DEVC NEWSLETTER

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Colorado Springs, CO 80909
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www.devc.info

EVA Affiliate www.myeva.org
www.facebook.com/ElectricVehicleAssociation

Next Meeting: 21 May 22, 10:00 AM
Zoom Meeting, See Page 8

SPONSORING MEMBERS May 2022

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National Car Charging, **Your EV Charging Experts,** 866-996-6387, info@nationalcarcharging.com
www.nationalcarcharging.com
Pikes Peak International Hill Climb, "Race to the Clouds" www.ppihc.org
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Jimmy Underhill, Electrek Enthusiast, 303-915-5843
Bill Williams, "Build, Don't Buy!"

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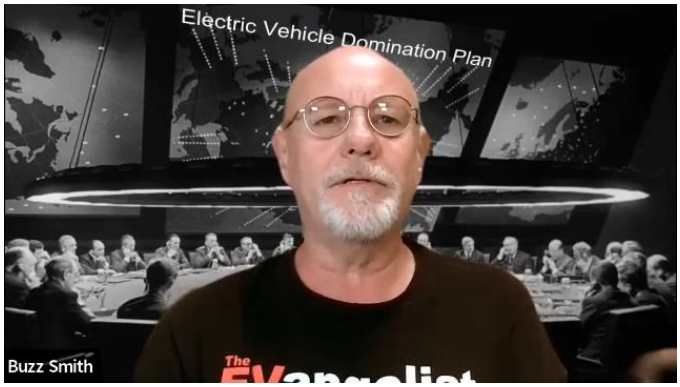


We had a great meeting with EV-Angelist "Buzz" Smith from Texas. This was not only informative but also entertaining. He covered a wide area of subjects including what auto dealers have done in the past, and what they need to do in the future. If you missed this meeting, a YouTube Video is available at:
https://www.youtube.com/watch?v=E6NQqzxh67E

We are now up to nine videos on the DEVC YouTube Channel, so you can take your pick of your interest at:
https://www.youtube.com/channel/UCHbsY_RnVBB4onHn2JUZiVQ/videos

APRIL DRIVE ELECTRIC EARTH DAY EVENTS

https://driveelectricearthday.org/

Colorado had ten events in the state. You can access the reports on each event at the link above. Below are reports on some of those events:

GOLDEN – Electric Vehicle Roundup

https://driveelectricearthday.org/event?eventid=3061

As in years past, we expended no effort or money publicizing our event via social media, TV or radio because City Captain Jim Smith promoted it in his weekly Denver Post real estate column on the three Thursdays preceding the event. The column also appears in three Jefferson County weekly newspapers. Altogether, that represented over 250,000 readers. Readers were invited to register at our own URL, www.DriveElectricWeek.info (not .org), which forwarded to our event's page on the DEED website. A highlight of the event was that Tesla cars represented only 4 of the 23 different models of EVs and only 13 of the 50 registered vehicles -- a testament to the increasing variety of EVs now on the market. We were especially pleased to have a Rivian pickup, a couple Polestar 2s, and four Mustang Mach-Es among the EVs on display this year. It was the first year that our parking lot wasn't big enough to accommodate all the registered EVs, so we put an equal number of cars in the neighboring business's parking lot! (Photo by Ty Scrable)

Another highlight for us was the opening of The Net Zero Store, taking over the storefront previously occupied by Golden Real Estate. Throughout the event, Bill Lucas-Brown of HelioHome LLC was in the building speaking without interruption to many people interested in making their homes more energy efficient and possibly net zero energy.

COLORADO – Electric Vehicles: Pros/Cons
https://driveelectricearthday.org/event?eventid=3053
This was an online event and you can see the recording at
https://www.youtube.com/watch?v=iJgpHMHf4wQ

COLORADO SPRINGS – Phil Long EV Outlet Earth Day Clinic
https://driveelectricearthday.org/event?eventid=3229

The Phil Long EV Outlet provided EV ride and drives and an EV showcase at their Earth Day Clinic. Vehicles to note included a Tesla Model X Plaid, Hyundai Ioniq 5, Kia EV6, and Colorado Springs Utilities' hybrid fleet vehicle. The most popular vehicles that were test drive included various Tesla models and the Chevy Bolt. Other exhibitors included EcoMark Solar, Kangaroo Coffee, 99.9 Radio Station, and Colorado Springs Utilities. (Photo by Julia Davila, Drive Electric Colorado)

LONGMONT – Drive Electric Earth Day at the 8th Annual Longmont Earth Day Celebration https://driveelectricearthday.org/event?eventid=2780

