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Datasheet for the decision of 17 February 2017

Case Number: T 2465/11 - 3.5.07

Application Number: 05753017.2

Publication Number: 1751680

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Language of the proceedings: EN

Title of invention:
Method of data synchronization

Applicant:
Koninklijke Philips N.V.

Headword:
Data synchronisation/PHILIPS

Relevant legal provisions:
EPC Art. 56, 123(2)

Keyword:
Inventive step - main and auxiliary requests I and II (no)
Amendments - added subject-matter - auxiliary request III (yes)

Decisions cited:

Catchword:

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Case Number: T 2465/11 - 3.5.07

D E C I S I O N
of Technical Board of Appeal 3.5.07
of 17 February 2017

Appellant: (Applicant)	Koninklijke Philips N.V. High Tech Campus 5 5656 AE Eindhoven (NL)
Representative:	Roche, Denis Société Civile SPID Philips IP&S 33, rue de Verdun BP 313 92156 Suresnes Cedex (FR)
Decision under appeal:	**Decision of the Examining Division of the European Patent Office posted on 5 August 2011 refusing European patent application No. 05753017.2 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman	R. Moufang
Members:	P. San-Bento Furtado
	R. de Man

Summary of Facts and Submissions

I. The appeal lies from the decision of the Examining Division to refuse European patent application No. 05753017.2, which was filed as international application PCT/IB2005/051442 and published as WO 2005/114472, for lack of inventive step of the subject-matter of the claims of a sole request. The closest prior art was considered to be the following document:

D7: Sousa, J.P., Garlan, D.: "Aura: An Architectural Framework for User Mobility in Ubiquitous Computing Environments", Software Architecture: System Design, Development, and Maintenance, Proceedings of the 3rd Working IEEE/IFIP Conference on Software Architecture, pages 29 to 43 (pages 1 to 14 in the version on file), Kluwer Academic Publishers, NL, August 2002.

II. In the statement of grounds of appeal, the appellant requested that the decision be set aside and that a patent be granted on the basis of a main request or of one of auxiliary requests I and II, all three requests having been filed with the grounds of appeal.

III. In a communication accompanying a summons to oral proceedings, the Board introduced the following documents into the proceedings:

D9: WO 00/58865, published on 5 October 2000;
D10: abstract of JP 09128276, published on 16 May 1997.

The Board was of the preliminary opinion that claim 1 of each of the requests did not involve an inventive step over document D7 in combination with document D9 and, for auxiliary request II, possibly also document D10. The Board also discussed issues regarding

lack of clarity of claim 1 of the main request and added subject-matter with regard to auxiliary request I.

IV. With a letter of reply of 17 January 2017, the appellant filed new claims according to a main request and first and second auxiliary requests, hereinafter respectively referred to as auxiliary requests I and II, to replace the previous requests on file.

V. Oral proceedings were held on 17 February 2017. During the oral proceedings the appellant submitted an auxiliary request III. At the end of the oral proceedings, the chairman pronounced the Board's decision.

VI. The appellant's final requests were that the decision under appeal be set aside and that a patent be granted on the basis of the main request filed with the letter dated 17 January 2017 or, in the alternative, on the basis of one of auxiliary requests I and II also filed with that letter and auxiliary request III filed in the oral proceedings.

VII. Claim 1 of the main request reads as follows:
"A method of data synchronization for use in a personal information-entertainment device (10) operable to present data content to a user (20) of the device (10), the method including steps of:

(a) determining for the device (10) one or more contexts (410) in which it is to be used, wherein the contexts pertain to the user and are synonymous with at least one of physical location and user activity; and

(b) updating data content in response to the one or more contexts (410), wherein said updating comprises operations including at least one of:

downloading data content from one or more data sources (100, 130) remote from the device (10) into a memory (50) of the device (10);
at least partially deleting data content stored in the memory (50) of the device (10);
uploading data content from the memory (50) of the device (10) to one or more remote data stores (100, 130); and
overwriting data content stored in the memory (50) of the device (10),
wherein the method further includes a step of including calendar data of the user (20) for use in determining the one or more contexts (410) and
a step of deriving said one or more contexts (410) from temporal and/or location entries made in the calendar data and an indication of the nature of a given activity of the user in the calendar data
wherein items of data content are prioritized according to a probability of relevance with reference to one or more contexts and presented, when invoked by said one or more contexts, to the user in an order dependent upon the prioritizing."

