

# Montana man builds 30 years of quadriplegic gaming

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(AP) -- For Ruben Rios to throw a touchdown, it takes a flick of his tongue. To break away from a tackle, he puffs into a tube.

Rios is a quadriplegic with no use of his body below his shoulders. For Rios to play video games like "Madden NFL 11" he uses a controller that combines lip controls, puff and sip tubes and a head-operated joystick.

That mouth controller is an innovation from Ken Yankelevitz, a Montana engineer whose hobby is hand-making unique controllers to give quadriplegics access to video games usually requiring two hands.

But with the retired Bozeman engineer's 70th birthday approaching, disabled gamers say they fear there will be no one to replace Yankelevitz, who has sustained quadriplegic game controllers for 30 years almost entirely by himself. The retired aerospace engineer hand makes the controllers with custom parts in his Montana workshop, offering them at a price just enough to cover parts.

Gamers and gaming advocates say the Yankelevitz controller's functionality and price is unrivaled for quadriplegics.

Yankelevitz began his work on mouth-operated [video game](#) controllers in 1981 for the Atari game [console](#) to give quadriplegic people a chance to engage with one of the few activities open to them. The design was simple on the early models; users only needed to be able to push a few buttons and move a joystick through their controllers.

Over time Yankelevitz adapted the designs to more complex consoles including the Xbox and PlayStation platforms. He has no formal relationship with any of the companies, saying they aren't interested because there isn't a sufficient market..

Quadriplegic gamers now have around a dozen different actions they can work with their mouth.

It's a complicated system that can be difficult to learn. But for quadriplegics, who suffer [paralysis](#) of both arms and both legs and who are largely dependent on others, the device gives them something entirely their own.

"After my injury there really wasn't anything that I could do that I was actually in control of," said Rios, who lost control of his body after a gunshot wound in 1988.

When Rios began using a Yankelevitz controller in 1991 that changed. It was a relief, he said, to enjoy something on the same level as his friends.

With video games and online communities, quadriplegics have access to friends and freedoms not possible otherwise. It's not just a basic level of control, either. Quadriplegics have proven competitive against and sometimes besting two-handed gamers.

"I can't emphasize enough how important this (is) to people with high spinal cord injuries," Rios said.

That meaning is what prompted Yankelevitz to embrace the challenge of his 30 year hobby, the reward of helping others.

"As long as I'm making a controller that will work, then they are motivated," said Yankelevitz, a former aerospace engineer.

Quadriplegics are a small portion of a growing community of [gamers](#) with all types of disabilities who are pushing for more accessible games and game controllers, according to Mark Barlet, 37, a disabled veteran, gamer and president of the AbleGamers foundation. His organization works to promote gaming access.

Barlet said gaming is an important connection to the world for those with disabilities. "People have relationships that are completely and totally digital, and they are meaningful relationships," he said.

Barlet said Yankelevitz's controller is the only one like it out there, calling it "unique in terms of accessibility."

But gaming by quadriplegics is a tiny corner of the market that Yankelevitz has sustained by himself for three decades and his output is slowing.

He doesn't want to quit now, but said that he won't be going on forever.

Recently he shut down operation of his shop for half the year to spend time in Southern California, where he used to work.

If someone wanted to fill his shoes, it wouldn't be an easy task.

He puts each controller together by hand, using his engineering skills to solder dozens of switches and circuits. Controllers are offered for just over \$200 and include a 1-year warranty for repairs.

"If the bottom line is profit, there's no way to make a profit on these," Yankelevitz said.

Yankelevitz said larger companies and game manufacturers have shown no interest in producing the controllers because the market is so small.

He's sold just over 800 of the devices through 30 years. Factory construction of the controller would be cost prohibitive, over \$1000 each, he said.

Other products don't offer near the same functionality and they come at a much higher price. There looks to be no comparable substitute available in the near future.

"If Ken (Yankelevitz ) stops making these controllers we're going to be pretty much left out to dry," Rios said.

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