

gizmo

THE TETRA SOCIETY OF NORTH AMERICA: CUSTOM ASSISTIVE DEVICES

Tetra's train controller gives boy independence

SALT LAKE CITY: Tetra volunteers made it possible for a young boy to operate his own train set.

When Kyle Sorensen, 11, became a high-level quadriplegic in an auto accident three and a half years ago – three days after his eighth birthday – his parents vowed that life would go on in as regular way as possible. They wanted their son to do the things that every boy growing to adulthood enjoys, with the greatest of independence.

The Salt Lake City, Utah, youngster is a whiz kid with a voice-operated computer – but, like most boys, he wanted a train set; one he could operate, not just watch.

A local pastor donated the set, and Tetra coordinator Kent Remund was charged with making it accessible.

“Kyle is a C1-2 quadriplegic, who has no use of his hands, so we had the idea to put together a sip ‘n’ puff train controller,” explained Remund. “If he puffs into the controller, the train moves forward. A second time makes it go a little faster, and a third, faster still. There are 10 steps controlling speed.

“You have to sip to slow it down. When the train is at rest, a sip backs it up.”



Six volunteers worked on the project, an interface that connects Kyle's sip 'n' puff mouthpiece to the train set controller that regulates how much power is sent through to the tracks.

“I went and saw him operating the train, and it works beautifully,” continued Remund. “Some neighbours happened to walk in and they were amazed.

“Kyle likes interacting with friends the most. This enables him to play with them.”



WINTER WONDERLAND: GOLDEN RETRIEVERS BALU AND JASPER HAULING TETRA CLIENT KIM JENKINS IN A NORWEGIAN FJELLPULKEN.

SLEIGH BELLS JINGLING: Tetra volunteers in Vernon, BC, have been designing a whole series of ingenious inventions that allow people with significant disabilities to enjoy the region's famed ski hills. Volunteer Randy Schellenberg has come up with a dazzling array of devices, including this dog-pulled nordic fjellpulken. Another Tetra project uses a dog to push the client in a sled.

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Remund took a video of Kyle using the set to show the volunteer team, which made them all excited and feel good about their efforts. As he puts it: “Every time you work with kids and bring some happiness to their lives it's good.”

Kyle's father Gary said the family does whatever it can to involve his son, to make him an active participant not a watcher.

“He got excited when he saw the train set and thought it was great he could control it,” said Gary Sorensen. “He likes to play it with his friends.”

The Salt Lake City chapter only formed this year, but has been busy. First they made a treadmill, at the request of a physical therapist, that controls a television set – the client can only view TV when he is exercising. And their next project is a motorized prosthetic hand for an electrician who lost his fingers in an accident.

“Another that might happen,” said Remund, “is a car seat for conjoined twins. They are conjoined at the breastplate. I am confident we can make something as safe as an existing car seat.”

Saluting community heroes – volunteer work recognized

Tetra chapters have been making the news over the past few months.

Vancouver Tetra volunteer Gregg Harris was named on City of Burnaby's Local Heroes list for 2007, in November, for his work with the Tetra Society. The list highlights people “who have contributed to the community over an extended period.”

In September, Volunteer John Hoffman, of the Nanaimo, BC chapter, received the Association of Professional Engineers and Geoscientists of BC community service award for his involvement with Tetra.

Calgary, AB volunteer Bill Shaver, and his South Alberta Institute of Technology team, won a DIRT (Doing It Right This Time) “innovative design” award also in September, relating to a Tetra project completed in May.

Tetra Society: coast-to-coast innovation for people with disabilities



SOME OF VOLUNTEER ALI TAHA'S RECENT PROJECTS: STYLISH KITCHEN STOOL WITH A BUILT-IN ELECTRIC MOTOR; OFF-ROAD VEHICLE, CAPABLE OF CARRYING A WHEELCHAIR, BUILT COMPLETELY FROM SCRATCH; SINGLE-BED-SIZED CRIB FOR A SIX-YEAR-OLD BOY.

