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**Datasheet for the decision
of 16 January 2008**

Case Number: T 0768/07 - 3.2.02

Application Number: 03776116.0

Publication Number: 1562469

IPC: A61B 3/10

Language of the proceedings: EN

Title of invention:

Method and installation for detecting and following an eye and the gaze direction thereof

Applicant:

Tobii Technology AB

Headword:

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Relevant legal provisions:

EPC Art. 52(1), 54

Relevant legal provisions (EPC 1973):

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Keyword:

"Novelty (yes)"

Decisions cited:

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Catchword:

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Case Number: T 0768/07 - 3.2.02

D E C I S I O N
of the Technical Board of Appeal 3.2.02
of 16 January 2008

Appellant: Tobii Technology AB
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Representative: Wihlsson, Joakim Per Magnus
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Decision under appeal: Decision of the Examining Division of the
European Patent Office posted 5 February 2007
refusing European application No.03776116.0
pursuant to Article 97(1) EPC.

Composition of the Board:

Chairman: T. Kriner
Members: S. Chowdhury
A. Pignatelli

Summary of Facts and Submissions

- I. This appeal is against the decision of the examining division dated 5 February 2007 to refuse European patent application No. 03 776 116.0.

The application was refused on the grounds that the subject-matter of claim 1 then on file lacked novelty having regard to D1 (US-A-6 152 563).

- II. On 3 April 2007 the appellant (applicant) lodged an appeal against the decision and paid the prescribed fee on the same day. On 2 May 2007 a statement of grounds of appeal was filed.

The appellant requests that the novelty objection be set aside and that the case be remitted to the examining division for further examination.

- III. Independent claim 1 reads as follows:

"An eye detection installation comprising:
one or more light sources (2, 3) for emitting light in directions toward the head of a user,
a detector (4) for receiving light from the head of a user and to repeatedly capture pictures thereof, and
an evaluation unit (6) connected to the detector (4) for determining the position and/or gaze direction of an eye, and arranged to determine, in a picture captured by the detector (4), an area in which an image of an eye or images of eyes is/are located,
characterized in that
the evaluation unit (6) is arranged to, after having determined the area, control the detector (4) to

forward to the evaluation unit (6) information about successive or following pictures that only corresponds to the determined area of the image captured by the detector (4), and the detector (4) is arranged to only read out information from that portion of the detector (4) surface that corresponds to the determined area and thereby the data that are to be then forwarded to the evaluation unit (6)."

Claims 2 to 10 are dependent claims.

Reasons for the Decision

1. The appeal is admissible.
2. The Board draws the appellant's attention to the fact that this decision is issued after the entry into force of the EPC 2000. When Articles of the old version of the EPC (1973) are cited, the year is indicated in parentheses. The transitional provisions according to Article 7 of the Act revising the EPC of 29 November 2000 and the Decisions of the Administrative Council of 28 June 2001 and of 7 December 2006, Article 2, have been applied.
3. Amendments

Present claim 1 is based on claims 1 and 2 as originally filed and present dependent claims 2 to 10 correspond to original claims 3 to 11. The amended claims meet the requirement of Article 123(2) EPC.

4. Clarity

The impugned decision criticised lines 9 and 10 of claim 1 then on file (corresponding to the feature "to determine, in a picture captured by the detector, an area in which an image of an eye or images of eyes is/are located" of present claim 1) as being "truly garbled".

This feature is clear to the Board. It means that, within the entire picture captured by the detector, an area within which an image of an eye or images of eyes is/are located" is determined. This is consistent with the explanation in the application on page 5, lines 14 to 22 and page 9, lines 29 to 35.

Moreover, the appellant has now reverted to the wording approved by the examining division in its communication dated 8 May 2006. Therefore, this objection has been met by amendment and claim 1 is clear in this respect.

5. Novelty

5.1 The application relates to an eye detection installation for detecting and tracking eyes and gaze angles/directions comprising light sources for emitting light in directions toward the head of a user, a detector for receiving light reflected from the user's head and to repeatedly capture pictures thereof, and an evaluation unit for determining the position and/or gaze direction of an eye, and in a picture captured by the detector, an area in which an image of an eye is located.

The photosensor used would normally be a high resolution type for greater accuracy, which means that a large amount of data is obtained when the whole photosensor is exposed. Instead of evaluating the entire captured picture, if only a given area of interest (AOI) were to be selected to be processed, then as large portion of unnecessary picture information as possible is discarded as early as possible in the procedure and the amount of data to be handled by the system may be reduced considerably, which reduces the load on the system's resources.

Therefore, photosensors having a very high resolution can be used without slowing down the system and eye movements may be tracked rapidly.

In order to carry out the above the evaluation unit is arranged to, after having determined the area in a picture where the eye is imaged, forward to the evaluation unit information about successive or following pictures that only corresponds to the determined area of the image captured by the detector, and the detector is arranged to only read out information from that portion of the detector surface that corresponds to the determined area, as set out in the characterising part of claim 1.

- 5.2 The invention of D1 relates primarily to providing an eye-driven method of interfacing a person with a computer, so that a paralysed person, for example, may operate a computer (D1, column 1, lines 59 and 60). The apparatus comprises an eye detection installation for detecting and tracking eyes and gaze angles/directions comprising one or more light sources for emitting light

in directions toward the head of a user, a detector for receiving light reflected from the user's head and to repeatedly capture pictures thereof, and an evaluation unit for determining the position and/or gaze direction of an eye.

The system detects when the eye lingers for a predetermined period at any position on the display, and if the predetermined linger period is exceeded the system magnifies the area the user was looking at and places the magnified image in a window at the centre of the screen. The user then fixates in the magnified area at a point where they wish for a mouse action to be performed (D1, column 3, lines 19 to 42).

The detector in D1 does not forward to the evaluation unit information about successive or following pictures that only corresponds to the determined area of the image captured by the detector, and the detector is not arranged to only read out information from that portion of the detector surface that corresponds to the determined area and thereby the data that are to be then forwarded to the evaluation unit, these features not being necessary in order to operate a computer.

On the contrary, the data from the entire picture and not only the AOI is forwarded to the evaluation unit (D1, column 5, lines 14 to 22).

5.3 Therefore, the eye detection installation is novel over the system of D1.

6. The Board has considered only the principal ground of refusal pertaining to novelty of the claimed subject-matter. It is appropriate to remit the case to the department of the first instance to complete the examination, particularly as to any other objections under Article 84 EPC (1973) and the question of inventive step.

Order

For these reasons it is decided that:

The decision under appeal is set aside.

The case is remitted to the first instance for resumption of the examination procedure.

The Registrar

The Chairman

V. Commare

T. Kriner