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**Datasheet for the decision  
of 5 September 2014**

**Case Number:** T 0846/10 - 3.4.01

**Application Number:** 02778730.8

**Publication Number:** 1442417

**IPC:** G06K9/00

**Language of the proceedings:** EN

**Title of invention:**

IMAGE CAPTURE AND IDENTIFICATION SYSTEM AND PROCESS

**Applicant:**

Evryx Technologies

**Headword:**

**Relevant legal provisions:**

EPC Art. 123(2)  
EPC 1973 Art. 56, 54(1), 87(1)

**Keyword:**

Amendments - added subject-matter (yes)  
Priority - basis in priority document (no)  
Inventive step - (no)

**Decisions cited:**

**Catchword:**



**Beschwerdekammern  
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Case Number: T 0846/10 - 3.4.01

**D E C I S I O N**  
**of Technical Board of Appeal 3.4.01**  
**of 5 September 2014**

**Appellant:** Evryx Technologies  
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**Representative:** Rupp, Christian  
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**Decision under appeal:** **Decision of the Examining Division of the European Patent Office posted on 27 November 2009 refusing European patent application No. 02778730.8 pursuant to Article 97(2) EPC.**

**Composition of the Board:**

**Chairman** H. Wolfrum  
**Members:** F. Neumann  
J. Geschwind

## Summary of Facts and Submissions

- I. The appeal lies from the decision of the examining division to refuse the European patent application number 02 778 730.8.
- II. The appellant requested that the decision under appeal be set aside and that a patent be granted on the basis of claims 1 to 15 filed as the Main Request with the statement setting out the grounds of appeal dated 9 March 2010.
- As a first auxiliary request, the appellant requested that a patent be granted on the basis of claims 1 to 15 filed as Auxiliary Request I with the statement setting out the grounds of appeal dated 9 March 2010.
- As second and third auxiliary requests, the appellant requested that a patent be granted on the basis of claims 1 to 15 filed as Auxiliary Request II and Auxiliary Request III, respectively, with the letter of 3 July 2014.
- As a fourth auxiliary request, the appellant requested that a patent be granted on the basis of claims 1 to 15 filed as Auxiliary Request IV with the letter of 18 August 2014.
- III. During the appeal proceedings, the following documents were referred to:
- D3: WO-A-01/49056;  
D4: US-A-2002/0102966;  
D5: US-A-6 181 817.
- IV. Claim 1 of the **Main Request** reads as follows:  
*"A system that includes a camera, a telephony device, and a service, the system comprising:  
an image captured by the camera;*

*the telephony device programmed to transmit at least a portion of the image over a network to a service; the service programmed to receive the image, determine image characteristics of the image; identify an object within the image by distinguishing the object from others using a database that stores image characteristics of target objects including diverse types of target objects and determining a target object from the database having corresponding image characteristics that best match the image characteristics of the image; and associate the object with an information address that corresponds to the target object; and the telephony device further programmed to interact with the service over the network to perform a commercial transaction related with the object using the information address."*

Claim 1 of **Auxiliary Request I** reads as follows:

*"A system that includes a camera, a telephony device, and a service, the system comprising:  
an image captured by the camera;  
the telephony device programmed to transmit at least a portion of the image over a network to a service;  
the service programmed to receive the image, determine whether the input image contains recognizable symbols and/or an object of interest; identify the object within the image, if it is determined that the image also or alternatively contains an object, by distinguishing the object from others using a database that stores image characteristics of target objects including diverse types of target objects and determining a target object from the database having corresponding image characteristics that best match the image characteristics of the image;*

*and associate the object with an information address that corresponds to the target object; and the telephony device further programmed to interact with the service over the network to perform a commercial transaction related with the the object using the information address."*

Claim 1 of **Auxiliary Request II** is identical to claim 1 of the Main Request except that the final feature reads:

*"the telephony device further programmed to interact with the service over the network to purchase the target object using the information address."*

Claim 1 of **Auxiliary Request III** is identical to claim 1 of Auxiliary Request I except that the final feature reads:

*"the telephony device further programmed to interact with the service over the network to purchase the target object using the information address."*

Claim 1 of **Auxiliary Request IV** reads as follows:

*"A system that includes a camera, a telephony device, and a service, the system comprising:  
an image captured by the camera;  
the telephony device programmed to transmit at least a portion of the image over a network to a service;  
the service programmed  
to receive the image,  
to determine whether the input image contains an object of interest and to detect a recognizable symbol appearing as a means of identification on the object,  
and  
if a recognizable symbol is not detected, or the recognizable symbol identifies the object ambiguously,  
the service is configured*

*to determine image characteristics of the image, to recognize the object within the image using a database that stores image characteristics of diverse types of target objects and to determine a target object from the database having corresponding image characteristics that best match the image characteristics of the image, and to associate the object with an information address that corresponds to the target object; and the telephony device further programmed to interact with the service over the network to purchase the target object using the information address."*

All of the requests contain dependent claims 2 to 15.

- V. The arguments of the appellant, insofar as they are pertinent to the present decision, are set out below in the reasons for the decision.

### **Reasons for the Decision**

1. The appeal is admissible.
2. Main Request
  - 2.1 Art 123(2) EPC
    - 2.1.1 With the statement setting out the grounds of appeal, a set of amended claims was filed, claim 1 thereof including the feature "*the telephony device further programmed to interact with the service over the network to perform a commercial transaction related with the object using the information address*".
    - 2.1.2 The appellant was of the opinion that the overall teaching of the original disclosure permitted the use

of the general term "*commercial transaction*", notwithstanding the fact that this term was not actually expressly disclosed.

In particular, the appellant pointed to page 2, paragraphs 3 and 4 of the original application documents. Here, reference was made to "*transaction mechanisms*" and "*execution of ... transactions*". Furthermore, page 3 made reference to "*purchasing*" items.

The appellant argued further that the original application discussed the invention in the context of a vending machine (see, e.g. page 40, paragraph 2). It was noted that the very nature of vending machines was to perform a commercial transaction. It was noted that no other type of interaction with the vending machine was mentioned in the original application. Since, in the appellant's view, a "*commercial transaction*" was equivalent to a "*purchase*", these passages provided a clear basis for the use of the term "*commercial transaction*" in claim 1.

- 2.1.3 In contrast thereto, the Board considers that a "*commercial transaction*" may be defined as a contractual arrangement normally involving the exchange of money for a specific service or product. Whilst the Board does not deny that the purchase of an item is one example of a commercial transaction, other examples include the hire of a rental car, the sale of an object and the payment of a deposit for the reservation of a hotel room. In the view of the Board, the term "*commercial transaction*" therefore encompasses more than just the purchase of an item.

2.1.4 The Board notes that page 2 of the original application concerns only the aim of the invention. Specifically, the introductory portion of the application entitled "Background Art", appearing on pages 1 to 4 explains that there is a need to provide identification and hyperlink services to persons using mobile computing devices (page 1, last paragraph). Pages 2 to 4 list a number of examples in which such identification and hyperlink services may be implemented. Execution of transactions with a vending machine and the purchase of an item appear in this list. The Board emphasises however, that this listing merely provides an overview of examples in which there is a need to provide identification and hyperlink services and does not constitute an actual disclosure of the functionality of the invention. Furthermore, the "*provision of ... transaction mechanisms between companies and individuals*" referred to in the third paragraph of page 2 refers, in the Board's opinion, to the provision of mechanisms by which transactions - in the sense of operations - may be executed. Similarly, the "*transactions between the mobile wireless device and the [vending] machine*" in the fourth paragraph of page 2 refers to operations between the mobile device and vending machine. Neither of these passages directly and unambiguously disclose that commercial transactions (in the full extent of generality) related with an object are performed.

2.1.5 The only other occurrences of the word "*transaction*" which the Board could locate in the original application documents are on page 38, lines 9-12 and page 40, lines 20-22. The reference on page 38 concerns an on-line transaction by which a target object is purchased and does not provide a basis for the provision of a "*commercial transaction*" as currently



appearing in claim 1. The reference on page 40 concerns a "*transaction with the vending machine, such as purchasing a product*". Again, this passage does not provide a basis for performing a "*commercial transaction*" in its full extent of generality.

