INTELLECTUAL PROPERTY OFFICE

BL O/035/13

23 January 2013

PATENTS ACT 1977

APPLICANT Fisher-Rosemount Systems, Inc.

ISSUE Whether patent application number GB0900941.6 complies with section 1(2)

HEARING OFFICER J E Porter

DECISION

Introduction

1 Patent application GB0900941.6 entitled "Method and apparatus to create process plant operator interfaces" was filed on 21 January 2009, with a claim to a priority date of 20 February 2008. It was published as GB 2 457 553 A on 26 August 2009.

2 Following amendment of the claims and several rounds of correspondence between the examiner and the applicant's attorneys, the examiner remains of the view that the claimed invention is excluded from patentability under section 1(2). With the position unresolved, the applicant asked to be heard, and the matter came before me at a hearing on 23 November 2012. The applicant was represented by patent attorneys Mr Russell Sessford and Mr Nick Palmer from Forresters. The examiner, Mr Ben James, was also present.

The invention

3 The invention is concerned with the configuration, monitoring and control of complex process plants, and with allowing a process plant operator to create or configure process plant displays and interfaces in order to monitor and control the plant.

4 In particular, the invention sets out to provide a way in which a process plant operator can configure or customise the system in order to create tailored process plant interfaces and displays which can be based, for example, on the operator's experience and preferences, or on current conditions.

5 The operator conducts a search (e.g. a keyword search) of interface modules, and so identifies and then selects those which he wishes to incorporate into the existing process plant interfaces or displays. Once the desired interface modules are incorporated, the relevant pieces of the process plant equipment are controlled or configured accordingly. To facilitate their search and selection, the

interface modules may have associated metadata or embedded text.

6 The latest claim set was filed on 19 November 2012, but purely to correct a minor typographical error which was present in the claim set filed on 21 May 2012. There are 25 claims, of which 3 are independent (and there are also 3 omnibus claims).

7 Claim 1 is a method claim which reads as follows:

> *A method to create a process plant operator interface and to receive inputs from a process plant operator to control and/or configure one or more specific pieces of process plant equipment, the method comprising:*
>
> *receiving a search criterion associated with the one or more specific pieces of process plant equipment;*
>
> *identifying a user interface module associated with the one or more specific pieces of process plant equipment based on the search criterion;*
>
> *adding the identified user interface module to the process plant operator interface; and*
>
> *controlling and/or configuring the one or more specific pieces of process plant equipment via the user interface module.*

8 Independent claim 14 is directed to an operator station apparatus and reads:

> *An operator station apparatus to control and/or configure one or more pieces of process plant equipment comprising:*
>
> *a display;*
>
> *an operator display module to present a process plant operator interface on the display for controlling and/or configuring the one or more specific pieces of process plant equipment;*
>
> *a search engine to identify a user interface module associated with the one or more specific pieces of process plant equipment based upon a search criterion which is associated with the one or more specific pieces of process plant equipment, the operator display module to display an output of the user interface module; and*
>
> *wherein, the one or more specific pieces of process plant equipment are controlled and/or configured via the user interface module.*

9 Independent claim 22 is directed to an article of manufacture storing machine readable instructions which, when executed, perform the claimed method.

The law

10 Section 1(2) declares that certain things are not inventions for the purposes of the Act, as follows:

> *It is hereby declared that the following (among other things) are not inventions for the purposes of this Act, that is to say, anything which consists of –*
>
> > *(a) a discovery, scientific theory or mathematical method;*

(b) a literary, dramatic, musical or artistic work or any other aesthetic creation whatsoever;

(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 provision shall prevent anything from being treated as an invention for the purposes of this Act only to the extent that a patent or application for a patent relates to that thing as such.