Nearly 900 attendees joined us for the 8th Annual Longmont Earth Day Celebration and EV Expo. We estimate that about half of the attendees engaged with the EV Expo area, with over 4 dozen taking a ride in the Lightning eMotors electrified transit van. Our EV display space was limited, but featured some interesting and rare EV's alongside the usual Teslas, Leafs, and Bolts. This included the Musting MachE, Audi Etron CUV, and VW ID 4. (Photo by Lacey Ankenman, Sustainable Resilient Longmont)

LAKEWOOD – Earth Day Event at Heritage Belmar Park
https://driveelectricearthday.org/event?eventid=3113

This was a heavily attended event and highly successful. The ride and drive portion included a VW ID.4, Kia EV6, and Tesla Model X from dealerships. The EV showcase section included Mustang Mach-E's, a Rivian R1T, Nissan LEAF, BMWi3, Zero FXS motorcycle, Tesla Model S, Chevy Bolt, Kia Niro EV, and other models. Drive Electric Colorado had 8 Volunteer EV Coaches representing and showing their vehicles, and many other EV drivers attended and showcased as well. (Photo by Julia Davila, Drive Electric Colorado)

DURANGO – Earth Day at Rotary Park

https://driveelectricearthday.org/event?eventid=3139

This was Durango's Earth Day Celebration. We were located in a park and the EVs were in the parking lot. We had about a dozen EVs throughout the day (some had to leave early and some came late) but were not offering rides as we wanted the vehicles on display and the area was very crowded and we didn't want folks going in and out of the lot. Notable vehicles include a Rivian and a homemade EV - a 1960s car that was retrofitted with a Nissan Leaf battery which was really cool. We also had Durango's electric school bus on display (which was a hit), and food trucks in the lot. (Photo by 4CORE)

LAFAYETTE – Earth Day EV Showcase

https://driveelectricearthday.org/event?eventid=3230

The vehicles that were present at this event were a Tesla Model 3, Hyundai Ioniq 5, Polestar 2, Rivian R1T, Nissan LEAF, Chevy Bolt & Bolt EUV, Mustang Mach-E, Honda Clarity PHEV and an electric school bus. E-Bike of Colorado also attended to provide e-bike test rides. The Drive Electric Colorado team provided education about Xcel Energy's rebates and programs as well as general EV education. (Photo by Nigel Zeid)

ERIE – Town of Erie's EV Showcase

https://driveelectricearthday.org/event?eventid=3231

There were 9 vehicles here to be shown to the public: 2 Leafs, a Honda Clarity, 1 Rivian, 2 Tesla's (3 & Y), 3 Ford Mach-Es. Other vendors and exhibitors included sustainable energy organizations, solar, and Tesla.

(Photo by Nigel Zeid)

COLORADO SPRINGS – EV Fair

https://driveelectricearthday.org/event?eventid=3067

About 35 EVs participated, including several Ioniq 5 and EV6s, 2 ID.4, several Leafs, Bolts, and eTrons and of course, a lot of Teslas! (Photo by Colorado Springs EV Club) More event photos at: https://www.coloradoevowners.com/media/albums/drive-electric-earth-day-co-springs-2022.6/

A GOOFY, COLORADO-MADE ELECTRIC CAR IS FINDING A SECOND LIFE WITH HOBBYISTS

From CPR News by Sam Brasch

Declan Kavanaugh's Unique Mobility Electrek
Photo by Kevin J. Beaty/Denverite

19-year-old Declan Kavanaugh won't ever forget the first moment he laid eyes on a Unique Mobility Electrek.

He and his brother had been scouring Craigslist for cars to restore in their parents' garage in Monument, Colo. One listing featured a vehicle so odd they couldn't stop laughing. The bright yellow hatchback looked like someone melted a Ford Pinto, leaving it with sagging windows and a fiberglass body too big for its wheels.

On top of the bizarre styling, the seller noted the car was an all-electric vehicle built in Englewood. Kavanaugh didn't hesitate. He had seen his future rotting in a Denver junkyard. "It has a face only a mother could love," Kavanaugh said. "We just kind of decided: we need to buy one."

Kavanaugh would end up purchasing a different Unique Mobility Electrek that was in better shape than the first vehicle. The film student quickly fell in love with the car's many quirks, including a "defroster" that was nothing more than a Gillette hairdryer attached underneath the dashboard.

Since then, the film student has helped build a community dedicated not only to putting the cars back on Colorado roads but to establishing their place in automotive history. He set up a website and social media accounts to commemorate the vehicle.

Former Unique Mobility engineers even helped Kavanaugh put a pair of the car models back in working order. "They were Elon Musk before Elon Musk," Kavanaugh said. "Even if not a lot of people know about them, they're a big reason electric cars are still on the road today."

