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**Datasheet for the decision  
of 5 December 2024**

**Case Number:** T 0877/22 - 3.5.01

**Application Number:** 16745012.1

**Publication Number:** 3329430

**IPC:** G06Q10/00

**Language of the proceedings:** EN

**Title of invention:**

INFERRING USER AVAILABILITY FOR A COMMUNICATION AND CHANGING  
NOTIFICATIONS SETTINGS BASED ON USER AVAILABILITY OR CONTEXT

**Applicant:**

Microsoft Technology Licensing, LLC

**Headword:**

Automatic changing of notification settings/MICROSOFT

**Relevant legal provisions:**

EPC Art. 56

**Keyword:**

Inventive step - automatically changing a mobile device's  
notification settings based on the user's location in a venue  
(no - obvious implementation of non-technical requirement)

**Decisions cited:**

G 0001/19, T 0931/95, T 1194/97, T 0641/00, T 0258/03,  
T 1670/07, T 0630/11, T 1463/11, T 1989/12



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Case Number: T 0877/22 - 3.5.01

**D E C I S I O N**  
**of Technical Board of Appeal 3.5.01**  
**of 5 December 2024**

**Appellant:** Microsoft Technology Licensing, LLC  
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**Decision under appeal:** Decision of the Examining Division of the  
European Patent Office posted on 24 November  
2021 refusing European patent application No.  
16745012.1 pursuant to Article 97(2) EPC.

**Composition of the Board:**

**Chairman** W. Chandler  
**Members:** A. Wahrenberg  
L. Basterreix

## **Summary of Facts and Submissions**

- I. The case concerns the appeal against the examining division's decision to refuse European patent application No. 16745012.1, published as WO 2017/019379 A1. The invention concerns automatically changing the notification settings on a mobile device.
- II. The examining division found that claim 1 of the main request and the first to third auxiliary requests lacked an inventive step (Article 56 EPC) over a well known computerised system. The documents D1 to D3 and D5 were cited as examples of such a system.
- III. In the statement setting out the grounds of appeal, the appellant requested that the decision to refuse the application be set aside and that a patent be granted on the basis of the refused main request or one of the refused first to third auxiliary requests. The appellant requested oral proceedings if the main request could not be granted.
- IV. In a communication accompanying the summons to oral proceedings, the Board tended to agree with the examining division that the claimed invention lacked an inventive step (Article 56 EPC).
- V. Oral proceedings took place as a videoconference. The appellant maintained the requests made in the statement of grounds of appeal.
- VI. Claim 1 of the main request reads:  
  
A computerized method for inferring user availability to communicate through a mobile computing device (102

a-n), the method comprising:

analyzing (410) sensor data captured by one or more sensors (104 a-n) of the mobile computing device (102 a-n) to determine a present location of the mobile computing device (102 a-n);

determining (420), using the present location, that a computing device (102 a-n) is located in a venue at a present time;

determining that an availability pattern of the user of the mobile computing device (102 a-n) exists in a series of historical communication records associated with the determined venue based on a confidence score satisfying a threshold, wherein the confidence score is indicative of level of certainty that a pattern is present in time stamps corresponding to instances of communications and recorded in historical communication records;

determining (430) a communication context for the venue at the present time based on the determined availability pattern of the user, wherein the communication context indicates whether different communication modes are available for communication at the venue;

determining (440) that a notification setting on the mobile computing device (102 a-n) for a specific communication mode is set to a first value that does not conform with the communication context; and

automatically, without user intervention, changing (450) the notification setting on the mobile computing device (102 a-n) for the specific communication mode

from the first value to a contextual notification value that conforms with the communication context.

- VII. The first auxiliary request adds to the main request the following feature at the end of claim 1:

"wherein the notification setting indicates whether a ringtone of the mobile computing device (102a-n) is set to mute".

- VIII. The second auxiliary request adds to the main request the following feature after the second "determining" feature:

"receiving device state information for a plurality of devices also located in the venue at the present time, wherein the device state information includes a notification setting for different communication modes".

Also the third "determining" feature is amended to read:

"determining (430) a communication context for the venue at the present time based on the determined availability pattern of the user and the device state information of the plurality of devices also located in the venue at the present time, wherein the communication context indicates whether the different communication modes are available for communication at the venue".

