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(54) **SYSTEM FOR CONTROL OF A PROSTHETIC DEVICE**

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USPC 623/24, 25, 60, 62, 64, 57
See application file for complete search history.

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(57) **ABSTRACT**

A system for control of a prosthetic device includes at least one Inertial Measurement Unit detecting orientation of a user's foot. The at least one Inertial Measurement Unit is in communication with a device module configured to command at least one actuator of a prosthetic device. The at least one Inertial Measurement unit sends output signals related to orientation of the user's foot to the device module and the device module controls the at least one actuator of the prosthetic device based on the signals from the at least one Inertial Measurement Unit. The device module controls movement of an endpoint of the device within a movement envelope. The device module commanding movement of the end point within the movement envelope through at least simultaneous and/or independent actuation of the plurality of actuators based on the at least one body input signal in accordance with a movement function to achieve the desired directional movement of the endpoint within the movement envelope.

18 Claims, 33 Drawing Sheets