2.1.6 Since the original application documents do not provide a basis for any commercial transactions other than the purchase of an object, the use of this term in claim 1 represents an unjustified generalisation of the originally disclosed subject-matter.

2.1.7 The amendments to claim 1 therefore give rise to subject-matter which extends beyond the content of the application as originally filed, resulting in an infringement of Article 123(2) EPC.

2.2 The main request is therefore not allowable.

3. Auxiliary Request I

3.1 Article 123(2) EPC

3.1.1 Claim 1 of the first auxiliary request also contains the feature "*to perform a commercial transaction related with the object*".

3.1.2 For the same reasons as given above for the main request, the basis of disclosure for this generalised feature cannot be found in the original application documents. As a consequence, the amendments do not meet the requirements of Article 123(2) EPC.

3.2 Auxiliary Request I is therefore not allowable.

4. Auxiliary request II

4.1 Article 123(2) EPC

The final feature of claim 1 has been restricted to the "purchase" of the object. The specific objection of added matter with respect to the generalised term "*commercial transaction*" is therefore no longer applicable. Whether or not Article 123(2) EPC was infringed in any other respects was not discussed.

4.2 Validity of the claimed priority - Article 87(1) EPC 1973

4.2.1 In order to establish whether document D4, which was published on 1 August 2002, may be considered as prior art under Article 54(2) EPC, it had first to be established whether the priority date of the current application had been validly claimed.

4.2.2 The present application was filed on 5 November 2002 and claims a priority date of 5 November 2001 from US application number 09/992 942 (hereinafter referred to as "P1"). This US application claims the benefit under 35 U.S.C. 119(e) of US provisional applications 60/317521 (hereinafter referred to as "P2") and 60/246295 (hereinafter referred to as "P3"), having filing dates of 5 September 2001 and 6 November 2000 respectively (see Form PTO/SB/01 (12-97) attached to the priority document P1).

4.2.3 Claim 1 defines a system comprising a camera, a telephony device and a service, the telephony device being programmed, inter alia, "*to interact with the service over the network to purchase the target object using the information address*". Whether the priority date was validly claimed depended on whether the

purchase of a target object was derivable from the priority document.

4.2.4 The appellant was of the opinion that from the information provided in the priority document P1, it could be derived that the telephony service was programmed to enable the purchase of an object. The arguments supporting this opinion were similar to the arguments presented above with respect to the issue of Article 123(2) EPC. Page 2, lines 28 to 34 of the priority document referred to a vending machine and indicated that the user may establish a communication channel with the vending machine and interact with it. In the context of a vending machine, this interaction was clearly to be equated to the purchase of an object. This was, after all, the purpose of a vending machine. Furthermore, the appellant argued that the contents of the provisional applications P2 and P3 were to be considered as incorporated by reference into the disclosure of P1 by virtue of the fact that P1 claimed the benefit of P2 and P3. In this respect, the appellant submitted that, despite the fact that, normally, the specific features which were to be considered as incorporated by reference should be identified in the application, this was considered unnecessary in the present case since both P2 and P3 were so short that the skilled person would have no difficulty in identifying the relevant subject-matter in those disclosures. Since P2 indicated that items may be purchased from a vending machine (page 3, lines 84-86), this feature had to be considered as disclosed in P1.

4.2.5 The priority of the US application P1 in respect of claim 1 of the present European application may only be acknowledged if the skilled person can derive the

subject-matter of the claim directly and unambiguously, using common general knowledge, from the application P1 as a whole. This follows from the requirement of "same invention" in Article 87(1) EPC 1973. In the present case, P1 only discloses that a communication channel is established between the user and the vending machine allowing the user to interact with the machine. The purchase of a target object has not been explicitly disclosed in P1. Moreover, the use of the generic term "interact" in the application P1 cannot be considered to give rise to a right of priority in respect of the specific term "purchase" and so the purchase of a target object cannot be regarded as implicitly disclosed in P1.

