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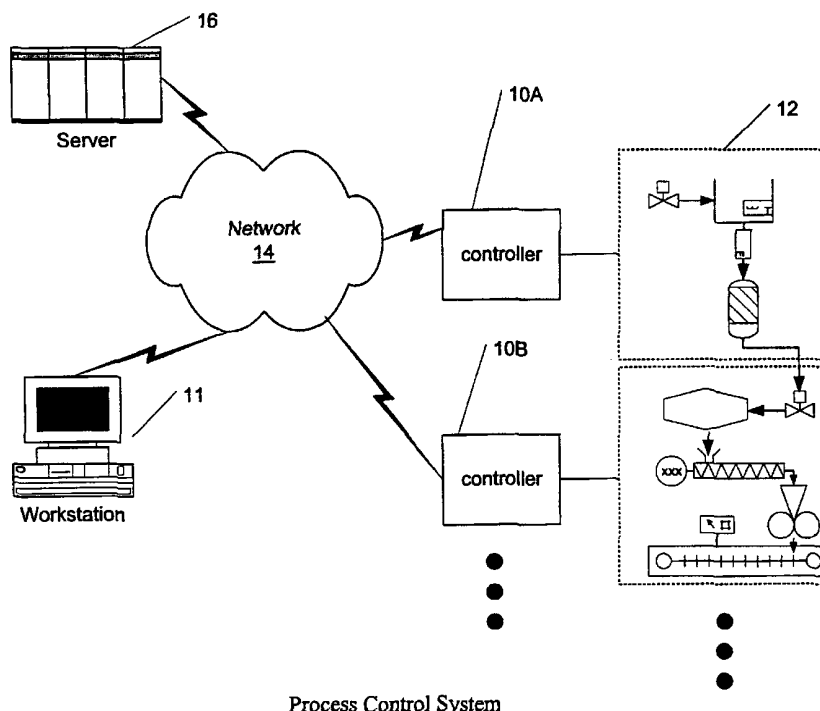
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[Continued on next page]

(54) Title: METHODS AND APPARATUS FOR CONTROL CONFIGURATION



Process Control System

(57) Abstract: Methods and apparatus (11, 14, 16) for configuring process, environment, industrial, and other control systems generate and/or utilize models representing configurations of control systems and/or the systems controlled by them (12).



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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US00/13544

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : G05B 11/01, 13/02, 15/00; G06F 17/50

US CL : 700/17, 29, 83; 703/1

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)

U.S. : 700/17, 29, 83; 703/1

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)

STN ("electrical" and "computer" libraries), EAST, IEEE
search terms: control*, config*, model*, loop*, object*

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5,812,394 A (LEWIS et al) 22 September 1998. Figs. 39, 43-44, 52-53. Cols. 1-12; col. 86 lines 8-24.	125-192
A	US 5,815,152 A (COLLIER et al) 29 September 1998. Figs. 2-11. Col. 1 line 53 through col. 2 line 30.	1-361, 364-409
A, P	US 5,909,368 A (NIXON et al) 01 June 1999. Figs. 1C-21. Col. 2 line 6 through col. 6 line 33; col. 19 lines 45-60; col. 21 line 1 through col. 23 line 18.	1-361, 364-409
A, P	US 6,026,336 A (SAKURAI et al) 15 February 2000. Figs. 1-2. Col. 1 line 15 through col. 2 line 61.	1-361, 364-409

 Further documents are listed in the continuation of Box C.
 See patent family annex.

* Special categories of cited documents:	"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
"A" document defining the general state of the art which is not considered to be of particular relevance	"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
"E" earlier document published on or after the international filing date	"Y" document of particular relevance, the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"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):	"&" document member of the same patent family
"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	

Date of the actual completion of the international search 19 SEPTEMBER 2000	Date of mailing of the international search report 14 NOV 2000
Name and mailing address of the ISA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231 Facsimile No. (703) 305-3230	Authorized officer KEVIN TESKA <i>James R. Matthews</i> Telephone No. (703) 305-9704

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US00/13544**Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)**

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

1. Claims Nos.: 362-363
because they relate to subject matter not required to be searched by this Authority, namely:

There were no claims numbered "362" or "363" appearing in the set of claims.
2. Claims Nos.: 362-363
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:

There were no claims numbered "362" or "363" appearing in the set of claims.
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 II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

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

Please See Extra 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 fee, this Authority did not invite payment of any additional fee.
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.:

Remark on Protest

The additional search fees were accompanied by the applicant's protest.

No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US00/13544

BOX II. OBSERVATIONS WHERE UNITY OF INVENTION WAS LACKING

This ISA found multiple inventions as follows:

This application contains the following inventions or groups of inventions which are not so linked as to form a single inventive concept under PCT Rule 13.1. In order for all inventions to be searched, the appropriate additional search fees must be paid.

Group I, claim(s) 1-124, and 193-260, drawn to methods and apparatus for control system configuration using models.

Group II, claim(s) 125-192, drawn to methods and apparatus for control system configuration having a security mechanism.

Group III, claim(s) 261-361 and 364-409, drawn to methods and apparatus for control system configuration using objects.

The inventions listed as Groups do not relate to a single inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons:

the Group I claims recite use of models that correspond to a special technical feature not found in Groups II or III;

the Group II claims recite use of security mechanisms correspond to a special technical feature not found in Groups I or III; and

the Group III claims recite use of objects that correspond to a special technical feature not found in Groups I or II.