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Datasheet for the decision of 10 July 2007

Case Number: T 0730/05 - 3.5.03

Application Number: 97120775.8

Publication Number: 0848507

IPC: H04B 7/26

Language of the proceedings: EN

Title of invention:
Method and apparatus for low power communications between mobile computing devices

Applicant:
TEXAS INSTRUMENTS INCORPORATED

Opponent:
-

Headword:
Low power communications/TEXAS INSTRUMENTS

Relevant legal provisions:
EPC Art. 52(1), 56

Keyword:
"Inventive step (no)"
"Acknowledged prior art"

Decisions cited:
T 0245/85, T 0654/92, T 0691/94, T 0211/06, T 1449/05

Catchword:
The closest prior art may be taken from the description (Reasons 3.2).

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Beschwerdekammern | Boards of Appeal | Chambres de recours

Case Number: T 0730/05 - 3.5.03

D E C I S I O N
of the Technical Board of Appeal 3.5.03
of 10 July 2007

Appellant: TEXAS INSTRUMENTS INCORPORATED
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Decision under appeal: **Decision of the Examining Division of the European Patent Office posted 16 December 2004 refusing European application No. 97120775.8 pursuant to Article 97(1) EPC.**

Composition of the Board:

Chairman: A. S. Clelland
Members: D. H. Rees
R. Moufang

Summary of Facts and Submissions

I. This is an appeal against the decision of the examining division to refuse the European patent application number 97 120 775.8, with publication number 0 848 507. The reason for refusing the application, given in a written decision issued on 16 December 2004, was that the subject-matter of the independent claims lacked novelty with respect to either of documents

D2: US 5 481 535 A or
D3: J. Jubin et al., "The DARPA Packet Radio Network Protocols," Proceedings of the IEEE, volume 75 number 1, January 1987, pages 21 to 32.

The decision also argued that the subject-matter of all the dependent claims lacked either novelty or an inventive step.

II. Notice of appeal was filed and the fee paid on 14 February 2005. The statement of grounds of appeal was submitted on 26 April 2005 together with new claims for two auxiliary requests. The appellant made a conditional request for oral proceedings.

III. In a communication accompanying a summons to oral proceedings the board gave its preliminary opinion that the independent claims of all the requests contained added subject-matter, were not clear and lacked either novelty or an inventive step. The board introduced of its own motion according to Article 114(1) EPC the further documents

D6: US 5 481 532 A, and
D7: "Telecommunications: Glossary of Telecommunication Terms," US Federal Standard 1037C, 07 August 1996, retrieved from www.its.bldrdoc.gov on 27 September 2006, (selected entries).

IV. At the oral proceedings the appellant submitted new sets of claims for a main and sole auxiliary request which, after deliberation, the board decided to admit into the procedure.

V. The independent claims of the main request read as follows.

"1. A method of communicating a data packet to a plurality of mobile computing devices (18) within a classroom-type setting, the method being characterized by:
transmitting said data packet using low-power wireless transmission from a first mobile computing device (18) at a power sufficient to reach only nearby mobile computing devices but not all of said plurality of mobile computing devices (18) within the classroom-type setting;
receiving said data packet from said first mobile computing device in one or more of said plurality of mobile computing devices; and
retransmitting at low-power [sic] said data packet (44, 50, 52) from mobile computing devices that have received said data packet to one or more of said plurality of mobile computing devices which have not received said data packet until all of said plurality of mobile computing devices have received said data packet, wherein

said retransmitting by any respective said mobile computing device cannot occur at such time that said respective mobile computing device detects a transmission from another of said mobile computing devices (44).

8. A mobile computing device (18) for communicating a data packet to a plurality of other mobile computing devices within a classroom-type setting, comprising:
computing circuitry (20); and
communications circuitry (22) for transmitting said data packet using wireless transmission, and for receiving a data packet transmitted from another mobile computing device (18), and retransmitting said data packet (44, 50, 52) to one or more other mobile computing devices which have not received the data packet,
characterized in that
said data packet is intended to be received by all of said other mobile computing devices, and
said communications circuitry is adapted to transmit said data packet at a low- power [sic] sufficient to reach only nearby mobile computing devices but not all of said plurality of other mobile computing devices (18) within the classroom-type setting, and adapted to retransmit at low-power [sic] the data packet (44, 50, 52) to one or more of said plurality of mobile computing devices which have not received said data packet, wherein
retransmission of said data packet cannot occur at such time that said mobile computing device detects a transmission from said another mobile computing device or one of said other mobile computing devices (44)."

In the independent claims of the auxiliary request the phrase "mobile computing device" is replaced by "calculator".

VI. At the oral proceedings the appellant requested that the decision under appeal be set aside and that a patent be granted on the basis of the new main request or, in the alternative, the new first auxiliary request both filed at the oral proceedings.

