

# The Office of Technology Management

UNIVERSITY OF TEXAS  ARLINGTON

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## Contact-less tremor detector

**INVENTOR: Jung-Chih Chiao**

### TECHNOLOGY NEED

In the US, over 12 million people are affected by essential tremor, resting tremor, or other non-obvious neurological tremors that cause movement disorder in hands, legs, head, etc. These tremors restrict affected people from performing their day to day activities. Although tremors are not life threatening, affected people are mentally disturbed and experience poor quality of life. Non-obvious tremors are difficult to diagnose as the clinical results are subjective and differ from person to person. Existing technologies use wearable accelerometer based devices and smart phone applications to detect tremor. The latter devices are expensive and the former ones could be inconvenient to wear on the body. Therefore need for a contactless tremor detection device that is affordable and accurate exists.

### INVENTION DESCRIPTION/SOLUTION

Researchers at UT Arlington have developed a contactless detector to sense tremors of hands. The device can provide with quantitative insight on the motion characteristics of patients affected by non-obvious tremors. The device is non-invasive and helps with early diagnosis of tremors associated with Parkinson's disease, multiple sclerosis, stroke, traumatic brain injury, chronic kidney disease, neurodegenerative diseases, anxiety and fear, or the use/withdrawal of drugs and alcohol. It is a non-contact system thereby reducing the burden of wearing on the body. The detector is inexpensive, highly sensitive and reliable. The device can also be used for quantitative measurement not only for potential tremor issue, but also for athletes to determine their muscle strength and fatigue during training.

### APPLICATIONS

- Detection of non-obvious tremors
  - Resting tremor due to Parkinson's disease
  - Essential tremor
- Muscle strength and fatigue assessment

### KEY BENEFITS

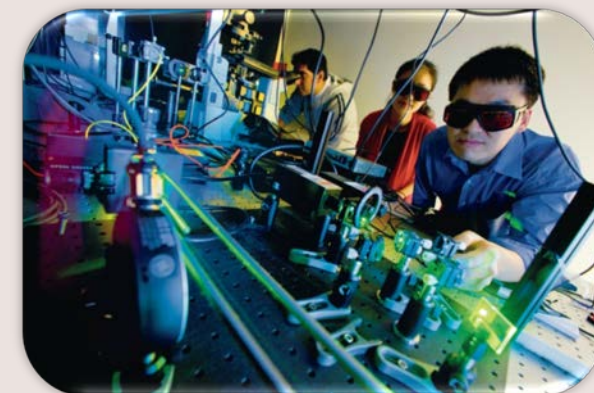
- Contact –less
- Non invasive
- Low cost
- Simple architecture
- 2-D assessment of tremors

### STAGE OF DEVELOPMENT

Prototyped and tested

### INTELLECTUAL PROPERTY STATUS

Provisional



**More about the Inventor:**  
[Jung-Chih Chiao](#)

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