MyHealth: A Novel Wearable Solution for Early Detection and Monitoring of Parkinson's Disease and a Transformation from Subjective to Quantifiable Testing

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Parkinson’s disease is one of the most commonly seen neurodegenerative diseases. It has no cure and becomes worse over time. Parkinson’s symptoms often go unnoticed in early stages, leading to severe impairments, shortened life spans, morbidity, and low-quality life. Early detection and monitoring of Parkinson’s is vital as it allows slowing of the disease’s progression through earlier treatment. However, current techniques for detection of the disease are subject to user and clinician inaccuracies and are tedious. To address these issues, I engineered an innovative solution called MyHealth. This invention quantitatively detects and monitors Parkinson’s symptoms such as tremors, gait impairments, bradykinesia, and muscle rigidities. A wearable armband with in-built sensors is used. Program algorithms are developed to read and process sensor data to detect and monitor the symptoms. These symptoms are identified based on literature, research, and qualitative scales (e.g. Unified Parkinson’s Disease Rating Scale). Data is stored, allowing doctors and users to monitor symptoms, diagnose the disease, track disease progression, and quantify medicine’s effectiveness. MyHealth has been successfully tested using simulated and Parkinson’s patients’ data, and programs have been fine-tuned and re-verified. The quantification and monitoring of these symptoms through a wearable solution will improve accuracy over qualitative and subjective scales used today. Since the targeted symptoms occur in early stages of the disease, MyHealth can potentially detect onset of Parkinson’s well before the current methods. Overall, MyHealth leads to a better quality of life and can help with early detection and treatment for people impacted with Parkinson’s disease.

Awards Won:

Third Award of $1,000

Fondazione Bruno Kessler: Award to participate in summer school "Web Valley" in Trento, Italy

IEEE Foundation: The IEEE Foundation Presidents' Scholarship Award of $10,000

International Council on Systems Engineering - INCOSE: Certificate of Honorable Mention