

17<sup>th</sup> March 2008

## PATENTS ACT 1977

APPLICANT                      Fisher Rosemount Systems Inc

ISSUE                              Whether patent application number  
GB0604560.3 complies with section 1(2)

HEARING OFFICER                      H Jones

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## DECISION

### Introduction

- 1     The application was filed under the PCT as application number PCT/US2004/001205 on 16<sup>th</sup> January 2004, and subsequently published as GB2421332 upon entering the UK national phase.
- 2     The examiner has argued that the claimed invention is excluded from patentability under section 1(2) of the Patents Act 1977 ("the Act") as a program for a computer and a mental act. Despite several rounds of correspondence and amendments to the claim, the applicant was unable to overcome the examiner's objections and a hearing was duly arranged. The hearing was held on 20<sup>th</sup> February 2008, with the applicant being represented by Mr Alex Lockey of Forresters. Mr Lockey helpfully submitted a skeleton argument in advance of the hearing.
- 3     In the process of examining the application the examiner has deferred consideration of novelty, inventive step and any other matters that would normally be dealt with under section 14 of the Act. It follows that this decision will only consider the patentability of the application and that should I find in favour of the applicant the case will be remitted to the examiner for further examination.

### The invention

- 4     The application is directed to a method of approving software for downloading to a process control system having a safety instrumented feature. The system relies on sending electronically a request to a number of entities to review and approve a software object. Approvals are then sent back to the approval system. The software object cannot be implemented in the safety control device within the process control system until each entity has indicated its approval.

- 5 As is explained in the specification, process control systems typically include numerous sets of equipment that are used to carry out certain manufacturing or other control processes. The sets of equipment are coupled to controllers that include process control software instructions for manipulating the equipment in certain manners to effectuate the manufacturing or control processes. A specific example given in the application is in controlling the flow and mixture of ingredients, or in other words the recipe, in a cookie making process. The process control software may be implemented in software objects run on the various controllers to perform any variety of control functions.
- 6 Safety features are often built into the process control system to allow the system to shut down or provide other safety related features, and software objects may be created for use in controlling the various safety-related functions in a process plant. The invention relates to the authorisation of software objects for downloading to the process control system in general, and more specifically for the approval and control of software downloaded to controllers in the safety instrument system.
- 7 Mr Lockey filed three sets of claims with his skeleton argument and agreed that the hearing should first consider set A and then if necessary go onto consider sets B and C. For the purpose of completeness I have listed set A in full and the changes made to set A below:

*Set A*

*1. A method of operating a process plant comprising a safety instrumented system operatively coupled to a process control system, the method comprising:*

*obtaining electronic identification information representing a group of entities whose approval is needed prior to downloading a software object to a safety control device within the safety instrumented system in response to a change being made to the software object in a software design environment;*

*electronically transmitting a request for review of the software object to each of the entities within the group of entities;*

*receiving from each entity within the group of entities an electronic indication regarding an approval or disapproval of the software object; and*

*preventing the download of the software object to the safety control device in the safety instrumented system until each entity within the group of entities provides an electronic indication approving the software object.*

*20. A process plant comprising a safety control system operatively coupled to a process control system, and a software object approval and monitoring system, the software object approval system being operable to:*

*obtain electronic identification information representing a group of entities whose approval is needed prior to implementing a software object on-line*

*within the safety control system after a change is made to the software object in a software design environment;*

*electronically transmit a request for review of the software object to each of the entities within the group of entities;*

*receive from each entity within the group of entities an electronic indication regarding an approval or disapproval of the software object; and*

*prevent the download of the software object to the safety control device in the safety instrumented system until each entity within the group of entities provides an electronic indication approving the software object.*

*38. A process plant comprising a safety instrumented system in a process plant having one or more processors and an approval system, the approval system being operable to:*

*electronically transmit a request for review of a software object to each entity within a group of entities in response to a change being made to the software object; and*

*prevent download of the software object to a safety control device in the safety system until each entity within the group of entities provides an electronic indication approving the software object.*

*56. A process plant comprising a process control system and a safety control system operatively coupled to the process control system, the process plant comprising a communication network, the process plant comprising a communication network, the process plant further comprising a software object approval system, the software object approval system being operable to:*

