DECLARATION OF MICHAEL L. LEHRMAN

I, Michael L. Lehrman, declare as follows:

1. I am a citizen of the United States and I am more than twenty-one years of age. I have personal knowledge of the facts stated in this declaration. If called upon to do so, I could and would competently testify under oath to the facts set out in this declaration.

2. Since the early 1990s, I have been an officer or employee of the Patent Owner, iLife Technologies, Inc., and its parent and affiliate companies, including iLife Solutions, Inc., iLife Systems, Inc., Caring Technologies, Inc. and I am Fine, Inc., which I refer to collectively as iLife for ease of reference. I was responsible for overseeing all research and development activities at iLife.

3. Since the early 1990s, iLife has worked with Halleck Willard, Inc. ("HWI"), an engineering firm of in Frederick, Colorado. Among other things, HWI provides contract engineering services to assist other companies with research and development of new products.

4. One of the projects we worked on was creating an intelligent personal emergency response system ("iPERS") capable of monitoring the movements of an elderly person and automatically detecting real falls as opposed to normal daily activity, such as walking, sitting, standing, and lying down.

5. In connection with the making of this declaration, I have reviewed the documents and records referenced in this declaration to refresh my recollection of events and dates. Such documents include records kept by our development team in the ordinary course of business, including records or summaries of regularly conducted activities and events that occurred on the dates indicated. Such records were made at or around the time the events that occurred by persons with knowledge of the events at issue. It was the normal practice and custom of our

development team to make and keep such records. Handwritten notes were kept in notebooks with dates and descriptions of events to show what happened that day. Electronic records were kept on computer systems and include properties showing the dates when files were created and last modified. It was the typical practice for our development team to include dates on documents, and any such dates are reliable evidence of the date when the described events occurred.

6. The iPERS project resulted in inventions covered by U.S. Patent Nos. 6,307,481, 6,501,386, 6,661,347, 6,703,939, 6,864,796, 7,095,331, 7,145,461, and 7,479,890 (the "iLife Patents"). I am a co-inventor of the iLife Patents.

7. The initial idea for the iPERS device came about after I read a June 1996 article in the New England Journal of Medicine entitled, "Persons Found in Their Homes Helpless or Dead." (Ex. 2015). The article discussed the problem of elderly people living alone, falling down, and suffering debilitating injuries, and even death, because they could not get help in time. This confirmed an interest I had in fall detection dating back to my years of service in the military where I was assigned to the Army Office of Combat Research and Development. One of the tasks we were interested in at that time was finding troops fallen on the battlefield who needed to be rescued. I further became interested in fall detection after my father, who was in his 70s and was recovering from paralysis, was alone during the day in a house with two staircases, and I was worried about him falling down and needing help. The New England Journal of Medicine reaffirmed that further research and development was needed in this area to satisfy an existing need in the market.

8. In the spring and summer of 1998, I discussed these ideas at length with Michael D. Halleck, Michael E. Halleck, and Al Owens.

9. Our goal was to create a fall detection system with a body-worn sensor to evaluate movement of a person to identify falls and automatically signal for help. This was an improvement over existing "cry for help" monitors that worked with the push of a button. We had the idea of using a multi-vector accelerometer to analyze a person's movement and orientation against established tolerances to predict and identify actual falls as opposed to normal daily activities, such as "throne sitting," as referenced in Exhibit 2016.

10. In July of 1998, the development team began work in earnest on the project. Below are individuals who worked on the project and their primary areas of work:

Team Member	**Area of Work**
Michael E. Halleck	Mechanical designs and testing of devices
Don James	RF transmitter and testing
Alan R. Owens	Fall detection code for the device
Michael D. Halleck	Receiver source code for base station
Greg Younger	Printed circuit board drawings
Michael L. Lehrman	Conceptual ideas and testing of devices

This iPERS project was a priority at HWI, and they worked continuously on this project from July 1998 through September 1999. The documents referenced in this declaration were prepared by the inventors, or persons working under their direct supervision, and are true and correct copies of notes and records made during our work on the project. All referenced work, testing, and associated writings were carried out in the United States.

