



- 5 The invention relates to a computer-controlled system for ordering food and/or drink in a restaurant in which a projector mounted above the dining table is used to project plate shaped images of the actual food which can be ordered onto the surface of the table where customers are able to select the food they wish to order by touching the appropriate images on the table. In particular, the projected images are intended to show how the food would like on a plate thereby aiding, for example, the visually impaired in ordering their food.
- 6 The most recent set of claims (“*Main Request*”) were filed on 2 October 2011, and include a single independent claim to a restaurant dining interactive food and/or drink ordering system (claim 1). At the same time, the applicant supplied two additional sets of claims (“*Auxiliary Request 1*”) and (“*Auxiliary Request 2*”) for my consideration. The wording of the independent claims in each case is as follows:

*Main Request*

*1. Restaurant dining interactive food and/or drink ordering system including a horizontal surface, seating associated with the horizontal surface, a computer controlled projector mounted above the horizontal surface and an interface device in connection with the computer, the system operable to project images onto the horizontal surface using the computer controlled projector, the images including a menu of food and/or drink selection options, the selection options selectable by a customer seated at the seating and operating the interface device, wherein the projected images include a bright, plate-sized plate-shaped image surrounded by a skin of the horizontal surface, wherein the plate-shaped image includes an image of what the customer could order.*

*Auxiliary Request 1*

*1. Restaurant dining interactive food and/or drink ordering system including a horizontal surface, seating associated with the horizontal surface, a computer controlled projector mounted above the horizontal surface and an interface device in connection with the computer, the system operable to project images onto the horizontal surface using the computer controlled projector, the images including a menu of food and/or drink selection options, the selection options selectable by a customer seated at the seating and operating the interface device, wherein the projected images include a bright, plate-sized plate-shaped image, corresponding to where the customer's central plate will sit, surrounded by a skin of the horizontal surface, wherein the plate-shaped image includes an image of what the customer could order.*

- 7 Auxiliary Request 1 includes a single independent claim similar to that of the main request but which has been amended to specify that the projected image is situated in a position corresponding to where the customer's plate will sit. I have indicated where this claim differs from that of the main request by underlining the additional text.

## Auxiliary Request 2

*1. An interactive food and/or drink ordering system, in which a computer controlled projector is mounted above a horizontal surface such that a menu of food and/or drink selection options is projected onto some or all of the surface, the selection options being selectable by a user operating an interface device connected to the computer and also by one or more additional users, each operating their own interface device connected to the computer, the orientation of the menu of food and/or drink selection options projected onto the surface being selected to be correct for each user, wherein the system is a restaurant dining interactive food and/or drink ordering system including a seating associated with the horizontal surface, a computer controlled projector mounted above the horizontal surface, the selection options selectable by each user seated at the seating and operating their own interface device, wherein the projected images include a bright, plate-sized plate-shaped image surrounded by a skin of the horizontal surface, wherein the plate-shaped image includes an image of what each user could order.*

- 8 Auxiliary Request 2 again includes a single independent claim which has essentially been amended to include all those feature contained within claim 1 of GB2444852 B which was granted on 27 January 2010.

### The Law

- 9 The examiner has raised an objection under section 1(2) of the Patents Act 1977 that the invention is not patentable because it relates to a program for a computer, the presentation of information and a business method as such; the relevant provisions of this section of the Act are shown in bold below:

**1(2) It is hereby declared that the following (amongst other things) are not inventions for the purpose of the Act, that is to say, anything which consists of-**

(a) .....

(b) .....

**(c) a scheme, rule, or method for performing a mental act, playing a game or doing business, or a program for a computer;**

**(d) the presentation of information;**

*but the foregoing provisions shall prevent anything from being treated as an invention for the purposes of the Act only to the extent that a patent or application for a patent relates to that thing as such.*

- 10 As explained in the notice published by the UK Intellectual Property Office on 8 December 2008<sup>3</sup>, the starting point for determining whether an invention falls within

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<sup>3</sup> <http://www.ipo.gov.uk/pro-types/pro-patent/p-law/p-pn/p-pn-computer.htm>

the exclusions of section 1(2) is the judgment of the Court of Appeal in *Aerotel/Macrossan*<sup>4</sup>.