Path to Everest Cleared by Tetra



SALT SPRING ISLAND:

Tetra engineers made custom modifications to a wilderness access wheelchair to enable a barrier-breaking Himalayan trek.

Designed by Tetra's first-ever volunteer engineer, Paul Cermak, the British Columbia Mobility Opportunities Society TrailRider is a wilderness access vehicle that has been described as a cross between a rickshaw and a wheelbarrow.

Pippa Blake of Victoria, BC, and her 14-strong "Rise Above Barriers" team took a three-week Nepalese trek in November. Starting at Lukla (2,860 m), a short flight from Kathmandu, their itinerary took them up to Base Camp (5,380 m) – which they reached Nov. 14.

"I have always loved the mountains," she said. "The Himalayas are the ultimate – the ultimate clear sky, the ultimate mountains. This is my dream. I rather let it go because I thought it would never happen."

Before she went, Salt Spring Island, BC Tetra coordinator Derek Emmerson modified Blake's TrailRider to make it tougher, lighter and more comfortable.

Along the way, Pippa's team met many people that were interested in the expedition and the TrailRider, and their guides are now proficient with the apparatus and eager to take others with disabilities trekking through the Nepal Himalaya.

Before she went, Salt Spring Island, BC Tetra coordinator Derek Emmerson modified Blake's TrailRider to make it tougher, lighter and more comfortable.

IN TRIBUTE: Bob Sharp

Tetra is saddened to announce the passing of Penticton, BC volunteer Bob Sharp, due to leukemia. Bob, a consulting engineer who had worked for pipeline companies in Alberta, came to Tetra in February 2006. He was working on Tetra projects until the end.

INTERVIEW: Tetra volunteer Ali Taha, Peel Region

Tetra has more than 200 volunteers across continental North America, working on vast range of projects – this is the work of just one, examining the variety of challenge the position involves.

PEEL REGION: Described as Peel's most productive volunteer, Ali Taha just feels that he is giving something back to society.

Just like any other Tetra volunteer, he does it for the challenge of coming up with a design solution to somebody's accessibility needs – and the satisfaction of seeing the difference his work can make to an individual's life.

Taha, who immigrated from Iraq nine years ago, is constantly aware of how fortunate he is to be where he is now. He has built an engineering company through his own skill and hard work, but things might not have turned out this way without the support he received when he first arrived in Canada.

As he puts it: "This is something I can give back to the community that accepted me... a few hours of my time."

Taha is working on a project that vies with Sam Sullivan's Olympic and Paralympic wheelchair flag-holder for the title of highest profile Tetra project: an elevating platform to enable Ontario's Lieutenant-Governor David Onley to access his official airplane.

Featured in the Fall 2007 edition of *Gizmo*, this must lift Onley without touching the aircraft steps or fuselage, and then fold down to travel in the narrow gangway. Taha tested a wooden prototype in late November and aims to have the finished aluminum version for Onley's inspection in December 2007.

But he has done many other memorable projects.

One was a Sip 'n' Puff TV remote control to enable a client with MS, who had no movement below his neck, to change channels. "Television was his only joy in life – this meant a lot to him."

Another was to devise a crib for a six-year-old boy. "My suggestion was to buy a regular wooden bed and build a railing for the sides."

Taha created a motorized elevating kitchen stool/chair that was a work of art.

"It was for an architect," recalled Taha. "He had a fancy condo and wanted the stool to match. He designed the stool, drawing how he wanted it to look. I'm proud that I achieved his standard."

It is also functional, lifting from 20" to 32" in 12 seconds, allowing the client, who has limited mobility, to access his countertops.

"I made the project a year ago," said Taha. "I saw the client by chance last week, and he said he didn't know how he would manage without it. That was a good feeling."

