

## Fluid Powered Wearable Device

### **Disclosure Number**

200902209

### **Technology Summary**

The invention provides direct torque control, using fluid power, of a compact mechanical joint. The specific advantage over the state of the art in electric motors is that a) the joint can provide much higher torques with less volume and weight and b) the joint remains very cool (critical for wearable devices). Conventional hydraulic joints are motion controlled (position or velocity controlled). This invention provides a direct means to provide torque proportional to an input electrical signal. This characteristic is critical for wearable force controlled devices. The joint is free to move when there is no electrical power. Therefore it is fail safe. Likewise, resistance torque increases with increasing electrical command. All existing haptic interfaces use torque controlled electric motors. This invention will permit the same control methodologies but with much lighter and cooler mechanisms.

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