VIII. Claim 1 of auxiliary request I differs from that of the main request in that the last part of the claim starting with "presented, when [...]" has been replaced with:

"wherein the device (10) selects items of data content to omit from its memory (50) on the basis of the prioritization in situations where the device is required to store more data than its memory (50) has capacity."

IX. Claim 1 of auxiliary request II differs from that of the main request in that the last part of the claim

starting with "presented, when [...]" has been replaced with:

"presented, when invoked by one or more contexts, for a selection by the user in an order dependent upon the prioritizing, and

wherein the device (10) selects items of data content to omit from its memory (50) on the basis of the prioritization in situations where the device is required to store more data than its memory (50) has capacity."

X. Claim 1 of auxiliary request III differs from that of any of the higher ranking requests in that the last part of the claim starting with "wherein items of data content are prioritized" has been amended to:

"wherein the device logs usage of the device made by the user over time to determine probabilities of relevance of items of data content with reference to one or more contexts and the device presents the data items when invoked by said one or more contexts, to the user in an order dependent upon the prioritizing."

XI. The appellant's arguments relevant to this decision are discussed in detail below.

Reasons for the Decision

1. The appeal complies with the provisions referred to in Rule 101 EPC and is therefore admissible.

Main request

2. *Inventive step - claim 1*

2.1 Document D7 discloses an architectural framework for user mobility in ubiquitous computing environments, in

particular to accommodate dynamically-changing resources. Resource variability arises through user mobility (a user moves from one computing environment to another) and through the need to exploit time-varying resources in a given environment (such as wireless bandwidth). In the system of document D7, user tasks are represented explicitly and autonomously from a specific environment. User proxies, or "Auras", use models of user tasks (e.g. writing a paper, preparing a presentation, buying a house) to set up, monitor and adapt computing environments proactively (see abstract, page 2, third full paragraph).

In section 2 of document D7 the authors propose a solution to the problem of resource variability, in which the Aura captures constraints that the physical context imposes on tasks (page 3, section 2). The paragraph bridging pages 3 and 4 describes with reference to Figure 1 an example architecture including a task manager "Prism" embodying the concept of the Aura, the "Context Observer" providing information on the physical context and relevant events to Prism, the "Environment Manager" (EM) embodying the gateway to the environment, and "Suppliers" providing the abstract services that tasks are composed of, e.g. text editing or video playing.

The Context Observer is described on page 5, section 2.3. According to that passage, the information provided by the Context Observer includes user location and user activity (see also the last full paragraph on page 4, "The context changes").

2.2 Document D7 is therefore not primarily concerned with synchronisation, but it does disclose data synchronisation between different devices based on

context information (see passage of page 4 cited above and page 8, second full paragraph).

Moreover, claim 1 of the main request defines the method of synchronisation as being carried out in a computing environment including a personal device and remote data stores. In addition to that, the present application describes on page 6, line 32, to page 7, line 20, and Figure 2 a computing environment of the invention which includes a personal device, a personal computer (PC) and a server. That passage explains that the software of the invention can be arranged to execute in at least one of the three devices. Both the claimed invention and the disclosure of document D7 thus relate to computing environments where a need for synchronisation exists.

From the above, the Board concludes that document D7 is an appropriate starting point for the assessment of inventive step of the present invention.