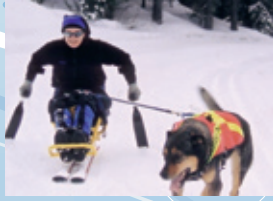
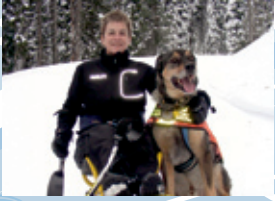
Another on-going project of Taha's is an off-road vehicle – essentially a motorized platform that can take a wheelchair on a variety of surfaces, reaching speeds up to 30 kph. He has worked around 250 hours on the project, and estimates another 200 should see it to completion.

This level of technical expertise and dedication are "typical Taha," according to Peel Region coordinator Matthew Fleet.

"He's our most prolific volunteer right now," said Fleet. "His background is mechanical engineering but he makes himself available to do any Tetra project. He has vision and the commitment to turn it into reality."

Taha is president of GAD Technology Inc. of Mississauga, which designs and fabricates assemblies for industry—typically, automated assembly machinery for factories—so he knows about matching design innovation with the practicalities of delivering a completed device.

"Working for Tetra gives me a good feeling. I'm proud of myself and I feel happy when I see someone benefiting from one of our projects."



SNOWSCAPE: A CROSS-SECTION OF INVENTIONS FROM TETRA VERNON. LEFT TO RIGHT: PAT WESTON, PARAPLEGIC SKIERS, WITH HER SERVICE DOG ZAC (“THEY REALLY FLY” – SCHELLENBERG); BALU PUSHING TETRA VOLUNTEER RANDY SCHELLENBERG’S SITSKI; ALPINE BI-SKI ATTACHED TO THE UPPER FROM A CROSS-COUNTRY SITSKI; (MAIN PICTURE) SERVICE DOGS BALU, JASPER AND ZAC WITH THEIR RESPECTIVE CHARGES, TAKING A BREATHER.

Inventor’s dogged determination enables Tetra clients to access a winter wonderland

VERNON: In recent years, one particular Tetra chapter has become specialists at enabling people with disabilities to enjoy a variety of winter sports.

The Vernon chapter has created a whole series of assistive devices to allow alpine and downhill skiing, including sit-skis and sleds – including a variety ingenious inventions pushed and pulled by service dogs.

Of course, it helps that Vernon, located 47 km (29 miles) north of Kelowna in BC’s Okanagan Valley, is an outdoor sports Mecca that boasts two adaptive ski clubs. However, this would mean nothing if it wasn’t for the determination of its two-person Tetra team.

Coordinator Anne Cotton reckons they completed 11 projects in the first eight months of the year, of which four were skiing related, so don’t think this is only what they do. Currently, at the request of occupational therapists at Vernon’s Jubilee Hospital, they are working on a platform to lift recliner chairs.

“Every project is different – there is no ‘average,’” said Cotton. “We are always getting new clients, and also many repeat customers.”

However, Vernon is a city famed for its recreational opportunities. Its residents spend the summer on its lakes and beaches, along with mountain bike and hiking trails, and when the cold weather comes they strap on skis and skates and continue to enjoy the outdoor environment. It’s only natural there will be interest in leisure adaptations.

Cotton, who suffered permanent back, neck, hip and head injuries in a car accident, is a firm believer that people should not be excluded from anything on account of disability.

“People with disabilities should be able to be independent and be like anyone else,” she said. “We have the right to be part of the community and treated like anyone else.”

As volunteer Randy Schellenberg sees it, Tetra is all about removing barriers to participation. Some of his projects allow children to participate in the classroom, some allow people to ski.

“Sometimes people feel singled out because their adaptive equipment looks different from other people’s, but they soon get over that,” he said. “When you think about it, if someone is wearing skis on their feet, that’s adaptive equipment – to stop their feet sinking into the snow.”

His own Tetra designs spring from a philosophy that “anyone can make things more complicated” and thus have a degree of elegance due to their very simplicity. Take for instance a dog-pulled nordic sled that Schellenberg put together.

