

Project Grant Application

1. Please list all team members, their disciplines, and departments:

Investigator 1, Title

Investigator 2, Title

2. Briefly, what is your project idea?

Develop a novel adaptive bike braking system for people who have tetraplegia.

3. What is the problem that your idea fixes?

Cyclists who do not have hand and finger function can propel the adaptive handcycles with specialized pedals (quad grips), however they cannot independently operate typical lever-actuated brake levers. I believe an elite cyclist can use scapular retraction and shoulder extension to actuate brakes. The proposed system, the "Tetra Brake" would use scapular retraction and shoulder extension to actuate brakes.

4. How are you going to solve the problem (list the steps)?

Meet with CBM engineering team to brainstorm potential solutions. Develop a prototype in CAD, order parts from suppliers, assemble and fit to the trike, testing of the braking system with a user, create a summary report.

5. What help do you need? Developing prototype, sourcing parts, assembly and fitting to trike, and testing

Please attach the following items to this application and create a single PDF file submitted to Melissa Briody (mbriody@sralab.org) by Wednesday, February 17, 2021.

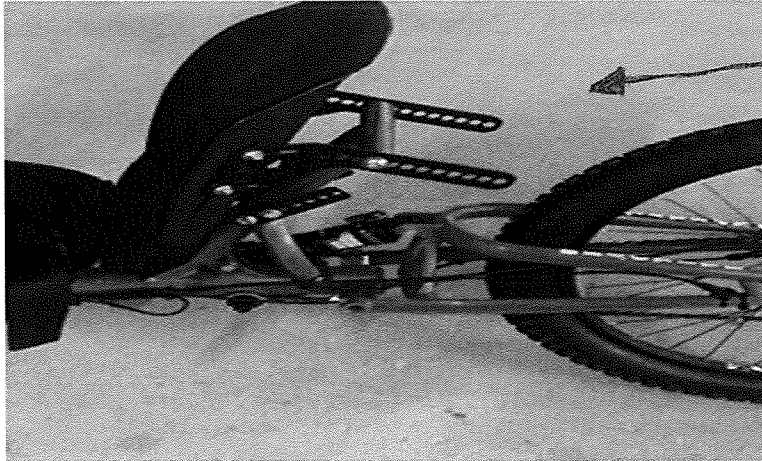
1. A sketch or picture of the idea
2. A resume of each participant

****Project Grant applicants are strongly encouraged to identify a research partner, but it is not required. The Review Committee will introduce a research partner for Project Grants without an identified researcher.**

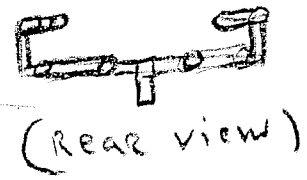
Nuke before adding elbow brakes



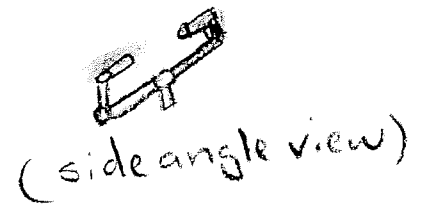
Braking system actuated through shoulder extension and scapular retraction



Tetra brake-
mount to backrest



(Rear view)



(side angle view)

