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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte KOZO INOUE

Appeal 2019-000480
Application 14/166,581
Technology Center 2100

Before JOHN A. JEFFERY, BETH Z. SHAW, and SCOTT B. HOWARD,
Administrative Patent Judges.

SHAW, *Administrative Patent Judge.*

DECISION ON APPEAL

Pursuant to 35 U.S.C. § 134(a), Appellant¹ appeals from the Examiner's decision to reject claims 1–5, 8, and 9. *See* Final Act. 1. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM IN PART.

¹ We use the word Appellant to refer to “applicant” as defined in 37 C.F.R. § 1.42. Appellant identifies the real party in interest as FANUC CORPORATION. Appeal Br. 2.

CLAIMED SUBJECT MATTER

The claims are directed to a simulation device for carrying out simulation based on robot program. Claims 1, 4, and 8, reproduced below, are illustrative of the claimed subject matter:

1. A simulation device comprising a processor configured to perform a simulation of a robot based on a robot program,

wherein the processor of the simulation device is further configured to use a separate file which is different from the robot program,

wherein the separate file includes a plurality of lines each corresponding to one line of the robot program,

wherein the separate file includes, in a line among the plurality of lines of the separate file, a command for setting a status of a signal or a command for setting a value of a data register, the command being described corresponding to a line of the robot program, the status and the value being referenced and provided from the separate file to the robot program by executing the line of the robot program,

wherein the status of the signal or the value of the data register described corresponding to the line in execution of the robot program is changed based on the command in synchronization with the line in execution of the robot program, when the simulation is performed.

4. A simulation device comprising a processor configured to perform a simulation of a robot based on a robot program,

wherein the processor of the simulation device is further configured to use a separate file which is different from the robot program,

wherein the separate file includes a plurality of lines each corresponding to one line of the robot program,

wherein the separate file includes, in a line among the plurality of lines of the separate file, a command for setting a status of a signal or a command for setting a value of a data register, the command being described corresponding to a line of the robot program, the status and the value being referenced and

provided from the separate file to the robot program by executing the corresponding line of the robot program,

wherein the command includes a specification of a delay time, and the status of the signal or the value of the data register is set to a status or a value to be set after the delay time has passed from when the corresponding line of the robot program is executed.

8. The simulation device as set forth in claim 1, wherein the separate file represents feedback signals from peripheral equipment other than the robot being controlled by the robot program, and

the peripheral equipment is configured to perform operations in response to output signals from the robot, and

to provide the feedback signals to the robot upon completion of the operations.

REFERENCES

The prior art relied upon by the Examiner is:

Name	Reference	Date
Minto	US 2009/0271169 A1	Oct. 29, 2009
IPS	<i>Dynamic Training Simulator System for a Generic IGCC Plant</i> , 3–55	Dec. 2008
Nagatsuka	US 2007/0282485 A1	Dec. 6, 2007

REJECTION

Claims 1–5, 8, and 9 are rejected under 35 U.S.C. § 103 as obvious over the combination of Minto, IPS, and Nagatsuka.

OPINION

Claim 1

Appellant argues the Examiner has failed to point out how the prior art teaches or suggests “the status and the value being referenced and provided from the separate file to the robot program by executing the line of the robot program” as recited in claim 1. Appeal Br. 8–9. In particular, Appellant argues that IPS, at most, teaches a malfunction initiated in synchronization with executing the line in the simulation program, not by executing. *Id.* at 10. Additionally, Appellant argues that the cited portion of IPS that describes a malfunction is merely describing that the severity of a malfunction can vary instantaneously. *Id.* at 11–12. Appellant also argues that the cited portion of IPS describes a timing relationship between a malfunction and another malfunction, not executing a line. *Id.* And, Appellant argues, IPS does not describe how malfunctions are inserted from the Instructor Station. *Id.* at 13. At most, Appellant argues, the combination of Minto and IPS simply describes that malfunctions can be inserted from the Instructor Station. Appeal Br. 15–16.

Claim 1 recites that a status and value are provided from a separate file to a robot “by executing the line of the robot program.” Appellant does not point us to the Specification to explain the term “executing.” As it is known in the art, execute is “[t]o perform an instruction. In programming, execution implies loading the machine code of the program into memory and then performing the instructions.” MICROSOFT COMPUTER DICTIONARY 336 (5th ed. 2002). Therefore, under its broadest reasonable interpretation, “by executing” is simply performing an instruction.

Given this construction, Appellant provides insufficient evidence showing that the Specification or claims limit “by executing” in a way that, under a broad but reasonable interpretation, is not at least suggested by IPS’s teachings of inserting a malfunction, as described in IPS pages 41 and 53. Regardless of the general contentions articulated by Appellant in the Appeal Brief, “[i]t is the *claims* that measure the invention.” *See SRI Int’l v. Matsushita Elec. Corp. of Am.*, 775 F.2d 1107, 1121 (Fed. Cir. 1985) (en banc) (citations omitted). The Examiner explains, and we agree, that IPS describes that a malfunction may occur at any time or with a preset time delay. Ans. 6. When a malfunction is initiated, the corresponding line in the simulation program modeling the equipment will respond to the inserted malfunction. *Id.* at 8. Moreover, Minto describes that an “instructor may input instructions that insert malfunctions into the simulated engineering projected.” Ans. 8 (citing Minto ¶ 133). As the Examiner explains, equipment failure would not happen if the simulated program is not executing. Ans. 8–9.

