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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte WENLONG LI

Appeal 2019-002075
Application 13/854,236
Technology Center 2100

Before MICHAEL J. STRAUSS, ADAM J. PYONIN, and PHILLIP A. BENNETT, *Administrative Patent Judges.*

BENNETT, *Administrative Patent Judge.*

DECISION ON APPEAL

STATEMENT OF THE CASE

Pursuant to 35 U.S.C. § 134(a), Appellant[1] appeals from the Examiner's decision to reject claims 1–10, 25, and 28–46. Claims 11–24, 26, and 27 are cancelled. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

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[1] We use the word "Appellant" to refer to "applicant" as defined in 37 C.F.R. § 1.42(a). Appellant identifies the real party in interest as Intel Corporation. Appeal Br. 3.

CLAIMED SUBJECT MATTER

The claims are directed to an analyzing human gestural commands. Claim 1, reproduced below with a disputed limitation emphasized in italics, is illustrative of the claimed subject matter:

> 1. A method comprising:
>
> detecting a hand gestural command;
>
> detecting the hand that made the hand gestural command;
>
> detecting an arm connected to the hand;
>
> detecting a human body connected to the arm;
>
> detecting a face connected to the body; and
>
> *associating the hand gestural command from one person of a plurality of persons by associating the hand with the face using computer video analysis of the one person's hand, arm, body, and face*.

Appeal Br. 9 (Claims Appendix).

REFERENCES[2]

The prior art relied upon by the Examiner is:

Name	Reference	Date
Hildreth	US 2009/0079813 A1	Mar. 26, 2009
Khouri	US 2011/0074911 A1	Mar. 31, 2011
Tardif	US 2011/0301934 A1	Dec. 8, 2011
Dalit	US 8,577,810 B1	Nov. 5, 2013

REJECTIONS

Claims 1–6, 25, 28–32, and 37–42 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Hildreth and Tardif. Final Act. 3–10.

[2] References listed below are named according to their first named inventor.

Claims 7–10, 33–36, and 43–46 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Hildreth, Tardif, Khouri, and Dalit. Final Act. 10–14.

ISSUES

Has the Examiner erred in finding Hildreth and Tardif teach or suggest "associating the hand gestural command from one person of a plurality of persons by associating the hand with the face using computer video analysis of the one person's hand, arm, body, and face," as recited in claim 1?

ANALYSIS

The Examiner's Findings and Conclusion of Obviousness

In rejecting the claims under §103(a), the Examiner generally finds that Hildreth teaches the recited detection of a hand gestural command, hand, arm, body, and face of a user. Final Act. 3–4 (citing Hildreth Figs. 1, 34). The Examiner further finds that Hildreth teaches "associating the hand gestural command from one person of a plurality of persons by associating the hand with the face using computer video analysis." Final Act. 4 (citing Hildreth ¶ 191). The Examiner acknowledges that Hildreth does not teach detecting that the various body parts are connected to each other, nor does it teach that the computer video analysis is performed on "the person's hand, arm, body, and face." Final Act. 4–5. The Examiner introduces Tardif to address these deficiencies. Specifically, the Examiner finds Tardif teaches a sign language translation method based on movements of a user that identifies specific body parts of a person and associates them with the person using a body part index, and also teaches tracking and analyzing movement

of each of the body parts. Final Act. 5–6. The Examiner concludes it would have been obvious to combine the teachings of Hildreth with those of Tardif "for the purpose of determining the motion of the users and employ[ing] those detected motions to control a video game or other application." Final Act. 7. Summarizing the basis for the combination, the Examiner explains:

> Hildreth already teaches disambiguating a hand gesture made by a user among a plurality of users by connecting the hand making the gesture with the user's face/head (see Hildreth, Fig. 34). Tardif is relied upon to teach that, using a skeleton model (see Tardif, Figs. 1 OA and 1 OC), hand, arm, body, head/face, etc. of a user are all being analyzed for detecting a gesture, and the detected hand, arm, body, head/face are all connected. Modifying Hildreth with Tardif will result in a skeleton model being associated with each of the plurality of users detected in Fig. 34 of Hildreth, and thus, the disambiguating of the user making the hand gesture, taught by Hildreth, can now be performed utilizing the skeleton model to identify the hand, arm, body, head/face of the user making the gesture, in the same way as taught by Tardif. Accordingly, Hildreth, in view of Tardif, teaches these limitations.

