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Datasheet for the decision of 26 April 2024

Case Number: T 2055/22 - 3.5.05

Application Number: 15196390.7

Publication Number: 3029653

IPC: G08G5/00, G08G5/02

Language of the proceedings: EN

Title of invention:
System and method for displaying predictive conformal configuration cues for executing a landing

Applicant:
Honeywell International Inc.

Headword:
Displaying locations for aircraft landing/HONEYWELL

Relevant legal provisions:
EPC Art. 56

Keyword:
Inventive step - (no): distinguishing features relate to mere "presentation of information"

Decisions cited:
T 0641/00, T 0528/07, T 0336/14

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Case Number: T 2055/22 - 3.5.05

D E C I S I O N
of Technical Board of Appeal 3.5.05
of 26 April 2024

Appellant: (Applicant)	Honeywell International Inc. 855 S. Mint Street Charlotte, NC 28202 (US)
Representative:	LKGlobal UK Ltd. Cambridge House Henry Street Bath BA1 1BT (GB)
Decision under appeal:	**Decision of the Examining Division of the European Patent Office posted on 23 February 2022 refusing European patent application No. 15196390.7 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chair	K. Bengi-Akyürek
Members:	P. Tabery
	C. Almberg

Summary of Facts and Submissions

I. The appeal is directed against the examining division's decision to refuse the European patent application.

II. The examining division found, *inter alia*, that the claimed subject-matter did not involve an inventive step (Article 56 EPC).

III. The documents referred to by the examining division included the following prior-art document:

D6: US 4 825 374 A.

IV. Oral proceedings were held before the board on 26 April 2024.

The final requests of the appellant were that the decision under appeal be set aside and that a patent be granted on the basis of the claims of the **main (sole) request** submitted with the statement setting out the grounds of appeal.

At the end of the oral proceedings, the board's decision was announced.

V. Claim 1 of the **main request** reads as follows:

"A method for displaying, on an avionics display system (100), cues for executing an aircraft landing on a target runway after a loss of engine thrust by the aircraft, the method comprising:

(a) receiving avionics data (602);

(b) responsive to detecting the loss in engine thrust, processing the avionics data (604) to determine a current aircraft configuration and displaying (606), on a three dimensional display (106) on the avionics display system (100) the target runway and a unique conformal cue for each of:

(i) the location where the aircraft will land in relation to the runway if the current aircraft configuration (210) is not altered,

(ii) the location where the aircraft will land in relation to the runway if only landing gear (214) is deployed,

(iii) the location where the aircraft will land in relation to the runway if landing gear and flaps (218) are deployed;

(c) updating terrain (304) in the three dimensional display (106), indicative of aircraft travel (302); and

repeating (a)-(c) until the aircraft has landed."

Reasons for the Decision

1. The present application concerns an avionic flight display system that is supposed to display predictive cues for executing aircraft landing by a pilot after a "loss of engine thrust".

2. Inventive step (Article 56 EPC)

2.1 Claim construction

2.1.1 As to **features (i) to (iii)**, the board notes that these features do not mandate displaying an *actual* "location"

on a map. Rather, features (i) to (iii) merely require the display of "*unique conformal* ***cue[s] for ... the location*** *where the aircraft will land in relation to the runway*". The board considers that the term "*cue for the location*" encompasses any information indicating such a location (see point 2.7 below).

2.1.2 As to **feature (b)**, the board is not convinced by the appellant's interpretation that the term "loss in engine thrust" implied a *full* or at least *significant* loss of thrust. Rather, the board holds that the extent of the loss is not quantified in claim 1, neither expressly nor implicitly. In addition, contrary to the appellant's view, the term "loss" does not imply an *involuntary* loss. Likewise, the board does not share the appellant's view that it was necessarily irreversible, as opposed to, for example, a reduction of thrust performed by the aircraft's pilot. Rather, the board considers that the term "loss" does not imply any restriction as to its cause. In other words, the expression "loss in engine thrust" is not limited to an "engine out emergency" situation and may also comprise any *partial* "loss in engine thrust".

2.2 According to document **D6**, the landing location information is shown as an indication whether the aircraft is descending at the optimum calculated rate (or above/below this rate, respectively) in order to reach a "programmed descent point" (see column 9, lines 26-39 and lines 58-63 of D6). This "descent point" is disclosed as being, for example, an airport runway (see column 8, lines 4-8 of D6). Thus, the board holds that **feature (i)** is already anticipated by document D6.

