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**Datasheet for the decision
of 5 May 2009**

Case Number: T 1392/06 - 3.5.01

Application Number: 00120684.6

Publication Number: 1087311

IPC: G06F 17/60

Language of the proceedings: EN

Title of invention:

Visiting plan generation method and system

Applicant:

Panasonic Corporation

Opponent:

-

Headword:

Generating a visiting plan/PANASONIC

Relevant legal provisions:

EPC Art. 52(1)(2)

Relevant legal provisions (EPC 1973):

EPC Art. 56, 83

Keyword:

"Inventive step -main request (no)"

"Sufficiency of disclosure - auxiliary request (no)"

Decisions cited:

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Catchword:

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Case Number: T 1392/06 - 3.5.01

D E C I S I O N
of the Technical Board of Appeal 3.5.01
of 5 May 2009

Appellant: Panasonic Corporation
1006, Oaza Kadoma
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Osaka 571-8501 (JP)

Representative: Grünecker, Kinkeldey
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Decision under appeal: Decision of the Examining Division of the
European Patent Office posted 20 March 2006
refusing European application No. 00120684.6
pursuant to Article 97(1) EPC 1973.

Composition of the Board:

Chairman: S. Steinbrener
Members: S. Wibergh
P. Schmitz

Summary of Facts and Submissions

- I. This appeal is against the decision of the examining division to refuse European patent application No. 00120684.6.
- II. The examining division held that the invention according to the then main and first auxiliary requests did not involve an inventive step. The invention according to the second auxiliary request had not been disclosed in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art.
- III. With the statement setting out the grounds of appeal, dated 31 July 2006, the appellant requested that the decision be set aside and a patent be granted based on claims 1-5 filed with the same letter.
- IV. In a communication, the Board noted that the invention generated a "visiting plan", ie information. This information did not represent technical conditions prevailing in an apparatus, nor did it serve as control data for commanding some equipment. It therefore appeared that the features of the claim - apart from their arguable implementation in an unspecified technical system - did not bring about a technical effect, leading to a trivial conclusion of obviousness. It was further noted that the second auxiliary request before the examining division had been for a claim directed to a "visiting plan generation system for generating a visiting plan for plural arms of an electronic part assembly" and that the statement setting out the grounds of appeal suggested that claim 1 be interpreted along these lines. The Board

however did not consider the subject-matter of claim 1 to be limited in this way and moreover tended to agree with the examining division that this invention had not been sufficiently disclosed.

V. Oral proceedings were held on 5 May 2009. The appellant filed an auxiliary request directed to the use of a visiting plan generating system for an electronic part assembly. It requested that the decision under appeal be set aside and that a patent be granted on the basis of the main request filed with the statement setting out the grounds of appeal dated 31 July 2006 or on the basis of the auxiliary request filed during the oral proceedings before the Board.

VI. Claim 1 according to the main request reads:

"A visiting plan generation system, comprising:
a plan generating means for generating a visiting plan of a group constructed by a plurality of members at a predetermined point of time in which the plurality of members moves in a manner that they maintain a group, based on group information, wherein the group information includes locations of destinations, and conditions of tasks to be performed as information on said destinations, items of the members consisting the group, maximum number of the members which can belong to the group, items of the members which can belong to the group, relationships among the members belonging to the group and information that said group is an invariable-member group in which the members of the group cannot be re-arranged, or said group is a variable-member group in which the members of the group can be re-arranged, and information of said members

including a mobile capability and a working capability defined by time required for the tasks of said members necessary for visiting plan generation;

a destination assignment means for assigning a destination to the group and the members of the group when the plan generating means generates the visiting plan;

a state memory means (12) for memorizing a state X showing said visiting plan generated, the members of said each group and information on destination assignment to each group, and an optimum state in preceding visiting plan conditions;

a state re-arrangement means connected with said state memory means (12) for re-arranging the visiting plan to an optimum state by re-arranging the destination to the group and the members of the group based on the state X memorized in said state memory means (12);

a cost calculation means (16) for calculating total time spent in moving and total time spent in working as the visiting plan cost $F_i(X_i)$ of each group, based on information including locations of destinations, and conditions of tasks to be performed as information on said destinations, and information of said group constructed by a plurality of members including a mobile capability and a working capability defined by time required for the tasks of said members necessary for visiting plan generation;

a plan re-formation means (17) for re-forming a visiting plan X_i for each group based on information including locations of destinations, and conditions of tasks to be performed, information of said group constructed by a plurality of members including a mobile capability and a working capability defined by time required for the tasks of said members, and

information of visiting plan cost $F_i(X_i)$ of the group, and sending the re-formed visiting plan data to said state re-arrangement means; wherein said state re-arrangement means re-arranges members of the group and visiting plan thereof to an optimum state, using the visiting plan X_i of the group i under the state X sent from the plan re-formation means (17) and the visiting plan cost $F_i(X_i)$ thereof, and sending the rearranged visiting plan data to the state memory means (12); and the visiting plan X_i of the group i re-arranged by the state re-arrangement means stored in the state memory means (12) as a visiting plan of the group i to an optimum state".

