

Technology Offer

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Method for determining a neurological condition in a subject

Introduction

Tremor-related diseases as Parkinson's disease (PD) and essential tremor (ET) are two of the most common movement disorders. Disease classification is primarily based on clinical criteria and remains challenging. Since both neurological conditions affect the way how a subject moves, precise detection of the motion of a subject, such as his hands and its analysis, in particular in comparison to healthy subjects, has become more and more important in the diagnosis thereof. Smart wearables have become particularly useful for that purpose, as they are readily available and come equipped with sophisticated motion sensors.

Invention

The present invention aims to provide a detection method for determining a neurological condition in a subject (preferably encompassing Parkinson's Disease (PD) and Essential Tremor (ET)), which can distinguish between at least two neurological conditions and thus provides an improved diagnosis. The method is based on a synchronous and parallel measurement of a motion pattern of a subject with two motion sensors, such as two smart watches, each of them being attached to a subject's wrist. Based on a two-sided measurement using two motion sensors, during which the subject follows instructions and undergoes a series of movement patterns, high-resolution characteristics of the slowing down (deceleration) of movement and the trembling behavior, including side comparison, are determined using mathematical methods. Based thereon, a clinical-neurological finding for the diagnosis and for an objective analysis of the course of movement restrictions is provided.

Advantages of the invention

With the provided method highly specific Parkinson's characteristics may be automatically recorded and visualized for the patient and/or the clinician and can provide a diagnostic decision support with at least 80% accuracy. It enables the generation of an automated examination report by those affected themselves and from home. This report may support an early detection of Parkinson's or another neurological condition and enables objective monitoring of the course of the tremor behaviour and the degree of slowing of movement for the patient and/or clinician.

Areas of application

neurological conditions,
disease classification,
diagnosis

Keywords

Tremor-related diseases,
motion sensors, smart
wearables

Development Status

proof of concept

Commercial Opportunity

The technology is offered for
in-licensing and co-develop-
ment

Patent Status

patent application filed in
Europe

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Fig. 1 multimodal, objective sensor measurement to objectively quantify the severity of Parkinson's disease for a more precise treatment of movement disorders, especially Parkinson's disease.