A car born from the 1973 energy crisis

Unique Mobility founder John Gould is now 84 years old and lives in Lakewood. On a recent afternoon, he sat down at his kitchen table with binders full of pictures and news articles documenting the company's history. If young grease monkeys have taken an interest in the Electrek, he wants to make sure they get it right.

An early photo of a Unique Mobility Electrek
Photo Courtesy of John Gould

Gould incorporated Unique Mobility in 1967 with hopes of building a small sports car. To help pay for the project, the business developed a specialty in fiberglass products like kayaks and airplane parts.

Its main focus became dune buggies, which Gould said were often sold to tourist attractions, hobby kits or pizza delivery vehicles.

The company started exploring the possibility of an electric car after the 1973 energy crisis, which left U.S. drivers painfully aware of their dependence on major foreign oil producers. At the same time, Gould started to notice pollution filling the skies above major cities around the world, which he knew was partially due to the rising number of cars. "It just seems like the correct thing to do," Gould said. "If I'm going to be involved in making automobiles, why don't I make something that's kinder to the environment?"

Gould said his company decided to take a "systems approach" to designing a practical battery-powered car. Company engineers and mechanics hung diagrams and lists around their manufacturing facility in Englewood. Their objective, he said, was to solve problems other auto companies faced in converting traditional internal combustion cars into electric vehicles. In most cases, those companies piled lead-acid batteries under the hood, which created a dangerous safety hazard. If a driver crashed, Gould said they risked being crushed in a "lead sandwich."

Their proposed solution was a long train of 16 golf cart batteries arranged in a fiberglass tunnel running down the center of the vehicle. The company opted to use fiberglass for the car's body as well, which an early press release proclaimed was "resistant to corrosion and electric shock."

After five years of development, the first Electrek went on sale in 1979 for $25,000 — about $90,000 today. Despite the steep sticker price, advertisements promised buyers a car capable of highway speeds and a range of up to 100 miles when driven at a constant speed of 40 miles per hour. The company also claimed the car only cost 1 cent per mile to maintain and operate. Between 1979 and 1982, Gould said Unique Mobility made more than 50 Electreks.

The 'Crap Era'

Unique Mobility was not the only company in a rush to build viable electric cars.

After the oil crisis, President Jimmy Carter called for new technologies to soften future oil shocks. A wide range of companies attempted to meet the moment with electric vehicles like the CitiCar, a tiny electric coupe resembling a wedge-shaped Lego piece.

Today's enthusiasts now refer to this period of electric car manufacturing as the Crap Era — a time when automakers lacked the technology or the design sense to create sensible alternatives to internal combustion vehicles.

Declan Kavanaugh sits behind the wheel of his Unique Mobility Electrek - Photo by Kevin J. Beaty/Denverite

Kavanaugh said his experience restoring Electreks has shown him the car had some serious deficiencies. After months of rebuilding the car alongside former Unique Mobility engineer Jim McCollough, he was able to take it for an initial spin in 2020. Elated, he recorded a profanity-filled Snapchat for his friends but quickly realized driving the car came with some drawbacks. One was the car's actual battery capacity. The promised 100-mile range is closer to 50, even with modern golf cart batteries.

Even on a quick trip out of his garage in Monument during the interview for this story Kavanaugh easily got stuck on a slight slope with a layer of snow, proof the 32-horsepower motor doesn't pack much punch.

All those issues aside, Kavanaugh thinks the Electrek could have been a serviceable car for many environmentally-minded buyers. What he really thinks doomed the car is its looks. "It is so stupid. You probably saw how stupid it looks driving," Kavanaugh said.

The Electrek was never made to be aesthetic

Gould isn't offended by the consensus on his electric car's aesthetics. In fact, he agrees the Electrek "is not a handsome car." Gould said the car's look was never a problem because the Electrek was what the automotive industry refers to as a "mule," a short-run production car built to test the reliability and durability of the design. Many of its quirks — like the drooping guillotine windows and the hairdryer defroster — were necessary to cut back on costs, Gould said.

His final vision for an electric car was far more refined. After retreating to a back room at his home, he returned with a sleek, dark figurine of a car model he called the Mariah, named after the country classic "They Called the Wind Mariah." "Our actual preference was going to be this car," he said. Gould hoped to build the vehicle in Colorado, but he said his company's board of directors decided selling electric car components and expertise was a smarter business move.

John Gould with a model for the Mariah, an electric car concept developed by Unique Mobility – Sam Brasch/CPR News

After giving up on the Mariah, the company rebranded as UQM Technologies and focused on manufacturing electric drivetrains. Gould said it assisted BMW, Ford and General Motors with electric vehicle research. The work didn't immediately lead to production vehicles, but he thinks the knowledge is now being applied in new models.