Ans. 19.

Appellant's Arguments

Appellant offers several arguments against the rejection, which we address in turn.

First, Appellant argues "there is no suggestion [in Tardif] that, while multiple users can provide input, the system disambiguates between those multiple users . . . [and] the only reason body connections are determined is to understand the substance of the command better, based on information from other body parts." Appeal Br. 6–7.

Second, Appellant argues that Tardif provides no information on how it disambiguates among persons making commands, and therefore does not

teach the recited "associating the hand with the face using computer video analysis of the one person's hand, arm, body, and face." Appeal Br. 7–8. Expanding this argument in the Reply Brief, Appellant further asserts that although Hildreth teaches disambiguating using the hand and face, it does so based only on distance and not movement, while Tardif only uses the association between the user's hand and body and includes "no concept of facial recognition." Reply Br. 2.

Third, Appellant argues the Examiner relies on hindsight to pick and choose among embodiments and references to reach the claimed invention because there is no suggestion in Tardif of improving disambiguation using a skeletal model taught in Tardif. Reply Br. 3.

Our Review

We are not persuaded by Appellant's first argument that Tardif does not teach disambiguation because we agree with the Examiner that Tardif teaches, or at least suggests, disambiguating multiple users. In particular, Tardif teaches "[i]n some embodiments, the system can simultaneously track multiple users and allow the motion of multiple users to control or effect the application." Tardif ¶ 83. Moreover, we agree with the Examiner that Tardif's teaching of a motion tracking model that relies on a "a skeletal model such as vectors with respect to different joints, centroids or node to illustrate movement changes" also suggests using connected body parts as a way of disambiguating users. Tardif further teaches that "[e]ach body part is indexed so it can be identified, other parts of the capture area such as the furniture in the living room are identified as background, and the users are indexed so the machine representable data for their respective body parts can be linked to them." Tardif ¶ 53. This passage would be understood by a

person of ordinary skill in the art as demonstrating that connected body parts are used to distinguish among users.

We are not persuaded by Appellant's second argument that Tardif provides no information regarding how disambiguation is carried out because it does not address the rejection made by the Examiner. As the Examiner explains in the Answer, Hildreth teaches disambiguating a hand gesture made by a user along a plurality of users by connecting the hand making the gesture with the user's face/head. Ans. 19. Tardif is relied on primarily to show that it was known to use a skeleton model, including the connections between a person's hand, arm, body, and head/face, to identify users and track their movements. *Id.* Possessing these teachings, a person of ordinary skill in the art would have appreciated that the accuracy of Hildreth's disambiguation would be improved by utilizing a skeleton model to connect a person's hand with their face. Thus, Hildreth teaches how the disambiguation is performed, while Tardif suggests the improvement of adding a skeletal model.

Appellant's third argument—that the Examiner relies on impermissible hindsight—also is not persuasive. Appellant argues that there is no suggestion in Tardif for incorporating its skeletal model into the disambiguation technique of Hildreth. This argument is not persuasive, and it appears to be based on an incorrect assumption that a suggestion or motivation to combine must be explicitly set forth in the reference being modified. This assumption is not consistent with the Supreme Court's approach to obviousness, which makes clear that the standard for determining whether a claim is obvious is "an expansive and flexible approach." *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 415 (2007); *see also*

MPEP § 2143(G) ("The courts have made clear that the teaching, suggestion, or motivation test is flexible and an explicit suggestion to combine the prior art is not necessary."). Here, we find the Examiner's rationale for combining Hildreth and Tardif to be reasonable on its face, consistent with controlling law, and has rational underpinnings drawn from evidence in the record. *See KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007) ("[T]here must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." (quoting *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006))).

Remaining Claims

Appellant makes no arguments with respect to any other claim. As such, we also sustain the rejections of the remaining claims.

CONCLUSION

We affirm the Examiner's rejections under 35 U.S.C. § 103(a).

DECISION SUMMARY

Claims Rejected	**35 U.S.C. §**	**Reference(s)/Basis**	**Affirmed**	**Reversed**
1–6, 25, 28–32, 37–42	103(a)	Hildreth, Tardif	1–6, 25, 28–32, 37–42	
7–10, 33–36, 43–46		Hildreth, Tardif, Khouri, Dalit	7–10, 33–36, 43–46	
Overall Outcome			1–10, 25, 28–46	

TIME PERIOD FOR RESPONSE

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). *See* 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED