UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Case IPR 2015-00698

Patent 8,092,345

UNDER ARMOUR, INC.

Petitioner,

vs.

ADIDAS AG,

Patent Owner.

_____/

The oral deposition of JOSEPH PARADISO, PH.D., was held on Tuesday, November 10, 2015, commencing at 9:13 a.m., at the law offices of Kilpatrick Townsend & Stockton LLP, 607 Fourteenth Street, Northwest, Suite 900, Washington, D.C., before Susan Ashe, RMR, CRR, Notary Public

REPORTED BY: Susan Ashe, RMR, CRR

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Deposition of JOSEPH PARADISO, PH.D.
November 10, 2015

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PROCEEDINGS

Whereupon,
JOSEPH PARADISO, PH.D.,
the Witness, called for examination, having been first duly sworn according to law, was examined and testified as follows:

EXAMINATION

BY MR. OLINGER:
Q. All right. So good morning, Dr. Paradiso.
A. Good morning.
Q. How are you today?
A. I'm not bad. How are you?
Q. Good. Thank you.
Can you go on and state and spell your name for the record, please.
A. Sure, P-a-r-a-d-i-s-o.
Q. Excellent.
And have you ever been deposed before?
A. No.
Q. You've not. Have you ever served as an expert witness before?
A. I've written declarations.
Q. Okay. How many times?
A. It's in my CV or the documents I sent you. On the order of probably four times, five

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times.
Q. Okay. But you never testified about any of the statements written in those declarations?
A. No, never.
Q. Okay. So I'm going to give you a few instructions about the deposition today, just so that we can all be on the same page.
And since this is your first time, I'll go through them in a bit more detail --
A. Thank you.
Q. -- than I otherwise would.
The basic setup is that I will ask you a question and you must provide an answer, unless instructed by your attorney not to do so.
A. Yes.
Q. I will assume you understand my questions, unless you ask for clarification.
A. Sure.
Q. So if there is something about my question that you don't understand, please let me know.
A. Yes.
Q. So the court reporter can provide an accurate transcript, please answer audibly. Don't shake or nod your head.
A. Sure.

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Q. Also, please let me finish my questions before you answer.
And I will also give you the same courtesy of allowing you to finish your answer before I ask the next question.
That way the court reporter can get a clean transcript.
A. Thank you.
Q. Does that all sound acceptable to you?
A. That certainly does.
Q. Excellent.
So we are here this morning to discuss IPR 201500698, which relates to U.S. Patent 8,092,345.
A. Yes.
Q. And you have offered an opinion on the validity of the '345 patent. Correct?
A. Yes, I have.
MR. OLINGER: Okay. And we can go and I'll hand you your declaration, which has previously been marked as UA 1003.
Since it's already marked, we're not going to give it a new exhibit number for this matter.
(Whereupon, UA Exhibit 1003 was presented

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to the witness.)
Q. And this is the report -- or the declaration you have submitted in which you opine on the validity of the '345 patent. Correct?
MR. OLINGER: Did you get his answer?
COURT REPORTER: He said, "Hmmpf."
Q. Okay. Just as a reminder, please make sure you give an audible response.
A. Yeah. It was just a grunt.
Q. Understood.
A. I'll take a quick look.
Q. Understood.
A. You actually transcribed that.
(Witness perusing.)
A. Yeah, it appears to be.
Q. Excellent. What is your place of current employment?
A. I'm at the MIT Media Lab.
Q. How long have you been employed at MIT Media Lab?
A. I have been there since 1994. And I was a visitor in 1993.
Q. Okay. And what does your work at the media lab involve?
A. It's involved many things.

