EAP

Lower Limb Exoskeleton Assist Project

Partnership Packet



Student engineering.
A shared commitment to mobility.

EAP

Our purpose



Developing assistive technology for the people who use it.

LLEAP is a multidisciplinary, student-led project at Cal Poly, San Luis Obispo. We are developing a powered lower-limb exoskeleton with the goal of helping individuals with paraplegia stand, walk, and live on their own terms.

The project brings together students studying biomedical engineering, mechanical engineering, electrical engineering, computer science, and kinesiology to work toward the shared goal of achieving lower limb mobility breakthroughs. In addition to this primary goal, the club provides students an outlet to develop engineering and professional skills outside of the classroom.

LLEAP

A project built over time

LLEAP began in 2018 as an assistive device project. Each student team has contributed to the hardware, software, and knowledge that support the next generation of the exoskeleton.

2018 - 2019

Origins

The project began within Quality of Life Plus, later known as EMPOWER, with a challenge to develop an exoskeleton for a user with cerebral palsy.

2020 - 2021

Becoming LLEAP

The team adopted the Lower Limb Exoskeleton Assist Project name and continued its design, simulation, and software work.

2021 - 2024

Prototype development

The team designed and prototyped several subsystems. Single leg operation was achieved for our V1 prototype. This research and development laid the technical foundation for the club's continued work.

2024 - 2025

An independent project

LLEAP became an independently funded instructionally related activity (IRA) and continued work toward the next exoskeleton iteration.



V1 Exoskeleton Prototype

2025 - Present

Continued Development

In May 2026, the team completed its fully manufactured and integrated V2 exoskeleton prototype. Current work focuses on V2 software and V3 design and manufacturing. By the end of the 2026–2027 academic year, the team aims to achieve a fully functional V2 and mechanically integrate V3.

Five teams, one exoskeleton

Specialized teams design, manufacture, and test the mechanical system, electronics, and software. Their work comes together in a wearable assistive device.

Structures	The spinal support, ergonomics, and leg linkages. This team develops lightweight structural components and secure and comfortable interfaces between the device and its wearer.
Joints	The hip and knee actuators enabling user motion. The team develops compact gear systems and joint assemblies, with attention to torque, range of motion, and safety.
Foot & Ankle	The foot and ankle mechanisms. The team focuses on ankle motion, foot support, and the mechanical and sensing needs of this part of the exoskeleton.
Mechatronics	The electrical hardware. The team works on motor control, power and battery management, sensors, circuit boards, and the wiring that connects the system.
Software	The embedded software. The team develops motor-control code, communication between electrical subsystems, and coordinates movement of the exoskeleton.

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The exoskeleton

A powered, adjustable system.

The exoskeleton integrates the work of all five teams into a cohesive system. Comfort, performance, and safety are our primary design concerns.

Movement

Hip, knee, and ankle systems are being developed to support lower-limb motion, with sit-to-stand transitions and upright walking as design goals.

Fit & comfort

Adjustable linkages and "soft good" padding are intended to accommodate different body dimensions and provide a secure user interface.

Control

Sensor feedback, motor-control electronics, and software connect the mechanical hardware to the actuators.



V2 Exoskeleton Prototype

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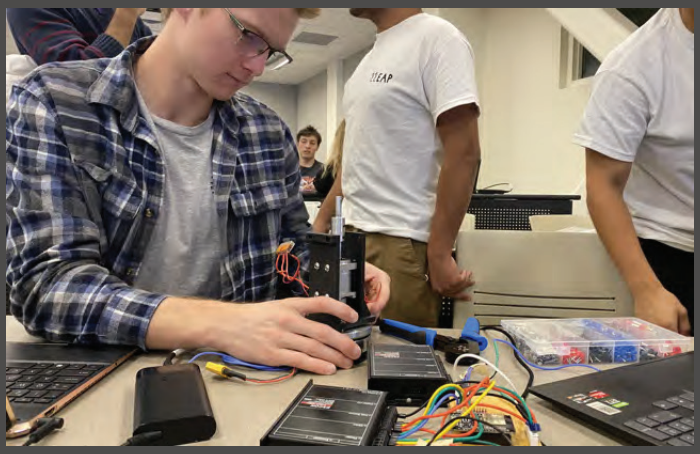
Where your support goes

Partnerships provide the resources and expertise needed to develop the exoskeleton and give students practical experience in assistive technology.



Motor controller testing



Machining for joint gearboxes

Financial support

Joint motors, composite materials, electronic hardware and other components cost thousands of dollars. Your support helps purchase these essential components and materials.

Materials & services

Direct material donations including aluminum, carbon fiber, tools, manufacturing services, and supplier discounts can help us meet specific project needs.

Technical expertise

Design feedback, manufacturing guidance, and technical discussions connect student engineers with practical industry experience.

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Sponsorship opportunities

Choose a level that fits your organization. Each partnership supports exoskeleton development and the students working on it.

Partner benefits	Bronze $500	Silver $2,500	Gold $5,000
Social media recognition	✓	✓	✓
Presence on our website	✓	✓	✓
Invite to LLEAP design reviews	✓	✓	✓
Branding on merchandise	✓	✓	✓
Access to our club's resume book		✓	✓
Branding on the exoskeleton		✓	✓
Dedicated sponsor spotlight on social media			✓
Club career panel/networking event			✓

Sponsorship levels reflect annual contributions. Benefits are provided each academic year that the corresponding contribution is received.

In-kind partnerships

Materials, services, and discounts are welcome. Contact the team to discuss the project need and equivalent recognition. Contributions of any amount are appreciated.

LLEAP



Partner with LLEAP

Support student engineers working to expand what's possible in mobility.

Email lleapexo@gmail.com to discuss financial or in-kind support, confirm your partnership level, and receive current giving instructions. We will coordinate recognition and opportunities to connect with our members.

Partnership inquiries

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