Abstract
This technology is related to a device that is engineered for decreasing Parkinson symptoms and works non-invasively. This novel electro-stimulation device stimulates certain brain parts via ear muscles in order to diminish tremors and immobility that is correlated to Parkinson disease without the need of invasive brain surgeries thus enhances the patients’ quality of life.

Technical Overview
Parkinson’s disease (PD) is a chronic and progressive neurological disorder which at present has no known cure. The main symptoms are tremor, rigidity (stiffness), slow movements (bradykinesia) and balance difficulties (postural instability).

In today’s technology, for diminishing Parkinson symptoms such as tremors, immobility and rigidity electrodes are being placed to brain in order to stimulate subthalamic nucleus via highly invasive deep brain stimulation interventions. These surgeries being highly invasive they may result in many side effects.

With this device disclosed herein, intra-stimulation which is only possible by this extremely invasive brain surgery is bypassed and instead this novel easy-to-use aid is attached to the ear externally. And also with the sensing units wireless track of the patients’ situation becomes possible even from long distances. Furthermore voltage and the frequency of the stimulating signal can be automatically altered depending on the situation of the patient e.g. the intensity of the tremors.
Technology Features & Specifications
This electro-stimulation device is simply an ear aid that works through auricular (ear) muscles in order to facilitate the supplementary motor area, premotor area and subthalamic nucleus for the correction of tremors and immobility that are associated with Parkinson Disease. Device simply comprises of two electrodes that are attached to the intrinsic auricular muscles for sending and receiving electrical signals, a control unit and a ground electrode.

The instrument also has a sensing unit for the detection of patients’ condition. Wireless transfer of the results is made possible with a dedicated control unit and a communication unit so that the voltage and the frequency of the stimulating signal can be changed automatically depending on the situation of the patient.

A communication unit is also integrated to the device for enabling communication with other devices such as remote control units, computers and measurement units. With this feature connectivity with terminals such as computers, tablets and smart phones becomes possible.

Potential Applications
This Technology is applicable in the Healthcare Industry for decreasing “abnormal resting over activity” such as tremors that can be caused by conditions or medicines that affect the nervous system, including Parkinson’s disease, liver failure, alcoholism, mercury or arsenic poisoning, lithium, and certain antidepressants.

Market Trends and Opportunities
It is estimated that there are seven to ten million people worldwide having Parkinson’s disease spread to all races and cultures. Medication costs for an individual person with Parkinson’s Disease average is about $2,500 a year and surgeries can cost up to $100,000 per patient. Just to give a rough idea, only in US the combined direct and indirect cost of Parkinson’s including treatment, social security payments and lost income from inability to work is estimated to be nearly $25 billion per year.

Customer Benefits
Diminishing symptoms that are related to Parkinson’s disease without the need of deep brain surgery therefore
- Better patient compliance
- Cost effective
	Also the device is
- Easily implemented and user-friendly
- Wireless monitoring and automatic control of the voltage and frequency is possible

Additional Technical Information
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Keywords: Parkinson, tremor, rigidity, bradykinesia, akinesia, postural instability, deep brain stimulation