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A lot of the concentration of my work has been around wearable wireless sensing and sensor networks.
We've done lots of systems for dancers, for athletes, lots of wearable user interfaces.
And our work now is concentrating about how people connect to the electronic nervous system that surrounds them, much of which use is also wearable electronics.
Q. Okay. And when you say "wearable wireless sensing," what do you mean by "sensing"?
A. "Sensing" means you transduce some physical parameter.
So it could be an accelerometer, for example, that measures motion of the human in different ways.
It could be a microphone to either digitized audio or plug-audio features.
It could be a photo sensor to look at light -- light qualities, light characteristics.
It could be a proximity sensor to measure how close something is.
Or it could be a biometric sensor to measure, you know, heart rate, GSR, things of that sort.

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It could be a camera to pull features out from images.
There are many, many kinds of sensors -- many kinds that we've used.
Q. Okay. And you've stated that your work at the media lab is primarily focused on this wearable wireless sensing technology?
A. That's the enabling technology that we use, one of the major enabling -- we use many technologies, but my work is known for that --
COURT REPORTER: Pardon me, sir. But you have to slow down so I understand what you're saying.
THE WITNESS: Sorry. Sometimes I don't realize how fast I speak.
A. It's one of the enabling technologies that we use to push into a myriad of different applications, from sports monitoring....
We did a project with the Boston Red Sox, actually -- it went on for many years -- to monitor athletic performance and extract biometric parameters from pitchers and batters; dancers with sensors on their shoes to control music; wearable gait analysis.
We did the first real wireless sensor

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node, as far as I know, for wearable gait analysis.
One of them worked for IEEE MV for that.
We do a lot of work now with lighting control, building systems, wearables, to regulate temperature. So we can look at the sensor comfort.
And this is all, you know, sensing -- on the body, sensing the infrastructure -- both.
And then you combine that in different ways through processing. And you actuate or you analyze the data.
Q. Okay. Are you familiar with the global positioning system?
A. Yes, I am.
Q. And do you know when that was first invented?
A. That's a good question.
It was invented, oh, decades ago -- probably '80s or '70s -- I don't know exactly when -- and then implemented over the next years.
Q. And do you know who invented the GPS system?
A. I couldn't tell you.
Q. Okay. Can you describe to me how GPS works?
A. The GPS satellites emit a radio signal.

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And they know their time. They all have atomic clocks.
And you look at the differential -- time of arrival of the sequencing differential phase coming in at the receiver.
And then knowing the positions of the satellites, you can work out where you are.
Q. Prior to February 2001, had you developed or worked on any systems that use GPS technologies?
A. When I was at Draper Lab --
MR. ANSLEY: Objection; relevance.
Go ahead.
A. When I was at Draper Lab, I worked on the intelligence -- sonobuoy, which is a system where we had GPS on -- imaging sonobuoy that would be floating out in the ocean to image things that would go by it. So GPS is how we tracked it.
I was working in a group then. It was actually very well known for GPS, really pushing the fringe of GPS. It was the Draper's sensors group.
When I was at the media lab, a lot of our sponsors were using GPS. Trimble, for example, sponsored it -- that many of us worked with.
So we were quite aware of the capabilities of GPS and how it was -- increasingly, it would be

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embedded into different kinds of applications.
Q. So you said that you did some work at the Draper Lab?
A. Yes, I did.
Q. When did you work at the Draper Lab?
And can you tell me what the Draper Lab is?
MR. ANSLEY: Objection; form.
Q. Can you tell me what the Draper Lab is?
A. Okay. Draper Lab is a spinoff of MIT. It used to be the MIT's Instrumentation Lab.
And they're probably the laboratory most famous in the world for inertial guidance systems.
It was started by Dr. Draper himself -- legend and inertia guy. And he's the guy who flew blindfolded from -- you know, it was Boston to L.A. -- you know, showing that you really can use navigation systems, inertial navigation systems.
And we developed, essentially, the inertial navigation system for every major U.S. strategic missile -- not local strategic missile -- for the West.
And the most famous part of Draper probably is Apollo. We did the guidance for Apollo.
Q. Okay. So when you say "we," is that you