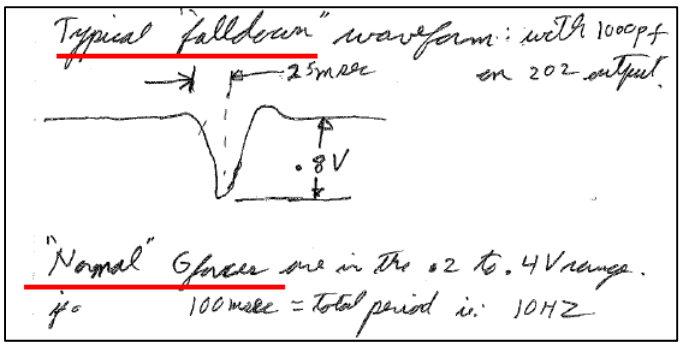
11. As part of the project, HWI employees prepared a project task list and schedule. Exhibit 2018 is an engineering timeline dated July 27, 1998, showing the scheduled time from project start to engineering release for the iPERS device. The development team worked diligently on this project and closely followed the schedule set forth in Exhibit 2018, which is summarized below:

Task	Scheduled Start Date	Scheduled Completion Date	Status to Completion on July 27, 1998
01 Overall project from concept to engineering release	7/1/98	09/14/98	Tasks 2-5 completed; Tasks 6-8 in progress
02 Project definition meeting	7/1/98	7/1/98	Completed
03 Design goals document	7/6/98	July 12 (week of)	Completed
04 Preliminary testing of several sensors	7/9/98	July 26 (week of)	Completed
05 Designing, fabricating, or buying a portable radio frequency RF link	7/13/98	July 19 (week of)	Completed
06 Recording several sensor outputs while on a person	7/23/98	Aug. 2 (week of)	In progress
07 Evaluating sensors and sensor combinations	8/3/98	Aug. 16 (week of)	In progress
08 Writing initial software for evaluation	8/12/98	Aug. 23 (week of)	In progress
09 Field testing multiple software versions	8/24/98	Sept. 6 (week of)	Scheduled
10 Engineering release to production	9/14/98	09/14/98	Scheduled

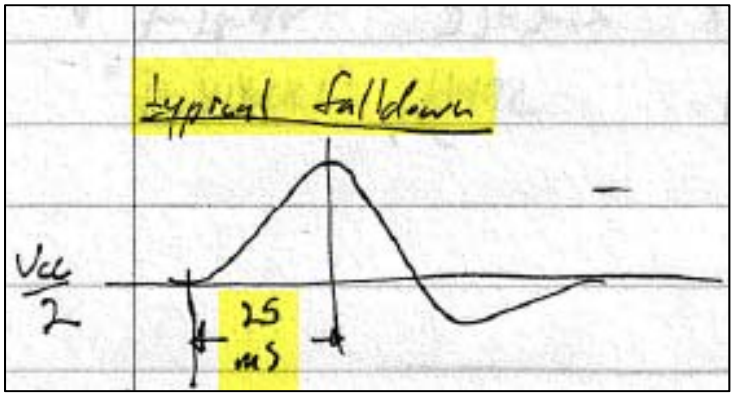
12. The project timeline (Ex. 2018) shows that by July 27, 1998, our team had already conducted preliminary testing of several sensors and completed the RF transmitter link. Don James kept notes showing that we had tested both two-axis and three-axis sensors by July 8, 1998 (Ex. 2020). Before this project began, HWI and Caring Technologies had already created an emergency response system with a body-worn piezo electric sensors for breath monitoring, which used a RF transmitter for sending a warning signal to a remote base station dialer with a pre-recorded emergency message. Although we later created an all-new base station and receive for the iPERS device, for the initial prototypes, we interfaced the new iPERS motion detector and transmitter with the existing receiver and base station, rather than creating a new receiver and base station from scratch.

