IN THE UNITED STATES DISTRICT COURT

FOR THE DISTRICT OF DELAWARE

ROBOTICVISIONTECH, INC.,	)	
	)	
Plaintiff,	)	
	)	
v.	)	C.A. No.
	)	
ABB INC. and ABB LTD.,	)	**DEMAND FOR JURY TRIAL**
	)	
Defendants.	)	

COMPLAINT

Plaintiff RoboticVISIONTech, Inc. (RVT), by its attorneys, demands a trial by jury on all issues so triable and, for its complaint against ABB Inc. and ABB Ltd. (collectively, ABB or Defendants), alleges as follows:

NATURE OF THIS ACTION

1.   This is a civil action arising out of ABB's infringement of RVT's patents in violation of 35 U.S.C. §§ 271 *et seq*.

PARTIES

2.   Plaintiff RVT is a privately held corporation organized and existing under the laws of Delaware with a principal place of business at 10001 Georgetown Pike, Unit 1037, Great Falls, Virginia 22066.

3.   On information and belief, Defendant ABB Inc. is a company organized and existing under the laws of the Delaware with a principal place of business at 305 Gregson Drive, Cary, North Carolina 27511.

4.   On information and belief, Defendant ABB Ltd. is a Swiss corporation with a principal place of business at Affolternstrasse 44, 8050 Zurich, Switzerland.

5.   On information and belief, Defendant ABB Inc. is a wholly owned subsidiary of ABB Ltd.

JURISDICTION AND VENUE

6.   This action arises under the patent laws of the United States, 35 U.S.C. §§ 100 *et seq.*, and this Court has subject-matter jurisdiction over RVT's patent-infringement claims under 28 U.S.C. §§ 1331 and 1338(a).

7.   On information and belief, this Court has personal jurisdiction over ABB Inc. at least because ABB Inc. is a Delaware corporation and has registered to do business in the State of Delaware.

8.   On information and belief, this Court has personal jurisdiction over ABB Ltd. under Fed. R. Civ. P. 4(k)(2). On information and belief, ABB Ltd. has contacts with the United States that include, *inter alia*, advertising, offering to sell, and/or selling their products and software throughout the United States, including in this District.

9.   Venue over ABB Ltd. is properly laid in this District pursuant to 28 U.S.C. §§ 1391 and 1400(b) because, on information and belief, ABB Ltd. is not a resident in the United States and thus may be sued in any judicial district.

10.   Venue over ABB Inc. is properly laid in this District pursuant to 28 U.S.C. §§ 1391 and 1400 at least because, on information and belief, ABB Inc. is subject to personal jurisdiction in this District and is a resident and corporate citizen of this District.

BACKGROUND FACTS

A.   RVT'S AND ABB'S BUSINESS DEALINGS

11.   Braintech Canada, Inc. (Braintech), RVT's predecessor-in-interest, authored the original source code contained in the eVisionFactory (eVF) software product, which is the commercial embodiment of the patents-in-suit. Braintech was the original assignee of the three

patent applications resulting in each of U.S. Patent Nos. 6,816,755 (Exhibit 1); 7,336,814

(Exhibit 2); and 8,095,237 (Exhibit 3) (collectively, the "Asserted Patents" or "Patents-in-Suit"),

which have all been assigned to RVT.

12.   In May 2006, Braintech entered into an Exclusive Channel Partnership

Agreement with ABB.

13.   As part of this agreement, ABB purchased licenses from Braintech to market and

sell Braintech's eVF software under the brand name "TrueView." On information and belief,

ABB marketed and sold more TrueView units from 2006 to 2008, many of which were sold to

the world's leading automotive manufacturing plants. On information and belief, ABB sold

additional TrueView units after 2008.

14.   In May 2010, RVT purchased all of Braintech's assets, including Braintech's eVF

software product, the source code for eVF, and the Patents-in-Suit. Since acquiring the Braintech

assets in 2010, RVT has focused on optimizing, improving, selling, and distributing its robotic

vision software products, including its eVF software product.

15.   Under the explicit terms of the Exclusive Channel Partnership Agreement, ABB's

right to market and sell TrueView products terminated once Braintech ceased operations in May

2010.

16.   In July 2010, after the purchase of Braintech assets by RVT in May 2010, ABB

sued RVT in the Eastern District of Michigan, claiming that ABB, not RVT, was the sole owner

of the source code for eVF. ABB alleged that its payments to Braintech for the right to market

and sell eVF under the Exclusive Channel Partnership Agreement were an investment, not

payments for a license, and that Braintech used that investment to develop eVF. *See ABB Inc. v.*

Robotic VisionTech, LLC, No. 5:10-cv-12626-JCO-PJK, D.I. 1 at 10–11 (E.D. Mich. July 1,

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2010) (ABB Compl.); *see also id.*, D.I. 16 (E.D. Mich. Aug. 17, 2010); *id.*, D.I. 16-1 (E.D. Mich. Aug. 17, 2010). ABB's complaint sought a "judgment in ABB's favor awarding it ownership of the code and executables under a theory of constructive and/or equitable trust." ABB Compl. at 16. On information and belief, ABB's lawsuit in the Eastern District of Michigan was an attempt to coerce RVT into relinquishing ownership and control over the eVF source code and software product.

17.   ABB voluntarily dismissed its lawsuit in September 2010. *See ABB Inc. v. Robotic VisionTech, LLC*, No. 5:10-cv-12626-JCO-PJK, D.I. 21 (E.D. Mich. Sept. 16, 2010). RVT did not provide ABB with the source code for RVT's eVF software product.

18.   In October 2010, ABB's Manager of Business Development in its Robot Automation Systems Group presented to RVT a plan for collaboration with ABB and requested that RVT provide detailed pricing information for the eVF software product.

19.   In January 2011, in response to the October 2010 meeting, RVT sent a letter to ABB's Vice President of Automation Systems with a proposal including the requested exclusive discount pricing based upon unit volume purchases by ABB of the eVF software. The proposal included the purchase of more than 51 eVF 6.0 software upgrade licenses for "a period of one year from February 28, 2011." ABB did not respond to RVT's proposal. Further, ABB chose not to purchase the eVF software.

20.   In October 2012, the Vice-President & General Manager for North America of ABB's Discrete Automation and Motion Group requested updated information on eVF 6.0 and expressed interest in purchasing multiple units of the eVF software. RVT responded to his request in an email dated October 22, 2012, containing the updated information on eVF 6.0 and the requested comparison of eVF 6.0 with eVF 5.0 and the commercially available Cognex

machine-vision library. Also attached to the email was a copy of eVF's 6.0 general information brochure, which stated that eVF was "patent protected."