2.3 Document D7 discloses on page 7, last four paragraphs, to page 8, second full paragraph, an example of the functionality of the system in which a user named "Fred" is organising a conference at home using a browser, a spreadsheet and a video player. The system of document D7 "sets up that task" at Fred's office as soon as he arrives at the office so that he can resume his work (page 7, last full paragraph). At the office the system automatically starts those applications and loads those files that Fred had been working on at home (page 7, last full paragraph, page 8, second full paragraph).

In particular, page 7, last paragraph to page 8, second full paragraph describes how the system functions. When

the user Fred is first working at home and then leaves for his office, the system performs certain actions, including the following:

(i) after checking Fred's schedule, inferring that Fred is likely to head to the office, estimating the time of arrival and passing this information to the system at the office (page 8, first full paragraph);

(ii) at the office, retrieving "the updated description of the tasks Fred has been working on" (page 8, first full paragraph);

(iii) extracting from that description information about which files will be necessary for Fred to work on, and requesting the Office EM to retrieve them (page 8, second full paragraph);

(iv) when Fred arrives at his office, obtaining updated copies of the files either locally or remotely, and restoring the execution state of the task he was performing (page 8, second full paragraph).

2.3.1 That method includes steps of synchronisation (e.g. steps (ii) to (iv)) between the file server and at least a device used by Fred at work, which can be considered a personal information-entertainment device within the meaning of the present claim. In step (iv), the method restores the execution state of Fred's task. As can be understood from page 7, last full paragraph, restoring the task in step (iv) means that the user is presented with e.g. "a web browser over recently visited pages, the downloaded videos paused at the same places, a spreadsheet containing all the entered figures". The method described on pages 7 and 8 of document D7 thus corresponds to a method of data synchronisation for use in a personal information-entertainment device serving the same purpose as that

of claim 1 of presenting data content to a user of the device.

2.3.2 In its letter of reply and at the oral proceedings the appellant argued that in the procedure of document D7 the calendar data ("Fred's schedule") was only used in order to determine the new location of the user Fred (his office) after he had left his home and to invoke the Task Manager (TM) and the Environment Manager (EM) at the new location. The procedure was only aimed at continuing a task at another location.

However, as explained at the oral proceedings, present claim 1 also covers a situation where a task is resumed. In fact, dependent claim 3 of the main request, which corresponds to original claim 8, refers to exactly that case covered by claim 1 by further reciting features related to the resumption of viewing and/or listening of items of data content. The Board therefore disagrees that the claimed method differs in that manner from the method of document D7 summarised above.

2.3.3 As mentioned by the appellant, "Fred's schedule" used in the method of pages 7 and 8 of document D7 (see step (i) above) corresponds to calendar data of the user within the meaning of present claim 1. The schedule data is used to derive a context in which the device is to be used on the basis of temporal, location and activity information (respectively, "estimated time of arrival", "office", "tasks Fred has been working on", see steps (i) and (ii)). The method of document D7 therefore comprises steps of including calendar data and deriving contexts from temporal, location and user activity information from the calendar as defined in claim 1 of the main request.

In steps (i) to (iii) the context information extracted from Fred's schedule is used to determine how to update data in the device. In step (iv), the data in the device is updated accordingly, by retrieving the necessary files and, if required, updating local copies. The method thus also comprises steps of determining for the device a context in which it is to be used and updating data content in response to a context as recited in steps (a) and (b) of claim 1.

Furthermore, according to steps (i) to (iv), those files on which the user Fred was working, possibly in different applications, are selected, e.g. the spreadsheet files he had been editing, the web pages he had opened and the videos he had been watching (see also page 7, last full paragraph). This corresponds to items of the data content being prioritised for selection (see also point 2.4 below).

The selection in steps (ii) and (iii) of which files to open (or invoke) is done according to "a probability of relevance with reference to said one or more contexts" in that the selected files are considered relevant taking into account the contexts - in that example, that Fred had been working on those files at home and that, according to the schedule ("calendar" in the language of the claim), he was heading to the office (see step (i)).

