QL+ PROGRAM
ENGINEERING AN IMPROVED QUALITY OF LIFE FOR THOSE WHO HAVE SERVED OUR COUNTRY

The Quality of Life Plus Program brings together America’s brightest engineering students at leading universities nationwide to create life-transforming assistive technology for our country’s injured and ill heroes.

THE QL+ PROGRAM IS UNMATCHED IN ITS IMPACT:

- Giving injured and ill veterans and first responders greater mobility, independence and access to activities that support their physical and mental well-being
- Developing a science, technology, engineering and mathematics (STEM) workforce
- Fostering respect and appreciation for those who serve and protect America
Headquartered in McLean, Virginia, QL+ was founded by Jon Monett, a retired executive with the Central Intelligence Agency (CIA). An Air Force veteran and a Cal Poly-trained engineer, Monett was inspired to establish QL+ after viewing the film “Fighting for Life”—a sobering documentary that chronicles individual stories of service members rehabilitating from injuries sustained in combat. For Monett, the film highlighted the reality that today fewer people are killed in war, yet many more are seriously injured. These patriots must learn to reintegrate into family life, the workplace and society as a whole, often requiring dedicated help to overcome the daily challenges of their injuries.

The single greatest unmet need for America’s patriots with disabilities is individualized, functional and affordable adaptations and assistive technologies. QL+ fills the gap by pioneering devices and adaptations that are not currently on the market or provided by the Veterans Health Administration. Our assistive devices are based on human needs and not commercial viability. They might help one individual or many. QL+’s primary goal is to empower America’s wounded heroes to achieve their full potential across all aspects of their lives.

The QL+ Lab at Cal Poly in San Luis Obispo served as the launchpad for the program, providing an opportunity for some of America’s best and brightest engineering students to form interdisciplinary teams to develop adaptive technologies as part of their education. Since that time, QL+ has greatly expanded to include more universities to serve a larger number of injured patriots and engineering students. QL+ programs exist at the following institutions:

- **California**: California Polytechnic State University and San Diego State University
- **Colorado**: Colorado School of Mines and University of Colorado Boulder
- **District of Columbia**: The Catholic University and George Washington University
- **Florida**: University of South Florida
- **Maryland**: U.S. Naval Academy
- **New Jersey**: Rowan University
- **Ohio**: University of Dayton, Xavier University, Ohio University and University of Cincinnati
- **Texas**: The University of Texas at San Antonio
- **Vermont**: Norwich University
- **Virginia**: Virginia Tech, Virginia Commonwealth University and George Mason University
**THE PROCESS** STUDENT TEAMS COLLABORATE WITH AMERICA’S HEROES

The QL+ process begins with the recruitment of patriots with life-altering injuries and debilitating medical conditions. Our team works with these “Challengers” to understand the lifestyle limitations they endure as a result of their injuries. Leveraging the talents of engineering students, QL+ partners with universities to develop customized, innovative solutions as part of a senior Capstone Design course. The universities assign student teams to the projects that are defined by the Challengers. QL+ provides a project manager to support the process and facilitate the collaboration between the Challenger and the student team. At the conclusion of the academic year, each team formally presents the completed project to the Challenger and provides a detailed report to QL+ and the university. QL+ then requests feedback from both the Challenger and the students to measure the success of the process.

“It was totally refreshing to brainstorm the solution possibilities with a young group of students who had no prior experience working with amputees. They were thinking completely outside of the conventional box, and it brought great results.”

QL+ CHALLENGER TAYLOR MORRIS

CHALLENGE #1: SOCKET COOLING SYSTEM

CHALLENGE #2: QUICK DISCONNECT

**QL+ CHALLENGES INNOVATIVE ASSISTIVE SOLUTIONS**

Below are examples of the 34 QL+ Challenges completed during the 2018-2019 academic year at 12 universities: Cal Poly, San Diego State University, Colorado School of Mines, University of Colorado Boulder, University of Texas San Antonio, Xavier University, University of Dayton, University of Cincinnati, Ohio University, Virginia Tech, Virginia Commonwealth University and George Mason University:

- Wobble Chair for Walter Reed National Medical Center
- Adapted SpikeBoard® for double amputee veteran
- Spasticity Brace for veteran who sustained a stroke
- Transfer device from Wheelchair to Hockey Sled for double amputee veteran
- Voice-activated Shifting device for triple amputee veteran
- Swimmer Lift for Travis Mills Foundation
- Customized surfboard for double amputee veteran
- Transfer device to lift paralyzed veteran from wheelchair to recumbent bike

VA Tech students customized an Adapted SpikeBoard® for a double amputee veteran.
Through the delivery of usable devices to each of our Challengers, the QL+ Program directly empowers our nation’s patriots to be more independent and enjoy life while also providing our student teams with the unparalleled opportunity to experience the gift of working with American heroes and creating innovative solutions. For QL+ students, the combination of patriotism and the desire to make a difference in a person’s life is powerful and offers lasting effects.