- 11 The interpretation of section 1(2) has been considered by the Court of Appeal in *Symbian Ltd's Application*<sup>5</sup>. *Symbian* arose under the computer program exclusion, but as with its previous decision in *Aerotel*, the Court gave general guidance on section 1(2). Although the Court approached the question of excluded matter primarily on the basis of whether there was a technical contribution, it nevertheless (at paragraph 59) considered its conclusion in the light of the *Aerotel* approach. The Court was quite clear (see paragraphs 8-15) that the structured four-step approach to the question in *Aerotel* was never intended to be a new departure in domestic law; that it remained bound by its previous decisions, particularly *Merrill Lynch*<sup>6</sup> which rested on whether the contribution was technical; and that any differences in the two approaches should affect neither the applicable principles nor the outcome in any particular case. But the *Symbian* judgment does make it clear, that in deciding whether an invention is excluded, one must ask does it make a technical contribution? If it does then it is not excluded.
- 12 Subject to the clarification provided by *Symbian*, it is therefore still appropriate for me, to proceed on the basis of the four-step approach explained at paragraphs 40-48 of *Aerotel/Macrossan* namely:
  - 1) Properly construe the claim
  - 2) Identify the actual contribution (although at the application stage this might have to be the alleged contribution).
  - 3) Ask whether it falls solely within the excluded matter, which (see paragraph 45) is merely an expression of the "as such" qualification of section 1(2).
  - 4) If the third step has not covered it, check whether the actual or alleged contribution is actually technical.
- 13 The operation of this test is explained at paragraphs 40-48 of the decision. Paragraph 43 confirms that identification of the contribution is essentially a matter of determining what it is the inventor has really added to human knowledge, and involves looking at substance, not form. Paragraph 46 explains that the fourth step of checking whether the contribution is technical may not be necessary because the third step should have covered the point.
- 14 I will deal with the rest of the arguments put forward by the applicant as I apply the test set out in *Aerotel/Macrossan* to the present case.

### **Construing the claims**

- 15 The first step of the test is to construe the claims. I do not think this presents any real problems since both the applicant and the examiner appear to agree as to the meaning of the claims.

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<sup>4</sup> *Aerotel Ltd v Telco Holdings Ltd and Macrossan's Application* [2006] EWCA Civ 1371; [2007] RPC 7