The company also worked with defense contractors and electric vehicle pioneer Chip Yates, who set the record for the fastest climb up Pikes Peak with a motorcycle powered by a UQM motor.

In 2019, UQM Technologies sold to Dutch conglomerate Danfoss for around $100 million. Despite the success, Gould still thinks about his old dreams of building electric vehicles in Colorado. "Particularly when I see some of the new electric car companies that are coming on board, they're raising billions of dollars," Gould said. "If I was in my twenties, thirties, forties or whatever, I would probably give it a swing."

As for the young people reviving the old cars, he's perplexed but flattered. "I'd like to say thanks to them for reviving that old vehicle," Gould said. He's glad many car hobbyists now agree the Electrek wasn't a dud — it was just ahead of its time.

See the CPR News article with additional photos at https://www.cpr.org/2022/05/05/colorado-electric-car-unique-mobility-electrek/?fbclid=IwAR2hDhzl3NZXWWILQRjuvw2u5jTUXsN06wmv4aRpd88bPXwkFX5tciFrLHE

Editor's Note: John Gould was a friend of the founders of the DEVC. EV enthusiasts were scarce back then. I remember the day when members of the DEVC were given a tour of the Unique Mobility facility in Englewood. Jim McCullough worked at Unique Mobility, has been a past officer and is a current member of the DEVC.

Chip Yates, using the UQM Motor/Controller, had a time of 12:50.094 in 2011 at the Pikes Peak International Hill Climb https://www.asphaltandrubber.com/racing/chip-yates-pikes-peak-international-hill-climb/ Two years later in 2013; Carlin Dunne, on a Lightning Electric Super Bike, broke that record with a time of 10:00.094 which still stands for the fastest electric motorcycle on the Peak.

MAY MEETING

RECURRENT - Battery Reports for Electric Cars

Recurrent studies EV battery life by aggregating data on its community 8,000 EV drivers. After a year and a half, they have very interesting results on the factors that cause battery degradation, some of which are surprising to those who follow battery research. Recurrent also provides battery health analyses for used EVs. Join Recurrent CEO Scott Case at DEVC to hear about how to keep your battery healthy and find out more about Recurrent's free tools and services for EV drivers.

You are invited to a Zoom meeting. When: May 21, 2022 10:00 AM Mountain Time
Register in advance for this meeting:
https://us02web.zoom.us/meeting/register/tZwuduGoqDwoH9fAEFrgFC2v85wvvwFes_yc
After registering, you will receive a confirmation email containing information about joining the meeting.

"EV" SWAP DEBUTS FIRST ELECTRIC LAND CRUISER CONVERSION, IN MOAB, UTAH

By Jimmy Underhill

Company Converts 1996 Toyota Land Cruiser to 100% Fully Electric Power, Demonstrating what is Possible with "EV" Swap

Moab, Utah – May 1, 2022 – A 100% electric Land Cruiser vehicle converted by EVSwap proved itself in the rugged desert terrain in Moab, Utah on steep rock climbs, sandy desert tracks, and crossing rough boulder fields. On Friday, April 29, 2022, the EVSwap vehicle, driven by EVSwap founder and CEO Jimmy Underhill, completed the trail known as Wipe-Out Hill, proving itself in the challenging desert terrain.

Commenting on the unique sound of the all-electric vehicle while climbing up a steep, sandy incline, Underhill stated, "It sounds like an electric RC car." The vehicle completed 12 miles of rugged off-road driving with approximately 50% of the battery power remaining.

The 80kw electric motor was found to match the vehicle's 4x4 drivetrain perfectly, providing seamless torque from a stop and climbing up all obstacles with ease. Its 30kwh battery provides about 50 miles of range in the city and about 30 miles in off-road conditions. It has a top speed of 65mph and has seats for six passengers and a driver. The vehicle is equipped with a 2.5" suspension lift, rear locking differential, 33" tires and an electric winch; and is capable of crossing the most rugged terrain. The vehicle is equipped with a CHAdeMO fast charger capable of charging in 40 minutes or less. It is features an electric power steering pump and electric vacuum pump which maintain the vehicle's OEM ABS braking, power steering and airbag systems for reliability and safety. The electric motor also provides regenerative braking and allows "one-pedal driving" of a modern EV.

The electric Land Cruiser is equipped with a Gamiviti roof rack with 400 watts of solar panels, which can be used to charge the vehicle. "Right now it would take probably two to three weeks to charge from 0 to 100% on solar alone," added Underhill, "but it is an experiment and we have to start somewhere. It is a proof of concept and it does charge the vehicle via solar power."