*obtain electronic identification information representing a group of entities whose approval is needed prior to implementing a software object on-line within the safety control system after a change is made to the software object in an software object design environment;*

*electronically transmit a request for review of the software object to each of the entities within the group of entities;*

*receiving from each entity within the group of entities an electronic indication regarding an approval or disapproval of the software object; and*

*prevent the download of the software object to the safety control device in the safety instrumented system until each entity within the group of entities provides an electronic indication approving the software object.*

*the software object approval system being operable to download the software object to a safety control device of the safety control system over the communication network.*

- 8 The claims of claim set B are the same as claim set A with the inclusion of a step of detecting a change in a software object in a software object design system. The claims of claim set C are the same as claim set B with the inclusion of a further step of determining which entities should be sent the approval request according to a risk reduction factor

### **The law**

- 9 The relevant parts of section 1(2) read:

*“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.”*

- 10 These provisions are designated in section 130(7) as being so framed as to have, as nearly as practicable, the same effect as the corresponding provisions of the European Patent Convention (EPC), i.e. Article 52. As a consequence, I must therefore also have regard to the decisions of the Boards of Appeal of the European Patent Office (EPO) that have been issued under this Article in deciding whether the present invention is patentable.

### **Intepretation**

- 11 The correct approach to assessing patentability under section 1(2) is set out in the Court of Appeal’s judgment in *Aerotel Ltd v Telco Holdings Ltd (and Others) and Macrossan’s Application*<sup>1</sup>, and comprises a four-step test as follows:
- 1) properly construe the claim;
  - 2) identify the actual contribution;
  - 3) ask whether it falls solely within the excluded matter;
  - 4) check whether the contribution is actually technical in nature.

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<sup>1</sup> [2007] RPC 7

## Arguments and analysis

- 12 The first step of the Aerotel test requires me to construe the claim. Mr Lockey addressed me at some length on this issue and wanted to make it clear that in construing the claims I had to include the features of the whole claim. I have no difficulty in doing this.
- 13 The claims are not difficult to construe. In the case of claim 1 the claim is clearly a process control system to which is coupled a safety instrumented system. Within the umbrella of this system there is an electronic approval system that allows approval to be gained from a number of entities so that a new software object can be downloaded to devices within the safety system. However, download of the object to the device can only occur if each entity within a group indicates their approval. To obtain approval a request is transmitted electronically to the approving entities. Replies are then received indicating approval or disapproval.
- 14 The second step is to identify the actual or alleged contribution. This was the subject of much discussion at the hearing and the source of the difference of opinion that exists between the Mr Lockey and the examiner.
- 15 Mr Lockey was rightly concerned that if one took the wrong approach in performing this step that you can end up with a process that strikes out elements of the claim that are considered known until you are left with only one thing. In his words this would lead to a situation where “the only new bit is a software module, therefore the whole claim is excluded trap”. In Mr Lockey’s view the actual contribution was a new process and safety control system, though he did acknowledge that the kernel of the invention is “how changes to a safety system are made”. To this end, he set out the contribution as a fully integrated system where data updates are carried out within the process control system, sent out for approval and, only after they were approved, sent into the safety system.
- 16 I am mindful of falling into the “excluded trap” as Mr Lockey calls it. I am also aware that he sees the contribution as part of an integrated process control system. As a result I think it is incumbent upon me to set out clearly a full analysis of where the contribution lies. I am also aware of the guidance offered by Jacob LJ in Aerotel when he said at paragraph 43 where he stated:
- “How do you assess the contribution? Mr Birss submits the test is workable - it is an exercise in judgment probably involving the problem to be solved, how the invention works, what its advantages are. What has the inventor really added to human knowledge perhaps sums up the exercise. The formulation involves looking at substance not form - which is surely what the legislator intended.”*
- 17 As I see it, the system has two main components. Firstly, there is the process control system with its safety instrumented system. Secondly, there is the approval process for ensuring that new software objects for use within the system are properly approved. These two components are then brought together so that the system prevents the download of a software object to the process control safety system unless the approval system indicates that the new object is

approved. If I follow Mr Lockey's argument, it is this combination of the two components that leads to his view that it is an integrated process control and object approval system. In effect, what the inventor has added to the stock of human knowledge is a new process control system that arises from the merging of a process control system with an approval system.

