Conscious Brain Mind-Controlled Cybonthitic Cyborg Bionic-Leg - V2

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Lower limb amputations affect about 28.9 million people worldwide, influencing normal human functions, we are developing a conscious brain mind-controlled Cybonthitic cyborg bionic-leg to provide a professional solution for this problem, which is classified as restricted knee movement, short-term solution, limited pressure bearing, unspecific analog reading of EMG; Because the output voltage measured in nano-volts, resulting in unspecific knee movement. The functionality of these modern gadgets is still limited due to a lack of neuromuscular control (i.e. For movement creation, control relies on human efferent neural signals to peripheral muscles). Electromyographic (EMG) or myoelectric signals are neuromuscular control signals that can be recorded from muscles for our engineering goals. We worked on a sophisticated prosthetic knee design with a 100-degree angle of motion. We also used a specific type of coiled spring to absorb abrupt or unexpected motion force. In addition, we amplified the EMG output from (Nano-Voltage) to (Milli-Voltage) using customized instrumentation amplifiers (operational amplifiers). We used a full-wave rectifier to convert AC to DC, as a consequence of these procedures, sine-wave output voltage measures in millivolts, and the spring constant indicates the most force for every 1cm. Von mises Stress analysis shows bearing as 3000N is the maximum load for the design. Detecting the edge of a stairwell using the first derivative. Edge_gradient(G) =v(Gx^2+Gy^2). The benefit of a system that controls the prosthetic limb is activated by the patient's own EMG impulses, rather than sensors linked to the body.

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