2.3 On the other hand, the board finds that D6 does not directly and unambiguously disclose **features (ii) and (iii)** of claim 1. Notably, "guideslope marker 74" of D6 cannot anticipate a "cue" for a landing location if only a "landing gear" is deployed, since it is disclosed as being always located concentrically within the idle descent marker (see column 9, lines 20-24). The board thus concurs with the appellant that those features constitute distinguishing features.

2.4 As to **feature (b)**, the appellant argued that the "current aircraft configuration" was one where there was no "engine thrust" whereas the "idle condition" disclosed in D6 clearly envisaged the engines being in a fuel-consuming idle condition. However, in view of the interpretation set out in point 2.1.2 above, the "idle condition" mentioned in document D6 falls well within the broad scope of the phrase "loss in engine thrust".

2.5 In consequence, the subject-matter of claim 1 differs from the disclosure of document **D6** in that the cues are displayed responsive to detecting the loss in engine thrust on a three-dimensional display and relate to landing locations in situations where only a landing gear or where both landing gear and flaps are deployed, while also the terrain is updated, i.e. **features (b), (ii), (iii) and (c).**

2.6 The technical effect resulting from those distinguishing features was extensively discussed during the oral proceedings before the board. In that regard, the appellant argued, by referring to **T 336/14** and **T 528/07**, that providing cognitive information about a state of a technical system already implied a prompt to the user (i.e. the pilot) to act in

accordance with this information (i.e. to deploy landing gear, flaps when indicated). The technical effect of the distinguishing features consisted in assisting the user in safely landing the aircraft. On that basis, the appellant argued that the present invention solved the objective problem of "providing to a pilot guidance for safely landing an aircraft in case of engine failure". Document D6 could not hint towards a solution to this problem, since it presupposed that it was possible to also *increase* engine thrust during landing (referring to column 10, line 13: "aircrew must add power").

2.7 The board is not convinced by those arguments. Even if "safely landing an aircraft" could indeed be considered a "technical task" within the meaning of T 336/14, the distinguishing features and claim 1 as a whole are not suitable to credibly assist the user (i.e. the pilot) in performing such a technical task by means of a continued and/or guided human-machine interaction process (cf. T 336/14, Reasons 1.2). In particular, claim 1 is entirely silent as to how the respective "locations" are actually determined upon detecting a "loss in engine thrust" (whatever its precise scope, see point 2.1.2 above). Those additional "locations" according to features (ii) and (iii) could even correspond to a "first guess" possibly based on, for example, previously obtained data or be taken from flight simulation data. No mathematical operation or any measurements whatsoever - as invoked by the appellant - are in fact derivable from the wording of claim 1. Consequently, those "locations" do not necessarily reflect any "technical conditions" (within the meaning of T 528/07, Reasons 3.4 and 3.5, as cited by the appellant) or the actual "operating state" of the underlying technical system (i.e. the aircraft

here). Hence, these landing "locations" do not credibly correspond to "technical information" within the meaning of T 336/14 (cf. Reasons 1.2.4). In other words, in the absence of "technical information" being required to be involved in the determination of those landing locations, the mere display of those landing "locations" in a 3D manner may exclusively be motivated by the subjective preferences of the respective users (i.e. pilots) or the associated GUI designer - without the need of any technical expertise. Therefore, applying the well-established COMVIK approach (cf. **T 641/00**, Headnote II), the objective technical problem could, at most, be framed as "how to technically implement the display of further - somehow obtained or estimated - landing locations on the aircraft display used in D6".

2.8 The board, however, considers that displaying an aerial view of a particular region in a three-dimensional way to a user together with an indication of the current aircraft position and a certain flight destination along with some undefined "landing locations" was notoriously known already at the priority date of the present application (i.e. December 2014). In avionic systems, moving-map displays, designed for example for passengers, were introduced already in 1982, while visualising some "landing location data" is already known from D6. This was not contested by the appellant. Thus, the board judges that it would have been obvious to the person skilled in the field of avionic GUIs to come up with the claimed solution in view of the above objective technical problem to be solved.

2.9 Consequently, the subject-matter of claim 1 is not inventive over the disclosure of document **D6**.

3. Hence, the appellant's main request is not allowable under Article 56 EPC.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chair:

T. Buschek K. Bengi-Akyürek

Decision electronically authenticated