<sup>5</sup> *Symbian Ltd v Comptroller-General of Patents*, [2009] RPC 1

<sup>6</sup> *Merrill Lynch's Application* [1989] RPC 561

## Identify the actual contribution

- 16 For the second step, it is necessary to identify the contribution made by the invention. Paragraph 43 of *Aerotel/Macrossan* explains that this is to be determined by asking what it is - as a matter of substance not form - that the invention has really added to human knowledge having regard to the problem to be solved, how the invention works and what its advantages are.
- 17 Dr Bottomley considers the contribution, in so far as it relates to the invention as claimed in the main request, to lie in a new arrangement for ordering food and/or drink in a restaurant including all those features of claim 1, but specifically requiring plate shaped images of food to be projected from above onto a horizontal interactive surface where customers are able to select the food they wish to order. He argues that this arrangement solves a technical problem, in that information regarding the appearance of the food available on the menu can be conveyed to, for example, the visually impaired or foreign customers who may otherwise have difficulty reading and ordering from a conventional menu.
- 18 However, I do not agree entirely with Dr Bottomley's assessment. It is genuinely quite difficult to identify the contribution in this case. The applicant acknowledges that interactive interfaces for ordering food in restaurants comprising touch-sensitive screens associated with or embedded in the surface of a dining table are well known. Indeed, the examiner has cited a couple of examples in his examination report showing that this type of arrangement was known at the priority date of the invention (see US 2005/273345 (CASTILLEJO) and KR040040003 (YOUN)). This would seem to suggest that the contribution lies in the replacement of the touch-sensitive screen with an interface comprising a projector mounted above the table. However, it would also appear to be well known in the art to project images onto horizontal surfaces to create so-called interactive tables. Indeed, the examiner has cited an example of such an arrangement where a projector mounted above a kitchen worktop is used to project images of a cookbook onto the surface of the worktop which when touched by the user enables them to obtain instructions, or to select multimedia content illustrating the steps required to make their favourite dish (see [www.media.mit.edu/pia/counteractive/](http://www.media.mit.edu/pia/counteractive/); CounterActive: an interactive cookbook for the kitchen counter). This leads me to believe that the physical arrangement of the apparatus is entirely conventional.
- 19 So what is the contribution? What has the applicant actually added to the stock of human knowledge? Having established that the apparatus is entirely conventional, we must look elsewhere, for example, to the problem he alleges to have solved and how that has been achieved. At the hearing, Dr Bottomley referred to the problems encountered by the visually impaired or other customers who may have difficulty reading and ordering from a conventional menu, and how the invention was seen to solve that problem by projecting images of how the food would look onto the table as an alternative to the more traditional textual description of the dish which would appear in the menu. Customers could then simply touch the image of the food on the table to place their order without having to have read the menu. In my opinion, this is where the contribution actually lies. What the applicant has created is a new user-interface for ordering food and/or drink in a restaurant wherein a plate-sized plate-shaped image of what the customer could order, is projected onto the table to aid, for example, the visually impaired in ordering their food.

20 Auxiliary request 1 adds an additional requirement to the claims in that the position of the image on the table is intended to indicate where the customer's central plate will sit, and to effectively replace the traditional placemat. Dr Bottomley argues that this provides an additional contribution in that by replacing the placemat with a projected image the cost of manufacturing, replacing and redesigning placemats is reduced. I am prepared to accept that the contribution could be considered to include this additional feature and will deal with this in the paragraphs which follow.

**Does the contribution fall solely within excluded subject matter? Is the contribution technical in nature?**

21 The applicant's arguments are laid out in some detail in their letters of the 2 October 2011, 19 October 2011 and 4 January 2012, and I do not think it necessary to repeat them here in their entirety. However, I will do my best to summarise the key points in the paragraphs below.

22 Dr Bottomley in essence, argues that the invention should not be excluded under section 1(2) as the contribution does not relate to a computer program or a business method as such, and is more than the mere presentation of information. He argues that the contribution includes the physical apparatus e.g. the projector, horizontal surface and interface etc. which are combined inventively in the context of restaurant dining to project from above onto a surface a plate shaped image of the food that may be ordered. He considers this to provide a technical solution to a technical problem, in that information regarding the appearance of the food available on the menu can be conveyed to, for example, the visually impaired who may otherwise have difficulty reading and ordering from a conventional menu. Furthermore, with regard to the additional contribution, arising from the invention as claimed in auxiliary request 1, he considers that replacement of the placemat not only reduces the cost associated with manufacturing, replacing and redesigning placemats but has environmental advantages which are technical in nature.

23 There is no doubt in my mind that the contribution requires a computer program for its implementation. However, the mere fact that the invention is effected in software does not mean that it should be immediately excluded as a computer program as such. What matters is whether or not the program provides a technical contribution.

24 Having considered the arguments at some length, irrespective of the form in which the invention is now claimed, I think the contribution, as a matter of substance, amounts to nothing more than a computer program as such. What the applicant has done is to create a user interface using conventional hardware, which relies for its operation on a new computer program, albeit a clever one, for controlling the way images are presented to a customer in a restaurant. The fact that the images represent how the food would appear on the plate and thereby aid the visually impaired or those speaking a foreign language to order their food does not to my mind constitute a technical solution to a technical problem. Indeed, all that the applicant has done is program a computer to replace the traditional text in the menu with images of food on a plate, something which is often done in restaurants where photographs are used to illustrate a menu to facilitate the ordering of food. This to my mind does not constitute a technical contribution sufficient to save the invention from exclusion. Furthermore, I do not think that the additional step of using the image to replace a traditional placemat adds anything of a technical nature.