The solar panels charge a smaller battery in the rear of the vehicle that is 15% of the capacity of the main battery, and it can be used as an emergency reserve or just to top up the main battery, or charge cell phones, drones or other applications. “The next version will have a range of 150 miles,” said Underhill. “The more batteries we add, the further it will go.”

The EVSwap team brought their vehicle to the Cruise Moab event hosted by the Rising Sun 4x4 Club of Colorado from April 25 to May 1, 2022. The event celebrated its 25th anniversary and was attended by hundreds of participants and curious visitors. The electric conversion was the first 100% Electric Vehicle to participate in a Cruise Moab event!

Concluding, Underhill added, “The EVSwap Land Cruiser was a huge hit attracting lots of attention from the crowd, composed primarily of off-road enthusiasts and their families. We didn't have a single negative comment and everyone appeared to love the truck!”

According to Allied Market Research, the global electric vehicle market was valued at $163 billion in 2020 and is projected to reach $824 billion by 2030. Electric vehicles have demonstrated that they outperform conventional vehicles providing higher fuel economy, low carbon emission and maintenance, convenience of charging at home, smoother drive and reduced sound from the engine.

About EVSwap

Founded in 2021, EVSwap is a company engaged in pioneering advancements in the conversion of conventional gas-powered automobiles to vehicles powered solely by electric propulsion systems. They are based in Denver, Colorado, which the Company serves. For more information, please visit www.evswapconversions.com or contact Josh Ball at Josh@EVSwapConversions.com .

US NAVY WIRELESSLY BEAMS 1.6 KW OF POWER [OVER] A KILOMETER USING MICROWAVES

From New Atlas by David Szondy

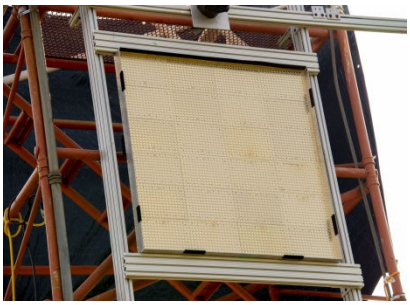
Editor's Note: Could this be the future of wireless line-of-sight EV charging, especially for those living in Multi Unit Dwellings, and they can see their EV from their apartment window?

Microwave Dish Transmitter – NRL

In what it describes as the most significant demonstration of its kind in half a century, the US Naval Research Laboratory (NRL) beamed 1.6 kW of power over a kilometer (3,280 ft) using a microwave beam at the US Army Research Field in Maryland.

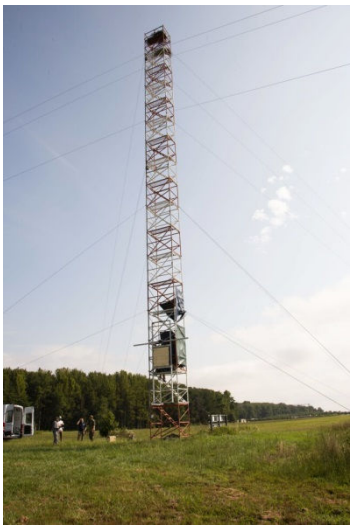
The idea of transmitting power over long distances without wires has been around for well over a century. By the 1970s, the technology was mature enough to make it a key component in a concept by American physicist Gerard K. O'Neil that proposed establishing space colonies to build huge solar collector stations to beam power back to Earth.

The principle is simple enough. Electricity is converted to microwaves, which are then focused in a tight beam at a receiver made up of what are called rectenna elements. These are very simple components that consist of an x-band dipole antenna with an RF diode. When microwaves strike the rectenna, the elements generate DC current.



Rectifying Antenna - NRL

Despite initial doubts, microwave beaming turns out to be surprisingly efficient and the NRL team led by Christopher Rodenbeck, Head of the Advanced Concepts Group, has been tasked by the Defense Department with developing the Safe and Continuous Power bEaming – Microwave (SCOPE-M) project to explore the practicality of fielding the technology.



Rectifying Antenna attached to a Receiving Antenna – NRL

Using a 10-GHz microwave beam, SCOPE-M set up at two locations. The first was the US Army Research Field at Blossom Point, Maryland, and the second was at the Haystack Ultra Wideband Satellite Imaging Radar (HUSIR) transmitter at MIT in Massachusetts. The frequency was chosen because it was not only able to beam even in heavy rain with a loss of power of under five percent, it's also safe to use under international standards in the presence of birds, animals, and people. This means the system doesn't need the automatic cutouts developed for earlier laser-based systems.

In the Maryland tests, the beam operated at an efficiency of 60 percent. The Massachusetts test didn't reach the same power peak, but had a higher average power level, so more energy was delivered.

The SCOPE-M technology could one day be used to transmit power on Earth or from large orbital solar power stations to provide electricity to the national grids 24 hours a day, 365 days a year. However, a more immediate application that the DOD is interested in is to beam power directly to troops in the field, eliminating the need for vulnerable fuel shipments.

