

# QL+ Lab open for projects

*Multidisciplinary teams work to help the disabled improve their quality of life*

THE NEW QL+ LABS ARE OPEN AT CAL Poly and dozens of engineering students are making news by undertaking projects that aid the disabled and, in particular, public servants and veterans who have been injured in the line of service.

Founded by alumnus **Jon Monett** (IE '64), the QL+ Lab has already generated multiple multidisciplinary projects including:

■ **ERB PROSTHETIC HAND** — ME students **Max Maloney**, **Matt Griebel** and **Nickolas Butler** are collaborating to update and redesign the Erb Conformable-Grasp prosthetic hand, originally developed in the early 1990's. The updated hand will be inexpensive, lightweight, and fit a wide range of amputee arm sizes and remaining limb sizes. It will be intuitively functional, meaning control of the hand will require little conscious thought. Its outer covering will maintain anatomic fidelity and as closely as possible mimic the appearance and functionality of a natural hand.

■ **ADAPTIVE WHEELCHAIR** — A student team comprised of **Mark Azzarello**, **Brian Robinson**, **Jason Della Rosa** and **Dean Swenson** are working on a wheelchair design that will make it possible for wheelchair riders to re-experience nature independently, without the need to purchase

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## Opening doors

*The QL+ Lab near Cal Poly's Engineering Plaza is now open and sponsoring student projects that mitigate physical limitations or restrictions caused by injury or disability. QL+ serves military veterans and other public servants who have sustained life-changing injuries in the line of duty. For more information, see [www.qlplus.org](http://www.qlplus.org).*

**THE CHAIR-MAN** — QL+ Lab founder Jon Monett (IE '64) tries out the AdapTech adaptive indoor/outdoor powered wheelchair while talking with the student team working on the project. The goal of this QL+ project is to make it easier for wheelchair riders to re-experience nature by being able to handle a wide variety of terrain. The student team includes Mark Azzarello, Brian Robinson, Jason Della Rosa and Dean Swenson.



Mechanical Engineering student Max Maloney, left, demonstrates his QL+ prosthetic hand project to Cameron Clapp.

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or switch between different wheelchairs. The new wheelchair will “easily adapt between indoor and outdoor environments, and on-road and off-road formats, including rough terrain and gradients.”

■ **BREATHABLE FACIAL PROSTHETIC** — The objective of this QL+ student team project is to develop and demonstrate a practical system for the aeration of facial prostheses for patients with severe disfigurement.

■ **CAT D6R INGRESS/EGRESS** — The team of Matt Rubin, Erick Serrano and Eric Ward are developing a system to enable equipment operators with limited mobility, included leg amputees, to easily enter and exit the operating cab of a CATD6R earth moving machine, which is several feet above the ground.

■ **THE TABLETTE** — The goal for this QL+ project is to create a portable table to make dining out easier and more pleasurable for people in wheelchairs. The Tablette is engineered to fit any table, regardless of height or width. The design provides

adequate lap covering, filling the space between the table edge and the wheelchair seat, effectively extending the table edge.

■ **RECURBENT BICYCLE** — The development of a recumbent bicycle designed to accommodate a rider with a length differential between right and left legs is the goal of this QL+ project. Among the engineering tasks on the special bike are a new pedal, fixing a problem with the chain’s tension, and developing a hydraulic seat for greater comfort.

See <http://www.qlplus.org/> for more information on QL+ Lab projects. ■