13. The timeline (Ex. 2018) shows that by July 27, 1998, we had begun recording sensor outputs while on a person and writing code for evaluation. For example, notes from July

15, 1998, show that the AC (dynamic acceleration) reading for a "typical falldown" was about 0.8 V compared to "normal G forces" in the 0.2 to 0.4 V range (Ex. 2021):



By this time (July 27, 1998), we had also analyzed accelerometer outputs for typical falls to determine the time over which a typical fall occurs (Ex. 2022):

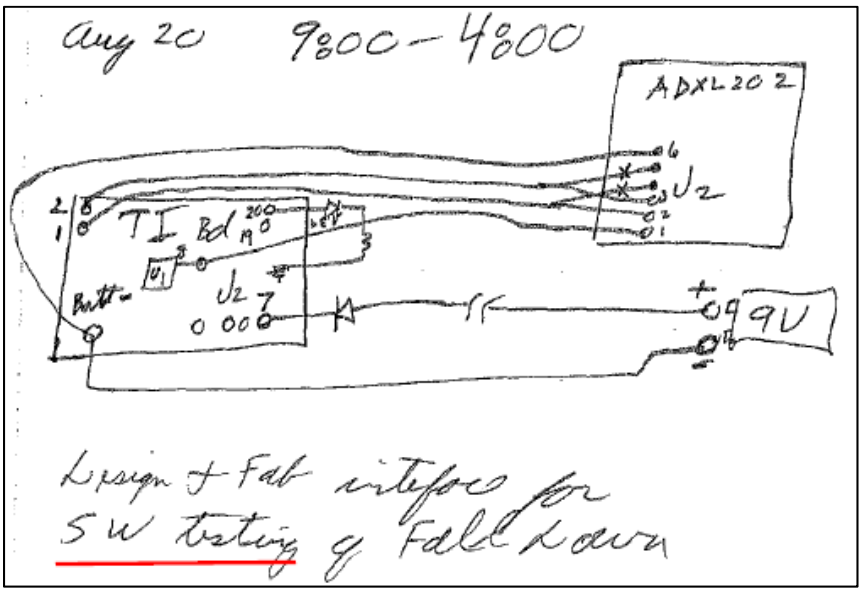


14. As shown on the project timeline (Ex. 2018), we planned to begin field testing of multiple software versions the week of August 23, 1998. To do this we had to have a working prototype of the fall detection device and base station.

15. Throughout August 1998, our development team worked diligently on the project, reviewing and revising source code and testing component parts.

16. Field testing multiple software versions was item number nine on the July 27, 1998 engineering timeline (Ex. 2018). Successful completion of this step required that we had a working prototype to allow us to move forward for production of prototypes using printed circuit boards. According to the timeline (Ex. 2018), field testing of multiple software versions was set

to begin on August 24, 1998. Consistent with this schedule, Don James' notes dated August 20, 1998, show that we had just created—or were very close to creating—a prototype with an ADXL202 accelerometer and TI microprocessor to begin field testing software (Ex. 2027):

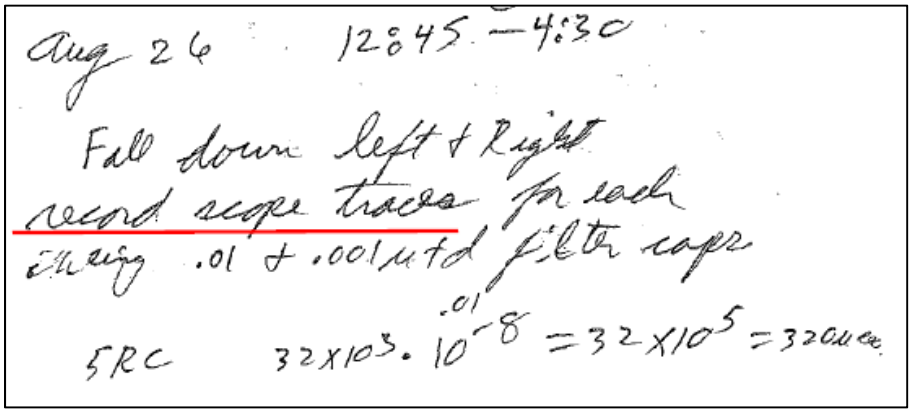


17. As was typical at HWI, the first prototype for this project was constructed on a solderless breadboard instead of on a printed circuit board ("PCB"). It was the typical practice of HWI to prepare prototypes on breadboards to test software and hardware components and ensure that they worked properly before creating PCBs. Although not created on a PCB, the first prototype did include the same Analog Devices ADXL202 accelerometer, Texas Instruments MSP430PM microprocessor, and RF transmitter as later designs.

