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Paper 23
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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ABB, INC.
Petitioner

v.

ROY-G-BIV CORPORATION
Patent Owner

Case IPR2013-00062
Patent 6,516,236 B1

Before THOMAS L. GIANNETTI, BRYAN F. MOORE, and JENNIFER S. BISK, *Administrative Patent Judges.*

BISK, *Administrative Patent Judge.*

DECISION
Institution of *Inter Partes* Review
37 C.F.R. § 42.108

I. INTRODUCTION

A. Background

ABB, Inc. ("Petitioner") filed a petition to institute an *inter partes* review of claims 1-10 (the "challenged claims") of U.S. Patent 6,516,236 B1 (the "'236 patent"). 35 U.S.C. § 311. For the reasons described below, we institute an *inter partes* review of claims 1-4 and 8-10 on only one of the proposed grounds—obviousness over the combination of Gertz, Stewart, and Morrow.

ABB contends that the challenged claims are unpatentable under 35 U.S.C. §§102 and/or 103 based on the following prior art references:

1. Gertz, Matthew W., *A Visual Programming Environment for Real-Time Control Systems.* Ph.D. dissertation, Carnegie Mellon University, Nov. 22, 1994 (Ex. 1002) ("Gertz");
2. Microsoft Corporation, *WOSA (Windows Open Services Architecture) Extensions for Financial Services*, Revision 1.1, April 14, 1994 (Ex. 1003) ("WOSA/XFS");
3. Stewart, David B., *Real-Time Software Design and Analysis of Reconfigurable Multi-Sensor Based Systems*. Ph.D. dissertation, Carnegie Mellon University, April 1, 1994 (Ex. 1004) ("Stewart");
4. Morrow, J. Dan; Nelson, Bradley J.; and Khosla, Pradeep, *Vision and Force Driven Sensorimotor Primitives for Robotic Assembly Skills*. Institute for Software Research, paper 574, January 1, 1995 (Ex. 1005) ("Morrow");
5. Microsoft Press, MS Windows 3.1 Device Driver Adaption Guide, Chs. 1-2, 4, 10-12 (1991) (Ex. 1006) ("DDAG");
6. Hall, Marty and Mayfield, James, *Improving the Performance of AI Software: Payoffs and Pitfalls in Using Automatic Memoization*, Proceedings of Sixth International Symposium on Artificial Intelligence,

Monterrey, Mexico, September 1993 (Ex. 1007) ("Hall");

7. Michael Wright et al., U.S. Patent No. 5,453,933 (Ex. 1010) ("Wright").

The specific grounds asserted in the Petition (Pet. 17-49) are detailed below.

Reference[s]	**Basis**	**Claims challenged**
Gertz	§ 102	1-10
WOSA/XFS	§ 102	1-3, 7-10
Gertz, Stewart, and Morrow	§ 103	1-10
Gertz and DDAG	§ 103	1-10
Gertz, DDAG, and Hall	§ 103	1-10
WOSA/XFS and DDAG	§ 103	1-4 and 7-10
WOSA/XFS, DDAG, and Hall	§ 103	1-10
WOSA/SFX, Gertz, and Wright	§ 103	1-10

The '236 patent is involved in concurrent district court litigation. On November 15, 2011, ROY-G-BIV filed an infringement complaint against ABB. *ROY-G-BIV v. ABB et al.*, 11-cv-00622 (E.D. Tex.). That proceeding has not been stayed. *Id*. The '236 patent was also involved in prior litigation dismissed with prejudice on November 20, 2009. *ROY-G-BIV Corp. v. Fanuc Ltd et al*, 2:07-cv-00418 (E.D. Tex.). A claim construction order was issued in that case. *Id.* at Dkt. No. 194 (Aug. 25, 2009) (Ex. 2002) ("Markman Order").

B. The Invention

The '236 patent relates generally to a system that facilitates the creation of hardware-independent motion control software. '236 patent, col. 1, ll. 12-16. In particular, the patent describes a high-level motion control application programming interface ("API") made up of functions that are correlated with driver functions associated with controlling a mechanical system that generates movement based on a control signal. *See generally, id.* at col. 1, ll. 5-50. The

object of the invention is to isolate the application programmer from the complexity of hardware devices, which often have a manufacturer-specific motion control command language and functionality that is highly hardware-dependent. *See generally*, *id.* at col. 3, ll. 24-42. At the same time, the API should allow the programmer to access base motion operations of the hardware device. *Id.*

As described in the '236 patent, the prior art includes a number of low-level software programs for directly programming individual motion control devices or for aiding in the development of systems containing a number of motion control devices. *Id.* at col. 1, l.55 - col. 2, l. 35. While providing complete control over the hardware, these low-level programs are highly hardware-dependent. *Id.* The '236 patent also describes an existing software model, referred to as "WOSA," that isolates application programmers from the complexities of programming to different service providers by providing an application programming interface layer that is hardware-independent. *Id.* at col. 2, ll. 55-65. However, "[t]he WOSA model has no relation to motion control devices." *Id.* at col. 2, ll. 66-67. Finally, the '236 patent distinguishes the disclosed invention from the existing software driver model that allows the user to select a driver associated with a specific hardware device, for example, a printer. *Id.* at col. 3, ll. 1-6. The difference being that the software driver model does not allow the application programmer the "ability to control the hardware in base incremental steps." *Id.* at col. 3, ll. 7-17. In other words, the existing model would not allow the programmer to access base motion operations, an object of the disclosed invention. For example, the software driver model would not allow the programmer to control each stepper motor in the printer.

In describing the invention, the '236 patent discloses a programming interface consisting of "component functions" containing code that relates to driver

functions, which in turn are associated with, or contain code for, implementing the motion steps on a given motion control device. *Id.* at col. 3, ll. 56-67. The component functions support both core driver functions—those functions which must be supported by all software drivers—and extended driver functions—functions which may or may not be supported by a particular software driver. *Id.* at col. 4, ll. 3-13. When feasible, component functions can emulate extended driver functions not supported by a particular device by using a combination of core driver functions. *Id.* at col. 3, ll. 25-45.

Claim 1, the only independent claim, is reproduced below with emphasis added:

> 1. A system for generating a sequence of control commands for controlling a selected motion control device selected from a group of supported motion control devices, comprising:
>
> a set of motion control operations, where each motion control operation is either *a primitive operation the implementation of which is required to operate motion control devices and cannot be simulated using other motion control operations* or a non-primitive operation that does not meet the definition of a primitive operation;
>
> a core set of core driver functions, where each core driver function is associated with one of the primitive operations;
>
> an extended set of extended driver functions, where each extended driver function is associated with one of the non-primitive operations;
>
> a set of component functions;
>
> component code associated with each of the component functions, where the component code associates at least some of the component functions with at least some of the driver functions;
>
> a set of software drivers, where
>
> each software driver is associated with one motion control device in the group of supported motion control devices,

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