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**Datasheet for the decision  
of 20 January 2011**

**Case Number:** T 0739/07 - 3.5.05

**Application Number:** 99951181.9

**Publication Number:** 1132804

**IPC:** G06F 3/033

**Language of the proceedings:** EN

**Title of invention:**

Optical scanning type touch panel

**Applicant:**

FUJITSU LIMITED

**Headword:**

Optical arrangement for detecting light reflected by a rotating polygon mirror/FUJITSU

**Relevant legal provisions (EPC 1973):**

EPC Art. 56

**Keyword:**

"Inventive step (no)"

**Catchword:**

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Case Number: T 0739/07 - 3.5.05

**D E C I S I O N**  
of the Technical Board of Appeal 3.5.05  
of 20 January 2011

**Appellant:**

FUJITSU LIMITED  
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**Representative:**

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**Decision under appeal:**

Decision of the Examining Division of the  
European Patent Office posted 22 December 2006  
refusing European patent application  
No. 99951181.9 pursuant to Article 97(1) EPC  
1973.

**Composition of the Board:**

**Chairman:** A. Ritzka  
**Members:** P. Cretaine  
G. Weiss

## Summary of Facts and Submissions

I. This is an appeal against the decision of the examining division dispatched 22 December 2006, refusing European patent application No. 99 951 181.9 because of lack of inventive step of the single independent claim 1 having regard to the disclosure of

D1: GB 2206689 A or

D9: EP 0600576 A1

II. The notice of appeal was submitted on 21 February 2007. The appeal fee was paid on the same day. The statement setting out the grounds of appeal was submitted on 20 April 2007. The appellant requested that the decision under appeal be set aside and that a patent be granted on the basis of claims 1 and 39 filed with the statement setting out the grounds of appeal, claim 10 filed in the oral proceedings of 7 November 2006 before the examining division and claims 2 to 9 and 11 to 38 filed with letter of 2 October 2006. Oral proceedings were requested on an auxiliary basis.

III. A summons to oral proceedings to be held on 20 January 2011 was issued on 22 October 2010. In an annex accompanying the summons the board expressed the preliminary opinion that the subject-matter of the single independent claim 1 did not fulfil the requirements of Article 56 EPC 1973 having regard to the disclosure of D9. The board gave its reasons for the objection and stated that the appellant's arguments were not convincing.

IV. By letter dated 13 January 2011, the appellant informed the board that he would not be attending the oral proceedings.

V. Oral proceedings were held on 20 January 2011 in the absence of the appellant. After due deliberation on the basis of the written submissions in the statement setting out the grounds of appeal, the board announced its decision.

VI. Independent claim 1 reads as follows:

"1. An optical scanning-type touch panel comprising: an optical scanner (15, 18) for angularly scanning light in a plane (X, Z) substantially parallel to a predetermined region (10); and an optical transceiver (11-14, 16, 17) for projecting light along an optical axis (Z) onto said optical scanner and receiving part of scanning light of said optical scanner; for measuring a scanning light cut-off position, which is produced in said predetermined region by an indicator (S), based on a light receiving output of said optical transceiver that corresponds to a scanning angle, wherein  
said optical transceiver comprises a light emitting element (11), a light receiving element (13) for receiving part of said scanning light, and reflecting means for reflecting part of said scanning light toward said light receiving element;  
characterized by said optical scanner comprising a polygon mirror (15) and a motor (18) for rotating said polygon mirror, and by the optical scanning-type touch panel further comprising a collimation lens (12) for

changing light from said light emitting element into parallel light, an aperture mirror (16) for providing said reflecting means and limiting the parallel light from said collimation lens, a light receiving lens (17) for focusing reflected light from said aperture mirror on said light receiving element, and a slit plate (14) for limiting focused light from said light received lens, and by said polygon mirror (15), motor (18), light emitting element (11), collimation lens (12), light receiving element (13), aperture mirror (16), light receiving lens (17) and a slit plate (14) being mounted on a single base body (19) as one unit, the collimation lens (12) being fixed in a cylindrical lens holder (31) which is inserted into a hollow section of the single base body (19) through which said optical axis (Z) passes, the aperture mirror (16) being arranged to reflect said part of the scanning light in a height direction (Y) of said single base body (19) which is perpendicular to said plane (X, Z), the light receiving lens (17) being fixed in a cylindrical lens holder (61) which is fitted into another hollow section of the single base body (19) having an axis in said height direction (Y), and the motor (18) being mounted on the single base body (19) with the use of motor fixing holes (19a) also extending in the height direction (Y), whereby it is possible to regulate the verticality and parallelism with high accuracy between the optical axis (Z) and the single base body (19)."