11 The examiner and the applicant agree that the assessment of patentability under section 1(2) is governed by the judgment of the Court of Appeal in *Aerotel* [1]*,* as further interpreted by the Court of Appeal in *Symbian* [2]*.*

12 In *Aerotel*, the court reviewed the case law on the interpretation of section 1(2) and approved a four-step test for the assessment of what is often called "excluded matter", as follows:

Step one: properly construe the claim

Step two: identify the actual contribution (although at the application stage this might have to be the alleged contribution)

Step three: ask whether it falls solely within the excluded matter

Step four: check whether the actual or alleged contribution is actually technical in nature.

13 Subsequently, the Court of Appeal in *Symbian* made clear that the *Aerotel* test is not intended to provide a departure from the previous requirement set out in case-law, namely that the invention must provide a "technical contribution" if it is not to fall within excluded matter.

14 The attorneys' submissions in response to the examination reports and at the hearing covered various points concerning how the *Aerotel* test should be applied to the invention in question, including reference to other case-law. I consider these submissions as a part of my analysis below.

Arguments and analysis

15 The examiner maintains that the claims define an invention which consists of a program for a computer. His position is set out most recently in his letter of 31 October 2012. Detailed arguments against the examiner's position are contained in the applicant's responses to the examination reports, through their attorneys, but in particular are set out in the skeleton argument provided on 19 November 2012. These arguments were elaborated clearly and helpfully at the hearing.

16 What I must do is determine whether the claimed invention relates solely to excluded subject matter under section 1(2).

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[1] *Aerotel Ltd v Telco Holdings Ltd and Macrossan's Application* [2006] EWCA Civ 1371, [2007] RPC 7

[2] *Symbian Ltd's Application* [2008] EWCA Civ 1066, [2009] RPC 1

Construing the claims

17 There is no dispute between the examiner and the applicant on the question of claim construction, and I agree that the claims do not present any difficulties on this point.

18 Claim 1 sets out a method of creating an operator interface and receiving inputs from an operator, so as to control and/or configure one or more pieces of process plant equipment. The method comprises the steps of receiving a search criterion which is associated with those one or more pieces of process plant equipment, using the search criterion to identify a user interface module associated with that equipment and then adding that user interface module to the process plant operator interface. The one or more pieces of process plant equipment in question are thus controlled and/or configured via the user interface module.

19 Claim 14 is directed to operator station apparatus to control and/or configure one or more pieces of process plant equipment. This apparatus comprises a display and an operator display module which presents a process plant operator interface on that display. This is used for controlling and/or configuring one or more pieces of process plant equipment. The apparatus also comprises a search engine to identify a user interface module associated with the one or more pieces of process plant equipment, the identification being based upon a search criterion which is associated with the one or more specific pieces of process plant equipment. The operator display module displays an output of the user interface module, via which the one or more pieces of process plant equipment are controlled and/or configured.

Identifying the contribution

20 In paragraph 43 of *Aerotel*, it is made clear that identifying the contribution is probably best summed up as determining what the inventor has really added to human knowledge, and this involves looking at the substance and not the form of the claims (as construed in step one). However, the court in *Aerotel* acknowledged that, for a patent application (as opposed to a granted patent), it may only be possible to identify the alleged, and not the actual, contribution. That important qualification is relevant in the present case, not least because the examiner has deferred consideration of novelty and inventive step.

21 The examiner's view is that the contribution made by the claimed invention is an improved method for creating a process plant operator interface. He says that the contribution includes the creation of that interface by receiving a search criterion associated with one or more specific pieces of process plant equipment, identifying a relevant user interface module based on the search criterion, and adding the identified user interface module to the operator interface.

22 The attorneys' view is that the contribution is "a method including receiving a search term from an operator directed to a particular piece of process plant equipment, identifying a suitable module associated with that equipment, adding that module to the operator interface, and controlling and/or configuring that piece of process plant equipment using the module".

23 Clearly the point at issue is whether or not the contribution amounts to an improved method of controlling or configuring process plant equipment. I do not see that anything of significance turns on the other minor variations in the differing assessments of the contribution.

