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*Has received an application for a patent for a new and useful invention. The title and description of the invention are enclosed. The requirements of law have been complied with, and it has been determined that a patent on the invention shall be granted under the law.*

*Therefore, this*

**United States Patent**

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*Jon W. I. Dudas*

*Director of the United States Patent and Trademark Office*



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(12) **United States Patent**  
**Humble**

(10) **Patent No.:** **US 7,321,855 B2**

(45) **Date of Patent:** **Jan. 22, 2008**

(54) **METHOD FOR QUANTIFYING  
PSYCHOLOGICAL STRESS LEVELS USING  
VOICE PATTERN SAMPLES**

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\* cited by examiner

(\* ) Notice: Subject to any disclaimer, the term of this  
patent is extended or adjusted under 35  
U.S.C. 154(b) by 833 days.

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(57) **ABSTRACT**

A computer-implemented method of assigning a numeric score to a voice pattern sample of a human subject wherein the score is indicative of the psychological stress level of the human subject. A verbal utterance of a human subject is converted into electrical signals to provide a subject wave pattern. The pattern is quantified and compared with known voice pattern characteristics which exhibit a sequential progression in the degree of blocking in the pattern, wherein each of the known voice patterns is assigned a numerical value range. A numerical value obtained from iterative calculations is assigned to the subject wave pattern based on the comparison. The numerical value represents the degree of blocking present in the subject wave pattern which correlates to the amount of psychological stress exhibited by the human subject.

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*G10L 21/00* (2006.01)  
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(52) **U.S. Cl.** ..... **704/270; 704/273**

(58) **Field of Classification Search** ..... **704/273**  
See application file for complete search history.

(56) **References Cited**

**U.S. PATENT DOCUMENTS**

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**19 Claims, 11 Drawing Sheets**