VII. At the end of the oral proceedings the chairman announced the board's decision.

Reasons for the Decision

1. *Late-filed requests*

1.1 The appellant did not respect the time limit for amendments set in the board's communication accompanying the summons to oral proceedings. Instead new requests aimed at overcoming objections raised in that communication were presented at the beginning of the oral proceedings. However the amendments served at least in part to clarify and correct the claimed subject-matter in ways which were predictable and did not affect the board's fundamental interpretation of the application. Since the board felt able to deal with the new requests in the oral proceedings it decided exceptionally to admit them.

2. *Interpretation of the claimed subject-matter*

2.1 "Classroom-type setting"

2.1.1 The board first notes that there is no literal disclosure of a "classroom-type setting" in the application as filed, only of "a classroom setting, although any setting may be used," (published application column 2 line 58 and column 3 line 1). It would appear that the expression "classroom-type" is intended to be broader than "classroom" would be, but not as broad as "any setting". Thus *prima facie* the introduction of this phrase adds subject-matter to the application as filed, in violation of Article 123(2) EPC. Since this objection could be overcome by reverting to the originally disclosed "classroom setting" the board adopts this narrower interpretation for the purposes of its further reasoning.

2.1.2 However even when the claim is interpreted as limited to a "classroom setting" the question of clarity arises, since it would not be apparent to the skilled person what properties of a setting would qualify it as a "classroom setting". The feature clearly has some limitative effect, since there are imaginable settings which would not qualify, but what is intended to be included in the matter for which protection is sought and what not is nonetheless unclear.

2.1.3 The appellant argued that a classroom setting implied a fixed and known positioning of the teacher and pupils, pointing to Fig. 1 of the application which shows the pupils seated in rows, although accepting that other

fixed seating plans, such as the pupils in a semicircle would also qualify.

2.1.4 The board does not agree that the skilled person would understand the expression in this way. As a matter of common experience there are classroom settings, such as science rooms, where the pupils may rearrange seating or move around in the course of a lesson. And there is no indication in the application that the very restricted interpretation exemplified by Fig. 1 is intended; indeed the application says the opposite at column 7 lines 43 to 46, "Fourth, the transmission is not dependent on predetermined seating patterns, thereby allowing users to move around in the room without becoming detached from the network." Thus the board interprets the claimed feature merely as requiring that the mobile computing devices or calculators be within some type of classroom.

2.2 "Calculator"

2.2.1 It is not clear to the board what effect on the matter for which protection is sought the restriction to "calculator" in the auxiliary request is intended to have, i.e. what the appellant considers to be the difference between a calculator and a "mobile computing device". However, this does not matter for an evaluation of novelty and inventive step given the choice of closest prior art (see below).

2.3 "Low-power"

2.3.1 The board takes this relative term to mean that the transmissions are not sufficiently powerful for those

from a single device to reach all receivers in a classroom, this definition being reflected in the claims. However it is to be pointed out that for the apparatus claims this feature nonetheless lacks clarity since it depends on the maximum size of room envisaged and on the sensitivity of the receivers.

3. *Novelty and inventive step*

3.1 Since the following arguments apply to the subject-matter of the independent claims of both requests they will be treated together.

3.2 The board considers that the closest prior art is that mentioned in the present application. It is aware of one decision of a board of appeal (T 0248/85, OJ EPO 8/1986, 261) that suggests that, without further investigation and independent establishment of the facts such a starting point is not appropriate (Reasons 9). However the situation in that case was quite different from that in the present appeal. In that case the board was declining to endorse the view of the examining division that the claimed invention did satisfy the requirement of inventive step. Thus the board was expressing doubt that the applicant had fully or properly indicated the background art known to it. It remitted the case for further examination, presumably with the idea that the examining division would ask the applicant to supply documentary or other evidence of the prior art it had indicated as background art. In the light of the further disclosure of such evidence beyond how it had been represented in the application, the claimed subject-matter might turn out not to involve an inventive step. The board in that

case therefore did not pronounce upon whether a board or examining division might rely on the applicant's indication of background art as indeed being prior art for the purposes of Article 54 EPC. The other relevant cases of which the board is aware, dealing mainly with the question of whether an applicant is allowed to resile from its indication of background art, either implicitly or explicitly take the view that, if not resiled from or clearly not prior art for other reasons, it may be relied upon as prior art (see T 0654/92, T 0691/94, T 1449/05 and T 0211/06, all not published).