When the user enters the office in step (iv), the respective context is invoked and the execution state of the applications is restored, i.e. the applications are restarted and the files the user had been working on are opened and presented to the user (see also page 7, full paragraph and the explanation under

point 2.3.1 above). The selected items are thus also "presented, when invoked by said one or more contexts, to the user".

2.3.4 In its letter of reply and at the oral proceedings, the appellant argued that in the procedure of document D7, the files to be retrieved by the Office EM were selected on the basis of the description of the task the user was currently working on and that - contrary to the assessment in the decision under appeal - document D7 did not disclose that the files required for a task were selected on the basis of context information. Document D7 did not say much about selection of data items, only about which applications were used. It only referred to tasks and underlying services, which were not related to data items. The system of document D7 aimed at allowing a task started at one location to be continued at another location. The user seemed rather to manually select the relevant files when beginning the task. Thus, context information was only used for determining where data content was to be presented and not which data content was to be presented.

The Board does not find those arguments convincing. The skilled person understands from the above-cited passages of document D7, e.g. from page 7, last full paragraph and page 8, second full paragraph, that in the method of document D7 the relevant files are automatically selected and presented to the user as part of the status of the applications determined by the context. Contrary to the appellant's argument, the context information is therefore also used to determine which data content or data items are to be presented, not only where it is presented.

Regarding the appellant's allegation that the prior-art method did not automatically present relevant items of data content for a new task based on context information, the Board notes that the claim does not recite how the data items are "invoked" by a context in the claimed method. As explained at the oral proceedings, the claim also covers continuing a task, and the present application also describes the user manually choosing a data item the first time a task is started (page 6, lines 18 to 20). The claim does not exclude the context automatically selecting a data item only after it has been selected once before, for example upon beginning a task. Therefore, the Board cannot establish any difference in that respect.

For the sake of completeness, the Board further notes that document D7 also discloses the features mentioned by the appellant. As discussed at the oral proceedings, document D7 discloses on page 4, section 2.1, that the context information is used for detecting different types of change, including the user moving to another environment, the environment changing, the task changing, or the context changing. With regard to task changes, which is based on "monitoring explicit indications from the user and events announced by the Context Observer", the context is used to start a new task for which specific data items are chosen (see page 4, section 2.1). Each task may involve several information sources and applications (page 3, section 2, third paragraph), and in addition to starting the applications the system selects the data items on which the user will be working (page 7, last full paragraph, "web browser over the recently visited pages"). The appellant's argument that in document D7 the context was only used for continuing a task at another location is thus not convincing.

2.4 The claimed method differs from the above-described method of document D7 in that

- the priorities establish an order, and
- presentation of the invoked data items to the user is in that order.

Instead of establishing an order of importance of data items in a specific context (as in the claim), prioritising in document D7 merely determines whether a data item is relevant or not with respect to a particular context.

In its submissions, the appellant argued that the invention solved the problem of improving a user device in such a way that the discovery of relevant items of data content was simplified for the user. At the oral proceedings, it further argued that technical considerations were behind the heuristics, related prioritisation and ordering of the present invention. The calculation of probability was disclosed on page 7, second paragraph of the description.

The Board is not convinced that the invention solves the problem alleged by the appellant over document D7, which already discloses automatically starting the applications, for example an Internet browser, with the previous status, which may include the most recently opened items of data content (page 7, last full paragraph).

Moreover, in the Board's view, the distinguishing features cannot be considered to be based on technical considerations. The claim does not specify further how the probability of relevance is calculated. It covers solutions based on non-technical considerations

regarding the probability of a user being interested in specific data items. No technical considerations can be deduced from the description either. Page 7 describes in vague terms "associations" that can be defined by way of a function including as parameter a "probability of given data content being required for a given context" (page 7, line 25 to page 8, line 1). The description also mentions "probabilities of the user 20 desiring to view certain types of data content at a given time each day or at a given location" calculated using heuristics on the basis of data from a temporal log (page 8, lines 21 to 25). However, none of these passages discloses how the probability is calculated.