Having regard to the appellant's conviction that the contents of P2 and P3 may be regarded to be incorporated by reference into the disclosure of P1, the Board notes that no mention of the term "incorporated by reference", or indeed any equivalent expression, may be found in P1. In the absence of such a statement, the contents of P2 and P3 cannot be considered to be incorporated in any form into the disclosure of P1. The only reference in P1 to P2 and P3 may be found on the Form PTO/SB/01 (12-97) which forms part of the priority document in this case. This Form contains a box "*I hereby claim the benefit under 35 U.S.C. 119(e) of any United States provisional applications(s) listed below:*", P2 and P3 being entered in this box.

It is the Board's understanding that this benefit claim is restricted to the establishment of a "first-to-file" date for the subject-matter contained in the provisional applications and does not have any implications with respect to the content of the

subsequent non-provisional application. In particular, the benefit claim does not imply that the subject-matter of P2 or P3 is automatically incorporated into the disclosure of P1.

4.2.6 As a result, the purchase of a target object cannot be considered to be incorporated by reference to P2 or P3 and is not derivable - either explicitly or implicitly - from the contents of P1. The priority of claim 1 is therefore not valid.

4.3 Novelty and inventive step - Article 54(1), (2) EPC, Article 56 EPC

4.3.1 As a consequence of the invalidity of the priority claim, document D4, which was published on 1 August 2002, is prior art under Article 54(2) EPC.

4.3.2 Document D4 represents the closest prior art. D4 discloses a system that includes a camera, a telephony device, a server (see Figs. 1 and 4; paragraph [0058] to [0063]), and an image captured by the camera (steps 102, 401). The telephony device is programmed to transmit at least a portion of the image over a network to a server (step 105). The server is programmed to receive the image and identify an object within the image (paragraph [0062]) and associate the object with an information address that corresponds to the object (paragraphs [0063] and [0069]). The telephony device is further programmed to interact with the server over the network to purchase the target object using the information address (Figure 2; paragraph [0071]).

4.3.3 The subject-matter of claim 1 is distinguished from the disclosure of D4 only in the manner by which the server is programmed to identify the imaged object. In D4, the

portion of the image containing digits, letters, text, symbols or icons is extracted (paragraphs [0031], [0087], [0093] and [0110]) and various algorithms are implemented in order to perform digit recognition, printed and handwritten text recognition, symbol, logo and watermark recognition, and general texture and shape recognition (paragraph [0034]). In contrast thereto, claim 1 defines that the server is programmed to determine "*image characteristics*" of the image and to compare these image characteristics with corresponding image characteristics of reference objects which are stored in a database. The unknown image is identified by determining which reference object has image characteristics that best match its image characteristics.

The subject-matter of claim 1 is therefore new.

- 4.3.4 The appellant submitted that the system of D4 could not be used to purchase goods which had not been individually labelled with an identifying mark.

The appellant considered that the objective technical problem to be solved was to improve the applicability of the system of D4 for purchasing goods.

- 4.3.5 In the view of the appellant, the skilled person would not arrive at the subject-matter of claim 1 in an obvious manner when attempting to solve this problem. The only prior art document which dealt with a remotely comparable field was D3. This document disclosed a system for identifying a precise location of a mobile station. This was accomplished by taking a digital image of a geographic location in the vicinity of the mobile station, transmitting this digital image via a computer network to an optical character recognition

(OCR) server interfaced with the computer network, analysing the image information to derive binary text information therefrom, comparing the binary text information with location data in the form of maps, street names etc. and transmitting the determined location back to the mobile station. The method of D3 was thus based on text recognition. The appellant argued that there was no suggestion in D3 that the location information could be achieved using object recognition, as defined in claim 1 of the application.

