

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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TOYOTA MOTOR CORPORATION

Petitioner

v.

BLITZSAFE TEXAS, LLC

Patent Owner

Patent No. 8,155,342

Issue Date: April 10, 2012

Title: MULTIMEDIA DEVICE INTEGRATION SYSTEM

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**DECLARATION OF DR. RICHARD STERN, PH.D.**

Case No. IPR2016-00418

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I, Richard Stern, declare as follows:

**I. BACKGROUND AND QUALIFICATIONS**

1. A copy of my curriculum vitae that summarizes my education, work history and publications is attached to this report as Exhibit A.
2. I have over 40 years of experience in the fields relevant to multimedia device integration. In that time, I have studied and researched signal processing and acoustics. Specifically, I have studied, researched, and analyzed signal processing of audio sounds, which involves the creation of a signal, the communication of data through the signal from one device to another, and the interpretation of that signal by a human listener. While my main areas of current professional activity are primarily in signal processing for robust speech recognition and auditory perception, I have additionally studied and performed research in a wide range of related fields of audition, acoustics, signal processing, and instrumentation.
3. I received an S.B. in Electrical Engineering from the Massachusetts Institute of Technology (MIT) in 1970, an M.S. in Electrical Engineering and Computer Sciences from the University of California, Berkeley in 1972, and my Ph.D. in Electrical Engineering and Computer Science from the Massachusetts Institute of Technology in 1977.
4. While I was a student, I worked as a Teaching and Research Assistant in the

Department of Electrical Engineering at MIT, from 1973 to 1976. My teaching experience was in the area of signal processing under the direct supervision of Professors Alan Oppenheim and Alan Willsky, and in the area of acoustics under the direct supervision of Professor Amar Bose. My research at MIT had been in the area of auditory perception.

5. I am a Professor of Electrical and Computer Engineering at Carnegie Mellon University (CMU), where I have taught and carried out research since 1977. While my primary appointment is with the Department of Electrical and Computer Engineering, I am also a Professor by Courtesy in the Language Technologies Institute and Computer Science Department. I have also been a Lecturer in CMU's School of Music since 2008, and I was a Professor in the CMU Biomedical Engineering Department from 1977 to 1995. From 1995 to 2003, I was Associate Director of the CMU Information Networking Institute, where I was responsible for every aspect of its Master of Science in Information Networking, including admissions, curricular development and support, and student life. In addition to my appointments at Carnegie Mellon, I was an invited Visiting Professor at Nippon Telegraph and Telephone Laboratories in Tokyo in 1985 and at the Nara Institute of Science and Technology in Japan in 2003. I was also an Adjunct Assistant Professor of Otolaryngology at the University of Pittsburgh School of

Medicine from 1979 to 1981.

6. As noted above, my main areas of professional activity are automatic speech recognition, auditory perception, signal processing, and acoustics. My work is well known and widely cited, as a search on the generic term “robust speech recognition” will reveal. In those fields, I have been author or co-author of more than 35 archival journal articles, 13 book chapters, and more than 30 invited conference presentations, many of which were keynote addresses at major meetings, and a large number of additional critically-reviewed conference presentations. I have been invited to present my work on speech recognition in China, Japan, Korea, the Czech Republic, Denmark, France, Germany, Italy, Portugal, Spain, the United Kingdom, Israel, India, Mexico, Argentina, Brazil, and Chile, as well as virtually every major corporate and academic center of research in speech recognition and related technologies in the United States. I have supervised 24 Ph.D. theses, and more than 25 M.S. research projects. My former doctoral and masters research students include the present or former heads of speech research at Apple, Microsoft, Google, and major Government intelligence agencies, the founders of startup companies valued at hundreds of millions of dollars, and professors in major research universities.
7. I am one of the few individuals who is an elected Fellow of the Institute of

Electrical and Electronics Engineers (IEEE), the Acoustical Society of America (ASA), and the International Speech Communication Association (ISCA). I was the 2008-2009 Distinguished Lecturer of ISCA, which sponsored tours of South America and India for the purpose of disseminating my research results. I was also a co-recipient of the Allen Newell Award for Research Excellence in 1992, and I was the recipient of the CMU Electrical Engineering Department's annual teaching award in 1979.

8. I have served on numerous technical and standards committees for the IEEE, ISCA, and for the Human Language Technology Program of the U.S. Defense Department Advanced Research Projects Agency (DARPA). I served as General Chair of the 2006 Interspeech International Conference on Spoken Language Processing in Pittsburgh in 2006. The Interspeech meeting, which attracted in excess of 1100 attendees, is considered to be the major world forum (along with the IEEE International Conference on Acoustics, Speech, and Signal Processing) for the exchange and dissemination of new findings in speech processing by humans and machines. I also serve or have served as the Technical Program Committee Chair of the Meeting of the Acoustical Society of America in Pittsburgh in 2002, Chair of the Nominating Committee for the IEEE James L. Flanagan Technical Field, and as a member of the ISCA International Advisory Board

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