- IX. Claim 1 of the third auxiliary request is a combination of the first and second auxiliary requests.

## **Reasons for the Decision**

### 1. *Main request*

1.1 The invention in claim 1 concerns automatically changing a mobile device's notification settings based on an inferred user availability. The inference is based on the user's location - whether the user is present in a venue - and the user's previous availability pattern for this venue. For example, when the user enters a library, the device may automatically switch to silent mode, if this has been the user's previous setting when visiting the library.

1.2 The location of the mobile device is determined from GPS sensor data (page 28, lines 19 to 21). This location is then mapped to a venue (page 7, lines 9 to 13; page 28, lines 21 to 22). The venues may be categorised to assist in determining a communication context when little or no data are available for a specific venue (page 7, lines 13 to 16; page 28, lines 25 to 29). The availability pattern for the venue, or for its category, is derived from historical communication records, based on a confidence score that meets a defined threshold. The confidence score may depend on factors such as the number of records forming the pattern, the variance within the pattern, and the age of the information (page 22, line 28 to page 23, line 1).

1.3 The examining division considered that the method of inferring user availability based on location and an availability pattern for that location was an administrative matter rather than a technical one. It did not contribute to the solution of a technical

problem but rather solved the non-technical problem of determining the user's notification preferences.

Furthermore, the idea of providing notifications according to the user's preferences was considered to be non-technical, as this did not achieve any technical effect. Accordingly, changing the manner in which the user was notified based on the user's preferences was a non-technical requirement.

Based on the EPO's approach to mixed type inventions, according to which non-technical features did not contribute in the assessment of inventive step, the examining division concluded that the technical character of claim 1 resided in the technical implementation of the administrative method on a computerised system comprising:

- a mobile device;
- means for analysing sensor data captured by one or more sensors of the mobile computing device to determine a present location of the mobile computing device;
- one or more processors; and
- one or more computer storage media.

Such a system was considered to be well known at the priority date, for example from D1 to D3, and D5, and the implementation of the administrative method would have been obvious for the skilled person as this merely amounted to actually changing the device's settings based on information obtained using the device's own technical means including location data and data relating to communication events recorded in the phone.

1.4 The appellant argued that automatically changing the notification settings on a mobile communication device was technical, as it related to controlling the internal functioning of the device. As a consequence, all the claim features defining *how* this was done were technical features which contributed to solving a technical problem.

The appellant argued that, according to the "Comvik approach" (T 641/00 - *Two identities/COMVIK*), the technicality of a feature had to be assessed in its own right, without having regard to the state of the art. Once a feature was found to be technical by its own nature, it entered into the assessment of inventive step according to the "normal" problem-and-solution approach. Determining the technicality of a feature based on its contribution over the prior art was an impermissible "shortcut" according to decisions of the Boards of Appeal.

Moreover, the objective technical problem should be a realistic problem and not include pointers to the solution. The appellant pointed out that *COMVIK* explicitly warned against such hindsight in point 7 of the reasons. Also, if the problem statement was formulated such that it had a direct technical consequence, as the examining division did, this was a pointer to a technical solution, and therefore hindsight.

In the present case, the technical problem was automatically inferring and implementing the device's notification settings in a way that reflected socially acceptable behaviour or user preference associated with a given location or venue. The latter portion of the problem reflected the non-technical considerations as a

constraint to be met in line with *COMVIK*. All the claim features which contributed to solving this problem were technical and must be assessed for inventive step in the normal way.

1.5 The appellant argued that in particular the following features were technical and contributed to the solution of the technical problem:

- Capturing and analysing sensor data to determine the present location of the mobile device.

- Associating the location with a venue and determining the availability pattern for that venue to establish a communication context indicating the availability of different communication modes at the venue.

In the oral proceedings, the appellant argued that translating the present location of the user into a venue and a communication context was not just a simple mapping. It involved determining the category of venue using data processing means and databases.

Also, the availability pattern itself was technical because it determined criteria for setting the communication context, which was used for changing the communication settings.

Furthermore, the confidence score was technical as it was used for reliably determining the availability pattern.