"Although SCOPE-M was a terrestrial power beaming link, it was a good proof of concept for a space power beaming link," said Brian Tierney, SCOPE-M electronics engineer. "The main benefit of space to Earth power beaming for the DOD is to mitigate the reliance on the fuel supply for troops, which can be vulnerable to attack."

Here is the link to the article: https://newatlas.com/energy/us-navy-beams-1-6-kw-power-kilometer-microwaves/?utm_source=New+Atlas+Subscribers&utm_campaign=93f9fc7850-EMAIL_CAMPAIGN_2022_04_22_01_29&utm_medium=email&utm_term=0_65b67362bd-93f9fc7850-92246645

Here is the link to a six minute video which contains very interesting thoughts on the subject, towards the end of the video: https://www.youtube.com/watch?v=JGuPaYtcJx8

COLORADO CONCOURS D'ELEGANCE

From Ability Connection Colorado

Last year was the first year for special recognition of Electric Vehicles in an "EV Corral", at the event held in September. This year the event will be held on the 5th of June and electrics will be together again. If you want to enter your electric or just attend the event, details can be found at https://www.abilityconnectioncolorado.org/special-events/colorado-concours/ Kids 12 & under free, Adults $10, Program $10
There is a registration fee of $50 to display your electric. Registration details are at http://events.r20.constantcontact.com/register/event?llr=keqndscab&oeidk=a07eie4gyil8d1d36f8 Proceeds from this spectacular event go to Ability Connection Colorado's Creative Options for Early Childhood Education Centers. At five centers throughout Aurora and Denver, brighter futures are beginning. Over 400 children of all abilities and economic circumstances receive developmental screening and assessment services, individualized mental health services and comprehensive educational experiences each year.

MY JOURNEY BUILDING AND RIDING E-BIKES AND E-TRIKES FOR FUN AND DAILY TRANSPORTATION

By Aristo Roberts

Hi! I'm Aristo and I'm nine years old. I started riding Plasma cars, trikes and bicycles with training wheels when I was two. When I was four I figured out how to ride a bike without training wheels and I still have a video of the first day I could do it.

Another big thing happened when I was four, I started pre-K! My parents said that if we went to my school by car that we would spend too much time breathing fumes from the many stinky gas cars waiting in the drop off and pick up drive lines so we had to find another way for me to get to school.

That meant my choices were either walking or riding a bicycle since there wasn't a bus and we all thought it was too far to walk. Luckily for me, so far I've never had to walk all the way to school even once but I have had to walk, speed walk or jog the last mile to school a couple of times due to flat tires along the way.

The distance to my pre-K school from my house was between 3 and 3.8 miles depending on which route I took. As I've always been the kind of kid who gets ready for things at the last possible moment, an acoustic bike would have been too slow on most days.

Even on an electric bike I usually had to take the 3 mile route to school to get there on time. Then I took the 3.8 mile route back home because there were more bike trails and empty sidewalks that way and fewer busy streets and intersections.

As my first day of pre-K approached, we knew we had to build a DIY kid-sized e-bike for me since kids' e-bikes weren't really readily available for purchase at that time.

For the first couple weeks of pre-K, and a few times after that if I was running late, I rode a Trail-A-Bike with a 20 inch wheel to school behind my dad's bike because he thought I would be too slow riding by myself at first.

On a Trail-A-Bike you don't need to steer yourself. The person in front of you steers because you're basically attached to their bike and you ride behind them like on a tandem bicycle.

We had a blue 6 speed Trail-A-Bike which I liked best because I could keep up pedaling most of the time when I was in 6th gear. We also had a red single speed that was too low-geared to keep up with my dad's pedaling at e-bike speeds.

Even though I couldn’t help much with pedaling on the red single speed Trail-A-Bike, due to the gearing, we had fun with it in other ways like when we mounted my blue fabric race car body on it. In this photo of my race car you can see my dad's 48v 26 inch direct drive rear hub just in front of the race car that I rode in or actually on.

Although I thought all my bike projects were pretty fun and interesting, for some reason the other kids at my school usually all just wanted to ride in and on my blue race car bike. I think there were about 500 kids at my pre-K school campus but I never saw more than 3 bikes on the bike rack out front. On warm days my science teacher rode hers a few times a week. There was a 2nd grade girl who rode to school with her dad about once a month in the summer. And then there was my bike pulling into and out of the parking lot every day, all year, every year.

After those first two weeks of being towed behind my dad's e-bike, I finally started riding my own bike. It was a black, single speed MX type bike with a 16 inch 36v geared front hub motor, a pedal cadence sensor and a push button throttle but no suspension. My battery was originally mounted on my rear rack in the center, but later we moved the battery to a right side rear pannier basket for better balance.

