Accelerometer

An accelerometer is a sensor that measures acceleration, typically in three axes: x, y, and z. It is commonly used in electronic devices to detect and measure changes in velocity, tilt, vibration, and shock.

Accelerometers work by detecting changes in capacitance, piezoelectricity, or microelectromechanical systems (MEMS) technology. In a MEMS accelerometer, a small mass is attached to a cantilever beam, which is anchored to a fixed point. When the accelerometer experiences acceleration, the mass moves, causing a change in the capacitance or resistance of the device, which can be measured and used to calculate the acceleration.

Accelerometers are used in a wide range of applications, including in smartphones and tablets for screen orientation and gaming, in fitness trackers and wearables for activity tracking, in drones and robotics for stabilization and navigation, in automotive and aerospace industries for safety and performance monitoring, and in medical devices for patient monitoring and diagnosis.

Machine Learning Analysis of accelerometer-derived physical activity data to classify postural dysfunction in middle-aged and older individuals is feasible in real-world environments such as the home [1].

1)
Vanstrum EB, Choi JS, Bensoussan Y, Bassett AM, Crowson MG, Chiarelli PA. Machine Learning Analysis of Physical Activity Data to Classify Postural Dysfunction. Laryngoscope. 2023 Apr 21. doi: 10.1002/lary.30698. Epub ahead of print. PMID: 37083112.