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(71) Applicant: UNIVERSAL ROBOTS A/S [DK/DK]; Ener-
givej 25, 5260 Odense S (DK).

(72) Inventors: BECK, Anders Billesø; Loddet 23, 7000 Fred-
ericia (DK). HANSEN, Jacob Gregers; Egemvej 36, 6000
Kolding (DK). LEDDA, William; Store Glasvej 7B, I, 5000

Odense C (DK). STRØM-HANSEN, Theis; Sovang 11,
5260 Odense S (DK).

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(54) Title: CONTROL OF A MULTIPURPOSE ROBOT ARM

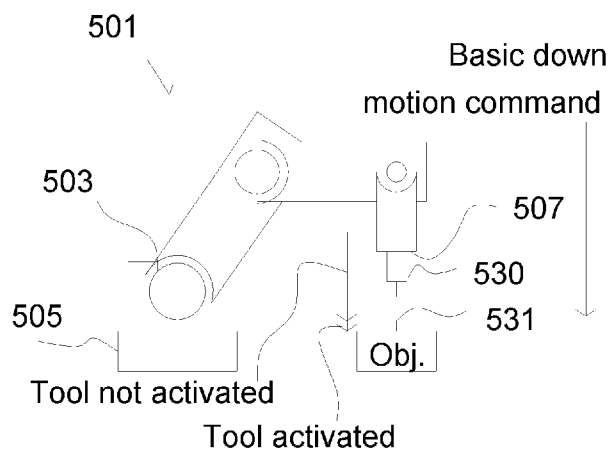


FIG. 5

(57) Abstract: A multipurpose robot arm having a controller configured to control the motion hereof during an operation process according to a plurality of basic operation commands. Wherein the robot controller is configured to control the multipurpose robot arm in a standard mode of operation according to a first subset of the basic operation commands and in an application specific operation mode during part of the robot arm operation process according to a second subset of the basic operation commands. Wherein basic operation commands of the second subset are at least partly comprised by the first subset and wherein at least one of the operation parameters of the second subset is limited by a application operation value. Wherein the application operation value is defined by a desired property of the operation of the multipurpose robot arm in the application specific operation mode.



MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM,
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KM, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

- *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*
- *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))*

Published:

- *with international search report (Art. 21(3))*
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INTERNATIONAL SEARCH REPORT

International application No
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A. CLASSIFICATION OF SUBJECT MATTER
INV. B25J9/16
ADD.
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED
Minimum documentation searched (classification system followed by classification symbols)
B25J G05B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2016/161937 A1 (TOSHIMITSU SHUNSUKE [JP] ET AL) 9 June 2016 (2016-06-09) paragraph [0005] - paragraph [0009] paragraph [0030] - paragraph [0034] paragraph [0056] paragraph [0088] paragraph [0097] - paragraph [0100] paragraph [0105] - paragraph [0106] paragraph [0145] - paragraph [0177] figures 1, 9 - 14	1-34, 40-42
X	EP 3 381 623 A2 (SEIKO EPSON CORP [JP]) 3 October 2018 (2018-10-03) paragraph [0007] - paragraph [0008] paragraph [0070] - paragraph [0078] paragraph [0095] figures 1, 3, 12, 14 ----- -/--	1-34, 40-42

Further documents are listed in the continuation of Box C.

See patent family annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

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"&" document member of the same patent family

Date of the actual completion of the international search 28 September 2020	Date of mailing of the international search report 08/12/2020
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Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer Falconi, Riccardo
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PCT/DK2020/050154

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 6 477 445 B1 (RAMSTROEM KARL-GUSTAV [SE] ET AL) 5 November 2002 (2002-11-05) the whole document -----	1-34, 40-42
A	US 2011/204838 A1 (NAKASUGI MIKIO [JP]) 25 August 2011 (2011-08-25) the whole document -----	1-34, 40-42
A	US 2018/043525 A1 (SU JUI YIAO [TW] ET AL) 15 February 2018 (2018-02-15) the whole document -----	1-34, 40-42
A	JP 2001 293638 A (FANUC LTD) 23 October 2001 (2001-10-23) the whole document -----	1-34, 40-42

INTERNATIONAL SEARCH REPORT

International application No.
PCT/DK2020/050154

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.

2. As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.

3. As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-34, 40-42

Remark on Protest

- The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-34, 40-42

Multipurpose robot arm, wherein the controller operates in a standard mode and in an application specific mode, the two modes having basic operation commands that are configured by changing the values of operation parameters according to basic operations or application-oriented operations

2. claims: 35-39

Control method for operating an industrial manipulator, wherein to different levels of control are used in order to take into account the priority of different tasks, such as safety, basic functionalities and application oriented functionalities.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No PCT/DK2020/050154

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