VII. Claim 1 according to the *auxiliary request* reads (additions to the main request in italics):

"A visiting plan generation system *for use in electronic part assembly*, comprising:
a plan generating means for generating a visiting plan *as a[n] IC device feeding plan* of a group constructed by a plurality of members *as IC device picking arms* at a predetermined point of time in which the plurality of members moves in a manner that they maintain a group, based on group information, wherein the group information includes locations of destinations *as predetermined positions on a printed circuit board*, and conditions of tasks..." [the remainder of the claim as the main request].

VIII. At the end of the oral proceedings the Board announced its decision.

Reasons for the Decision

Main request

1. *Exclusion under Article 52(2) EPC*

Claim 1 does not explicitly include a computer. The appellant has argued that a computer is at least implicit and that the presence of different "means" in the claim excludes the possibility that the invention is performed purely mentally. Whether or not this view is correct the Board will adopt it for the purpose of the present decision. Thus the subject-matter of claim 1 may be regarded as an invention within the meaning of Article 52(1) EPC.

2. *Inventive step*

2.1 The claimed system generates a "visiting plan". As explained in the description (paragraph [0001]), the invention permits to optimise, by means of a cost function, the formation of groups of members (persons or apparatuses) who are to visit a plurality of destinations. Although this problem is mainly of mathematical nature (the classic Travelling Salesman Problem, see paragraph [0002] of the application), it also deals with concrete aspects of a travelling group. Thus the group is composed by "members", which could be apparatuses; "tasks" are performed at various "destinations"; "relationships" exist between members in terms of their "mobile capability" and "working capability", etc. These formulations indicate that the method is applied to a problem outside the realm of

pure mathematics, but they do not suffice to demonstrate that this problem has a technical character. In fact, the visiting plan may be nothing more than a time schedule, for example for a group of salesmen, as mentioned in the description (paragraph [0004]). Since the output of the system is the visiting plan, ie data serving solely as information, there is no technical effect.

- 2.2 The Board therefore concludes that claim 1 essentially concerns a method of applied mathematics in a business environment. The technical problem can be seen in devising a system for performing this method automatically, and the solution is to use a computer. Since clearly this was obvious, the subject-matter of claim 1 does not involve an inventive step (Article 56 EPC 1973).

Auxiliary request

3. *Inventive step*

Compared with the main request, claim 1 is limited to a system for generating a visiting plan that defines the movements of arms (of a robot or similar) for mounting IC devices on a printed circuit board. The appellant has argued that this application involves a technical effect since the visiting plan can be used, practically without human intermediation, to control the robot. The Board observes however that the claimed visiting plan generation system is merely *for use* in an electronic part assembly, and it appears doubtful if the mathematical method, or a result gained from it, can be regarded as a technical feature merely because it is

suitable for solving a technical problem. In any case this point need not be resolved since there are other objections against the present patent application (see below).

4. *Disclosure*

As the examining division noted, the description of the use of the mathematical method in an electronic part assembly process is very brief. It consists in fact of a single sentence (paragraph [0063]):

"The present invention is also applicable to generation of a variety of action plans, for example, in an electronic part assembly process in which IC devices are mounted onto printed circuit boards (each of plural arms having a device (each of plural visitors) moves to (visits) a predetermined position on a printed circuit board for mounting the device thereonto), or in package distribution operation in transportation."

There is thus no description of an assembly robot with which the invention may be used. Nor is it explained how the picking arms are divided into groups, what "conditions of tasks" are performed, what "items" characterise the arms, what the "relationships" between arms are, why some arms require different time for tasks than other, and why their "mobile capability" varies. The application of the mathematical method to the control of an assembly robot is thus left entirely to the skilled person.

The appellant has argued that the skilled person knows how assembly robots work and therefore would have no

difficulty to adapt the invention to this application. This, however, is a kind of mere allegation which, if generally accepted, would render Article 83 EPC largely meaningless. The appellant has furthermore pointed out that there are no apparent contradictions between the description of the method and the indication of its application to an assembly process. However, the mere absence of contradictions is no proof that the invention has been properly disclosed. In fact, the less information an application contains, the less likely are contradictions. The relevant question is only whether the skilled person could carry out the invention without undue burden on the basis of the information given in the patent application. As set out above, in the present case reasons exist for the view that he could not, and the appellant has not provided any evidence to the contrary. Thus the Board concludes that the patent application does not disclose the claimed invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art, contrary to Article 83 EPC 1973.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:

S. Sánchez Chiquero

S. Steinbrener