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Paper No. 18
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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

APPLE, INC.,
Petitioner,

v.

UNILOC 2017 LLC,
Patent Owner.

IPR2018-01028
Patent 7,881,902 B1

Before SALLY C. MEDLEY, JOHN F. HORVATH, and SEAN P. O'HANLON, *Administrative Patent Judges.*

HORVATH, *Administrative Patent Judge*.

JUDGMENT
Final Written Decision
Determining All Challenged Claims Unpatentable
35 U.S.C. § 318(a)

I. INTRODUCTION

A. Background

Apple Inc. ("Petitioner") filed a Petition requesting *inter partes* review of claim 8 ("the challenged claim") of U.S. Patent No. 7,881,902 B1 (Ex. 1001, "the '902 patent"). Paper 2 ("Pet."). Uniloc 2017 LLC ("Patent Owner")[1] filed a Preliminary Response. Paper 7 ("Prelim. Resp."). Upon consideration of the Petition and Preliminary Response, we instituted *inter partes* review of claim 8 on the ground raised in the Petition. Paper 8 ("Dec. Inst.")

Patent Owner filed a Response to the Petition (Paper 10, "PO Resp."), Petitioner filed a Reply (Paper 11, "Pet. Reply"), and Patent Owner filed a Sur-Reply (Paper 12, "PO Sur-Reply"). We held a consolidated oral hearing for this case and related cases involving the same parties and related patents on April 2, 2019, and the hearing transcript is included in the record. *See* Paper 17 ("Tr.").

We have jurisdiction under 35 U.S.C. § 6(b). This is a Final Written Decision under 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73. For the reasons set forth below, we find Petitioner has shown by a preponderance of evidence that claim 8 of the '902 patent is unpatentable.

B. Related Matters

Petitioner and Patent Owner identify numerous district court matters that could affect, or be affected by, a decision in this proceeding. *See* Pet. 1–2; Paper 3, (2); Paper 6, (2). In addition, our Institution Decision identifies

[1] Uniloc 2017 LLC identifies itself, Uniloc USA, Inc., and Uniloc Licensing USA LLC as real parties-in-interest. Paper 6 (1).

numerous *inter partes* reviews challenging claims of the '902 patent and related U.S. Patent Nos. 7,653,508 B1 and 8,712,723 B1, that could affect, or be affected by, this proceeding. *See* Dec. Inst. 2–3.

C. Evidence Relied Upon[2]

Reference		Effective Date[3]	Exhibit
Pasolini	US 7,463,997 B2	Oct. 2, 2006	1005
Fabio	US 7,698,097 B2	Oct. 2, 2006	1006
Tsuji	US 7,297,088 B2	Apr. 19, 2005	1010

D. Instituted Ground of Unpatentability

Claim Challenged	35 U.S.C. §	References
8	103(a)	Fabio, Pasolini, and Tsuji

II. ANALYSIS

A. The '902 Patent

The '902 patent relates to "a method of . . . counting periodic human motions such as steps." Ex. 1001, 1:9–11. The method involves the use of a "portable electronic device that includes one or more inertial sensors" that "measure accelerations along a single axis or multiple axes." *Id.* at 2:24–28.

[2] Petitioner also relies upon the Declaration of Joseph A. Paradiso, Ph.D. (Ex. 1003).
[3] Petitioner relies on the filing dates of Pasolini, Fabio, and Tsuji as the effective date for determining their availability as prior art under 35 U.S.C. § 102(e). Pet. 8–9.

Figure 1 of the ’902 patent is reproduced below.