He directed the client to purchase a Fjellpulken – a Norwegian sled – and came up with a way to harness two service dogs by devising six-inch, spring-loaded shafts based around bicycle inner tubes to stop the dogs being hurt when the sled hits bumps.

Another Schellenberg innovation is a sled that is pushed rather than pulled by a dog. The rider sits on two skis, and steers by leaning – the dog only needs to be instructed when to start and stop running.

“When the dog leads there are control issues,” he explained. “They know the ski commands, but there are a lot of distractions. This way, the user can re-inforce the “whoa” with emergency brakes, and the dog doesn’t throw snow in your face.”

But don’t think this is easy, or even quick. Schellenberg’s engineering is based on rigorous testing, which in this case involved a “dry-land” run-through. He hooked his dog Balu to a cross-country sitski mounted on a mountain board to see if he would feel comfortable pushing instead of pulling (“the sensation is the same for the dog ... he just has to get used to having the sled in front”).

And the next incarnation of this project will likely incorporate “a wide ski, with a molded polyethylene bucket seat, a ball hitch and two dogs pushing with telescopic shafts.” It will allow the sitskier to ski much the same as an alpine monoskier, only with no chairlift required.

“The ultimate goal will be to provide the highest level of independence, efficiency, and of course, plain old fun!”

WHAT’S IN A NAME?



Tetra Society
of North America

TORONTO CHAPTERS: The Tetra Society has done some renaming and reorganizing of chapters in and around Toronto over recent months. The Ontario capital has been divided into two more manageable sized units: Metro Toronto and York Region chapters, with Highway 407 acting as the dividing line. The Peel (Mississauga) chapter, to the west of Toronto, has had a minor amendment to its name, becoming

Peel Region. And this will be followed – when time and money allows – by the creation of a wholly new chapter to the capital’s east, to be named Durham Region. “It makes sense,” said national program coordinator Pat Tweedie. “Health authorities follow regions. People think in these terms.” She added that these are largely “paper changes” and won’t impact how people access Tetra services.

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ENABLING YOUNG PEOPLE TO REACH THEIR POTENTIAL

VANCOUVER: A pilot project run by Tetra in Vancouver aims to enable young people with disabilities to complete their schooling and live independently.

The Tetra Youth Transition Project involves working with people aged 18-25 as they progress from school to college, to paid employment and into their own accommodation. Youth leaders have been appointed at five Vancouver colleges to survey students with disabilities.

Across Canada and the US, Tetra has already done many projects for people in school, including adaptive desks, laser pointers, adaptive wheelchair lap trays (and other ways of carrying books), musical instrument holders and gym equipment.

“We wanted to make sure that people with disabilities that are going to school are aware of what Tetra does,” explained project coordinator Eric Molendyk. “It’s about trying to find out what Tetra’s role could be in achieving their educational goals.”

This is currently a pilot project, running until next March, to see if there is scope for a Canada-wide drive. Findings will be presented to Human Resources and Social Development Canada.

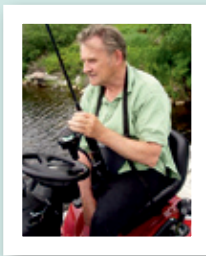
REELING THEM IN

HALIFAX: Fishing had been a way of life until a stroke robbed him of the use of both hands.

John Duxbury, an independent man, contacted Halifax Tetra because he needed a way to grip his fishing pole. Volunteer Dick Sircom came up with an ingenious solution: a breastplate pole-holder, kept secure with a quick-release shoulder strap.

“When I gave it to him his face just lit up. He climbed onto his tractor and roared off to the wharf.”

Sircom is currently working on another fishing project, this time with an electric reel.



Tetra Society of North America

CELEBRATING OUR 20TH ANNIVERSARY

Have an idea for a project?

Want to know what's possible?

Want to overcome a barrier?

Here's how to reach us...

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