21.   In September 2013, a Vice President in ABB's Robot Automation Systems Group approached RVT, expressing interest in purchasing licenses to market and sell RVT's eVF software.

22.   Due in large part to ABB's previous history of purchasing eVF software licenses from Braintech and ABB's professed continued interest in purchasing the eVF software, RVT agreed to meet with ABB to discuss a potential licensing agreement. The meeting took place at RVT's Bloomfield Hills, Michigan office and robotic lab on October 10, 2013. ABB's principal vision engineer, three ABB scientists, RVT's Sales & Business Development Director, and RVT's Chief Scientist all attended the October 10, 2013 meeting.

23.   After the October 2013 meeting, RVT did not hear back from ABB until January 2014. ABB reiterated its promise to purchase RVT's eVF software product but had certain requests regarding RVT's eVF software. For example, on or around January 29, 2014, ABB requested RVT's help to test eVF 6.0—the newest version of eVF at the time—on ABB robots at their research facility in Auburn Hills, Michigan. RVT installed eVF 6.0 at ABB's request, with ABB's assurances that the install was for testing purposes only.

24.   In the spirit of fostering licensing negotiations, RVT diligently complied with each of ABB's requests. Yet ABB chose not to license RVT's eVF software. Instead, ABB continued to ask for more details about RVT's eVF software, including the functions available in the latest version and pricing. For example, in July 2014, without RVT management's knowledge or consent, ABB requested another meeting with RVT's new Chief Scientist and its

engineers. ABB asked the RVT employees to come to ABB's Auburn Hills, Michigan office to share details about RVT's new software interface for eVF.

25.   RVT continued to communicate with ABB for several years to negotiate a license for the eVF product without success.

26.   On information and belief, ABB had no intention of purchasing or licensing RVT's eVF software product, despite promising to purchase licenses to market and sell the product (as ABB had done in the past with RVT's predecessor, Braintech). On information and belief, ABB's communications regarding licensing the eVF software were designed to obtain information regarding eVF's latest software builds and user interface for the purpose of integrating these functions and features into ABB's own competing product, FlexVision 3D, and to develop other robotic and discrete automation systems[1] such as ABB's YuMi products, 3D Quality Inspection (3DQI) products, Integrated Vision system, and FlexLoader products.

27.   ABB does not currently have a license to the eVF technology.

28.   On information and belief, ABB launched its Integrated Vision System in 2013.

29.   On information and belief, ABB launched its YuMi products in 2015.

30.   On information and belief, ABB launched its 3DQI products in 2020.

31.   On information and belief, ABB launched its FlexLoader M family in 2021, with other versions of the FlexLoader products launched prior to 2021.

32.   However, information about commercial machine vision technology is usually not publicly disseminated. Specifically, there is little or no information available to the general public about the interface, operations, vision processes, and capabilities of ABB's robotic and

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[1] ABB Ltd.'s Form 20-F for the fiscal year ended December 31, 2023 at F-72, available at https://search.abb.com/library/Download.aspx?DocumentID=9AKK108469A1290&LanguageCode=en&DocumentPartId=&Action=Launch.

discrete automation systems, including but not limited to, YuMi products, 3DQI products, the Integrated Vision system, and FlexLoader products. On information and belief, such information is available only to purchasers of these technologies.

B.   RVT'S eVF SOFTWARE

33.   RVT is the owner of patented three-dimensional vision software known as eVisionFactory. The eVF source code and programming allows a robot to "SEE, THINK, & DO" and operate in a three-dimensional space based only on two-dimensional imaging. The software enables three-dimensional object location such that a robotic arm has the capability to choose, pick up, guide, and manipulate components in various manufacturing processes with high accuracy, speed, and consistency. Indeed, eVF can locate a target part in under a tenth of a second. The eVF software is so reliable that more than 300 installations have run the eVF software for over the past two decades without a single warranty claim.

34.   Industry leaders have long recognized the eVF software's unmatched performance and accuracy. In 2003, eVF won the Ford Motor Company's distinguished Henry Ford Technology Award.[2] Additionally, in a study conducted by one of the world's largest and most technologically advanced automakers, eVF performed 10 to 100 times more accurately than its competitors, leading the automaker to select eVF for use in its manufacture of powertrain and transmission systems for its best-selling brand of automobiles and select eVF for vision software upgrades for its operating plants. *See* Exhibit 4 at 1.

35.   The eVF software performs three core processes necessary for determining the three-dimensional positions of an object: camera calibration, object training, and pose estimation.

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[2] *Braintech Wins Distinguished Henry Ford Technology Award*, HPC Wire (Oct. 3, 2003), https://www.hpcwire.com/2003/10/03/braintech-wins-distinguished-henry-ford-technology-award (last visited May 13, 2024).

36.   eVF performs camera calibration via an automatic software tool called "AutoCal." In robot-mounted camera configurations, this tool is a one-button solution that automatically moves the camera around a calibration grid. It then calculates both the intrinsic and extrinsic properties of the camera. Intrinsic properties include, e.g., the size of the pixels, the pixel count, the distortion or skew of the image, and the resolution of the image. Extrinsic properties include, e.g., the location of the camera in world or robot coordinates on the end of the robot arm, or in a static 3D space (in cases of a stationary mounted camera). The following image is an example of a calibration grid that the eVF software uses for camera calibration:
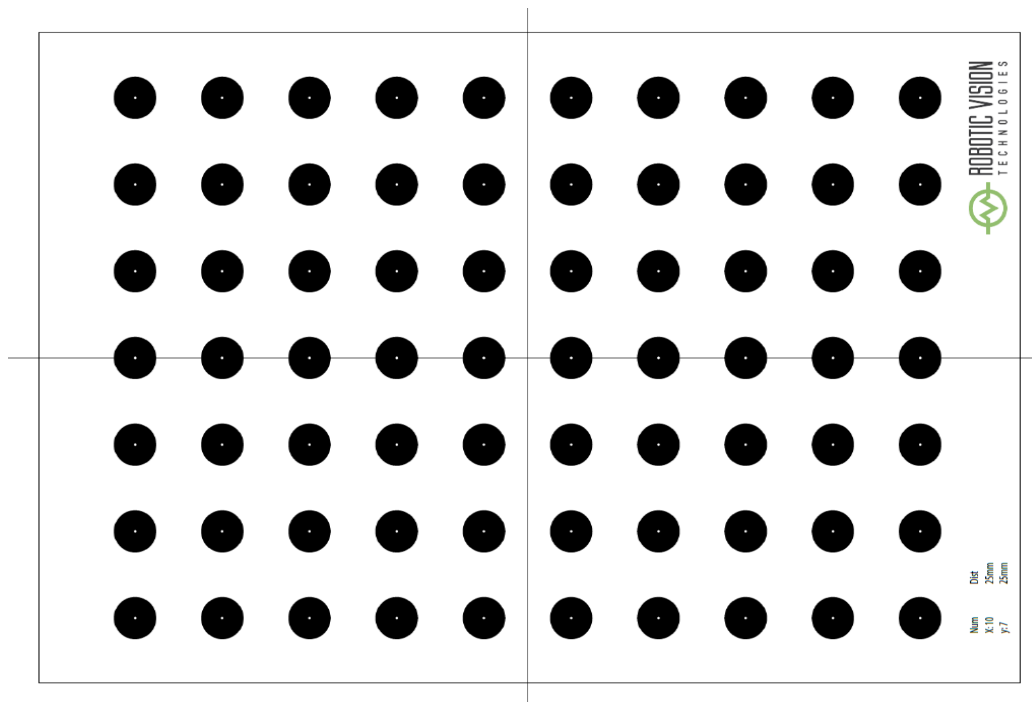

