!

As for the genset that will make this possible, we are looking for an off the shelf propane or natural gas 10- 20KW unit. We have sourced out a supplier for a ROTARY small engine as the primary driver for the genhead. It makes 35HP(26KW) and 30 ft-lbs of torque at 6500 rpm. At only 33 pounds, it is ideal for this application. The rotary engine has twice the displacement as a piston engine with about half the weight.



The genset will run at a constant RPM using belt reduction to the genhead and will be activated by a voltage sensing circuit to turn on and off based on battery/capacitor bank voltage. While the vehicle is in motion the genset will run constant. The batteries/capacitors will take the brunt of the variable load conditions caused by normal driving. Their performance is key to the projects success.

The donor vehicle is a 1963 Chevy Corvair.

The frontal area is approximately 19 sq ft.

The drag coef. is about .43

Rolling radius will be 12.5".

Final drive ratio is 3.27

This 1963 Corvair has a manual transmission, and a light 2500lbs curb weight stock. The air cooled, rear engine mount opposed 6 is perfect for an EV conversion.

The energy storage medium we propose to use to provide 400VDC:

The voltage will be 400VDC supplied by capacitors. We are searching for the release of a breakthrough new technology using nano tubes. A company called EESstor is developing such a technology but has been very private about developments. They have taken their website down and are very seclusive. So we also have our eyes on Maxwell Technologies who sells super capacitors.



The hope is to avoid the use of batteries altogether. Capacitors have a virtually unlimited recharging cycle, no electrolytes, are lighter, and ultimately better for the environment - not to mention SAFER. Although capacitors at this time do not have the same capacity as a typical battery, they are lighter - and with the on board genset charging cycle frequencies are not an issue.

The motor:

We are currently considering 2 sources for the AC traction drive system. Either an AC traction drive by Azure Dynamics or by UQM.



We chose to use an AC traction drive system over a DC system for its high efficiency and regen braking. The huge motor will provide about 400 ft-lbs of torque and 200 hp.

The electric motor replacing the original gas engine will be lighter - only 200 pounds. The vehicle is approximately 2500 LBS (1134Kg) and is a passenger type car. We are looking for a motor that will provide **substantial** acceleration and torque. We plan on doing some modifications and reinforcing to the car to handle large amounts of torque. We plan on using the car as an endorsement at local race tracks to promote clean energy. This means it has to be FAST, or it will simply be laughed at and the idea will not take hold. Hence the request for a massive motor.

The Genset:

See above for the target prime mover specs. The plan is to run the rotary off of propane BBQ tanks as they are easily obtainable. Propane systems can also be easily converted to natural gas which is even more clean burning. Below is a genhead we are currently investigating which uses innovative disk technology for the armature:

SEMA Technology

From precision servomotors to high-speed generators, Lynx's patented motor technology gives you more of what you want, less of what you don't. [\[Learn More \]](#)

more torque	less weight
more power	less volume
more efficiency	less maintenance
more accuracy	less vibration
more reliability	less cost

The image shows a large industrial motor with a circular face, several gears of different sizes, and other mechanical parts arranged on a surface.

These units are capable of producing 110 amps of continuous DC current using just 40 HP - ideal for the rotary that has been sourced.

Now, of course there has to be a link between the generator and the capacitor back/battery pack:

Manzanita PFC-50 Battery Charger



The Electrolyzer:

The hydrogen gas augmenting the genset with will come from an on board generator cell. This new design is a completely new cell using titanium MMO (Mixed Metal Oxide) plates. Ti MMO does not leach chromium or iron into the electrolyte which makes the water safer and cleaner. The gas quality of Ti MMO plates is also superior than any other material being used today. This is due to the lack of ions in the water which can cause the more reactive orthohydrogen produced to decay into parahydrogen.

The cell is a fully circulating, 100% electrically isolated series cell design which will greatly increase the run time of the already efficient genset on board. This is done by using the gas created by the cell to augment the air fuel charge of the generator engine. This gas is referred to as oxy-hydrogen, HHO, or hydroxy gas. This gas mixture is a superior fuel to any other in existence in terms of its carbon footprint when combusted, flame front speed and BTU content. The addition of this fuel to the genset will increase its efficiency drastically, making the genset cleaner and more efficient as a result.



Summary

The vehicle will not have to be plugged in since the genset will be used to recharge the batteries/capacitors. Plug in can however be added as an option, adding to the vehicle's flexibility. Better yet, this can be reversed, and the car can be used to run the house! Of course any EV can be retrofitted with the system, which is the ultimate beauty of this project. By the time we finish, we hope to see EV's commonplace in the market. Our ultimate goal is to construct an electric car that can run for 350 miles or more before needing to stop and recharge using the on board genset. Very similar to current hybrid technology only the internal combustion engine will not be used as a primary propulsion device. This is known as a "series" hybrid application. Implementation of this technology will drastically reduce the carbon footprint of any vehicle is is retrofitted with. Hopefully auto manufacturer's will begin to incorporate this technology into their mass produced vehicles once a proof of concept prototype can be successfully demonstrated.

Ultimately we want to see this technology reduce society's overall carbon emissions as well as reducing dependency on expensive petroleum products - allowing businesses and individual consumers to free up important resources to meet more productive needs.