UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ALIGN TECHNOLOGY, INC.
Petitioner

v.

3SHAPE A/S
Patent Owner

Case IPR2022-00145
U.S. Patent No. RE48,221

DECLARATION OF DR. CHANDRAJIT L. BAJAJ, PH.D.
IN SUPPORT OF INTER PARTES REVIEW OF U.S. RE48,221

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VIII. Ground 1: Claims [1, 19] 20-44 are unpatentable as obvious under 35 U.S.C. § 103 based on Boerjes and Marvit 39

A. A POSITA Would Have Known How and Why To Combine the Teachings of Boerjes and Marvit with a Reasonable Expectation of Success. 39
B. Claim 33 43
1. [33.P]: A scanning system for scanning a 3D environment, the scanning system comprising: 44
2. [33.1]: a handheld device including an optical scanner, wherein the 3D environment to be scanned is selected by pointing the optical scanner at the 3D environment; and 46
3. [33.2]: at least one display remotely connected to the handheld device 47
4. [33.3.1]: wherein the handheld device is adapted for performing at least one scanning action in a physical 3D environment and 49
5. [33.3.2]: the at least one display is adapted for visually representing the physical 3D environment; and. 50
6. [33.4]: wherein the handheld device includes at least one motion sensor for remotely controlling the display to adjust the view with which the 3D environment is represented on the display; and 52
a) Boerjes 52
b) Marvit 54
c) Motivation to Combine 56
7. [33.5]: wherein the at least one motion sensor is an accelerometer, gyro, or magnetometer. 59
a) Boerjes 59
b) Marvit 61
c) Motivation to Combine 62
C. Claim 34 65
1. [34.0] The scanning system according to claim 33, wherein the handheld device further comprises at least two user interface elements. 65
D. Claim 35 67
1. [35.0] The scanning system according to claim 34, [a] wherein the at least two user interface elements comprises at least one button

and a touch-sensitive element, and [b] wherein the display is on a cart. 67

a) wherein the at least two user interface elements comprises at least one button and a touch-sensitive element, and 67

b) wherein the display is on a cart 68

E. Claim 36 70

1. [36.0] The scanning system according to claim 35, wherein the at least one button and the touch-sensitive element provides more than one user input. 70

F. Claim 37 72

1. [37.0] The scanning system according to claim 36, wherein at least one of the user input provides for manually switching between performing the at least one scanning action and remotely controlling the view. 72

a) Boerjes 72

b) Marvit 74

c) Motivation to Combine 75

G. Claim 38 75

1. [38.0] The scanning system according to claim 37, [a] wherein switching to remotely controlling the view puts the handheld device into a controller mode, [b] wherein holding at least one user interface element on the handheld device in conjunction with moving the handheld device determines the view of the 3D environment on the display in accordance with signals from the motion sensor 75

a) Boerjes 76

b) Marvit 78

c) Motivation to Combine 79

H. Claim 39 80

1. [39.0] The scanning system according to claim 37, [a] wherein switching to remotely controlling the view [p]uts the handheld device into a controller mode and [b] wherein when in [the] controller mode, moving the handheld device down results in

showing the view of the 3D environment from a downward viewing angle on the display. 80
a) Boerjes 80
b) Marvit 83
c) Motivation to Combine 84
I. Claim 44 85
1. [44.0] The scanning system according to claim 33, [a] wherein the at least one display is a 3D display, [b] whereby a 3D representation of the 3D environment is displayed on the 3D display; [c] wherein the handheld device is an intra-oral 3D scanner or an in-ear 3D scanner; and [d] wherein the 3D display is configured to project stereoscopic image pairs of the 3D representation. 85
J. Invalidated/Cancelled Claim 1 87
K. Claim 20 91
1. [20.0] The scanning system according to claim 1, wherein the at least one motion sensor is an accelerometer, gyro, or magnetometer. 91
a) Boerjes 91
b) Marvit 92
c) Motivation to Combine 93
L. Claim 21 93
1. [21.0] The scanning system according to claim 1, [a] wherein the at least one motion sensor is adapted for taking the movement of the scanner into account [b] while performing the scanning. 93
a) Boerjes 94
b) Marvit 95
c) Motivation to Combine 96
M. Claim 22 96
1. [22.0] The scanning system according to claim 1, [a] wherein the system comprises at least two motion sensors and [b] wherein the at least two motion sensors provide sensor fusion. 96
a) Boerjes 97
b) Marvit 98

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