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directly or is that the work of the Draper Lab?
A. I did not do the guidance for Apollo. I'm not old enough -- maybe I touch the edge.
I did a lot of work, though, on spacecraft control for the shuttle and for space station.
I was their momentum management expert for a while, looking at controlling altitude in spacecraft.
And then I went to work with the sensors group. We did a lot of sonar and things of that sort.
Q. And when did you work for the Draper Lab?
A. I was there as a student. That's where I learned a lot of programming, actually.
I went there as a systems programmer in 1974. And then I finished -- when I went to grad school at MIT -- in '77.
They brought me back as a consultant in '78 for a lot of realtime software I developed from the MX guiding system for testing it.
And then I went back to join the NASA group in -- oh, that was 1983, I believe. And I stayed until I went to the media lab in '94.
Q. Okay. And through your work with the Draper Lab, did you personally work on any GPS

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technologies?
A. It depends on what you mean by "GPS technologies."
Q. Did you use or implement any GPS receivers?
A. I did not directly implement GPS receivers.
I worked on devices that did use them. So I was aware of their capability.
But I did not design the GPS receiver or integrate the GPS receiver at that time.
Q. And did you do so while you were employed with the MIT Media Lab?
MR. ANSLEY: Objection; relevance.
A. At the MIT Media Lab, we have been around GPS a lot with -- in the early days, with Trimble, as I mentioned, and companies that were there.
I've worked a lot with phone companies too that have looked in treating situation awareness -- or situational awareness, GPS locational awareness -- into their devices.
I've worked a lot with Nokia, consulted with them, spent time at their labs. And they were very involved with the capabilities of GPS in their devices.

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Also, Microsoft -- I've served on advisory boards for mobility for them. And part of what we discussed was the applications you could build on top of GPS in these systems.
Q. Have you ever directly worked on a device that integrated a GPS receiver?
A. In my lab now, there is a device that we have.
It's the beginning of what we call "wearable sensory prosthetic."
Q. Let me rephrase my question.
Prior to 2001 had you ever worked on a device that directly implemented a GPS receiver?
A. Not myself.
MR. ANSLEY: Objection; relevance.
Q. So if you wouldn't mind turning to pages 5 and 6 of your report.
A. Sure.
Q. And across paragraphs 10, 11, and 12 of your report, you provide opinions about the person of ordinary skill of a relevant field, of a relevant time frame. Correct?
A. Yes, I do.
Q. So first I'd like to turn you to paragraph 11.

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A. Yes.
Q. In this paragraph you state that it is your opinion a person of ordinary skill in the art would have through training or experience an understanding of basic analog and digital circuits, microcontrollers, signaling, sensing, and embedded software.
A. Um-hum.
Q. What do you mean by "embedded software"?
A. "Embedded software" is software that runs typically on a microcontroller or a computer away from something like a mainframe or a personal computer or a server, any of these things.
It runs physically in a device.
Q. Okay. And you also state in paragraph 11 that a person would have at least a bachelor's degree in electrical engineering, computer engineering, or computer science, and three or more years of practical experience with sensing, signaling, and embedded and/or mobile systems or the equivalent. Correct?
A. Yes.
Q. Now, in paragraph 12 you say: A person of ordinary skill would have a bachelor's degree in electrical engineering or computer science and at

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least two years' industry experience or the equivalent.
A. Um-hum.
Q. Why, from paragraph 11 to 12, have you dropped the experience in -- or the degree in computer engineering here?
A. Let me read.
(Witness perusing.)
A. Are you commenting on the word "at least" on paragraph 11, because I do mention the degree.
Q. But I'm --
A. So it is included by "at least."
I don't think I've dropped the degree -- have I?
Q. Well, in paragraph 11 you say: A person of ordinary skill would have at least a bachelor's degree in electrical engineering, computer engineering, or computer science.
A. Sure.
Q. Yet in paragraph 12, you now say that a person would have a bachelor's degree in electrical engineering or computer science, but not computer engineering.
I'm not sure I understand the discrepancy between those two paragraphs.

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