Figure 1: Example of a calibration grid

37.   After the camera has been calibrated, eVF's "AutoTrain" tool is used to "train" the object in a nominal position in which eVF will be locating the part. First, eVF takes a reference image of the object. The user operating eVF then defines, in the reference image,

patterns on the part for eVF to identify when it takes a picture during operation. The user selects

a number of features for the software to calculate three-dimensional information.

38.   There are two categories of features: "anchor" features and "GeoPatterns." An

anchor feature is a unique pattern defined by the object. GeoPatterns are smaller, non-unique, but

predefined patterns that are found in predetermined locations with respect to the anchor feature.

The relationship between the patterns automatically trains the software to calculate the object's

three-dimensional position and orientation. The following image is an example of a reference
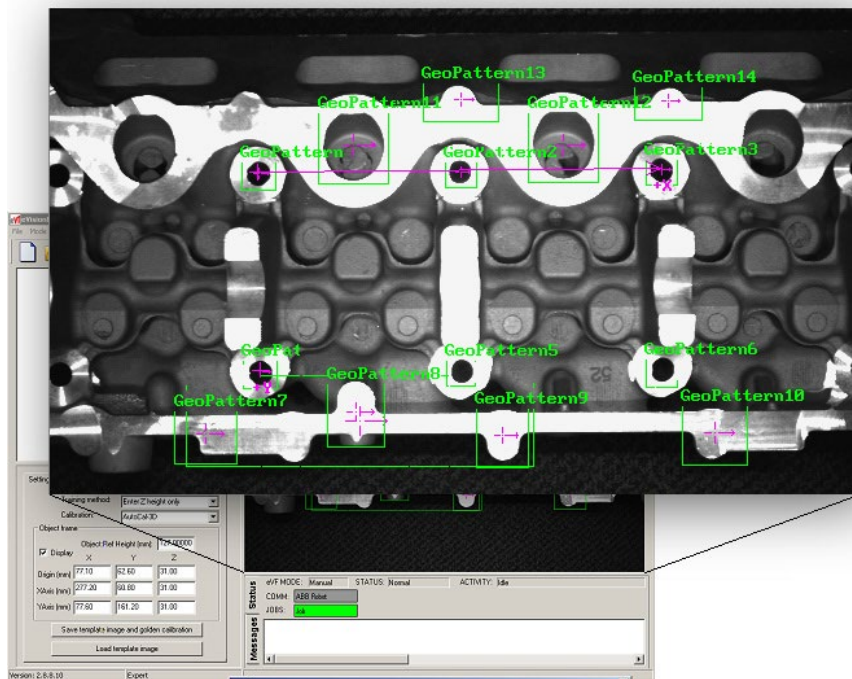
image with patterns defined on the object:

Figure 2: Example of a reference image

39.   After the object has been trained, eVF performs pose estimation. The software

takes an image of the object in the training space, uses the camera-calibration data, combines it

with the data from the object-training process, locates the object in three-dimensional space, and

calculates the deviations with respect to the originally trained location. The pose-estimation

information guides the robot in locating the object and performing various operations, such as

handling or manipulating the object. The image below is an example of eVF calculating an
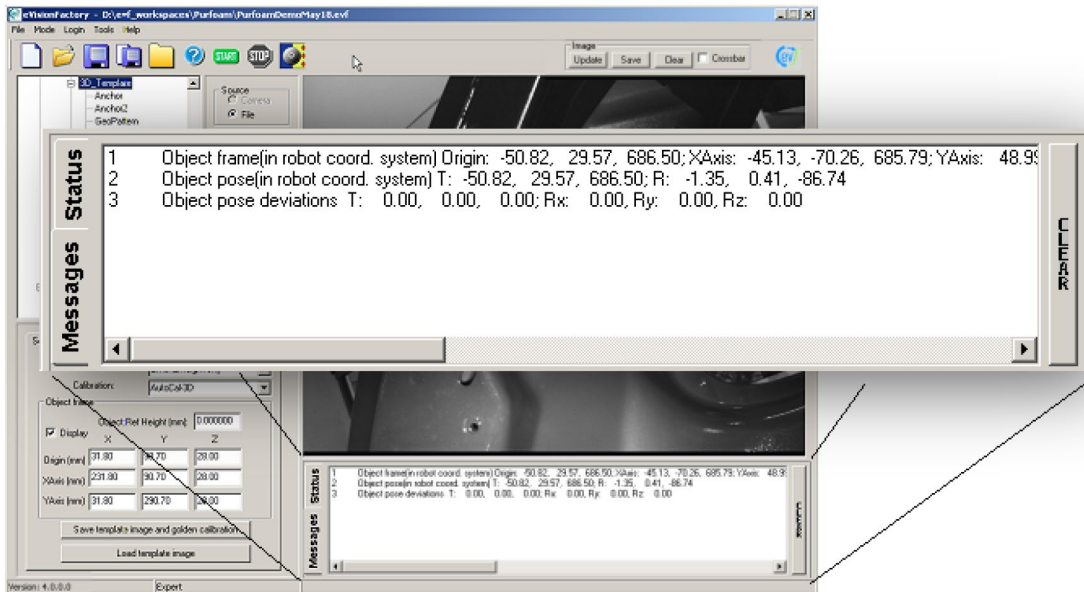
object's position.