- 25 Having considered all the evidence made available to me, and all the arguments put to me at the hearing, I do not consider the invention to provide a technical contribution, and as such it would seem to fall squarely within the computer program exemption of section 1(2)(c).
- 26 Having decided that the invention is excluded as a computer program, it is not necessary for me to consider in any detail whether or not the invention is also excluded as a business method or as the mere presentation of information. However, for completeness I will briefly do so.
- 27 I have established that the invention relates to a computer implemented user interface for ordering food in a restaurant, and in particular is intended to make it easier for customers who have difficulty in reading the menu to order their food by projecting images of the food onto the table. In my opinion, this constitutes an improvement in the running of a restaurant and consequently would also appear to fall foul of the business method exclusion. Dr Bottomley argued at the hearing that the invention was not limited in any way to its use in restaurants but could also be used in, for example, "soup kitchens" or the like where food was given away freely to the homeless, and that where there was no exchange of money there could not be a business method. I do not agree. The scope of the claim quite clearly includes the situation where the invention is used in a traditional restaurant and the fact that no money changes hands does not detract from this being any less a business method. Furthermore, I do not think merely removing the reference to restaurants or customers from claim 1, as suggested by Dr Bottomley at the hearing, would alter anything in this respect.
- 28 Furthermore, I have no doubt that the use of the interface to facilitate ordering of food by replacing the text in a menu with images of how the food would appear on the plate is also to be excluded under section 1(2)(d) as the mere presentation of information, and that there is nothing of a technical nature in doing so.

#### *Auxiliary request 2*

- 29 As I have previously indicated, Dr Bottomley has submitted two alternative claims for my consideration, the second of which "Auxiliary request 2" effectively incorporates into claim 1, all those features contained within claim 1 of an associated application GB2444852 B which was granted on 27 January 2010. He argues that claim 1 of Auxiliary request 2 is therefore not objectionable under section 1(2) because it includes all the patentable subject matter of claim 1 of the granted patent. However, I do not consider this to be an allowable amendment as it would introduce potential conflict of scope between the claims of these two patents contrary to the requirements of section 18(5).

#### **Inventive step**

- 30 The examiner has raised an objection under Section 1(1)(b) of the Patents Act 1977 that the invention does not involve an inventive step. The relevant parts of Section 1 read as follows

*1(1) A patent may be granted only for an invention in respect of which the following conditions are satisfied, that is to say -*

(a) *the invention is new;*

(b) ***it involves an inventive step;***

(c) *it is capable of industrial application;*

(d) *the grant of a patent for it is not excluded by subsections (2) and (3) or section 4A below;*

*and references in this Act to a patentable invention shall be construed accordingly.*

31 Section 3 sets out how the presence of an inventive step is determined:

*3. An invention shall be taken to involve an inventive step if it is not obvious to a person skilled in the art, having regard to any matter which forms part of the state of the art by virtue only of section 2(2) above (and disregarding section 2(3) above).*

32 In *Windsurfing International Inc. v Tabur Marine (Great Britain) Ltd*<sup>1</sup> the Court of Appeal formulated a four-step approach for assessing whether an invention is obvious to a person skilled in the art. This approach was restated and elaborated upon by the Court of Appeal in *Pozzoli SPA v BDMO SA*<sup>2</sup>, where Jacob LJ reformulated the Windsurfing approach as follows:

(1)(a) Identify the notional “person skilled in the art”.

(1)(b) Identify the common general knowledge of that person.

(2) Identify the inventive concept of the claim in question or if that cannot be readily done, construe it.

(3) Identify what, if any, differences exist between the matter cited as forming part of the “state of the art” and the inventive concept of the claim or claim as construed.