My second electro-ride was actually an e-conversion of a trike conversion that we did at home. It was blue and had a 20 inch direct drive front e-hub. It wasn't much faster than my 16 inch MX bike but it could carry lots of stuff, even heavy stuff without tipping over. It was also easier to add a windshield and canopy for greater comfort and safety on snowy, rainy or windy days.

Of course I still needed to wear my ski jacket, helmet, goggles and gloves though since we rode to school all year long in all kinds of weather unless the snow was very deep but then my school was usually cancelled anyway.

After a couple of years of riding my front wheel drive 16 MX bike and the 20 inch trike, I started really hoping I could get a rear wheel hub drive like adult e-bikes usually have. Finally I got a blue Specialized 7 speed with front suspension and a rear wheel hub drive.

The direct drive electric hub motor on that bike was kind of special because its controller was located inside the hub giving it a cleaner look and a slightly easier install. It had an auto-sensing multi-voltage controller that could use a 24, 36 or 48 volt battery and it had regen. I don't think the regen actually added much range but when set on high it stops really well on almost any surface without skidding! In fact, it works much better than any vee or disc brakes I've ever felt on any bike or trike.

At either 36 or 48 volts, this bike was much faster than my 16 inch e-bike was and with or without regen I always have plenty of speed and range when riding e-bikes. This is because I only weigh about 45 pounds even now and I weighed a lot less when I was younger. My parents say they weighed less when they were younger too so I guess that's kind of a common thing.

Even on long rides, my battery gauge often still shows a full charge when a lot heavier people like my dad have already completely discharged their batteries. My mom's battery charge status after a long ride usually shows somewhere in the middle.

This Specialized bike originally had a kid-sized seat but I was getting a sore rear after riding it day after day and especially on long rides so we swapped it out for a soft adult sized seat which I like much better.

My latest e-bike build is a geared 36v 20 inch front hub motor on a mountain bike with full suspension. It's a generic brand bike so it isn't as good quality as a Specialized but I still like it especially for towing around my little brother in his trailer because having the motor in front and the battery mounted on a right side pannier basket distributes the weight well and isn't as likely to tip over when I put the kickstand down.

Even though I still basically like rear wheel e-hubs better than front e-hubs, now that I'm a little older and wiser than when I first started riding e-bikes I realize it usually doesn't matter very much which wheel is the drive wheel. You just have to be a little more careful when turning and accelerating on slippery surfaces or slopes to avoid losing traction and crashing.

My last piece of advice to any kids or adults just getting started riding e-bikes would be… don't go blasting by people or animals on trails or streets just because you can. Ease on by slowly and only use your Cheetah Mode when you're sure you're clear of others, you have good visibility and you can do it safely and politely. Sometimes cyclists don't like being left in the dust, especially if they don't have any e-boost on their bikes.

Going on mid-winter rides during blizzards and freezing temperatures can be a good way to avoid crowded trails but slow down or walk your bike over the icy spots under bridges, on slopes, etc. until you're pretty sure what the word traction means and how much of it you actually have when riding.

I look forward to seeing you at the DEVC meeting in August or maybe sooner if we happen to see each other on the bike trails this summer. Stay safe, call your passes, check your mirror(s) frequently, wave to or greet people and be courteous and mindful of others whether on the trails, the streets or anywhere else!

CALL FOR VOLUNTEERS AT THE ANNUAL DEVC BBQ FROM NOON-4 ON SATURDAY, AUGUST 20TH AT ELECTROMOD GARAGE IN ROLLINSVILLE

By Dave Pence

Your volunteer help is needed at our annual BBQ and educational sharing workshops. Your service is greatly appreciated and insures the success of our event! Here's where we can use a hand...

- Check in/information table (need 4) - name tags, DEVC member/presenter info, workshop schedule, donations, raffle tickets, music during breaks (one hour or more shift)
- Grill master (need 4) - grilling and serving, food prep, pot luck table, plates/utensils (two hour shift)
- Food/consumables purchasing (need 1 or 2) - purchase food, keep it refrigerated, transport to the BBQ (before the event)

- Ringmaster/announcer (need 2) - announce schedule changes, general announcements, raffle announcement/winner, workshop stop/start, announce thank you to sponsors (two hour shift)
- Car show (need 2) - car show parking/check in (2 hour shift)
- Set-up (need 4) - help with awning, chairs, signage, tables (from 10:30-noon on event day)
- Clean-up (need 4) - chairs, bag trash (near the end of the event)

We are also in search of a portable sound system to borrow the day of the event
Free DEVC t-shirt or hat plus one raffle ticket to all volunteers
Again, please let me know if you are interested in presenting your conversion project or have ideas for a guest speaker
Email/text Dave at arhsdave@aol.com (303) 910-6086 to volunteer/present

We had a wonderful gathering last summer....hope to see you in Rollinsville this year! Please consider giving back to the DEVC and youth education outreach!

