MyHealth: A Wearable for Detection, Monitoring, and Control of Parkinsonian Tremor

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Parkinson’s disease (PD) is one of the most commonly seen neurodegenerative diseases in our society. Parkinson’s has no cure and it worsens over time, leading to severe impairments, a smaller life span, morbidity, and a low-quality life. Early detection of Parkinson’s is vital as it allows for an earlier and even more effective treatment. However, current techniques for detection of the disease are often strenuous, time-consuming, and costly. To address this issue, I engineered an innovative wearable solution called MyHealth for detection, monitoring, and controlling of one of Parkinson’s most common symptoms, Parkinsonian tremor. MyHealth consists of a wearable armband and a glove I developed called MyGlove. The wearable armband with in-built sensors is used for detection and monitoring of Parkinsonian tremor. Program algorithms are developed to read and process sensor data. The processed data is used to detect tremors and their severity levels based on the standardized Unified Parkinson’s Disease Rating Scale (UPDRS). Data is stored, allowing doctors and users to monitor symptoms, quantify medicine’s effectiveness, track disease progression, and diagnose the disease. MyGlove’s pneumatic actuators and design are enhanced to control and reduce the tremor amplitude. MyHealth has successfully been tested on PD patients and programs have been fine-tuned and re-verified. Testing results demonstrate that the tremor control functionality effectively reduces tremor. Overall, MyHealth leads to a better quality of life and helps with early detection and treatment for people impacted with Parkinson’s disease.

Awards Won:
Third Award of $1,000