The distinguishing features therefore correspond to a non-technical requirement defining how to present the selected data items to the user and do not contribute to an inventive step.

2.5 Consequently, the subject-matter of claim 1 of the main request does not involve an inventive step (Articles 52(1) and 56 EPC).

Auxiliary requests I and II

3. Claim 1 of each of auxiliary requests I and II adds the following feature to claim 1 of the main request:

- the device selects items of data content to omit from its memory on the basis of the prioritization in situations where the device is required to store more data than its memory has capacity.

Claim 1 of auxiliary request I further differs from that of the main request in that it no longer recites the presentation of the data items.

Claim 1 of auxiliary request II further recites that presenting is "for a selection by the user".

4. *Inventive step - claim 1*

4.1 In document D7, the deletion of files is not disclosed in connection with insufficient memory capacity. The Board therefore agrees with the appellant that document D7 does not disclose the additional feature.

In its letter and at the oral proceedings, the appellant argued that in the system of document D7 data was stored in the central file server and that the files stored there when the user left his previous location corresponded to those involved in the task the user was working on at his previous location. The files could be deleted in the system at the user's home thereafter. However, the files to be stored in the central file server were not selected in response to context information.

Contrary to the appellant's arguments, situations of insufficient memory capacity may occur in devices used in the framework of document D7, even if the file server is used as described on page 8, first three lines. Furthermore, it is clear from page 8, second full paragraph, that copies of files may be kept locally in the user's device.

Additionally, document D7 mentions "the need for users to manage their computing resources in each new environment" and the dynamically changing availability of resources in a particular environment (page 3, section 2). It also mentions that at the lower level, "system components themselves are endowed with the ability to adjust their operation following the

variation of available resources like CPU, bandwidth, battery charge, etc" (page 10, third full paragraph). It is therefore not contrary to the principles of the framework of document D7 to find a particular solution to memory allocation in a specific device, independently of the file server.

4.2 According to the appellant, the objective technical problem underlying claim 1 according to auxiliary request I was to improve the automatic deletion of data content in a memory in such a way that it was more convenient for the user.

4.3 In order to solve problems related to the management of storage space in the local device, or to the automatic deletion of data content in a memory, the skilled person would take prior-art document D10 into account. That document discloses selecting, according to file priorities, a file to be erased when the amount of free memory is below a given level or when the free area is smaller than the size of the file to be written (see section "SOLUTION:"). This corresponds to the distinguishing feature introduced by auxiliary requests I and II used for the same purpose as in the claimed invention, which was described by the appellant as being deleting "in such a way that it is more convenient for the user".

The appellant argued that document D10 did not disclose an automatic determination of priorities on the basis of context information. In document D10 the priorities were specified by the user.

The Board does not find those arguments persuasive. Document D10 does not disclose how the priorities are established. The skilled person understands from

document D10 that the priorities can be assigned automatically and establish an order for deletion.

It would thus be obvious for the skilled person to add the above described feature of document D10, i.e. the selection of a file to be erased on the basis of priorities, to a device used in the system of document D7, in order to solve the problem of automatic deletion of data content in a memory. When integrating that feature of document D10 into the device of document D7, the skilled person would immediately recognize the possibility of generating the priorities on the basis of the context information already used in the system of document D7. Without inventive effort, the skilled person would thus arrive at the method of claim 1 of auxiliary request I.

4.4 The subject-matter of claim 1 of auxiliary request II additionally differs from the disclosure of document D7 in that it includes the distinguishing features discussed with regard to the main request (see point 2.4 above).

The further feature "for selection by the user" recited in claim 1 of auxiliary request II is known from the prior art, since applications in the system of document D7 are started with data items which can be selected by the user (see e.g. page 7, last full paragraph or page 8, second full paragraph).

