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**Datasheet for the decision  
of 20 March 2013**

**Case Number:** T 1075/11 - 3.5.05  
**Application Number:** 08173106.9  
**Publication Number:** 2075672  
**IPC:** G06F 3/01, G06F 1/16  
**Language of the proceedings:** EN

**Title of invention:**

Keyboard module with tactile feedback mechanisms and  
electronic device with the same

**Applicant:**

HTC Corporation

**Headword:**

Keyboard module with tactile feedback mechanism/HTC

**Relevant legal provisions:**

EPC Art. 56, 83, 84, 106, 107, 108, 123(2)  
RPBA Art. 15(3)

**Keyword:**

"Added subject-matter - main request (yes)"  
"Enabling disclosure for the whole range claimed - main  
request (no)"  
"Essential feature missing - main request (yes)"  
"Inventive step - main and auxiliary requests (no)"

**Decisions cited:**

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**Catchword:**

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Case Number: T 1075/11 - 3.5.05

**D E C I S I O N**  
of the Technical Board of Appeal 3.5.05  
of 20 March 2013

**Appellant:**  
(Applicant)

HTC Corporation  
No. 23, Xinghua Road  
Taoyuan City  
Taoyuan county 330 (TW)

**Representative:**

Borchert, Uwe Rudolf  
Puschmann Borchert Bardehle  
Patentanwälte Partnerschaft  
Postfach 10 12 31  
D-80086 München (DE)

**Decision under appeal:**

**Decision of the Examining Division of the  
European Patent Office posted 2 December 2010  
refusing European application No. 08173106.9  
pursuant to Article 97(1) EPC.**

**Composition of the Board:**

**Chairman:** P. Corcoran  
**Members:** M. Höhn  
D. Prietzel-Funk

## **Summary of Facts and Submissions**

- I. This appeal is against the decision of the examining division, posted 2 December 2010, refusing European patent application No. 02764507.6 on the grounds of lack of clarity (Article 84 EPC) and of lack of inventive step (Article 56 EPC) in the light of the prior-art documents:
- D1: WO 03/038800 A1,  
D2: US 2002033795 A1 and  
D3: WO 2006/094308 A2.
- II. The notice of appeal was received on 11 February 2011. The appeal fee was paid on the day before. The statement setting out the grounds of appeal was received on 1 April 2011. The appellant requested that the appealed decision be set aside and that a patent be granted on the basis of the three sets of claims filed with the statement setting out the grounds of appeal as main request, first auxiliary request and second auxiliary request. Oral proceedings were requested on an auxiliary basis in case the main request could not be granted.
- III. A summons to oral proceedings to be held on 20 March 2013, was issued on 17 December 2012. In an annex accompanying the summons the board expressed the preliminary opinion that for the main request the subject-matter of independent claim 1 did not appear to fulfil the requirements of Articles 83, 84 and 123(2) EPC and that the subject-matter of independent claim 1 of all requests did not appear to involve an inventive step (Article 56 EPC) in view of the disclosure of D3

in the light of the disclosures of D2 or D4 (JP 2005258666 A AJ (patent abstract)). D4 was introduced into the proceedings of the board's own motion in accordance with Article 114(1) EPC. The board gave its reasons for the objections and explained that the appellant's arguments were not convincing.

- IV. By letter dated 20 February 2013 the appellant submitted three sets of claims according to an amended main request, first and second auxiliary requests together with further arguments in support of an inventive step.
- V. By letter dated 26 February 2013 the board was informed that the appellant would not be represented at the oral proceedings and that the case should be decided on the basis of the status of the file.
- VI. Independent claim 1 according to the main request reads as follows:

"1. An electronic device, comprising:  
a display (105); and  
an input module (110) for entering characters on the display (105),  
wherein the input module (110) comprise:  
a key input means (113) having a plurality of first keys and a plurality of second keys:  
a plurality of switches (130) disposed under the key input means (113), wherein each of the switches (130) is configured for detecting a corresponding press on each of the first and second keys (120) respectively and to be switched on in response to the detected press;

at least a first vibration element (150) disposed under the key input means (113), wherein the first vibration element (150) vibrates when one of the first keys is pressed and the corresponding switch under the pressed first key is switched on; and  
at least a second vibration element (151) disposed under the key input means (113), wherein the second vibration element (151) vibrates when one of the second keys is pressed and the corresponding switch under the pressed second key is switched on,  
wherein  
the key input means (113) is divided into groups of keys separated from each other,  
characterized in that  
the key input means is a keyboard, that  
the vibration intensity generated by the first vibration element (150) is proportional to the distance between the first vibration element (150) and the pressed key of the first keys, and that  
the vibration intensity generated by the second vibration element (151) is proportional to the distance between the second vibration element (151) and the pressed key of the second keys."

