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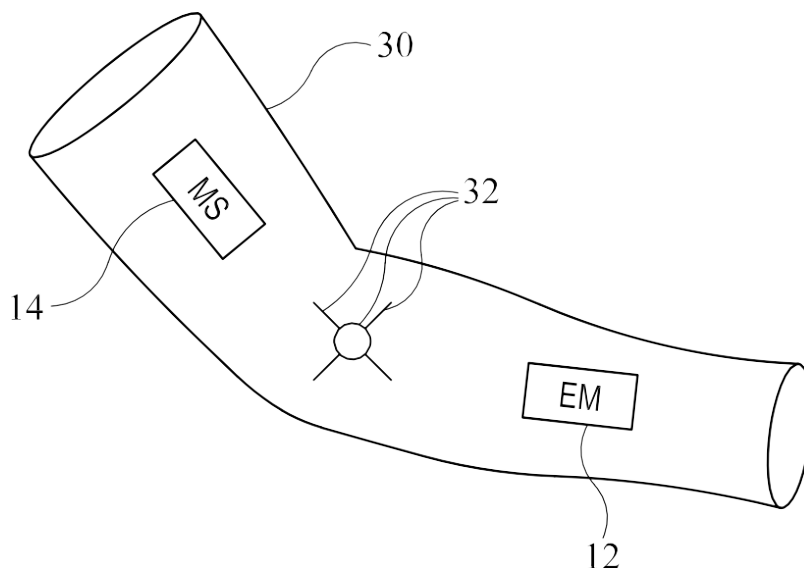
CHARTERED 1693

WM-2002: MAGNETIC-BASED MOTION MONITORING FOR TWO OBJECTS SHARING COMMON JOINT

Inventors: Amanda Watson, Andrew Lyubovsky, Gang Zhou

Application: Wearable devices

Summary: We have developed a unique approach to mitigating environmental magnetic noise in wearable technologies while monitoring the relative positions of two objects. An electromagnet is positioned on the first object and a magnetometer is positioned on the second object. The electromagnet is cycled on and off at high frequencies, allowing the system to differentiate between the magnetic field generated by the electromagnet and the surrounding environmental magnetic fields. By subtracting the environmental magnetic field readings from the electromagnet's readings, the system effectively eliminates noise, providing accurate magnetic field measurements. This method is particularly innovative as it addresses the common problem of magnetic interference from various sources, including the Earth's magnetic field and other magnetized objects, without requiring complex calibration procedures. Additionally, the invention includes a detailed process for localizing the electromagnet's position and orientation using the magnetometer readings, further enhancing its applicability in dynamic environments and wearable applications.



Intellectual Property: Issued U.S. Patent No. [11,169,001](#)

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