Thanks!

Dave Pence, organizer/youth education outreach coordinator

COLORADO EV LINKS

By Kevin Sears

Denver Electric Vehicle Council
Web: https://devc.info
Facebook: https://facebook.com/groups/devc.info
Drive Electric Colorado
Web: https://driveelectriccolorado.org/
Denver Tesla Club
Web: https://teslamotorsclub.com
Facebook:
https://www.facebook.com/groups/902089643268988/
Model 3/Y Club of Denver
Facebook: https://www.facebook.com/groups/m3den/
Women Who Charge
Facebook (Facebook login needed):
https://www.facebook.com/WomenCharge/
Tesla Motors Colorado
Facebook:
https://www.facebook.com/groups/634758276674229/
Wheat Ridge STEM Engineering
Web (Google login needed):
https://sites.google.com/a/jeffcoschools.us/wrhs-stem/
Facebook: https://www.facebook.com/Wheat-Ridge-Stem-Engineering-1511925885713601/
YouTube:
https://www.youtube.com/channel/UC1v98CLykkHXNTMEXJ5F2vA
Advance Vehicle Technology EcoCar Mobility Challenge Teams
Web: https://avtcseries.org/ecocar-mobility-challenge/teams/
Drive Electric Northern Colorado
Meetup: https://www.meetup.com/Drive-Electric-Northern-Colorado-EV-Enthusiasts/
Shared Paths Boulder
Web: https://www.sharedpathsboulder.org/
Northern Colorado Clean Cities
Web: https://northerncocleancities.org/
EV Owners Of Colorado
Facebook: https://www.facebook.com/EVOwnersofColorado
Colorado Electric Vehicle Coalition
Web: https://energyoffice.colorado.gov/colorado-electric-vehicle-coalition
Colorado EV Dashboard
Web: https://energyoffice.colorado.gov/zero-emission-vehicles/evs-in-colorado-dashboard
Colorado EV Owners
Web: https://www.coloradoevowners.com
Denver Electric Bike Ride
Meetup: https://www.meetup.com/Denver-Electric-Bike-Rides-Meetup/
Electric Bicycle Club of Colorado
Meetup: https://www.meetup.com/Electric-bicycle-club-of-Colorado/
Colorado Springs EV Club
Web: http://www.csevc.com/
Facebook:
https://www.facebook.com/groups/123192271678145/
Colorado Springs e-Bike Meetup
Facebook: https://www.facebook.com/CSeBikeMeetup/
Southern Colorado Clean Cities
Web: https://southerncoloradocleancitiesblog.com/
EV Four Corners (Durango)
Web: https://ev4corners.org/
Western Colorado Tesla Club
Facebook:
https://www.facebook.com/groups/WestCOTeslaClub/
Western Colorado EV Club
Facebook:
https://www.facebook.com/groups/1691902797561519/
Colorado Electric Car EV Network
Facebook:
https://www.facebook.com/groups/1879818525642801/
Colorado i3 (BMW)
Facebook:
https://www.facebook.com/groups/1444710492515574
Nissan LEAF Owners Group Colorado
Facebook:
https://www.facebook.com/groups/167205677149247/

Last Updated: 11/29/2021

DENVER ELECTRIC VEHICLE COUNCIL CHARTER

The Denver Electric Vehicle Council, Inc. is an incorporated non-profit 501(c)(3) educational organization. The goal of the DEVC is to offer 1) a forum for information exchange about electric vehicle concepts, designs and developments; 2) instructive information and opinion to interested individuals and the public; plus 3) assistance in promotion of the development and use of EVs throughout Colorado.

Services are: 1) to arrange talks and tours by universities, companies, and individuals who are involved with EVs or components and 2) to provide information about EVs through a monthly newsletter, current EV literature, lectures and panel or group discussions at DEVC and other meetings; plus through the news media, shows and rallies to the public.

Anyone may join. We have four levels of annual membership starting with "Youth" (age 18 and under) with no dues and "Student" (19 thru 25) with $10 dues, both receiving the monthly newsletter. Regular member dues are $20 which receives the newsletter. Sponsoring member dues are $50 and besides receiving the newsletter, they are listed on the front page of the newsletter and in our website "Sponsor" list with their business contact information. The DEVC sends out approximately **885** newsletters via email per month which includes our courtesy list containing other interested persons, companies and community leaders.