

QuadStick controller says Go for quadriplegic gamers

February 6 2014, by Nancy Owano



Children and adults sidelined by serious illness and immobility from life as healthy people know it may find relief from anxiety and depression with a "pill" in the form of online games, a drug-free mood enhancer that reminds them they are still in the game of life. For quadriplegics, a mouth-operated game controller can open up the experience of console games; the controller has been launched in a crowdfunding campaign on Kickstarter.

Called QuadStick, the controller lets quadriplegic people experience the range of game functions; the QuadStick appears to a PS3 or PC host as game pad, mouse, keyboard and Flash drive, and works directly with them. The creator, Fred Davison, seeks to get it out the door to those who can use it. QuadStick components include a single joystick, three sip/puff tubes, lip position sensor, X-Y position and push switch.. Users can play most video games using only their mouth. Speech recognition software can also work. Using Dragon Naturally Speaking or Windows Speech Recognition and a collection of free software packages, voice commands can be added on as options for controlling the game. (A QuadStick site provides a [user](#) manual.)

The video showing QuadStick in action features a man who plays Call of Duty. He refers to the microphone nearby his mouth as filtering out any kind of sound within the room and not hearing anything except the user's voice. The video also shows the user giving different commands and shows how the user's screen responds.

Davison developed this QuadStick from life experience. After his mother, suffering from [amyotrophic lateral sclerosis](#) (ALS) developed speech difficulties, she was given a computerized speech system. When movement also became difficult, she began using devices to help her continue using the computer. "Ever since," he said, "being a designer of digital control systems, I've searched for an idea for something I could design that would help to alleviate problems for people like my mom in a

way that was not being adequately addressed by the market."

He eventually learned about Ken Yankelevitz' QuadControl, providing control devices for quadriplegics. Davison found Yankelevitz to be a significant source of advice and experience who guided Davison in the development of QuadStick. "I contacted Ken, and through a series of visits and phone calls, the general design requirements for the QuadStick began to emerge."

Davison also noted he has been helped by Matt Victor, who volunteered to help test the QuadStick and appears in the video. He is a quadriplegic who has no movement or feeling from the neck down. Operating the QuadStick with only [voice commands](#) and his mouth, his feedback and critiques, said Davison, resulted in many changes to the design and operation of the QuadStick, "and we feel it is finally ready to offer to others."

Davison's minimum goal is \$10,000 for a production run of at least 25 units, with plans to scale up depending on how much is raised.

"Production plans are somewhat contingent on the results of the campaign," he said. "The cost of electronic assembly is strongly dependent on economies of scale, so a decision on going to an assembly house vs doing the work in house will depend on the numbers. The setup costs for an assembly house run needs to be amortized over enough units to justify itself, which is between 50 and 75 units." The first 25 will be done inhouse using existing equipment, he said. The product was designed to be built using basic surface mount tools.

(The QuadStick does not work directly with the Xbox 360/One but the Kickstarter page notes that with the appropriate adapter, it can be used with the Xbox 360 and Xbox One. At this time, said Davison, there is no PS4 support for the Joystick function.)

At the time of this writing, Davison surpassed the \$10,000 goal, having raised \$13,138. The funding period ends March 6. There are a number of pledge options. A pledge of \$399 or more, as one example, gets one QuadStick from that first production run, two mouthpieces, RAM Mount stand and USB cable. Depending on the various orders on offer, estimated delivery dates are between May and July.

More information: [www.kickstarter.com/projects/2 ... er-for-quadrilegics](http://www.kickstarter.com/projects/2...er-for-quadrilegics)

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