18. The first prototype was actually tested on human subjects at HWI in August 1998. The prototype used a dual-axis accelerometer to measure the person's movement and orientation, as well as a microprocessor with code configured to process the sensed static and dynamic acceleration to determine if the user had experienced a real fall as opposed to normal daily activities such as walking, sitting, standing, or lying down.

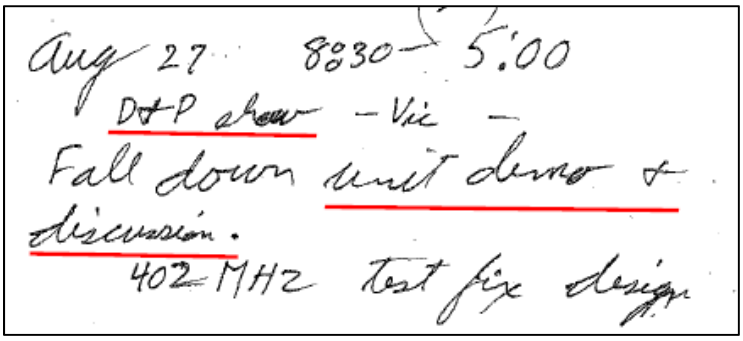
19. Project notes show that by August 26, 1998, the first prototype was being used to

record scope traces of users falling down in different directions (Ex. 2028):



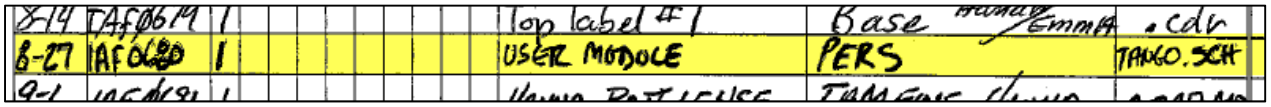
The prototype was configured to measure static and dynamic acceleration forces to evaluate changes in the wearer's movement and orientation to determine if the person had fallen based on observed dynamic accelerative forces indicating a hard impact of at least 3Gs coupled with a change in static accelerative forces of at least 45 degrees within a specified timeframe.

20. On August 27, 1998, the prototype was demonstrated and tested for the development team at HWI. This date is corroborated by Don James' notes dated August 27, 1998, which refer to the group presentation as a "dog-and-pony show," and reference a "fall down unit demo & discussion" (Ex. 2029):



21. Following successful testing of the prototype, the development team began preparing formal engineering drawings for the production release. A drawing log book maintained by HWI shows that the first PCB layout for the iPERS device was created on August

27, 1998 (Ex. 2030):



The creation of formal engineering drawings like the PCB layout were a necessary next step required for an engineering release to production, which was scheduled to occur by September 14, 1998, according to the project timeline (Ex. 2018).

22. In addition to beginning work on formal engineering drawings on August 27, 1998, a formal summary of the iPERS system and methodology, entitled "PERS Fall Down Detection Method and System," dated August 31, 1998, was prepared to explain working principles of the iPERS system (Ex. 2019). As was the typical practice at HWI, a summary such as this was only created after we had developed a working prototype.

23. As explained in the summary (Ex. 2019), the newly-created system used both static and dynamic acceleration outputs from an ADXL202 dual-axis accelerometer to detect that a person wearing the sensor had fallen down, with such information then being used to activate an automatic telephone dialing module to call for help. (Ex. 2019 at 1). The fall detection algorithm relied on a circular buffer to record static acceleration values corresponding to orientation of the user, and when a spike in G forces in excess of a pre-set threshold was sensed, indicating a potential fall, the positional history was checked to see if there was a corresponding change in orientation indicative of a fall, as opposed to normal activities, such as walking, jumping, running, or sitting down. (Ex. 2019 at 1).

24. Specific comments in the summary (Ex. 2019), and the use of the past tense in describing the system, confirm that the breadboard prototype had already been designed, constructed, tested, and found to be working and suitable for its intended purpose by the time the summary was prepared on August 31, 1998. For instance, the summary:

- Discusses the circular buffer used to process X and Y acceleration data and the specific recording time of 20 seconds of activity, showing the size of the circular buffer and sample rate used;

- Discusses the algorithm where G forces are measured and compared against a threshold value, and if exceeded for a sufficient number of consecutive readings, the X and Y coordinates are checked to determine if the position has changed from the last stable position;

- References charts of "actual fall downs" acquired from the system, showing that actual field testing had been completed by August 31, 1998, as contemplated in the project schedule;

- Cites a block diagram of the basic circuit configuration showing the circuit already had been constructed;

- Discusses programming implemented on the system as a power saving method, showing that the device was battery operated; and

- Includes reference to specific power measurements and data collected from a working device.