4.3.6 The Board considers that, starting from D4, the skilled person would recognise a more fundamental shortcoming in the system of D4. When using the system of D4, the user will encounter situations in which the identifying mark is either not visible or is not readable. For example, the object may be imaged in poor lighting conditions or from an oblique camera angle or the identifying mark may be disfigured in some way. The Board accepts that this problem is not addressed in the available prior art but considers that, in view of the fact that it will inevitably arise during the use of the system of D4, it would be readily apparent. In the view of the Board, the objective technical problem to be solved is therefore to enable objects to be recognised even when the available identifying marks are not readable.

4.3.7 The Board notes that recognition of the imaged object is an indispensable step in the process of D4 without which the purchase of the imaged object cannot be performed. It is therefore imperative that the system is capable of recognising the object. In the situation of unreadable identification marks, the skilled person must therefore consider implementing alternative object

recognition techniques which do not rely on reading an identification label.

- 4.3.8 In addition to the determination of geographic location of a mobile station, D3 discloses a system for identifying a product, object or face by transmitting image data of the object/face to an OCR server (page 9, line 21 to page 10, line 11), the OCR server having the capability of constructing patterns from the transmitted images and comparing these patterns with stored patterns in order to find a match (page 7, lines 21-27). The Board agrees with the finding of the examining division that the term "OCR" referred to in this context has to be understood as relating to optical pattern recognition and not as being restricted to pure character recognition. This view is supported by the fact that D3 foresees "*utilizing the digital image data directly*" (page 6, lines 21-23). The Board understands this to mean that the image data is not converted to text data for further identification but instead the identification is performed on the basis of the actual image data itself. Moreover, D3 envisages, for example, an identification of a famous person from a picture taken of the person's face (Figure 4; page 10, lines 3-11).

Optical pattern recognition would necessarily involve the comparison of "*image characteristics*" of the imaged object with stored "*image characteristics*" of reference objects in order to match the unknown image to the closest image in the comparison database.

An example of image characteristics which are used in such a comparison is given in D5. Here, an image is coded as a joint histogram (column 4, lines 49-53; column 5, lines 1-4), the joint histogram is compared



to other stored joint histograms (column 6, paragraph 1) and the best match is determined (column 6, paragraph 2).

The comparison of image characteristics was therefore known and would have represented a viable option for either supplementing or replacing the label recognition system of D4, thus maintaining the crucial ability to identify an object even when the identification labels are unreadable.

4.3.9 The appellant disagreed with the Board's analysis and insisted that the fundamental premise of D4 was that every object which was to be sold would be provided with a recognisable symbol. If the labels in D4 were unreadable, the skilled person would strive to improve their readability. The system of claim 1 enabled arbitrary, unlabelled objects to be identified. Starting from D4, the skilled person would simply not appreciate the need to identify such unlabelled objects. Moreover, the appellant insisted that D3 only disclosed the use of character recognition and did not suggest any other method for recognising objects. With regard to the reference in D3 to facial recognition, the appellant argued that the algorithm by which this could be achieved was unclear. Reference was made in this context only to OCR and this could definitely not be used for this purpose. The appellant acknowledged that page 7 of D3 referred to the fact that the OCR server was able to construct patterns from images of the transmitted picture which could then be compared to stored reference patterns. However, in view of the emphasis on OCR and binary text information in OCR, the appellant submitted that the pattern matching referred to on page 7 of D3 had to be interpreted as referring to the pattern matching (character matching) in an OCR

algorithm. There was no basis for interpreting this to encompass more general pattern matching for objects or faces. Even the example given in D3 concerning the identification of an automobile was likely to be based on the extraction of recognisable symbols, for example the Mercedes star.

4.3.10 As noted above, for the system of D4 to function, it is imperative that the imaged object be identified. In the Board's view it is irrelevant how this identification is performed. The underlying concept of D4 is that an object is photographed and the image is transmitted to a server where it is identified and associated with an address which the user can access to purchase the object. For this concept to function, the mechanism by which the object is identified is merely of secondary nature. According to the specific example described in D4, the method used is to read an identifying label but the Board remains convinced that it is inevitable that certain situations will arise in which the identifying marks will be unreadable. Starting from D4 the skilled person is not put in the position of having to identify an arbitrary, unlabelled object: instead he will experience the situation of having to identify an object which cannot be identified by means of its identifying label. In such a case, for the system of D4 to function, an alternative method of identifying the object will have to be provided.