Figure 3: Example of eVF software output calculating object's position

40.   RVT's success and superior performance are by-products of technological

innovations over the past two decades, including, for example, the eVF software. RVT continues

to implement these innovations today, for example, by continuing to improve eVF and releasing

new versions of the software.

C.   THE PATENTS-IN-SUIT

41.   U.S. Patent No. 6,816,755 (the '755 patent), entitled "Method and Apparatus for

Single Camera 3D Vision Guided Robotics," was duly and legally issued by the United States

Patent and Trademark Office (PTO) on November 9, 2004. A true and correct copy of the '755

patent is attached as Exhibit 1.

42.   RVT is the sole owner of the entire right, title, and interest in the '755 patent,

including the right to bring suit and recover damages for past infringement. The '755 patent was

originally assigned to Braintech Canada, Inc. on May 22, 2002. The patent was subsequently assigned from Braintech Canada, Inc. to Braintech, Inc. on February 20, 2009; from Braintech, Inc. to RoboticVISIONTech LLC on May 24, 2010; and from RoboticVISIONTech LLC to RoboticVISIONTech, Inc. on July 27, 2015.

43.   U.S. Patent No. 7,336,814 (the '814 patent), entitled "Method and Apparatus for Machine-Vision," was duly and legally issued by the PTO on February 26, 2008. A true and correct copy of the '814 patent is attached as Exhibit 2.

44.   RVT is the sole owner of the entire right, title, and interest in the '814 patent, including the right to bring suit and recover damages for past infringement. The '814 patent was originally assigned to Braintech Canada, Inc. on January 3, 2006. The patent was subsequently assigned from Braintech Canada, Inc. to Braintech, Inc. on February 20, 2009; from Braintech, Inc. to RoboticVISIONTech LLC on May 24, 2010; and from RoboticVISIONTech LLC to RoboticVISIONTech, Inc. on July 27, 2015.

45.   U.S. Patent No. 8,095,237 (the '237 patent), entitled "Method and Apparatus for Single Image 3D Vision Guided Robotics," was duly and legally issued by the PTO on January 10, 2012. A true and correct copy of the '237 patent is attached as Exhibit 3. The '237 patent is a continuation-in-part of application No. 10/153,680, filed on May 24, 2002, now the '755 patent.

46.   RVT is the sole owner of the entire right, title, and interest in the '237 patent, including the right to bring suit and recover damages for past infringement. The '237 patent was originally assigned to Braintech Canada, Inc. on May 12, 2005. The patent was subsequently assigned from Braintech Canada, Inc. to Braintech, Inc. on February 20, 2009; from Braintech, Inc. to RoboticVISIONTech LLC on May 24, 2010; and from RoboticVISIONTech LLC to RoboticVISIONTech, Inc. on July 27, 2015.

47.   The '755, '814, and '237 patents are generally directed to methods and features that have been incorporated into RVT's eVF software. These patented features have contributed to the success of eVF in the United States and have allowed RVT to establish itself as a market leader in the machine vision robotics industry. All three patent numbers have been marked on eVF's splash screen upon startup of all relevant versions of the software.

ABB'S ALLEGED CONDUCT

48.   On information and belief, ABB licenses, makes, offers for sale, and/or sells its robotic and discrete automation systems in the United States.

49.   ABB's robotic and discrete automation systems refer to "industrial and collaborative robots, autonomous mobile robotics, mapping and navigation solutions, robotic solutions, field services, spare parts and digital services . . . automation solutions based on [ABB's] programmable logic controllers (PLC), industrial PCs (IPC), servo motion, transport systems and machine vision," and software, "including engineering and simulation software."[3]

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[3] ABB Ltd.'s Form 20-F for the fiscal year ended December 31, 2023 at F-72, available at https://search.abb.com/library/Download.aspx?DocumentID=9AKK108469A1290&LanguageCode=en&DocumentPartId=&Action=Launch (last visited May 15, 2024).

50.   On information and belief, ABB's catalog of robotic and discrete automation systems include, but are not limited to, the YuMi,[4] 3DQI,[5] Integrated Vision,[6] and FlexLoader[7] products, as well as other machine vision guidance products.

51.   On information and belief, ABB has made and sold a number of robotic and discrete automation systems, including but not limited to, YuMi, 3DQI, Integrated Vision, FlexLoader products, and other machine vision guidance products in the United States.

52.   On information and belief, ABB continues to create new versions of robotic and discrete automation systems for sale and distribution in the United States.

A.   ABB'S INTEGRATED VISION SYSTEM

53.   On information and belief, ABB's Integrated Vision system, including associated software and hardware, is integrated into ABB's robots or used in conjunction with other vision system products. These include, but are not limited to, ABB's articulated robots, collaborative robots (e.g., YuMi products), paint robots, delta robots, SCARA robots, autonomous mobile robots, and FlexLoader Vision products.

54.   On information and belief, ABB's Integrated Vision system practices one or more claims of the Asserted Patents. On information and belief, the Integrated Vision system practices at least the exemplary claims shown in the attached Exhibits 5–7.

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[4] *ABB introduces YuMi®, world's first truly collaborative dual-arm robot*, ABB (Apr. 13, 2015), https://new.abb.com/news/detail/12952/abb-introduces-yumir-worlds-first-truly-collaborative-dual-arm-robot (last visited May 14, 2024).

[5] *OmniVance™ 3D Quality Inspection*, ABB, https://new.abb.com/products/robotics/application-cells/3d-quality-inspection (last visited May 14, 2024).

[6] *Integrated Vision*, ABB, https://new.abb.com/products/robotics/application-equipment-and-accessories/vision-systems/integrated-vision (last visited May 14, 2024).

[7] *OmniVance FlexLoader M*, ABB, https://new.abb.com/products/robotics/application-cells/flexloader (last visited May 14, 2024).

55.   ABB issued a press release dated October 28, 2013 that introduced ABB's Integrated Vision system.[8]

56.   According to the Integrated Vision Press Release, "ABB Integrated Vision is a powerful smart camera system that makes vision-guided robotics applications faster and easier to deploy than ever before" and uses "2D vision guidance[.]"[9]

57.   ABB publishes and distributes manuals for its Integrated Vision system (the Integrated Vision Manual).[10]

58.   On information and belief, ABB distributes the Integrated Vision Manual to customers who purchase ABB products with the Integrated Vision system and to operators who install the Integrated Vision system.

