JTremor3D: A Wearable Tremor Profiling Device for Patients with Parkinson's Disease

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Parkinson’s Disease is a neurodegenerative disease manifested through tremors, which start with a limb and then gradually spreads across entire body. While this disease has no permanent cure, medication and surgery are two means employed to keep tremors in check. However, the overall dosage management involves a lot of “trial-and-error” approach. At times the tremors still show up at different times a day and dosages are again adjusted. Also, re-tuning of brain pacemaker of patients of Deep Brain Stimulation surgery is done by their caregiver based on gut feeling (unscientifically). There is a need to scientifically measure the tremor pattern so that it can assist in doing more accurate dosage planning and brain pacemaker re-tuning. JTremor3D, the wearable tremor profiler for patients with Parkinson’s Disease, can assist neurologists during dosage planning by providing tremor profile analysis of the patient. It can also provide recommendations to caregivers of patients who have undergone Deep Brain Stimulation surgery about re-tuning of brain pacemakers. JTremor3D is based on three themes, viz. practicability, objective measurement and real time insights. The device is made in the form of a glove or a strap that can be worn by any of the limbs. A controller communicates with each of the four devices to capture tremor data every 1/10th of a second. Simple, compact, and affordable nature of the device makes it practicable. JTremor Index is a single objective measure of tremor that represents all the parameters - intensity, duration and frequency of the tremor. Finally, since controller communicates with the cloud database in real time when networked, it can provide the insights to doctors and caregivers in real time. This may get the patients a tremor-free life sooner.

Awards Won:

Third Award of $1,000

Shanghai Science Association for Young Talents: Science Seed Award