Further, the QL+ Program is helping to develop and advance the next generation of a well-prepared, innovative science, technology, engineering and mathematics (STEM) workforce so critical to America’s success in the global marketplace. Students who participate on Challenge teams in QL+ laboratories nationwide have the opportunity to master new knowledge and skills while collaborating across disciplines to shape the future of the human-technology interface in the workplace.

QL+ represents the perfect intersection of engineering talent, creativity, interdisciplinary learning, industry alignment and social responsibility. QL+ students are career-ready and second to none.

A recent survey of QL+ Challengers—injured service men and woman—and QL+ student teams demonstrates the powerful impact of the QL+ Program for all involved.

QL+ Challengers scored the QL+ Program an average of 9.1 out of 10—as a measurement of their overall experience, usefulness of the assistive end product and the collaborative process.

QL+ student teams voiced overwhelming satisfaction with their engagement in the program. When asked about the most beneficial aspect of their participation in the QL+ Program, students shared:

- “Seeing the design come to life and having our Challenger actually use it.”
- “The fact that the project was a real-world challenge that was going to directly benefit a disabled veteran.”
- “Helping our client and seeing the difference that our work made in her life.”
- “Being able to give back through a program that helps the brave men and women who sacrifice for our country.”
- “The QL+ experience as a whole ... and taking a project from start to finish.”

QL+ IMPACT
SUPPORT FOR AMERICA’S INJURED HEROES + INDUSTRY-READY GRADUATES

QL+ FISCAL MANAGEMENT AND STEWARDSHIP

The QL+ Program is governed by a board of directors and managed by nine full- and part-time professional staff. Through excellent fiscal management for the 2018-2019 fiscal year, QL+ allocated 72 percent of its operating budget to programs and only 28 percent to administration and fundraising.

Further, as a result of a generous donation in 2017, we have established a fund to cover our administrative expenses. Therefore, every dollar donated to QL+ will support injured veterans and STEM programs at QL+ partner universities.
Your donation will help QL+ support America’s injured heroes through the design and development of over 60 assistive-technology projects identified for the 2019-2020 academic year. **Here are a few of these exciting Challenges:**

**Gym Hand Prosthetic/Grip Device:** A Navy explosive ordnance disposal (EOD) technician veteran sustained an amputated middle, ring and pinkie finger on his right hand from an IED blast. He likes to use the rowing machine and lift dumbbell weights to maintain physical fitness. Currently, he has hand-grip items designed for whole-hand amputations, which are offset and don’t work or line up with his remaining fingers so things fly out of his hands and he loses his hold on items.

**Mono Ski Base Area Transport:** An Army veteran, who was paralyzed from the waist down after being shot multiple times in Afghanistan, enjoys using his mono-ski on the slopes in the winter. He asked for a system that allows him to independently transport his mono-ski to and from the car.

**Pill Bottle Opener:** A veteran requires assistance with opening push-turn medication bottles. He has tried all commercially available one-handed devices that hold the bottle. Due to partial nerve damage, he lacks the strength to grasp these adaptive devices or to compress the lid enough to unlock the turning requirement of this task.

**Durable Prosthetic Foot Shell:** A Marine veteran who lost his leg requested a prosthetic foot shell or an insert for a foot shell that will last longer. He is a very active person and uses his foot shell often. The foot shells available on the market only last him two or three months. He is hoping the students can develop a reinforced foot shell that is more durable.

**One-Handed Kayak Paddle:** An Army veteran sustained an injury to his left arm that resulted in a non-functioning (paralyzed) arm. He likes to kayak with one paddle, but he is so strong with his right arm that he usually breaks the adapted paddles he uses. He would like a sturdy one-handed paddle that does not put too much torque on his wrist.

**Recumbent Bike Lift Assistance:** A retired Army veteran had multiple back and neck surgeries and tendon damage on both hands. She enjoys cycling and has different types of recumbent bikes and vehicles. She has difficulty lifting her recumbent bikes onto her current bike lifts or into her vehicles because of her grip, awkward bike configuration and bike weight. The Challenge is to create a functional and safe lift system for a recumbent bike from ground to her Ford Ranger truck and her Ford Transit Connect van.
OUR MISSION

To foster and generate innovations that aid and improve the quality of life for those who have served our country

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