24 The attorneys presented various arguments in correspondence and at the hearing to support their contention that the contribution must include the controlling or configuring of process plant equipment.

25 I will deal first with their point in relation to the examiner's argument, set out as a part of his analysis of the contribution, that the application teaches that the method of controlling equipment is not new, but the method of creating the operator interface is new. The attorneys acknowledge that the control routines and functionality in relation to any specific device are not new and so "that aspect of the process control system has not changed". But they argue that it is not correct to approach the assessment of the contribution in this way – that is to say, by dividing the claims up into what is known and what is not known.

26 I note that in paragraph 53 of *Aerotel* the conclusion was that, although the system in question could be implemented using conventional computers, "the key to it is a new physical combination of hardware". The system as a whole was held to be new and so the contribution was found to be that new system.

27 Although there is no argument being run in the present case in relation to new hardware or a new combination of hardware, the general point still applies. Thus it does not necessarily follow that, because a particular element of a system is known, any contribution made by that element can be dismissed. This is because it is not as simple as slicing the invention up into its component parts and then assessing the novelty or inventiveness of each of those parts. What is required is to assess the contribution made by the claimed invention as a whole, and so the interaction between the various elements (known or otherwise) needs to be considered when making that assessment.

28 This leads on to the main arguments put by the attorneys. In general terms, they argue that it is the ability to add new control and/or configuration functionality which is key to understanding the contribution, and thus the patentability of the invention. The step in the contribution of adding the user interface module to the operator interface must "go hand-in-hand with the use of the added module to control and/or configure the devices within the plant" and must therefore form a part of the contribution.

29 They explain that, in prior art systems, operator station display screens and applications are designed and implemented by process configuration engineers. A display creation application allows a configuration engineer to create one or more viewing applications, which are installed at operator stations for use by plant operators. The operator uses this to control the system in question, but he is presented with a preconfigured display regarding the state of the system and the specific devices within it. If the control functionality is to change, a configuration engineer must program and download an updated interface to the operator station.

30 The present invention, they argue, addresses this by allowing the operator to create process plant operator interfaces more easily and dynamically, for use in controlling and/or configuring pieces of equipment. The operator station can be adapted to provide additional functionality for controlling or monitoring a device that is already being controlled or monitored in some way. Equally, the operating station can be adapted to provide functionality for controlling or monitoring an additional device that is not currently being controlled or monitored in the plant. Furthermore, this ability to control the process plant operator interfaces is said to avoid the operator suffering from information overload or missing critical plant conditions. It allows him, for example, to adapt the operating station based upon personal experience, preference or current plant conditions. At the hearing, the attorneys further argued that the skilled person would realise that the point of the invention is that it allows the operator to make these changes to functionality at the operating station without the process being taken offline. There is no need for a configuration engineer to be called in to update or reprogram the operating station.

31 The question is therefore whether the contribution made by the invention is a better operator interface, or whether it is a better control system because it – in the attorneys' words – "directly and unavoidably results in the better ability to control (and/or configure) equipment in the process plant using a new tool in the form of a better interface".

32 I am of the view that it is, on balance, a better operator interface – but no more than that. Where an invention results in an inherently improved control system, which operates in a different way from prior art systems, it is in my view right to include in the assessment of the contribution the step of actually controlling and/or configuring, even where the step of actually controlling a particular machine or device is not new in itself.

33 An example of this, in my view, is shown in the previous decision of the Comptroller in *Fisher-Rosemount Systems, Inc.'s Application* (BL O/390/12), in which the control system was inherently more reliable, because of software which could overcome a communications failure between components and the resulting unavailability of a relevant parameter value.

34 Another example is a decision of the Comptroller discussed at the hearing – namely *Fisher-Rosemount Systems, Inc.'s Application* (BL O/438/12), in which it was concluded that the improved control system resulted from the selection of the relevant process model more quickly and with less memory usage.