## Reasons for the Decision

### 1. *Admissibility*

The appeal complies with the provisions of Articles 106 to 108 EPC 1973 (see point II above). It is therefore admissible.

### 2. *Non-attendance of oral proceedings*

In its letter of 13 January 2011 the appellant announced that its representative would not participate in the oral proceedings. The board considered it to be expedient to maintain the set date for oral proceedings. Nobody attended the hearing on behalf of the appellant.

Article 15(3) RPBA stipulates that the board shall not be obliged to delay any step in the proceedings, including its decision, by reason only of the absence at the oral proceedings of any party duly summoned who may then be treated as relying only on its written case.

Thus, the board was in a position to take a decision at the end of the hearing.

### 3. *Inventive step*

#### 3.1 *Closest prior art:*

D1 and D9 both disclose an optical scanning-type touch panel. The system of D9 has however more features in common with the system according to claim 1 than the system of D1 has: in particular D9 teaches to use a

rotating polygon mirror and optical lenses at the light emitting source and at the light detector. Therefore the board judges that D9 represents the closest prior art to the subject-matter of the present application.

3.2 In the board's judgement, the subject-matter of claim 1 differs from the disclosure of D9 both by the kind of some optical components used and by the geometry of the optical arrangement.

3.2.1 The optical components used in the system according to claim 1 and which are different from the components used in D9 are the following:

- an aperture mirror for providing the reflecting means and limiting the parallel light from the collimation lens, instead of a beam splitter in D9;
- a slit plate for limiting focused light from the light receiving lens;
- a cylindrical lens holder for the collimation lens,
- a cylindrical lens holder for the light receiving lens;
- motor fixing holes for mounting the motor to the single base body.

The appellant did not object to this analysis which was presented in point 3.2.1 of the annex accompanying the summons.

3.2.2 The geometry of the arrangement according to claim 1 differs from the geometry of the arrangement of D9 only in that the aperture mirror and the light receiving element are adapted and disposed such that the light beam from the polygon mirror is reflected by the aperture mirror to the light receiving element in a direction **perpendicular to the plane** of the touch panel, whereas in D9 the beam splitter reflects the light to the photodetector in a direction perpendicular to the light received from the polygon mirror but **in the plane** of the touch panel. This way of arranging the optical components has been designated by the appellant as "three-dimensional" as opposed to the "two-dimensional" arrangement of D9.

3.3 Regarding the different optical components used, they represent either standard means or common equivalents that the skilled person would equally choose depending on the circumstances. Moreover their use in combination in the touch panel does not produce, in the board's judgement, any unexpected technical effect. The board therefore judges that the technical differences listed in paragraph 3.2.1 above do not impart an inventive step to the subject-matter of claim 1. It is also to be noted that the appellant did not address this issue in the statement setting out the grounds of appeal.

3.4 With regard to the "three-dimensional" character of the claimed touch panel, the appellant argued that the technical advantages of it were that the risk of leakage light from the light emitter (light emitting element 11) to the light receiver (light receiving element 13) was decreased and that it avoided the light



receiver of one optical unit being disturbed by light emitted from the other optical unit on the panel.

As to the first advantage, the board judges that it is also true for the system of D9 since the light beam reflected by the beam splitter 30 and entering the light detector 32 is perpendicular to the light beam issued by the light source 26.

As to the second advantage, the board notes that the touch panel of D9 already provides a certain protection of the light receiver 32 of one optical unit 18 against light emitted from the other optical unit 20 because of the perpendicular position of the light receiver's axis with respect to the light beams emitted and reflected by, respectively, the light source 26 and the polygon mirror 34 of the other optical unit. Moreover, in the arrangement of claim 1, it may well happen that light beams issued from one optical unit, after reflections on the panel sides, be reflected by the aperture mirror of the other optical unit to the light receiving element of the other optical unit. Furthermore the implementation of the light receiver as specified in claim 1 requires a certain height or thickness of the base body which would impair the overall appearance of the touch panel, as acknowledged by the appellant in the statement setting out the grounds of appeal. Therefore the board judges that the perpendicular mounting of the light receiving element as defined in claim 1 does not provide a clear technical advantage over the prior art of D9 and has to be considered as a mere alternative. In the board's judgement, the skilled person looking for an alternative would obviously consider different positioning of the optical axis of

the light receiving element and arrive by a routine trial and error approach at the perpendicular position according to claim 1.

Therefore the subject-matter of the single independent claim 1 does not involve an inventive step (Article 56 EPC 1973).

### **Order**

**For these reasons it is decided that:**

The appeal is dismissed.

The Registrar:

The Chair:

K. Götz

A. Ritzka