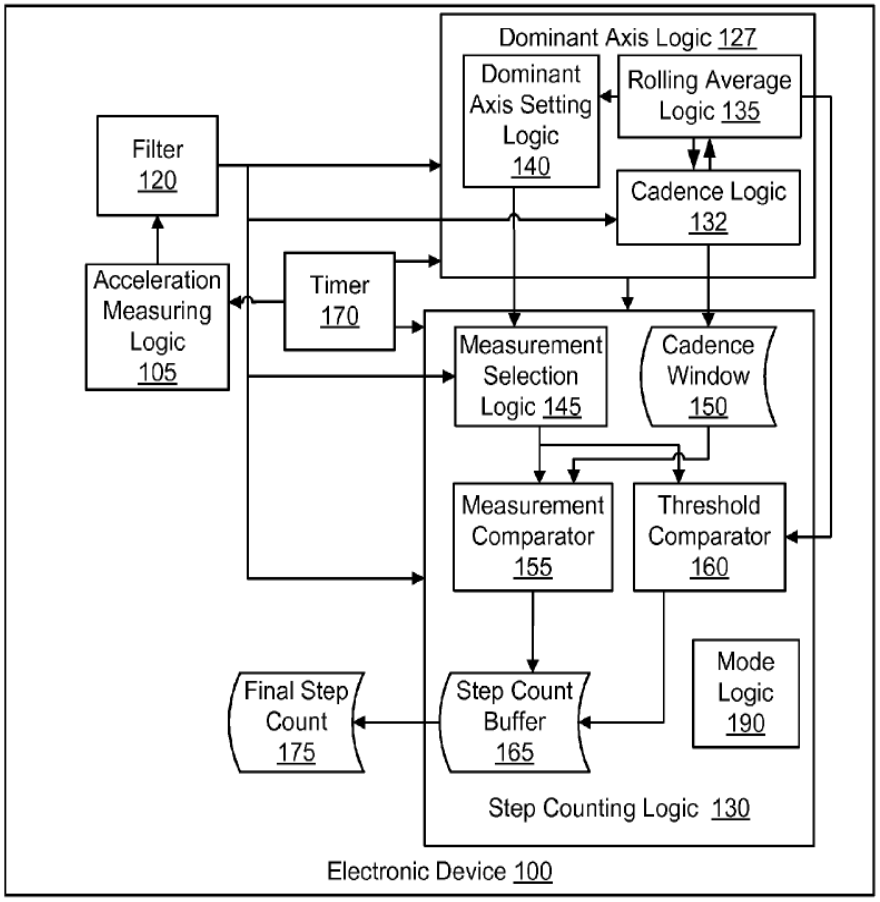

Figure 1 of the ’902 patent is a block diagram illustrating electronic device 100. *Id.* at 1:47–48. Device 100 includes acceleration measuring logic 105 (e.g., inertial sensors), dominant axis logic 127, and step counting logic 130. *Id.* at 2:19–24, 2:38–43, Fig. 1. Device 100 “may be used to count steps or other periodic human motions,” where a “step” is “any user activity having a periodic set of repeated movements.” *Id.* at 2:29–30, 3:34–38. According to the ’902 patent, device 100 accurately counts steps “regardless of the placement and/or orientation of the device on a user,” and regardless of

whether the device "maintains a fixed orientation or changes orientation during operation." *Id.* at 2:31–35.

Dominant axis logic 127 includes cadence logic 132 and rolling average logic 135. *Id.* at 2:66–3:2, Fig. 1. Inertial sensors 105 measure acceleration data, and cadence logic 132 analyzes this data to detect "a period and/or cadence of a motion cycle," which may be based on user activity such as running or walking. *Id.* at 2:38–40, 3:14–18, 3:46–51. Cadence logic 132 determines "a cadence window 150 to be used by the step counting logic 130." *Id.* at 3:11–14. Cadence window 150 is "a window of time since a last step was counted that is looked at to detect a new step." *Id.* at 3:65–4:1. Cadence window 150 is initially set to a default value, and can be dynamically updated to reflect the cadence or period of detected steps once a minimum number of steps have been detected. *Id.* at 3:57–61, 4:22–28, 4:61–5:6. The cadence or stepping period can be determined as a "rolling average of the stepping periods over previous steps." *Id.* at 3:61–62.

Cadence logic 132 also determines "one or more sample periods to be used by the rolling average logic 135." *Id.* at 3:11–14, 5:31–34. The sample periods can be set to "the length of, or longer than, the stepping period," including a "multiple of the stepping period." *Id.* at 5:34–37. Rolling average logic 135 "creates one or more rolling averages of accelerations . . . measured by the inertial sensor(s) over the sample period(s) set by the cadence logic 132." *Id.* at 5:39–41. These rolling averages are used to determine an orientation of the electronic device and a threshold against which acceleration measurements are compared. *Id.* at 5:41–45.

Dominant axis logic 127 includes dominant axis setting logic 140, which determines an orientation of device 100 or of the inertial sensor(s)

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