35 These cases in my view contrast with the present invention, in which no inherent change is made to the way in which the control system actually operates as a result of the software allowing the operator to adapt the functionality of the operator interface. The invention provides conventional control and configuration options to the operator via a different mechanism, that is to say, not involving a configuration engineer. It does not seem to me to make available to the operator an inherently different type of control system from that which is conventionally available. What has been added to the sum of human knowledge is a way to make conventional control and configuration options available to the operator via a different route, and so to provide a better interface for that operator.

36 Whilst it may be the case that the invention is used while the system is online, I am not persuaded that the invention makes a general contribution in terms of moving the adaption of functionality from an offline to an online environment. Having carefully read the claims and the specification, it seems to me that the teaching to the skilled person is more narrowly drawn, and concerns how the operator of an operating station can find and then incorporate certain interface modules into the operator interface.

37 There is a further point to make here. The claims have been amended during prosecution to include the final step of controlling and/or configuring the process plant equipment. The attorneys made the point forcefully at the hearing that it would be wrong, when considering the contribution, to ignore a feature which is clearly present in the claim. The logical conclusion of that argument appears to be that, if a feature is present in the claim, then it must form a part of the contribution. If I were to adopt that approach, it seems that I would be erroneously conflating steps one and two of the *Aerotel* test.

38 Therefore, I find that the contribution made by the claimed invention is an improved method for creating a process plant operator interface, the method including receiving a search term directed to one or more particular pieces of process plant equipment, identifying a suitable user interface module associated with that equipment based upon the search term, and adding that module to the operator interface.

Does the contribution fall solely within excluded matter / is it technical in nature?

39 What I must now decide is whether the contribution identified above relates solely to a program for a computer, and so is excluded from patentability under section 1(2). This corresponds to step three of the *Aerotel* test.

40 The fourth step of the test is then to check whether the contribution is technical in nature. In paragraph 46 of *Aerotel* it is stated that applying this fourth step may not be necessary because the third step should have covered the question. This is because a contribution which consists solely of excluded matter will not count as being a “technical contribution” and thus will not, as the fourth step puts it, be “technical in nature”. Similarly, a contribution which consists of more than excluded matter will be a “technical contribution” and so will be “technical in nature”.

41 The attorneys’ primary position was of course that the contribution was a better control system, was thus technical in nature, and so the invention was clearly not excluded. Those arguments fall away in light of my finding in relation to step two.

42 However, their further argument was that – even if the contribution was found to be a better interface – it nevertheless gives rise to a technical contribution. Given that these arguments, concerning whether the invention is excluded, are entirely wrapped up with the question of whether the contribution is technical in nature, I have considered the third and fourth steps together.

43 The attorneys argue that the reconfiguring of the interface in accordance with the contribution (as I have now identified it) has various advantages which are

technical in nature. These are said to include better information available to the operator, chosen by him and laid out in the desired manner, which can avoid information overload, unnecessary distractions and the consequent overlooking of alarms or other important information. The operator can also change which devices he is interacting with, leading overall to better control over the system through better control facilities.

44 The attorneys also directed my attention to paragraphs 232-236 of *Gemstar* [3], arguing that it shows how a new tool (the new electronic program guide) doing something that was known (transferring data from one storage device to another) was allowable because it was doing something technical (transferring data) in a better way. The judge applied step 4 of the *Aerotel* test and concluded there was a relevant technical effect. They argued that the present case is similar, in that it provides a new tool (the operator interface) that does something known (controlling equipment) but which allows for different and improved control of that equipment.

45 To an extent, I think these arguments are in danger of leading me back to being asked to accept that a part of the contribution is a better control system. But I have found that the contribution is the creation of an improved operator interface by software which carries out various steps. These steps are the receiving of a search criterion, the identification of a suitable user interface module based upon that search term, and the adding of that module to the operator interface. It follows that I am not persuaded that it is right to say that the contribution is technical in nature by virtue of it providing better control facilities.

