

# A Tremor Compensation Device

## Background

This invention relates to a handheld or portable device that can compensate for involuntary hand tremor. It allows the user to engage in such as writing, drawing and soldering. The device will 1) detect its own motion, 2) distinguish between the intended motion and the tremor, and 3) compensate for the tremor of the tip of the tool (such as a soldering iron, and a writing utensil) attached to the hand-held device. The device estimates the tremor and control the tool movement accurately by employing a unique signal processing method to estimate the tremor accurately, and provides a relatively large range of motion with negligible or no backlash.

## Technology Features & Specifications



The device has potential to be adapted to different tools that include, but not limited to, pen, pencil, paint-brush, soldering iron, welding tool, tweezers, needle, pipette, knife, stylus, screw-driver, laser-pointer, and probe-based confocal laser endo-microscope.

The weight of the current prototype designed for writing and drawing is approximately 130g while the diameter at the gripping location and the maximum diameter of the device are 17mm and 50mm, respectively.

## Market Trends & Opportunities

It is estimated that approximately 1 to 5% of the adult population suffer from involuntary tremors. Of this, a portion of the people suffer from involuntary hand tremors. With the aging population and increase in life expectancy, the number of people with involuntary hand tremors is expected to grow. Tremor compensation devices can be adapted to mitigate the effects of the tremors. Currently, there is a lack of tremor compensation devices that are available on the market, so there is potential for the development of such devices to meet the apparent unmet need and improve the quality of life for users.

### Benefits

- ✓ Device can estimate involuntary hand tremor and control tool movement accurately
- ✓ Compensates large range of motion of pathological tremors such as an essential tremor, but allows the user to carry out tasks requiring a degree of precision

### Potential Application

- Writing or drawing with writing tools or stylus
- Soldering or welding of mechatronics component
- Assembly of miniature mechanical parts
- Manual manipulation of Micro Electro Mechanical Systems (MEMS).
- Manual manipulation of biological cells
- Examination of properties of tissues using probe based confocal laser endomicroscopy (pCLE)
- Reconstructive surgery
- Feeding with a spoon, a fork, or chopsticks

### Commercialisation

#### Opportunities

- ✓ Ready for commercialization
- ✓ Looking for collaborators for further development / to develop new applications
- ✓ Available for licensing
- ✓ Accepting business plans from interested parties

#### Contact Us

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