B.   ABB'S YuMi Products

59.   On information and belief, ABB's YuMi products include at least the YuMi Dual-arm IRB 14000[11] and YuMi Single-Arm 14050,[12] and associated software and hardware.

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[8] *See ABB Introduces new vision-guided robotics technology*, ABB (Oct. 28, 2013), https://search.abb.com/library/Download.aspx?DocumentID=9AKK105713A9585&LanguageCode=en&DocumentPartId=&Action=Launch (last visited May 15, 2024).

[9] *See id*. at 1.

[10] *See Application Manual – Integrated Vision*, ABB, https://search.abb.com/library/Download.aspx?DocumentID=3HAC044251-001&LanguageCode=en&DocumentPartId=&Action=Launch (last visited May 15, 2024).

[11] *Dual-arm YuMi® - IRB 14000*, ABB, https://new.abb.com/products/robotics/robots/collaborative-robots/yumi/dual-arm (last visited May 14, 2024).

[12] *Single-arm YuMi® - IRB 14050*, ABB, https://new.abb.com/products/robotics/robots/collaborative-robots/yumi/single-arm (last visited May 14, 2024)

60.   On information and belief, ABB launched its YuMi products in 2015.[13]

61.   On information and belief, ABB's YuMi products practice one or more claims of the Asserted Patents. On information and belief, the YuMi products practice at least the exemplary claims shown in the attached Exhibits 8–10.

62.   YuMi "was specifically designed to meet the flexible and agile production needs of the consumer electronics industry" and uses "camera-based part location, lead-through programming, and state-of-the-art precise motion control."[14]

63.   ABB publishes and distributes a product specification for one of its YuMi products, the YuMi Dual-arm IRB 14000 (the Yumi Product Specification).[15]

64.   On information and belief, ABB distributes the YuMi Product Specification to customers who purchase ABB's YuMi Dual-arm IRB 14000 and to operators who install the YuMi Dual-arm IRB 14000.

65.   The YuMi Product Specification describes that ABB's YuMi Dual-arm IRB 14000 has a "vision module" that "contains a Cognex AE3 In-Sight camera, supporting all functions of ABB Integrated Vision."[16]

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[13] *ABB introduces YuMi®, world's first truly collaborative dual-arm robot*, ABB, https://new.abb.com/news/detail/12952/abb-introduces-yumir-worlds-first-truly-collaborative-dual-arm-robot (last visited ay 14, 2024).

[14] *ABB introduces YuMi®, world's first truly collaborative dual-arm robot*, ABB, https://new.abb.com/news/detail/12952/abb-introduces-yumir-worlds-first-truly-collaborative-dual-arm-robot (last visited May 14, 2024).

[15] *See Product specification - IRB 14000*, ABB, https://search.abb.com/library/Download.aspx?DocumentID=3HAC052982-001&LanguageCode=en&DocumentPartId=&Action=Launch (last visited May 15, 2024).

[16] *See id*. at 56.

66.   ABB also publishes and distributes a product specification for one of its YuMi

products, the YuMi Single-arm IRB 14050 (the Yumi 14050 Product Specification).[17]

67.   On information and belief, ABB distributes the YuMi 14050 Product

Specification to customers who purchase ABB's YuMi Single-arm IRB 14050 and to operators

who install the YuMi Single-arm IRB 14050.

68.   On information and belief, ABB's YuMi Single-arm IRB 14050 can be used in

combination with ABB Integrated Vision.[18]

69.   Other YuMi documentation publicly distributed by ABB discloses images

depicting robotic hardware using "[i]ntegrated vision" to locate objects in three-dimensional

space.[19]

70.   ABB's YuMi Product Specification provides details regarding calibrating one or

more cameras or sensors. For example, the specification states: "Absolute Accuracy calibration

is focusing on positioning accuracy in the Cartesian coordinate system for the robot."[20]

C.   ABB'S 3DQI PRODUCTS

71.   On information and belief, ABB's 3DQI product, including associated software

and hardware, practices one or more claims of the Asserted Patents. On information and belief,

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[17] *See Product specification - IRB 14050*,
https://search.abb.com/library/Download.aspx?DocumentID=9AKK107046A3807&LanguageCo
de=en&DocumentPartId=&Action=Launch (last visited May 15, 2024).

[18] *See YuMi IRB 14050 Video*,
https://www.youtube.com/embed/vTdQS4AgY90?html5=1&rel=0&wmode=transparent&autopl
ay=1 (last visited May 15, 2024).

[19] *YuMi® - IRB 14000*, ABB,
https://search.abb.com/library/Download.aspx?DocumentID=9AKK106354A3256&LanguageCo
de=en&DocumentPartId=&Action=Launch (last visited May 15, 2024).

[20] *See Product specification - IRB 14000*, ABB,
https://search.abb.com/library/Download.aspx?DocumentID=3HAC052982-
001&LanguageCode=en&DocumentPartId=&Action=Launch at 40 (last visited May 15, 2024).

the 3DQI products practice at least the exemplary claims as shown in the attached Exhibits 11–13.

72.   On information and belief, ABB launched its 3DQI product in 2020.[21]

73.   ABB publishes and distributes a 3DQI ebook. *See* Exhibit 14.

74.   The 3DQI ebook informs users that "ABB's robotic 3D quality inspection (3DQi) solution offers fully customizable reports featuring tolerance color maps, reference points control and 2D sections, which manufacturers can use to find ways to operate more efficiently and profitably." *See* Exhibit 14 at 14.

D.   ABB'S FLEXLOADER PRODUCTS

75.   On information and belief, ABB's Flexloader products, including associated software and hardware, include at least the FlexLoader Vision system, FlexLoader M Tray, FlexLoader M Conveyor, FlexLoader M Random Feed, FlexLoader M Bin, FlexLoader M AGV, FlexLoader M Zero Point, FlexLoader FP 100, FlexLoader FP 300, FlexLoader FP 400, FlexLoader FP 600, FlexLoader FP 800, FlexLoader SC 3000, and FlexLoader SC 6000.

76.   On information and belief, ABB's FlexLoader products practice one or more claims of the Asserted Patents. On information and belief, the FlexLoader products practice at least the exemplary claims shown in the attached Exhibit 15.