46 The contribution involves the creation of a particular interface in software, using search functionality provided in software. I am not persuaded that the creation of an improved interface in this way goes beyond software per se. In particular, it does not appear to me that there is a technical contribution from devising, in software, a way of providing the operator with the ability to adapt functionality which, in conventional systems, is available to the configuration engineer. The highlighted presentational improvements to the interface (avoiding information overload and so on) do not take the matter beyond pure software either.

47 The attorneys rightly pointed out that there are dangers in over-reliance on the "signposts" set out by Lewison J in his judgment in *AT&T / CVON* [4]. Nevertheless these signposts can be helpful (but no more than that) in indicating whether there is a relevant technical contribution. They are:

> (i) whether the claimed technical effect has a technical effect on a process which is carried on outside the computer;
>
> (ii) whether the claimed technical effect operates at the level of the architecture of the computer; that is to say whether the effect is produced irrespective of the data being processed or the applications being run;

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[3] *Gemstar-TV Guide International Inc. and ors v Virgin Media Limited and ors* [2009] EWHC 3068 (Ch)

[4] *AT&T Knowledge Ventures' Application and CVON Innovations Ltd's Application* [2009] EWHC 343 (Pat), [2009] FSR 19

(iii) whether the claimed technical effect results in the computer being made to operate in a new way;

(iv) whether there is an increase in the speed or reliability of the computer;

(v) whether the perceived problem is overcome by the claimed invention as opposed to merely being circumvented.

48 The attorneys' position was that at least signposts (i) and (iii) are met, on the basis that the operator station has enhanced control and configuration functionality allowing interaction with external devices in a different way, or interaction with different devices. This new functionality is said to result in the computer (the operator station) being made to operate in a new way.

49 With regard to signpost (i), and as my reasoning above sets out, the contribution is confined to software processes within the operator station itself resulting in a better interface. Given that finding, I do not see that it provides a technical effect on a process carried on outside the operator station. Signpost (i) does not point towards patentability in this case.

50 Regarding signpost (iii), I do not agree that allowing the operator to create a different interface at the operator station can be said to make that computer operate in a new way. The computer operates conventionally, running the software of the invention to create a particular interface based on the search criterion. Signpost (iii) similarly points away from patentability.

51 No arguments were advanced that the software makes a change at the level of computer architecture (signpost (ii)) or results in a computer operating with increased speed or reliability (signpost (iv)). That is right, in my view. Finally, in relation to signpost (v), overcoming the need to use a configuration engineer by giving the operator the ability to adapt the interface does not, in my view, amount to a technical problem being overcome, for reasons already given.

52 I am satisfied that the contribution made by the invention falls solely with the category of software *per se*, and is not "technical in nature". It falls solely within excluded matter and fails to comply with steps three and four of the *Aerotel* test.

The auxiliary claim set

53 An auxiliary claim set was provided on 19 November 2012. The attorneys explained at the hearing that the claims bring out more explicitly the feature of controlling and configuring a plurality of pieces of process plant equipment. In particular, the claims refer to configuring the operator interface to control and/or configure a second piece of process plant equipment.

54 Thus the claims bring out the specific feature of adapting the operating station to provide functionality for controlling or monitoring an additional device which is not currently being controlled or monitored in the plant. This particularly feature was clearly put forward as being within the scope of the current claims, particularly in relation to the assessment of the contribution (see paragraph 30, for example).

55 It follows that my reasoning set out above applies as much to the auxiliary claim

set as it does to the claims currently on file. I do not see that the auxiliary claims lead to a different conclusion in relation to the contribution from that which I have already found. It follows that the auxiliary claims define an invention which is excluded from patentability.

Conclusion

56 I conclude that the claimed invention is excluded from patentability under section 1(2)(c) because it is no more than a program for a computer.

57 I can find no further disclosure in the specification upon which patentable claims might be based. I therefore refuse the application under section 18(3) for failure to comply with section 1(2)(c).

Appeal

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

Dr J E PORTER
Acting Divisional Director, acting for the Comptroller