ContinuO Centaur Robot

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Power Requirements:

- **Peak Potential**: Up to 3.5kW at full motor utilization across 48V, 24V, 19V, 12V, and 5V supplies.
- **Operational Limit**: System draw capped at 30A to align with battery cable capacity.

Safety Features:

- **Surge Protection**: TVS Diodes safeguard critical components like the NVIDIA computer.
- **Overcurrent Defense**: Fuses on all circuit boards for additional safety.
- **Emergency Response**: E-stop halts motor function while keeping core systems active.
- **Wiring Safety**: Circuit breaker designed to trip at 30A to protect against current overdraw.
- **Connector Design**: Keyed interfaces prevent from reverse polarity.

Design Hurdles and Solutions:

- **Current Management**: PCB designs refined to handle high current scenarios.
- **Component Selection**: Sourced safety elements compatible with system’s demands in a compact form factor.
- **Spatial Efficiency**: Components and layouts crafted to optimize the limited space within the robot.
- **Energy Efficiency**: Achieved a high power efficiency rating of 93%.