Having regard to the appellant's view that D3 only discloses OCR, the Board observes that, in addition to the product, object or face identification mentioned in paragraph 4.3.8 above, the determination of an unknown geographical location may be performed on the basis of images of landmarks and buildings (see page 5, lines 18-23 of D3). It is the Board's understanding that

these landmarks, buildings, products and faces are recognised on the basis of their appearance and not on the basis of any text matter or symbols which may (or may not) be included in the image.

4.3.11 The Board is therefore not convinced by the appellant's arguments and considers that the skilled person would arrive at the subject-matter of claim 1 without the use of an inventive step.

4.4 Auxiliary Request II is therefore not allowable.

5. Auxiliary Request III

5.1 The appellant considered that the wording of claim 1 defined, in addition to the features of claim 1 of the previous request, that the server was programmed to use a discriminator algorithm which operated on the input image to determine whether the input image contained recognisable symbols and/or an object of interest.

5.2 In contrast, the Board observes that the current wording does not actually define that the server is programmed to discriminate between recognisable symbols and an object of interest. Instead, claim 1 may be interpreted to define, in a first option, that the server is programmed to determine whether the input image contains recognisable symbols or, in a second option, that the server is programmed to determine whether the input image contains an object of interest. Reading claim 1 on the basis of the second option, there is no difference between the subject-matter of claim 1 of Auxiliary Request III and the subject-matter of Auxiliary Request II.

5.3 Claim 1 therefore lacks an inventive step for the same reasons as given with respect to claim 1 of Auxiliary Request II.

5.4 As a result, Auxiliary Request III is not allowable.

6. Auxiliary Request IV

6.1 Claim 1 is distinguished from claim 1 of Auxiliary Request II in that the server is programmed to determine whether the image contains an object of interest and to detect a recognisable symbol appearing as a means of identification on the object. Image characteristics are used to identify the object only if a recognisable symbol is not detected or if the recognisable symbol identifies the object ambiguously.

6.2 Developing the line of reasoning taken by the Board with respect to claim 1 of Auxiliary Requests II and III, the appellant submitted that even if, for the sake of argument, the skilled person were to appreciate that the identifying marks in D4 would be unreadable in certain situations and even if he were to realise that this problem could be solved by recognising the object on the basis of its image characteristics, there was no suggestion in the prior art which would motivate the skilled person to provide a combination of symbol-recognising algorithms with algorithms which enabled the object to be identified by other means. The provision of such a combination together with the prioritisation of the symbol recognition was not obvious from the available prior art.

6.3 The Board accepts that none of the cited documents suggests the combination of symbol-recognising algorithms with algorithms which enable the object to

be identified by a comparison of image characteristics. However, in the view of the Board, it would be obvious to the skilled person starting from D4 to identify the object using an identification symbol if such symbol is in fact available and does in fact permit an unambiguous identification. It would be clear to the skilled person that an alternative object-recognition technique need only be implemented when the identification symbol cannot be used for unambiguous identification. It would therefore be logical to retain the symbol-recognition algorithms of D4 and to use these in preference to any other object-recognition techniques when possible. Only in the case that the object is not provided with an identifying symbol or if the symbol is unreadable would it make sense to use the more computationally demanding object-recognition algorithm. The Board considers this prioritisation to follow in an obvious manner from the disclosure of D4. Therefore, despite the fact that no prior art actually directs the skilled person to the subject-matter of claim 1, the Board considers it obvious to supplement the example of the symbol-recognition technique of D4 with an object-recognition technique involving the comparison of image characteristics and to prioritise the symbol-recognition when it delivers unambiguous results.

6.4 Claim 1 therefore does not involve an inventive step.

6.5 As a consequence, Auxiliary Request IV is not allowable.

## **Order**

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

The appeal is dismissed.

The Registrar:

The Chairman:



R. Schumacher

H. Wolfrum

Decision electronically authenticated