The appellant also argued that the last two claim features of determining and automatically changing the notification setting were technical as they involved

controlling and setting functional data of the mobile device as opposed to storing cognitive data on the device (see the Guidelines for Examination, G-II, 3.6.3).

1.6 The appellant's arguments do not persuade the Board.

Firstly, the Board does not share the appellant's interpretation of the Comvik approach.

The Board agrees with the applicant that the assessment of whether a subject-matter has technical character, and thus qualifies as an invention under Article 52(1) EPC, must be made without regard to the state of the art. This principle was established in decisions T 258/03 - *Auction method/HITACHI* and T 931/95 - *Controlling pension benefits system/PBS PARTNERSHIP*. In those decisions, it was held that a method involving technical means constitutes an invention within the meaning of Article 52(1) EPC.

However, this does not imply that, once it is determined that the claimed subject-matter has technical character as a whole, the question of technicality no longer arises. Rather, this is only the first "hurdle" to be overcome. The technical contribution of the claimed features with respect to the prior art must then be assessed when examining inventive step using the problem-and-solution approach. According to the Comvik approach, only those features which contribute to a technical effect are taken into account in the assessment of inventive step (see the first Headnote of T 641/00). Features that do not make such a contribution are not considered for inventive step but are instead included in the formulation of the technical problem to be solved (see the second

Headnote). This constitutes the "second hurdle" to be overcome. For this reason, the Comvik approach is sometimes referred to as the "two-hurdle approach" (see G 1/19 - *Pedestrian simulation*, point 37).

Computer-implemented inventions are considered to overcome the first hurdle by definition, since they involve the use of a computer, i.e. technical means. However, not every computer-implemented invention necessarily provides a technical contribution that can support an inventive step. The mere fact that a feature has some bearing on the overall technical character or effect – such as being part of a sequence of steps ultimately resulting in a change of a device's state – does not automatically render that feature technical. The Board regards the appellant's argument in this respect as an instance of the "technical leakage fallacy" (T 1670/07 - *Shopping with mobile device/NOKIA*, point 9), in which the inherently technical nature of the implementation is inappropriately projected onto the non-technical aspects of the underlying problem. Mere interaction with technical elements is not sufficient to make the whole process technical.

Regarding the appellant's argument that the problem must be "realistic", the Board makes the following observation. Although this applies to a technical problem formulated from technical differences, it does not apply to a non-technical requirement. A technically skilled person, starting from a piece of technical prior art, would conceive neither a realistic nor an unrealistic non-technical requirement, since the notional skilled person, by definition, lacks both creativity and expertise outside the relevant technical field and is not conceiving any problem there. In

accordance with the Comvik approach, non-technical features must not influence the assessment of inventive step (see T 1463/11 - *Universal merchant platform/CardinalCommerce*, point 17). Such non-technical features are instead assumed to have been devised by a business person and provided to the technically skilled person as part of the problem to be solved - typically in the form of a set of requirements to be implemented.

Formulated in this way, the technical problem of implementing the given requirements is a realistic one by definition, and indeed a task that software engineers are commonly required to perform. Consequently, the principle that the technical problem must not be formulated with hindsight and the Comvik approach, according to which non-technical features are included in the problem statement, are not contradictory (see T 641/00, point 7, second paragraph).

Furthermore, formulating the problem in a way that entails direct technical consequences or implications is, in the Board's view, not excluded under the Comvik approach (see T 630/11 - *Gaming Server/Waterleaf*, points 10 to 12). While the notional business person cannot prescribe the specific technical means for implementing a non-technical method, it is nevertheless normal that a method intended to be carried out on a computer necessarily involves standard technical components such as a processor and data storage.

- 1.7 The Board considers that controlling the notification settings on a mobile device, in the sense of controlling the audial, visual, and tactile output, is technical. However, the idea to change the mode of notification based on the user's location - be it a

particular venue or a category of venues - and previous notification settings for the venue or category of venues, is in the Board's view a non-technical aim which may legitimately appear in the formulation of the technical problem in accordance with the Comvik approach. The formulation of this idea requires no technical knowledge or understanding of the mobile device. In T 1989/12 - *Calendar-based profile switching/MICROSOFT*, a similar conclusion was reached for controlling the notification settings of a mobile phone based on calendar-related events (see points 3.5 and 3.6).