25. The August 31, 1998 summary (Ex. 2019) further shows that we understood and appreciated that the systems and methods discussed could be used to evaluate movement of a body for other applications and environments of interest, such as SIDS monitoring.

26. In the fall of 1998, following testing of the initial prototypes, we made larger numbers of field prototypes from printed circuit boards, which were assembled, loaded with code, and tested at HWI. By January 20, 1999, we had installed five iPERS user modules for beta testing at the Azalea Gardens Assisted Living Facility in Oxford, Mississippi. (Ex. 2034). We also conducted testing ourselves at HWI, and at the Rocky Mountain MS Center outside Denver, Colorado. This field testing over a period of several months was used to establish a large data set to prove that the devices worked reliably in one of the anticipated marketplaces.

27. In the summer of 1999, we sent sample iPERS units to ADT, the security company, along with detailed information about the systems and instructions for how to use and test the units. (Ex. 2035). By this time, we were working to integrate iPERS devices with

existing hardware and software from other leading companies and discussing it with the Association of Mature American Citizens ("AMAC").

28. On September 15, 1999, Michael E. Halleck, Alan R. Owens, and I filed U.S. Patent Application No. 09/396,991, which matured into the '481 patent. All the inventors later filed certificates of correction with the patent office on February 17, 2014, reflecting that Michael E. Halleck, Alan R. Owens, Michael D. Halleck, and I were all co-inventors of all the iLife Patents.

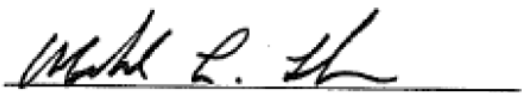
29. HWI's work on this project was done under contracts requiring strict confidentiality and assigning ownership rights to any resulting inventions to iLife. All research and development efforts on the iPERS project were kept strictly confidential and were not disclosed to anyone outside of iLife and HWI—other than our patent attorney—until after September 15, 1998. The first public disclosure I recall was the beta testing at Azalea Gardens in January 1999. The first commercial sales did not occur until after September 1999.

30. To summarize, our development team conceived and actually reduced to practice working prototypes of the inventions covered by the iLife Patents by August 31, 1998. We created additional working prototypes using PCBs by late September 1998. We tested all of these prototypes on members of the development team—and on an anthropological dummy—wearing the devices while simulating falls and other daily activities. The prototypes all performed as expected and were suitable for their intended purpose of movement evaluation and fall detection when tested in August and September of 1998. The prototypes from this timeframe (August to September 1998) all successfully evaluated movement of a body relative to its environment and distinguished between unacceptable events, such as falls, as opposed to normal daily activities (such as walking, running, jumping, sitting down, and lying down), by sensing and processing

both static and dynamic acceleration of the body. All of the prototypes from this timeframe (August to September 1998) included a sensor, attached to the monitored body, for sensing both static and dynamic acceleration experienced by the body, and a processor, associated with the body, for processing said sensed static and dynamic acceleration for specified acceleration characteristics, such as movement and orientation changes in excess of specified thresholds within a specified period of time, to thereby determine whether the evaluated body movement was acceptable, based on the specified criteria, given the environment for which body moment was being evaluated. All of the prototypes from this timeframe (August to September 1998) generated and communicated information indicating whether the evaluated body was within tolerance to a base station for remote monitoring. All of the prototypes from this timeframe (August to September 1998) included multi-vector sensors for evaluating movement of the body relative to a three-dimensional frame of reference (up and down, front to back, and side to side). All of the prototypes from this timeframe (August to September 1998) included the power management and transmitting functionality described in the August 31, 1998 description of the PERS Fall Down Detection Method and System (Ex. 2019).

I hereby declare that all statements made herein of 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 by fine, imprisonment, or both under 18 U.S.C. § 1001.

Dated: July 28, 2015



Michael L. Lehrman

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