IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent of:	Jeroen Poeze, et al.	
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Title:	MULTI-STREAM DATA COLLECTION SYSTEM FOR NONINVASIVE MEASUREMENT OF BLOOD CONSTITUENTS	

DECLARATION OF DR. THOMAS W. KENNY

I declare that all statements made herein on my own knowledge are true and that all statements made on information and belief are believed to be true, and further, that these statements were made with the knowledge that willful false statements and the like so made are punishable under Section 1001 of Title 18 of the United States Code.

By: _____

Thomas W. Kenny, Ph.D.

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I. QUALIFICATIONS AND BACKGROUND INFORMATION

1. My education and experience are described more fully in the attached curriculum vitae (APPENDIX A). For ease of reference, I have highlighted certain information below.

2. My academic and professional background is in Physics, Mechanical Engineering, Sensing, and Robotics, with a research specialization focused on micro-fabricated physical sensors, and I have been working in those fields since the completion of my Ph.D. more than 30 years ago. The details of my background and education and a listing of all publications I have authored in the past 35 years are provided in my curriculum vitae. Below I provide a short summary of my education and experience, which I believe to be most pertinent to the opinions that I express here.

3. I received a B.S. in Physics from University of Minnesota, Minneapolis in 1983, and a Ph.D. in Physics from University of California at Berkeley in 1989. I was educated as a Physicist specializing in sensors and measurement. My Physics Ph.D. thesis involved measurements of the heat capacity of monolayers of atoms on surfaces, and relied on precision measurements of temperature and power using time-varying electrical signals, and also on the design and construction of miniature sensor components and associated electrical circuits for conditioning and conversion to digital format.

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4. After completion of my Ph.D. in Physics at U.C. Berkeley in 1989, I joined the Jet Propulsion Laboratory (JPL) in Pasadena, CA, as a staff scientist, and began working on miniature sensors and instruments for small spacecraft. This work involved the use of silicon microfabrication technologies for miniaturization of the sensors, and served as my introduction to the field of micro-electromechanical systems (MEMS), or the study of very small mechanical sensors powered by electricity and used for detection of physical and chemical signals.

5. While at JPL, we developed accelerometers, uncooled infrared sensors, magnetometers, seismometers, force and displacement sensors, soil chemistry sensors, miniature structures for trapping interstellar dust, and many other miniature devices. Some of these projects led to devices that were launched with spacecraft headed for Mars and for other interplanetary missions. Much of this work involved the use of physical sensors for detection of small forces and displacements using micromechanical sensors.

6. I am presently the Richard Weiland Professor at the Department of Mechanical Engineering at Stanford University, where I have taught for the past 26 years. I am also currently the Senior Associate Dean of Engineering for Student Affairs at Stanford.

7. For 26 years, I have taught courses on Sensors and Mechatronics at Stanford University. The "Introduction to Sensors" course is a broad overview of all

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