



Engaging the Innovators of the Future: Connecting Engineering Students with Veterans to Increase Adaptive Sports Access

QUALITY OF LIFE PLUS

- KRISTIE YELINEK, PROGRAM MANAGER
- JODY KAKACEK, PHD, PROGRAM DIRECTOR

Our Mission

The QL+ Mission is to challenge university STEM students to create innovative technology solutions that improve the quality of life for injured veterans, first responders, and others who have served our nation.



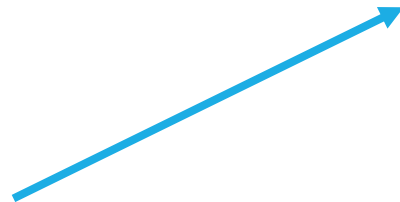


Our Process

QL+ recruits veterans and other eligible disabled individuals for whom student projects can improve their quality of life (“Challengers”)



QL+ offers challenges to partner universities for students to complete as their Capstone or senior projects



University provides a Faculty Advisor and forms a team of 3 -8 students



QL+ provides a Program Manager and financial support for all projects



Our University Partners



Leadership Starts Here





Our Student Backgrounds

We attract students at leading universities majoring in:

- Mechanical Engineering
- Electrical Engineering
- Biomedical Engineering
- Computer Science
- Physical Therapy
- Occupational Therapy





Our Impact

Gives students an opportunity to work on a real-world problem with a real person/customer and see the impact on the Challenger

Gives Challengers a chance to provide feedback and guidance to the student teams; Challenger receives a customized device that will improve his/her quality of life





Our Reach

Since QL+ was founded in 2009, we've worked with over 1,300 students and almost 350 projects.

We work with individuals and organizations

- By working with both groups, we can improve the quality of life for individual veterans and first responders, and improve access to multiple veterans and first responders that are served by a specific organization



Pineland Farms (VAST Program)

Veterans Adaptive Sports and Training grantee

Year-round activities based on veterans' needs

Four projects this year:

- Wheelchair ski
- Seat for Afari
- Modified archery stand
- Modified Cross Country Ski



USA Para Bobsled & Skeleton National Team

USA Para Bobsled Skeleton Development Committee

Past projects: Hand controls for skeleton, Bobsled launcher, wheelchair to bobsled transfer device

This year's project: Athlete and bobsled to truck transfer system

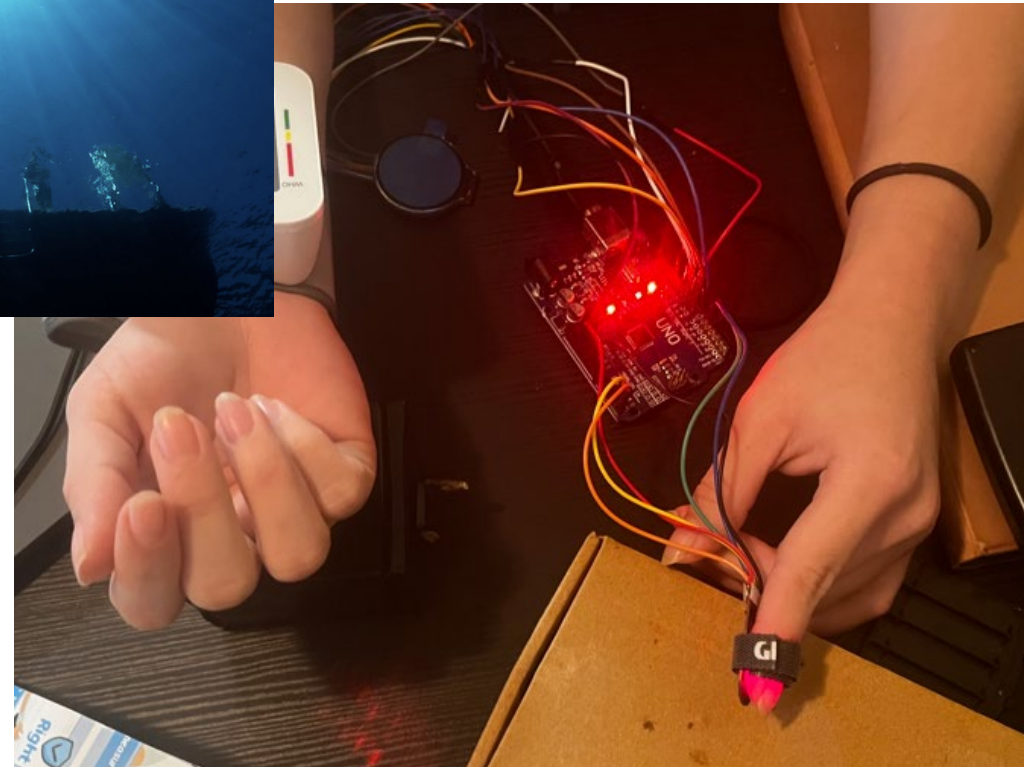
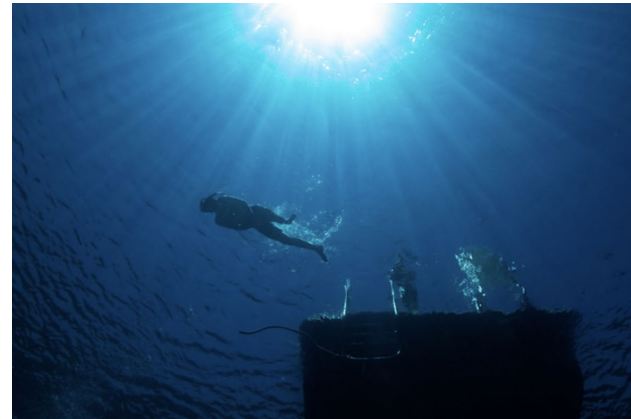




Denver Adaptive Divers

Provides “support, education, specialized training in adaptive scuba diving, and dive travel to qualified individuals with physical disabilities to enable them to become an integral part of the sport of scuba diving.”