Independent claim 1 according to the first auxiliary request essentially adds the following feature:

"wherein pressing a key (120) farther away from the vibration element (150) or (151) will cause the corresponding vibration element (150) or (151) to generate a stronger vibration, while pressing a key (120) closer to the vibration element (150) or (151) will cause the corresponding vibration element (150) or (151) to generate a weaker vibration."

Independent claim 1 according to the second auxiliary request essentially adds the following feature:

"the key input means is a keyboard and is divided into the first keys and the second keys, and the first keys and the second keys of the keyboard are marked with twenty-six English letters, and the English letters are arranged in accordance with the arrangement of the English letters on a standard QWERTY keyboard (113)".

VII. The appellant requested in writing that the decision under appeal be set aside and that a patent be granted on the basis of a main request or of one of the two auxiliary requests, all submitted with the letter dated 20 February 2013.

VIII. Oral proceedings were held on 20 March 2013 in the absence of the appellant. After due deliberation on the basis of the written submissions, the board announced its decision.

## **Reasons for the Decision**

### 1. Admissibility

The appeal complies with Articles 106 to 108 EPC (see Facts and Submissions, point II above). It is therefore admissible.

### 2. Non-attendance at oral proceedings

By letter dated 26 February 2013 the board was informed that the appellant would not be represented at the oral proceedings and that the case should be decided on the basis of the status of the file. The board considered it expedient to maintain the date set for oral proceedings. Nobody attended on behalf of the appellant.

Article 15(3) RPBA stipulates that the board is not 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.

Hence, the board was in a position to announce a decision at the end of the oral proceedings.

Main request

### 3. Amendments

- 3.1 Independent claim 1 was amended by specifying that "at least" a first and "at least" a second vibration element are provided. The appellant referred to page 3, line 23 of the description as filed as an antecedent

basis for this amendment. However, there it is only disclosed that there may be more than two groups of keys ("at least two key groups"). There is no disclosure for having more than a single vibration element for each group, in particular since there are only two groups specified in claim 1. Therefore, there is no direct and unambiguous disclosure for having more than one vibration element for a group of keys. The aforementioned amendment therefore does not fulfil the requirements of Article 123(2) EPC.

4. Articles 83 and 84 EPC

4.1 Claim 1 as amended comprises the possibility that there are provided more than one vibration element per group of keys, including a scenario with as many vibration elements as there are keys in a group (see point 3.1 above). The skilled reader, however, is left in doubt as to how to relate the respective vibration elements to the plurality of keys. In particular when assuming that every key has a dedicated vibration element which is covered by the wording of claim 1, it is unclear how the features of the characterizing portion could then be performed, since there is no longer any distance varying between the key and the respective vibration element (Article 84 EPC).

For the same reasons, the application does not provide an enabling disclosure for carrying out the invention over the whole range claimed (Article 83 EPC).

4.2 The appellant argued in the statement setting out the grounds of appeal that the problem of varying vibration intensity over the virtual keyboard underlying claim 1



only exists "in case a smaller number of vibration elements than keys is used" (see page 4, first paragraph). This is underlined by the further argument that the problem does not arise with input devices which have a small number of keys like mobile phones (see page 5, first paragraph). Claim 1 does not specify the relationship between the number of keys and vibration elements. Claim 1 is therefore missing an essential feature of the invention (Article 84 EPC).

5. Article 56 EPC - Inventive step

Notwithstanding the aforementioned objections, the subject-matter of claim 1 lacks an inventive step.

- 5.1 The board considers D3 to be the closest prior art on file, since it discloses a virtual keyboard on a touch screen which produces tactile vibration feedback (see in particular figure 16 in combination with paragraphs [82] and [160] to [163]). The virtual keyboard of D3 provides input means having a plurality of first keys (see figure 16, centre part of the keyboard) and a plurality of second keys (see figure 16, right hand side of the keyboard with a separate part of keys) which are therefore two groups of keys separated from each other according to claim 1. The touch screen provides a touch sensing and force sensing element (see figure 20 and paragraph [109]) corresponding to the plurality of switches according to claim 1. D3 further discloses vibration elements which are located under the key input means (see e.g. paragraph [0162] "underneath the display"). The vibration elements are configured to vibrate (see e.g. paragraph [0161]) when a user presses on a virtual key related to this

vibration element (see D3, paragraph [0162] suggesting that vibration elements are spatially separated and placed at different locations).