- 1.8 Obtaining the user's location from a sensor such as a GPS sensor is technical and part of the implementation rather than the problem, but as the examining division stated in the decision under appeal, such sensors were known and commonly included in mobile devices at the priority date, and it would have been obvious to use the prior art system's sensor to obtain the user's location in order to implement the non-technical requirements.

The Board considers that mapping the location data to a venue, or to a category of venues, would have been a routine task for the skilled person, for example by using a database. The Board further notes that, although claim 1 encompasses embodiments in which the communication context refers to a category of venues, it is not limited to such embodiments.

Obtaining the availability pattern from stored data would also have been straightforward for the skilled person. The Board does not share the appellant's view that the availability pattern data is itself technical in the sense of contributing beyond the provision of

data required by the non-technical method. So-called "functional data" (as referred to in T 1194/97 - *Data structure product/PHILIPS*) may serve either a technical or a non-technical function. Where such data merely implements a non-technical requirement on a computer and produces no further technical effect, it is not relevant for the assessment of inventive step. It should be noted that the functional data in T 1194/97 did produce a further technical effect: the data structure in that case enabled random access to picture data recorded on a record carrier.

The Board is also not convinced that the confidence score is a technical feature. It merely serves to ensure that the underlying data are reliable, based on straightforward considerations such as the age of the data or the number of data records associated with a venue. A business person could readily formulate requirements such as "base the notification settings on the user's recent activities" or "adjust the notification settings to those usually applied at this venue". In any case, excluding unreliable or one-off data when identifying a pattern would be a standard measure, since the very notion of a pattern implies repetition.

The final step of automatically changing the settings is technical in nature, but trivial.

In conclusion, the Board does not consider that claim 1 defines an implementation which goes beyond a straightforward and obvious realisation of the non-technical requirements on known technical means.

1.9 Thus, the Board judges that the skilled person would have arrived at the subject-matter of claim 1 without

the exercise of inventive skill. Claim 1 therefore lacks an inventive step (Article 56 EPC).

2. *First auxiliary request*

2.1 Claim 1 of the first auxiliary request adds that the notification setting indicates whether a ringtone of the mobile computing device is set to mute.

2.2 The reasoning set out for the main request already covers this case, and no further arguments on inventive step were submitted for the first auxiliary request. Accordingly, claim 1 of the first auxiliary request lacks an inventive step for the same reasons as the main request.

3. *Second auxiliary request*

3.1 Claim 1 of the second auxiliary request adds, to the subject-matter of the main request, the feature of receiving device state information from a plurality of devices currently located in the same venue, the device state information including notification settings, and that the determination of the communication context for the venue is also based on this information.

3.2 During the oral proceedings, the manner in which the mobile device received device state information from other devices within the venue was discussed. The question arose as to how this exchange was coordinated, since the claim is silent in this respect.

The appellant referred to page 16, lines 7 to 11 of the description, which discloses that mobile devices

periodically provide state information to a centralised data collection source. The relevant component within the mobile device may then access this centralised source to obtain state information associated with other communication devices currently located in the same venue. The appellant argued that this feature was technical in nature, as it involved communication between devices.

- 3.3 The Board agrees with the examining division's reasoning in the decision under appeal that the concept of taking into account the communication preferences of other users located at the venue is non-technical and therefore forms part of the problem to be solved. In the Board's view, the implementation of this concept - such as by receiving device state information from a centralised data collection source - would have been an obvious measure for the skilled person. Accordingly, claim 1 of the second auxiliary request lacks an inventive step (Article 56 EPC).

4. *Third auxiliary request*

- 4.1 Claim 1 of this request combines the features of the first and second auxiliary requests. Accordingly, the reasons given in respect of those requests apply equally to the third auxiliary request.

The Board notes that the additional features from the two auxiliary requests do not exhibit any synergistic effect. The type of notification setting that is changed (e.g. sound) is unrelated to the determination of the communication context based on other users' settings. The appellant did not submit any further

arguments in support of the third auxiliary request.

4.2 For these reasons, the Board concludes that claim 1 of the third auxiliary request lacks an inventive step (Article 56 EPC).

## Order

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

The appeal is dismissed.

The Registrar:

The Chairman:



T. Buschek

W. Chandler

Decision electronically authenticated