UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ALIGN TECHNOLOGY, INC. Petitioner

V.

3SHAPE A/S Patent Owner

Case IPR2022-00144 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



TABLE OF CONTENTS

I.	Intro	Introduction1				
II.	Qual	difications and Expertise6				
III.	Legal Understanding					
	A.	My Understanding of Claim Construction				
	B.	A Person of Ordinary Skill in the Art12				
	C.	My Understanding of Obviousness				
IV.	Back	Background of the Technologies Disclosed in the '221 Patent				
	A.	3D handheld digital scanning was well-known				
		1.	Dental application of three-dimensional handheld digital scanning was well-known.	17		
		2.	Incorporating human-computer interfaces into three-dimensional handheld digital scanning and interactive comparaphics display was well-known.			
	B.		Three-dimensional human-computer interfaces with motion sensors were well-known			
		1.	Medical application of three-dimensional human-computer interfaces were well-known.			
		2.	Incorporation of motion sensors into medical applications a three-dimensional human-computer interfaces were well-known.			
		3.	Accelerometers, gyros, and magnetometers are merely spec of the generic genus of motion sensors			
V.	The '221 Patent					
	A.	Overview		32		
		1.	Patent Owner fails to specify any novelty or criticality of th claimed species of motion sensors ("an accelerometer, gyro magnetometer").	, or		
	B.	Summary of the Prosecution History				
		1.	FWD for the '675 Patent invalidated claims 1-19, including claims 4, 5, 8, and 19 directed to "at least one motion senso			
		2.	Claims of the '221 Patent are based on invalidated claims 1 of the '675 Patent and should not have been allowed			



VI.	Claim Construction 39						
VII.	Overview of Grounds Asserted in the Petition and Prior Art4						
	A.	Over	verview of Serra41				
	B.	Over	Overview of Kriveshko43				
	C.	Overview of Marvit44					
	D.	Over	Overview of Knighton				
VIII.	Ground 1: Claims [1, 19] 20-34 and 37-44 are unpatentable as obvious unde 35 U.S.C. § 103 over Serra						
	A.	Claim	ı 33		48		
		1.]: A scanning system for scanning a 3D environme ing system comprising:			
		2.	the 3I	environment to be scanned is selected by pointing	g the		
			•	al scanner at the 3D environment			
			a)	Serra			
			b)	General Knowledge of a POSITA			
			c)	Motivation to Modify			
		3.		: and at least one display remotely connected to the leld device			
		4.	_	1]: wherein the handheld device is adapted for perst one scanning action in a physical 3D environment	_		
		5.		2]: and the at least one display is adapted for visua senting the physical 3D environment			
		6.	motio view v	el: and wherein the handheld device includes at leas in sensor for remotely controlling the display to adjust with which the 3D environment is represented on the	just the he		
		-	•	y	64		
		7.		erometer, gyro, or magnetometer.	68		
			a)	Serra	68		
			b)	General Knowledge of a POSITA	72		
			c)	Motivation to Use	74		
	B.	Claim	34		75		



	1.	hand	I he scanning system according to claim 33, wherein theld device further comprises at least two user interfactions.	ee		
C.	Clain	ı 37		79		
	1.	least betw	O] The scanning system according to claim 36, wherein one of the user input provides for manually switching the performing the at least one scanning action and otely controlling the view.			
D.	Claim 38					
	1.	switch device user with envir	[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.			
E.	Clain		88			
	1.	[39.0] The scanning system according to claim 37, [a] whereis switching to remotely controlling the view [p]uts the handhel 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.				
F.	Clain	1 44		92		
	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				
		a)	wherein the at least one display is a 3D display,	93		
		b)	whereby a 3D representation of the 3D environment is displayed on the 3D display;			
		d)	and wherein the 3D display is configured to project stereoscopic image pairs of the 3D representation	93		



		c)	wherein the handheld device is an intra-oral			
_			or an in-ear 3D scanner;			
G.			d/Cancelled Claim 1			
Н.	Clain	Claim 20				
	1.	[20.0] The scanning system according to claim 1, wherein the least one motion sensor is an accelerometer, gyro, or magnetometer				
I.	Claim	103				
	1.	the a	0] The scanning system according to claim 1, [at least one motion sensor is adapted for taking rement of the scanner into account [b] while penning.	the rforming the		
J.	Claim 22					
	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.				
		a)	Serra	107		
		b)	General Knowledge of a POSITA	111		
		c)	Motivation to Modify	113		
K.	Claim 23					
	1.	[23.0] The scanning system according to claim 1, [a] wherein the at least one motion sensor is the 3D user interface for remotely controlling the display, [b] wherein the view on the display is determined by moving the handheld scanner 11				
L.	Clain	1 24		119		
	1.	mov	0] The scanning system according to claim 23, ving the handheld scanner to point down causes display to be a downward viewing angle	s the view on		
M.	Clain					
	1.	[25.	0] The scanning system according to claim 1, valued device further comprises a user-interface	wherein the		
N.	Claim	n 26		126		



DOCKET

Explore Litigation Insights



Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time** alerts and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.