Accordingly, giving the disputed limitation the broadest reasonable construction, we agree that the combination of Minto and IPS teach or suggest “the status and the value being referenced and provided from the separate file to the robot program by executing the line of the robot program,” as recited in claim 1. In other words, the broadest reasonable construction of “by executing” as recited in claim 1 does not preclude an instructor providing the initial code or data for the robot program. We therefore sustain the rejection of claim 1.

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Dependent Claim 3

Claim 3 depends from claim 1 and recites, “wherein the robot program includes a logic command which, when executed, references the status of the signal and/or the value of the data register from the separate file.” Appeal Br. 18. Appellant argues the Examiner has failed to show address “the robot program includes a logic command which, when executed.” *Id.* at 18–19. Appellant argues that Minto and IPS merely describe that such references, if they existed, would be caused by the insertion of malfunctions from the Instructor Station 330. *Id.*

Minto describes how an instructor may input “instructions intended to modify the execution of the training simulator.” Minto ¶ 133. IPS also describes malfunction initiation. IPS, p. 41. The Examiner explains that even if a malfunction is initiated at an instructor station, the simulated malfunction would not happen if the simulated project (i.e., code) is not executing. Ans. 9.

As explained above with respect to claim 1, under its broadest reasonable interpretation, to execute is to perform an instruction. Giving the disputed limitation of claim 3 the broadest reasonable construction, we agree with the Examiner that Minto’s program and IPS’s malfunction initiation teaches the robot program includes a logic command, which must be executed by a program, and which, when executed, references the status of the signal or value of the data register from the separate file. *Id.*; Final Act. 7 (citing Minto ¶ 133). We agree with the Examiner that even if the logic command is initiated at the instructor station, the simulated equipment failure would not happen if the simulation project/program is not executing. Ans. 9–10. As the Examiner explains, claim 3 further limits “the line” of the robot program of claim 1 to include the “logic command,” which is taught

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by the simulation program because at least the status of the signal, i.e., a logic value, is referenced by a logic command. *Id.*

Accordingly, we sustain the rejection of dependent claim 3.

Dependent Claim 8

Appellant argues that the Examiner has not pointed to any teaching in IPS of “feedback signals from peripheral equipment . . . to the robot upon completion of the operations,” as recited in claim 8. We agree with Appellant. IPS describes “Remote Functions” that allow an operated to operate equipment in the simulation for which the control room operator has no control. IPS, p. 42. The Examiner concludes that the status or value of the equipment is only to be used in the simulation “to provide the feedback signal during the whole simulation including a completion of an operation.” Ans. 11. Yet, claim 8 requires the peripheral equipment to “provide the feedback signals to the robot *upon completion* of the operations.” (Emphasis added). The Examiner does not point to a portion of the cited references that teach or suggest this temporal limitation, i.e., “upon completion.” Accordingly, on this record, we reverse the rejection of dependent claim 8.

Independent Claim 4

Appellant argues that IPS does not teach “wherein the command includes a specification of a delay time, and the status of the signal or the value of the data register is set to a status or a value to be set after the delay time has passed from when the corresponding line of the robot program is executed,” as recited in claim 4. Appeal Br. 21. The Examiner points to IPS’s description of the fact that “malfunctions may occur singly,

simultaneously, or sequentially at any specific time or with a preset time delay,” as teaching the disputed limitation. Ans. 13.

Claim 4 recites, in part, “wherein the command includes a specification of a delay time, and the status of the signal or the value of the data register is set to a status.” The claim goes on to recite “*or a value to be set after the delay time has passed from when the corresponding line of the robot program is executed.*” Our emphasis underscores that the “or” means that only “the status of the signal or the value of the data register is set to a status” need be taught or suggested by the cited prior art to satisfy the claim. We agree with the Examiner that IPS teaches that a malfunction may occur if the instructor has initiated a malfunction with a preset time delay. *Id.* Notably, Appellant does not persuasively rebut the Examiner’s findings and conclusions in this regard apart from an unsupported argument that the preset time delay is from a prior malfunction. Reply Br. 16. Even if we were to accept Appellants’ contention that the preset time delay is from a prior malfunction, Appellant does not dispute Examiner’s findings and conclusions regarding the command including a specification of a time delay and the status of the signal or the value of a data register is set to a status. Accordingly, we sustain the rejection of claim 4.

CONCLUSION

We affirm the rejection of claims 1–5 and 9 under 35 U.S.C. § 103.

We reverse the rejection of claim 8 under 35 U.S.C. § 103.

DECISION SUMMARY

Claims Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
1-5, 8, 9	103	Minto, IPS, Nagatsuka	1-5, 9	8

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) (2017).

AFFIRMED IN PART