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[21] *ABB enters 3D Scanning with 3DQI robot cell*, Develop3D (Jul. 29, 2020), https://develop3d.com/3d-scanning/abb-3d-scanning-3dqi-robot-launched-for-quality-inspection/ (last visited May 14, 2024).

77.   On information and belief, ABB's FlexLoader M family, including the

FlexLoader M Tray, FlexLoader M Conveyor, FlexLoader M Random Feed, FlexLoader M Bin,

FlexLoadder M AGV, and FlexLoader M Zero Point, was launched in 2021.[22]

E.   ABB'S ACTS OF PATENT INFRINGEMENT

78.   On information and belief, ABB's catalog of robotic and discrete automation

systems, including but not limited to YuMi, 3DQI, Integrated Vision, and FlexLoader products,

include or perform each and every limitation of at least one claim of each Asserted Patent, either

literally or under the doctrine of equivalents.

79.   On information and belief, ABB directs customers and operators to use its robotic

and discrete automation systems to practice each and every limitation of at least one claim of

each Asserted Patent, either literally or under the doctrine of equivalents.

80.   On information and belief, ABB actively encourages, promotes, distributes,

provides instruction for, and supports the use of its robotic and discrete automation systems by

its customers and operators in a manner that directly infringes the Asserted Patents, knowing and

intending that its customers will commit infringing acts in such a manner as to directly infringe

the Asserted Patents. For example, ABB, through user manuals for its robotic and discrete

automation systems, provides customers with explicit instructions for installing, configuring, and

operating its robotic and discrete automation systems in a manner that infringes the Asserted

Patents.

81.   On information and belief, ABB also encourages, promotes, and instructs

operators and customers to use its robotic and discrete automation systems in an infringing

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[22] *FlexLoader™ M family brings the power of modularity to machine tending*, ABB (Oct. 27, 2021), https://new.abb.com/news/detail/83831/prsrl-flexloader-m-family-brings-the-power-of-modularity-to-machine-tending (last visited May 14, 2024).

manner by offering and providing online training classes through the "ABB Robotics Academy Online Learning," including online tutorials on the single-arm and dual-arm YuMi products.[23]

82.   On information and belief, ABB also encourages, promotes, and instructs operators and customers to use its robotic and discrete automation systems in an infringing manner by advertising that ABB's 3DQI products are "extremely easy to program" and provides instructions to ABB customers regarding installing ABB's 3DQI products.[24]

83.   On information and belief, ABB also encourages, promotes, and instructs operators and customers to use its robotic and discrete automation systems in an infringing manner by offering and providing installation support services and training classes at its offices in Auburn Hills, Michigan, including training classes on how to install, configure, and operate ABB Integrated Vision on ABB industrial robots.[25]

84.   ABB also offers a R112 course for FlexLoader products.[26]

85.   ABB's importation, use, offer for sale, and/or sale within the United States of its robotic and discrete automation systems is continuing. ABB also continues to distribute product literature and website materials encouraging its customers and others to use its robotic and

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[23] *See ABB Robotics Academy Online Learning*, ABB, https://new.abb.com/products/robotics/service/training/online-learnings (last visited May 14, 2024).

[24] *See* 3DQI Datasheet, ABB, https://library.e.abb.com/public/5d261d3827524a0abe3ec37ab630e562/3DQI_quality_inspection _robot_datasheet_v3.pdf?x-sign=HtCcGQHjTx0g38KZcuUNGKsixKeXFL6hmrFnp+9uoQgLbSCi+VmMGDIWoFZeu+oD (last visited May 15, 2024).

[25] *See* ABB Integrated Vision, Course Code: US460, ABB, https://new.abb.com/service/abb-university/united-states/robotics/course-descriptions (located by selecting "Advanced Applications" drop-down menu) (last visited May 14, 2024).

[26] *See, e.g.*, *ABB Robotics Training Center*, ABB, https://app1.edoobox.com/en/ABBSE?q=FlexLaoder (last visisted May 14, 2024) (offering FlexLoader training class in 2030).

discrete automation systems in the customary and intended manner, which infringes the Asserted Patents.[27]

86.   On information and belief, ABB has known of each of the Asserted Patents at least because RVT has marked its patented products in its sales and marketing literature concerning eVF, including with the Asserted Patents. This marking has been continuous since eVF was first developed.

87.   On information and belief, ABB has had knowledge of the Asserted Patents since at least 2006 when ABB entered into a (now terminated) licensing agreement with Braintech, the original assignee of the '755 and '814 patents and of the application that matured into the '237 patent. Through the license agreement, ABB acquired the right to market and sell eVF software, a commercial embodiment of the Asserted Patents, from 2006–2008.

88.   ABB has also had knowledge of the Asserted Patents since September 22, 2022, when RVT filed its complaint in *RoboticVISIONTech, Inc. v. ABB Inc.*, No. 22-cv-01257-GBW (D. Del.). There, RVT alleges that ABB infringes the '755, '814, and '237 patents for the manufacture, use, offer for sale, sale, and importation into the United States of ABB's FlexVision products.

89.   On information and belief, ABB's infringement has been and continues to be willful.

90.   RVT has been injured by ABB's infringement of the Asserted Patents and will suffer irreparable harm unless ABB is enjoined from infringing the Asserted Patents.

COUNT I: INFRINGEMENT OF U.S. PATENT NO. 6,816,755

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[27] *See, e.g., supra* nn.8–11.

91.   RVT realleges and incorporates by reference paragraphs 1 through 90 as if fully set forth herein.

92.   The '755 patent is directed to "[a] method of three-dimensional handling of an object by a robot us[ing] a tool and one camera mounted on the robot and at least six target features which are normal features of the object." '755 patent, Abstract. For example, claim 8 of the '755 patent recites:

> 8. A method of three-dimensional handling of an object by a robot using a tool and one camera mounted on the robot, comprising:
>
> > i) calibrating the camera by finding
> >
> > > a) the camera intrinsic parameters;
> > >
> > > b) the position of the camera relative to the tool of the robot ("hand-eye" calibration);
> >
> > ii) teaching the object features by
> >
> > > a) putting the object in the field of view of the camera and capturing an image of the object;
> > >
> > > b) selecting at least 6 visible features from the image;
> > >
> > > c) calculating the 3D position in real world coordinates of said selected features inside a space connected to the object ("Object Space");
> > >
> > > d) computing the "Object Space to Camera" transformation using the 3D position of the features inside this space and the position in the image;
> > >
> > > e) defining an "Object Frame," inside "Object Space" to be used for teaching the handling path;
> > >
> > > f) computing the "Object Frame" position and orientation in "Tool Frame" using the transformation from "Object Frame to Camera" and "Camera to Tool";
> > >
> > > g) sending the computed "Object Frame" to the robot; and
> > >
> > > h) training the intended operation path inside the "Object Frame";

iii) carrying out object finding and positioning by

a) positioning the robot in a predefined position above the bin containing the target object;

b) if an insufficient number of selected features are in the field of view, moving the robot until at least 6 features can be located;

c) with the positions of features from the image and their corresponding position in "Object Space" as calculated in the training session, computing the object location as the transformation between the "Object Space" and "Camera Space";

d) using the said transformation to calculate the movement of the robot to position the camera so that it appears orthogonal to the object;

e) finding the "Object Space to Camera Space" transformation in the same way as in step d);

f) computing the object frame memorized at training using the found transformation and "Camera to Tool" transformation;

g) sending the computed "Object Frame" to the robot,

h) using the "Tool" position to define the frame in "Robot Space" and performing the intended operation path on the object inside the "Robot Space".

93.   On information and belief, ABB's robotic and discrete automation systems, including but not limited to at least the Integrated Vision, YuMi, and 3DQI products, implement or contain each and every element of at least claims 1–15 and 17–19 of the '755 patent. Exhibits 7, 10, 13 ('755 Claim Charts).

94.   By making, using, offering to sell, selling, and importing into the United States its robotic and discrete automation systems, ABB has directly infringed, literally or by doctrine of equivalents, one or more claims of the '755 patent, including for example, claims 1–15 and 17–19, under 35 U.S.C. § 271(a).

95.   ABB has induced infringement by inducing ABB customers to directly infringe one or more claims of the '755 patent, including for example, claims 1–15 and 17–19, by

making, offering to sell, importing, and selling infringing robotic and discrete automation systems in and into the United States under 35 U.S.C. § 271(b). ABB instructs, recommends, and encourages ABB customers to use ABB's robotic and discrete automation systems in a manner that directly infringes the '755 patent. ABB provides customers with instructions for installing, configuring, and operating its robotic and discrete automation systems in a directly infringing manner. By publishing and distributing user manuals and other documentation for its robotic and discrete automation systems, ABB has intentionally encouraged customers to use its robotic and discrete automation systems in a manner that directly infringes the '755 patent. On information and belief, ABB has intentionally encouraged direct infringement of the '755 patent with knowledge of the '755 patent and knowledge that its acts are encouraging infringement.

96.   On information and belief, ABB had actual knowledge of the '755 patent since at least 2006, when ABB entered into a licensing agreement with the original assignee of the '755 patent, Braintech, to market and sell TrueView, an incarnation of the eVF software. For example, a 2009 pamphlet for ABB's TrueView product states that TrueView uses "[p]atented single camera 3D technology." Exhibit 16 at 2.

97.   ABB has known of its infringement of the '755 patent since at least November 8, 2023, when RVT served infringement contentions for ABB's robotic and discrete automation systems, including the Integrated Vision, YuMi, and 3DQI products, in *RoboticVisionTech, Inc. v. ABB, Inc.*, No. 22-cv-01257-GBW (D. Del.).

98.   ABB's direct and induced infringement of the '755 patent has been willful and egregious. On information and belief, ABB has been aware of the '755 patent since at least 2006 and has willfully infringed the '755 patent, knowing such conduct to be in violation of 35 U.S.C. § 271.

99.   ABB's infringement of the '755 patent has damaged RVT in an amount yet to be determined, of at least a reasonable royalty and/or lost profits that RVT would have made but for ABB's infringing acts as provided by 35 U.S.C. § 284.

COUNT II: INFRINGEMENT OF U.S. PATENT NO. 7,336,814

100.   RVT realleges and incorporates by reference paragraphs 1 through 99 as if fully set forth herein.

101.   The '814 patent covers a system and method for "three-dimensional pose estimation for target objects, using one or more images sensors to acquire images of the target object at one or more positions." '814 patent, Abstract. For example, claim 1 of the '814 patent recites:

1. A method useful in machine-vision of objects, the method comprising:

acquiring a number of images of a first view of a training object from a number of image sensors;

identifying a number of features of the training object in the acquired at least one image of the first view;

determining a number of additional views to be obtained based at least in part on the number of image sensors, the number of features identified, the number of features having an invariant physical relationship associated thereto, and a type of the invariant physical relationship associated with the features, sufficient to provide a system of equations and unknowns where the number of unknowns is not greater than the number of equations;

acquiring at least one image of each of the number of additional views of the training object by the at least one camera; and

identifying at least some of the number of features of the training object in the acquired at least one image of the number of additional views of the training object

employing at least one of a consistency of physical relationships between some of the identified features to set up the system of equations; and

automatically computationally solving the system of equations.

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102.   On information and belief, ABB's robotic and discrete automation systems, including but not limited to at least the Integrated Vision, YuMi, FlexLoader, and 3DQI products, implement or contain each and every element of at least claims 1–39 of the '814 patent. Exhibits 6, 9, 12, 15 ('814 Claim Charts).

103.   By making, using, offering to sell, selling, and importing into the United States its robotic and discrete automation systems, ABB has directly infringed, and continues to directly infringe, literally or by doctrine of equivalents, one or more claims of the '814 patent, including for example, claims 1–39 under 35 U.S.C. § 271(a).

104.   ABB has induced, and continues to induce, infringement by inducing ABB customers to directly infringe one or more claims of the '814 patent, including, for example, claims 1–39, by making, offering to sell, importing, and selling infringing its robotic and discrete automation systems in and into the United States under 35 U.S.C. § 271(b). ABB instructs, recommends, and encourages ABB customers to use ABB's robotic and discrete automation systems in a manner that directly infringes the '814 patent. ABB provides customers with instructions for installing, configuring, and operating its robotic and discrete automation systems in a directly infringing manner. By publishing and distributing user manuals and other documentation for its robotic and discrete automation systems, ABB has intentionally encouraged, and will continue to intentionally encourage, customers to use its robotic and discrete automation systems in a manner that directly infringes the '814 patent. On information and belief, ABB has intentionally encouraged, and will continue to intentionally encourage, direct infringement of the '814 patent with knowledge of the '814 patent and knowledge that its acts are encouraging infringement.