Thus, D3 discloses all the features of the preamble of claim 1 with the exception that D3 relates to a virtual keyboard and not to a keyboard with mechanical keys and switches. In addition, D3 also discloses the first feature of the characterizing portion that the input means is a keyboard (see figure 16).

- 5.2 The difference that D3 discloses a virtual keyboard with touch sensors whereas claim 1 is directed to a keyboard design with mechanical keys and switches does not involve an inventive step for the following reasons. According to the appellant's argumentation, the problem of providing a tactile feedback arises as the keyboard design becomes thinner (see e.g. page 3, section "Inventive Step", first paragraph of the letter dated 20 February 2013). However, as is acknowledged in the present application (see paragraph [0003]), it was known in the art that virtual keyboards are even thinner than mechanical keyboard designs and also fail to provide sufficient tactile feedback. The present invention was described as being equally suitable for mechanical as well as virtual keyboards without giving any indication of inventive considerations to be required to apply the invention to either of the two types of keyboards. The skilled person looking for solutions for the problem of providing tactile feedback would therefore also have considered prior art dealing with virtual keyboards on the basis of touch sensors, such as D3.

5.3 Based on the effect provided by the remaining features of the characterizing portion which are the distinguishing features over D3, the objective technical problem addressed by these features is considered to be to give a uniform vibration feedback over the virtual keyboard.

5.4 D3 already addresses this problem, at least implicitly, by stating that the vibration feedback depends on the distance between the pressed key and the location of the vibration element (see paragraph [0162] "the closer the vibration is to the user action ..."). The skilled person when trying to solve the objective technical problem would look for solutions in this regard and, hence, would also consult publication D4.

D4 is directed to a touch panel with vibration feedback and also addresses the problem of achieving the same vibration feedback at any position within a control surface (see D4, section PROBLEM TO BE SOLVED). As a solution it is disclosed to control the strength of the vibration ("controlling the timing and strength of vibration waveforms imparted to a plurality of vibration generating means" and "vibration control means 14 for controlling the vibration generating means independently are used to cause the vibration control means 14 to output the vibration waveforms best-suited"). Contrary to what the appellant has argued with respect to D4, the vibration intensities of the vibrators in D4 are therefore changed. In order to achieve the desired effect of approximately the same vibration feedback at any position, the change of vibration intensities has to be proportional to the

distance between the actuated key and the respective vibration generating means.

- 5.5 The subject-matter of claim 1 is therefore rendered obvious by the disclosure of D3 in combination with the teaching of D4.

#### First auxiliary request

6. By deleting the "at least" for the first and second vibration elements, claim 1 of this request overcomes the objections under Articles 83, 84 and 123(2) EPC.

#### 6.1 Article 56 EPC - Inventive step

- 6.2 The subject-matter of claim 1 according to this request essentially corresponds to claim 1 according to the main request. The reasoning set out in point 5 above therefore applies accordingly. It goes without saying that for achieving a uniform tactile feedback as suggested in D4, the vibration has to be stronger the bigger the distance between the pressed key and the vibration element is. This is considered general knowledge of the skilled person and therefore is implicitly disclosed in D4. Hence, the final additional feature of claim 1 according to this request is also considered to be obvious with regard to the teaching of D4.

- 6.3 The subject-matter of claim 1 according to this request therefore is still rendered obvious by the disclosure of D3 in combination with the teaching of D4.

Second auxiliary request

7. Article 56 EPC - Inventive step

Claim 1 of this request further specifies that the key input means form a standard QWERTY keyboard with 26 English letters. This feature, however, is considered to be implicitly known from D3, which discloses the layout of a standard QWERTY keyboard (see figure 16). Since D3 originates from US priority applications, it is assumed that the keyboard shown in the drawings which does not explicitly show letters on the keys is of a standard US type, i.e. with 26 English letters. Hence, this feature is considered to be at least implicitly disclosed in D3. Besides, the board considers it to be an obvious design choice for a skilled person to realize that the teaching of D3 can be applied to standard QWERTY keyboards having 26 English letters.

The subject-matter of claim 1 of this request therefore also lacks an inventive step for the same reasons as set out above (see points 5 and 6).

8. Thus, none of the requests fulfils the requirements of the EPC.

**Order**

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

The appeal is dismissed.

The Registrar:

The Chair:

K. Götz

P. Corcoran