(4) Viewed without any knowledge of the alleged invention as claimed, do those differences constitute steps that would have been obvious to the person skilled in the art or do they require any degree of invention?

33 In assessing whether the invention claimed in the present application involves an inventive step, I will therefore use this *Windsurfing/Pozzoli* approach.

*Steps (1)(a) and 1(b): Identify the notional “person skilled in the art” and the common general knowledge of that person*

34 At the hearing, it was agreed that the person skilled in the art would be someone familiar with the design of interactive user interfaces and that they would have knowledge of such things as touch-screen displays and in particular would appreciate how these could be used in a restaurant environment for displaying menus and ordering food.



*Step (2): Identify the inventive concept of the claim in question or if that cannot be readily done, construe it.*

- 35 I think it is reasonable to assume that the inventive concept of claim 1 is a user-interface for ordering food and/or drink in a restaurant wherein a plate-sized plate-shaped image of what the customer could order, is projected from above onto the table to aid, for example, the visually impaired in ordering their food. In auxiliary request 1, this could include projecting the image onto the table such that it is positioned where the customer's central plate will sit thereby eliminating the need for a placemat.

*Step (3): Identify what, if any, differences exist between the matter cited as forming part of the "state of the art" and the inventive concept of the claim or claim as construed.*

- 36 The examiner cited the following documents as forming part of the "state of the art":

D1: [www.media.mit.edu/pia/counteractive/](http://www.media.mit.edu/pia/counteractive/); CounterActive: an interactive cookbook for the kitchen counter. Last updated 24/4/2001

D2: WO 03/098507(NETRON INC) - see abstract

D3: JP 2002032863(RAI KAI) - see abstract

D4: US 2005/273345(CASTILLEJO) - see abstract and figure 5

D5: KR 040040003(YOUN) - see abstract and figures

- 37 Documents D2-D4 show that interactive interfaces for ordering food in restaurants comprising touch-sensitive screens associated with or embedded into the surface of a dining table are well known. D2 and D4 are particularly relevant as they appear to show that the display includes not only a conventional menu but also features images of the food as it would appear on the plate which can then be selected by the user. The invention differs from the disclosure in D2-D4 in that it requires the display to be generated by projecting images onto the table from a projector mounted above it, thereby replacing the touch-sensitive screen.

- 38 However, It would also appear to be well known in the art to project images onto horizontal surfaces to create so-called interactive tables. Indeed, the disclosure in document D1 shows such an arrangement where a projector mounted above a kitchen worktop is used to project images of a cookbook onto the surface of the worktop which when touched by the user enables them to obtain instructions, or to select multimedia content illustrating the steps required to make their favourite dish.

*Step (4): Viewed without any knowledge of the alleged invention as claimed, do those differences constitute steps that would have been obvious to the person skilled in the art or do they require any degree of invention*

- 39 Given that it is well known to project images onto horizontal surfaces to create so-called interactive tables, I do not think it unreasonable for the notional person skilled in the art to replace the touch-sensitive display screens in documents D2-D4 with

such an arrangement particularly in light of the disclosure in D1. The nature of the images, their content and position within the “skin” of the horizontal surface, I consider to be simple modifications which would also have been obvious to the skilled addressee. I also think that the additional feature presented in Auxiliary request 1, whereby the plate shaped image is positioned in such away to replace a traditional placemat would have been obvious at the time of the invention.

- 40 I therefore do not consider the invention as claimed in claim 1 to involve an inventive step.

### **Conclusion**

- 41 In the light of my findings above, I conclude that the invention as claimed is excluded under section 1(2) and involves no inventive step contrary to the requirements of section 1(1)(b). I note that the compliance date has expired and that therefore no further amendments are possible. I therefore refuse the application under section 18(3).

### **Appeal**

- 42 Under the Practice Direction to Part 52 of the Civil Procedure Rules, any appeal must be lodged within 28 days.

**PETER SLATER**

Deputy Director, acting for the Comptroller