3.3 The present application discloses two possibilities in its discussion of background art, a wired network of calculators (column 1 lines 19 to 23), and a wireless network in which it is to be taken that every transmitter can reach every receiver (column 1 lines 39 to 50). However the board notes that in the latter case the documents cited are European applications whose publication dates are later than the current priority date, so that they are not prior art in the sense of Article 54(2) EPC and hence are at most relevant to the question of novelty under Article 54(3) EPC. On the other hand the first possibility is described in a way consistent with it being prior art for the purposes of determining whether there is an inventive step, thus, "For some time graphing calculators have been able to communicate to one another through a wired connection. An example of a calculator of this type is the TI-92 produced by Texas Instruments Incorporated of Dallas Texas," (column 1 lines 19 to 21). The board notes that this sentence also appears in the priority document, so that the "for some time" refers to a period before the priority date of the application.

3.4 The applications cited with reference to a wireless network relate to a system in which a single master calculator transmits directly to all the client calculators. This is excluded by the independent claims of both present requests so that these applications do not bring the novelty of the presently claimed subject-matter into question.

3.5 The board therefore considers that the closest prior art (for both requests) can be taken to be the use of a wired connection between calculators (column 1 lines 19 to 23 of the present application). The appellant did not, during the oral proceedings, resile from the indication in the present application of the relevant background art. The appellant's attention had already been brought to the potential relevance of this material in the communication accompanying the summons to oral proceedings (point 7.4).

3.6 Clearly the presently claimed wireless transmission is novel with respect to this closest prior art.

3.7 The application does not state explicitly that the use in a classroom of calculators which can communicate with one another is prior art, but nonetheless treats such a use as at least obvious (column 1, lines 23 to 27). The board agrees.

3.8 Various drawbacks of the closest prior art, for example the lack of flexibility of a wired network and the cost of its installation, would be immediately evident to the skilled person, who would therefore be motivated to investigate potential wireless alternatives.

3.9 The appellant did not attempt to argue that it would not be obvious to use a wireless arrangement but took the position that the obvious choice of such a wireless network would be the one mentioned in the application, namely where one unit has sufficient power to reach all the others. It was argued that the invention on the other hand required minimal transmission power. The skilled person would not consider applying the known multi-hop wireless networks (in particular those known from D2, D3 and D6) to the problem of replacing a wired network because they were concerned with the problem of transmitting around barriers not with minimising power usage. The problem of transmitting around barriers did not arise in a classroom setting. On the other hand the power saving effect was particularly pronounced in the classroom setting because of the predetermined arrangement of pupils close to each other.

3.10 In addition, the cited prior art documents dealt with the case of sending a message addressed from one sender to one recipient, rather than a message intended to be received by all of the other devices.

3.11 The board is not convinced by these arguments. The skilled person would naturally investigate the different kinds of wireless networks which were known and weigh up their relative merits for the desired application. For calculators in a classroom it would clearly be desirable to make them independent of an external power source, i.e. to have them run on battery power. The importance of minimising energy use by controlling the transmission power would be immediately evident.

3.12 D6 describes a network in which the initiator of a message transmits it to nearby receivers which in turn transmit it to their neighbours, and so on. It would be clear to the skilled person that in a network as described in D6 there is no need to transmit at a power level which is guaranteed to reach all receivers in line of sight (D6 Figs. 3a-c and e.g. column 3 lines 2 to 6), and that it would therefore be advantageous from the point of view of power consumption to use such a network. It would further be obvious that such a network was well adapted to "broadcast" messages to all receivers, since by its nature the messages would normally reach them all only to be passed on or discarded by those which were not addressed. A "broadcast mode" is notoriously a feature of nearly all network types.

3.13 It was argued that there is an extra benefit to be gained in a classroom setting because the pupils have predetermined positions. The board doubts this in fact, see points 2.1.3 and 2.1.4 above; in any case the additional advantages which might arise are not relevant to the assessment of inventive step, once it has been established that it is obvious to arrive at the claimed set of features.

3.14 The only claimed feature of the independent claims not immediately following from the application of the teaching of D6 to the closest prior art as acknowledged in the present description is that "said retransmitting by any respective said mobile computing device [or calculator] cannot occur at such time that said respective mobile computing device [or calculator]

detects a transmission from another of said mobile computing devices [or calculators] (44)," (claim 1) or "retransmission of said data packet cannot occur at such time that said mobile computing device [or calculator] detects a transmission from said another mobile computing device [or calculator] or one of said other mobile computing devices [or calculators] (44)," (claim 8). However this is a well known feature of networks in which multiple potential transmitters share the same medium - see the entry, "carrier sense multiple access (CSMA)" in D7, which the board considers as representing common general knowledge of the skilled person before the priority date of the application.

3.15 Hence the board concludes that the subject-matter of the independent claims of both the requests does not involve an inventive step and that therefore neither of these requests is allowable. There being no allowable request the appeal must be dismissed.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

D. Magliano A. S. Clelland