This year’s project: underwater blood pressure and vitals monitoring





Blind Putter

The Challenger is an Army veteran who is a professional golfer and visually impaired

Currently golfs with a coach who lines up his shots

The Challenge was to build a putter that can stand in an upright position on its own, allowing the coach to line up the shot for him to take his swing.



Fencing Scoring Device for Deaf User

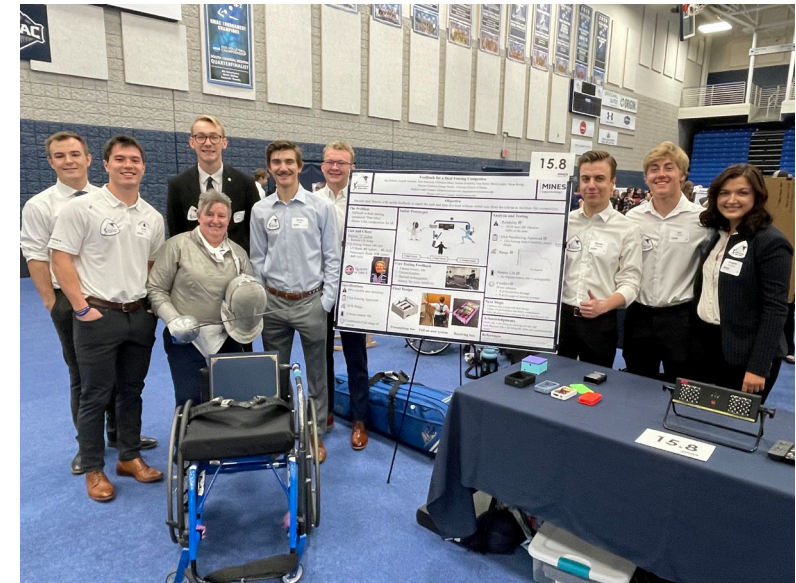


Army veteran participating in national and international fencing competitions who is hearing impaired

Scoring is done with audible tones

When one of the participants touches the other with a fencing sword, sometimes the movements are so fast that it is not felt by the opponent

The goal was to design and build a scoring system that does not rely solely on audible tones, and instead will notify the user of a point scored in a tactile or visual way





Mountain Biking

North Carolina patrolman injured in the line of duty,
resulting in cognitive deficits

An off-the-shelf adaptive mountain bike was too heavy
and unstable





Modified Ski Boot

The Challenger is a Navy veteran injured after a 40-foot fall while rock climbing

The Challenger worked his way back up climbing and has competed on the US Paraclimbing Team since 2018

He is currently working towards joining the Paralympic Ski Team

The Challenge is to create a custom-made boot that will work with the Challenger's disabilities and allow him to train

The current boot being used wears through the skin, increasing the risk of infection.



Modified Ski Boot Pictures





Moving from Sled Hockey to Road Hockey

The students created a hockey sled that can be used in the off-season of sled hockey



Collaboration Best Practices: Working with Universities



When partnering with a university, discuss the capacity of their engineering departments - how many students are available to work on a project and how much the professor will be involved with the project

Determine if the university is stronger in one area than another - a university might focus on a specific type of engineering; this will affect where the project has the most chance to succeed

Recognize that there may be a lot of bureaucratic red tape when setting up a partnership

Collaboration Best Practices: Working with Students



Provide a clear overview of your organization at the beginning of the academic year

Articulate your expectations for how you will work together throughout the year (times meeting per month, final presentation due at the end of the year, etc.)

Encourage the students to take ownership as the leaders of the project - many students are uncomfortable at first talking to the Challenger directly instead of you contacting them as the Program Manager – but this is their opportunity to work with their client, which is a skill they will need after graduation

Collaboration Best Practices: Working with University Departments



Work with universities to ensure you are getting what you need for the project - students are sometimes more worried about the university's requirements for the project, rather than for the veteran they serve

Remember they are still students and may not have the capacity to complete a complicated project; try to work with a volunteer mentors from engineering firms or ask the university to assign a graduate student to help

Collaboration Best Practices: Working with Challengers



Ensure the Challenger has realistic expectations for project completion (some projects take longer than one academic year, so it is important the Challenger is aware of this)

Encourage the Challenger to share as much information with the students about their injury and devices they currently use, such as prosthesis, or hearing aids; this helps the students be aware of how their project will be used in relation to other tools to improve quality of life

Challengers can sometimes fail to stay engaged in a project for a variety of reasons

Questions and Call for Challenges and Mentors



We are currently coordinating projects for the 2023-24 school year. If you think you have a Challenge for us, we would love to help!

Remember, to participate, you must be a disabled/injured veteran or first responder, OR an organization that serves disabled/injured veterans and first responders.

Potential Challengers can fill out intake form on our website - qlplus.org. Select “Get Involved” and then “[Become a Challenger.](#)”

Potential mentors can fill out intake form on our website - qlplus.org. Select “Get Involved” and then “[Become a Mentor.](#)”

Thank You!

If you're interested in collaborating or know someone who is, please feel free to reach out!

Contact:

- Kristie Yelinek, Program Manager
- (717-360-0171; kristie.yelinek@qlplus.org)

- Jody Kakacek, Program Director
- (443-442-7315; jody.kakacek@qlplus.org)