The Board does not recognise any synergistic effect resulting from the combination of the distinguishing features regarding presentation according to an order and selecting data items to omit, even though both use the order established by the prioritisation. How data

items are presented does not have any bearing on the way memory is made available.

4.5 The Board therefore concludes that the subject-matter of claim 1 of auxiliary requests I and II does not involve an inventive step (Articles 52(1) and 56 EPC).

Auxiliary request III

5. *Added subject-matter - claim 1*

5.1 Claim 1 of auxiliary request III recites the prioritisation and presentation of the items of data content as follows:

- wherein the device logs usage of the device made by the user over time to determine probabilities of relevance of items of data content with reference to one or more contexts and the device presents the data items when invoked by said one or more contexts, to the user in an order dependent upon the prioritizing.

Even though not explicitly recited in the claim, the prioritising is established by the "probabilities of relevance of items of data content with reference to one or more contexts".

5.2 At the oral proceedings, the appellant argued that the additional feature of auxiliary request III was based on page 7, lines 17 to 20, page 8, lines 21 to 25 of the description, as well as claim 7 as originally filed.

5.3 In the original set of claims, claim 7 is dependent upon claim 1 only. Both include only features defined

in claim 1 of the present main request. Original claim 7 establishes that prioritising is on the basis of probabilities of relevance. Yet, since neither of original claims 1 and 7 recites logging usage of the device by the user, neither serves as a basis for the additional feature of auxiliary request III.

5.4 The description on page 7, starting with line 13, first refers to associating data content stored in the server and in the PC for synchronisation. Page 7, lines 17 to 20, reads as follows:

> "Such associations, for example an association 460, can be defined by the user 20, can be pre-defined by a party responsible for generating the data content 400, or can be generated by the device 10 itself based on previous selections exercised by the user 20, for example in a heuristics manner."

The next lines on pages 7 and 8 also mention that

- each item of data content can be stored with associated attributes such as "a priority rating for an order in which choices of data content are presented to the user 20 on the user interface 30 or deleted from the memory 50", and
- the association *A* can be defined as a function *F* by way of an equation $A=F(t,l,d,a,p,P)$, where *t* and *l* are time and location of context, *d* a duration, *p* is the "probability of given data content being required for a given context", and *P* is "a priority rating for presentation to the user".

These passages can therefore be considered to disclose that "the device logs usage" by the user over time ("associations [...] based on previous selections exercised by the user"). However, they disclose logging for the purpose of defining associations between "data

content 400 stored in the server 100 and/or in the PC 130 for synchronisation", not for determining probabilities as recited in the claim, nor for establishing priorities for presentation.

5.5 The passage on page 8, lines 21 to 25 cited by the appellant reads as follows (emphasis by the Board):

> "Software [...] is also operable to log usage of the device 10 made by the user 20, for example to determine probabilities of the user 20 desiring to view certain types of data content at a given time each day or at a given location. Such a temporal log can be used in a heuristics manner to determine a data synchronization strategy for the device 10 as described earlier."

This passage therefore relates logging usage to determining probabilities of relevance. Nonetheless, the probabilities are determined differently than claimed in that they are determined

- for certain types of data content instead of for data items,
- with reference to time of day and location instead of to a context, and
- for the purpose of synchronisation, not for prioritising items for presentation.

Although according to the passage on page 3, lines 27 to 31, also cited by the appellant in oral proceedings, contexts are derived from temporal and/or location entries made in the calendar data, there is no basis to generalise that passage of page 8 in the manner done in claim 1.

5.6 The passages cited by the appellant can thus not serve as a basis for the amendments leading to claim 1 of

auxiliary request III. The Board concludes that the subject-matter of claim 1 cannot be directly and unambiguously derived from the application as originally filed.

Claim 1 of auxiliary request III therefore does not fulfil the requirements of Article 123(2) EPC.

Conclusion

6. Since none of the requests on file is allowable, the appeal is to be dismissed.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

I. Aperribay R. Moufang

Decision electronically authenticated