Problem

- Canines are susceptible to diseases and injuries that can cause hind limb paralysis or paresis.
- There are limited options that provide mobility, and even fewer that aid in rehabilitation.

Previous Year’s Accomplishments

- Live canine testing
- Variable brace design
- Wireless power source
- Hotswap circuit implemented
- Started current motor design
- Built current brace design

This Year’s Goals

**Primary**

- Create a mechanism to assist in the rehabilitation of large dogs
- Add cart stabilizer and structure to protect electrical components to improve the safety of the device
- Develop GUI and Bluetooth connection
- Implement sensors that measure the joint angle, and match the cadence of the front and back legs, allowing the dog to drive the device

**Secondary**

- Create a completely autonomous device that can be used at home for rehabilitation purposes
- Create a device that is safe enough to be used in clinical settings
- Create a device that is user friendly and simple enough to be controlled by anyone with the proper training
- Test the angle sensors by ensuring that the joint angle stays within a safe operable range.

Hardware

- Cover for electrical components
- Implemented pulley system
- Ankle and knee motor mounts
- Angle sensor mounts
- Cart stabilization
- Design for five bar linkage system
- Reinforced motor system
- Dog gait motion

Electrical & Software

- New PCB design
- Finished motor design
- Applied pressure sensors
- Fixed hotswap
- Redid power supply
- Added Bluetooth
- I2C Interface
- Full electrical system integration

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Future work

- Implement five bar linkage system
- Develop second cart
- Redesign electrical housing unit using fire resistant PLA
- Improve power system
- Improve leg motion
- Improve GUI