105.   On information and belief, ABB had actual knowledge of the '814 patent since at least 2008, when the '814 patent issued. Indeed, in 2009 (approximately one year after the '814 patent issued), ABB published a pamphlet for its TrueView product, which stated that TrueView uses "[p]atented single camera 3D technology." Exhibit 16 at 2.

106.   ABB has known of its infringement of the '814 patent since at least November 8, 2023, when RVT served infringement contentions for ABB's robotic and discrete automation systems, including the Integrated Vision, YuMi, FlexLoader, and 3DQI products, in *RoboticVisionTech, Inc. v. ABB Inc.*, No. 22-cv-01257-GBW (D. Del.).

107.   ABB's direct and induced infringement of the '814 patent has been, and continues to be, willful and egregious. On information and belief, ABB has been aware of the '814 patent since at least 2008 and has willfully infringed the '814 patent, knowing such conduct to be in violation of 35 U.S.C. § 271. On information and belief, ABB will continue to willfully infringe the '814 patent.

108.   ABB's infringement of the '814 patent has damaged, and continues to damage, RVT in an amount yet to be determined, of at least a reasonable royalty and/or lost profits that RVT would have made but for ABB's infringing acts as provided by 35 U.S.C. § 284.

109.   RVT will suffer irreparable harm unless ABB is enjoined from infringing the '814 patent.

COUNT III: INFRINGEMENT OF U.S. PATENT NO. 8,095,237

110.   RVT realleges and incorporates by reference paragraphs 1 through 109 as if fully set forth herein.

111.   The '237 patent covers "[a] method of three-dimensional object location and guidance to allow robotic manipulation of an object with variable position and orientation using

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a sensor array which is a collection of one or more sensors capable of forming a single image."

'237 patent, Abstract. For example, claim 1 of the '237 patent recites:

> 1. A method useful in three-dimensional pose estimation for use with a single camera mounted to a movable portion of a robot, the method comprising:
>
>> capturing a two-dimensional image of a volume containing a target object;
>>
>> locating a number of features in the captured image of the target object; and
>>
>> determining by a processor an object space-to-camera space transformation for the target object based at least in part on a position of at least some of the located features using only the single captured image and an algorithm that employs a known or determinable physical relationship between at least some of the located features.

112.   On information and belief, ABB's robotic and discrete automation systems, including but not limited to at least the Integrated Vision, YuMi, and 3DQI products, implement or contain each and every element of at least claims 1–5, 7–17, and 20–28 of the '237 patent. Exhibits 5, 8, and 11 ('237 Claim Charts).

113.   By making, using, offering to sell, selling, and/or importing into the United States its robotic and discrete automation systems, ABB has directly infringed and continues to directly infringe, literally or by doctrine of equivalents, one or more claims of the '237 patent, including for example, claims 1–5, 7–17, and 20–28, under 35 U.S.C. § 271(a).

114.   ABB has induced, and continues to induce, infringement of ABB customers to directly infringe one or more claims of the '237 patent, including for example, claims 1–5, 7–17, and 20–28, by making, offering to sell, importing, and/or selling infringing its robotic and discrete automation systems in and into the United States under 35 U.S.C. § 271(b). ABB instructs, recommends, and encourages ABB customers to use ABB's robotic and discrete automation systems in a manner that directly infringes the '237 patent. ABB provides customers with instructions for installing, configuring, and operating its robotic and discrete automation

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systems in a directly infringing manner. By publishing and distributing user manuals and other documentation for its robotic and discrete automation systems, ABB has intentionally encouraged, and will continue to intentionally encourage, customers to use its robotic and discrete automation systems in a manner that directly infringes the '237 patent. On information and belief, ABB has intentionally encouraged, and will continue to intentionally encourage, direct infringement of the '237 patent with knowledge of the '237 patent and knowledge that its acts are encouraging infringement.

115.   On information and belief, ABB had actual knowledge of the '237 patent since at least January 10, 2012, when the '237 patent issued. The '237 patent is a continuation-in-part of the '755 patent. ABB entered into a licensing agreement with Braintech, the original assignee of the '755 and '814 patents, to market and sell TrueView, an incarnation of the eVF software.

116.   ABB's direct and induced infringement of the '237 patent has been, and continues to be, willful and egregious. On information and belief, ABB has been aware of the '237 patent since at least 2012 and has willfully infringed the '237 patent, knowing such conduct to be in violation of 35 U.S.C. § 271. On information and belief, ABB will continue to willfully infringe the '237 patent.

117.   ABB has known of its infringement of the '237 patent since at least November 8, 2023, when RVT served infringement contentions for ABB's robotic and discrete automation systems, including the Integrated Vision, YuMi, and 3DQI products, in *RoboticVisionTech, Inc. v. ABB Inc.*, No. 22-cv-01257-GBW (D. Del.).

118.   ABB's infringement of the '237 patent has damaged, and continues to damage, RVT in an amount yet to be determined, of at least a reasonable royalty and/or lost profits that RVT would have made but for ABB's infringing acts as provided by 35 U.S.C. § 284.

119.   RVT will suffer irreparable harm unless ABB is enjoined from infringing the '237 patent.

PRAYER FOR RELIEF

120.   RVT respectfully requests that this Court enter judgment against ABB as follows:

A. That ABB has directly infringed one or more claims of the '755, '814, and '237 patents in violation of 35 U.S.C. § 271(a);

B. That ABB has induced infringement of one or more claims of the '755, '814, and '237 patents in violation of 35 U.S.C. § 271(b);

C. That ABB's infringement of one or more claims of the '755, '814, and '237 patents has been and is willful;

D. An award of damages adequate to compensate RVT for patent infringement that has occurred;

E. An award of all other damages permitted by 35 U.S.C. § 284, including increased damages up to three times the amount of compensatory damages found by reason of the intentional and willful nature of ABB's patent infringement;

F. An award of pre- and post-judgment interest of any monetary damages at the highest rate allowed by law;

G. A preliminary and permanent injunction against ABB from infringing the Asserted Patents;

H. A finding that this is an exceptional case and an award to RVT of its costs and reasonable attorneys' fees incurred in this actions as provided by 35 U.S.C. § 285; and

I. Any such other and further relief as the Court deems just and proper.

JURY DEMAND

Under Rule 38 of the Federal Rules of Civil Procedure, Plaintiff RVT respectfully demands

a trial by jury of any issues triable of right by jury.

	/s/ Karen E. Keller
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