- 18 I think it is necessary to first look at the contribution made by each component. There have been a number of decisions on Fisher Rosemount applications before the Office (BL 026/07 & 0/148/07-152/07) which were discussed during the hearing. I think it is fair to say that in a majority of these cases the Hearing Officers decided that the process control system could not form part of the contribution in light of background art disclosed in those applications. Having carefully considered these decisions I think this is the right course of action, and with regard to this application, is one I am right to follow. Specifically, in this case as in the above decisions, the process control or safety system is the same as before. It still comprises the same number of devices of the same type undertaking the same processes as before - the only possible difference being in the new software objects residing on the devices within the system. However, it is clear from the application that no import whatsoever is given to the nature of the software instructions residing on the devices, and nor did Mr Lockey suggest otherwise.
- 19 The second component of the claimed invention is an approval system where a request is sent electronically to an entity and an indication is received in return. The specification acknowledges that an International Standard for approving software updates already exists, and that an electronic document management approach to software review and approval is well known.
- 20 Mr Lockey's argument is that the contribution made by the invention is the integration of an automated approval system within a process control system, and in particular a process control system having safety related features. He says that this results in a new integrated process control system and object approval system. However, given what I have said above with regards to the process control system being exactly the same as it was before, I consider that this formulation of the contribution gives greater emphasis than is justified to the process control system. In my view, the contribution is a better software approval system which happens to be located within a process control system, the approval system having the ability to prevent the download of unapproved software objects to controllers within the process control system. It seems to me that it is the software approval system that is improved by its integration into the process control system, not the other way around.
- 21 I must for the third step assess this contribution in the light of the excluded matter objections set out in section 1(2) of the Act. Whilst it is acknowledged that the approval system is implemented by way of a computer program, I agree with Mr Lockey that this does not of itself mean that the invention should be excluded as a computer program under the Act. What I am required to do is assess whether the contribution made falls entirely within the meaning of a computer program, and in my opinion it does. The contribution clearly lies in the manner in which data is captured for the purpose of approving a software release, and in the way that this approval allows software to be downloaded to the controllers. The

contribution lies entirely in the way that data is captured and interpreted, and in my view points to the contribution being made solely within the meaning of a computer program as set out in section 1(2).

- 22 During the examination process, the examiner also raised objections that the application may also be excluded as a mental act. This arises specifically from the fact that the electronic approval system mirrors a more traditional paper based system. At the hearing I also queried whether this could also be seen as a method of doing business or more specifically the automation of an administrative method undertaken in the course of business. On reflection, it is not necessary for me to consider the mental act objection or whether the application is a method of doing business as I think the objection as a computer program is insurmountable. Even if I were to consider them further, the contribution would still remain excluded under section 1(2).
- 23 Having found that the contribution identified has failed the third step I do not need to consider the fourth step of checking whether the contribution is actually technical in nature.
- 24 In view of my findings on claim set A I now need to consider the other claim sets Mr Lockey has provided in his skeleton argument. The claims of claim set B are the same as claim set A with the inclusion of a step of detecting a change in a software object in a software object design system. I do not need to dwell on whether this provides a contribution that takes the claim outside of the excluded matter restrictions. This can only be a computer program since by its very nature the contribution made by a "software object design system" can only be a computer program. As such, the inclusion of this step does not alter my decision that the contribution of the claim is still excluded under section 1(2)(c).
- 25 The claims of claim set C are the same as claim set B with the inclusion of a step of determining which entities should be sent the approval request according to a risk reduction factor. The only contribution that can result from this step is one of a selection. Selection is clearly a mental act whether or not it is embodied in a system. As a consequence, the inclusion of such a step does not alter the fact that the contribution made by the claims is excluded and therefore does not change my decision that the application as a whole is excluded.

### **Conclusion**

- 26 I have found that the invention defined in all three claim sets put before at the hearing are excluded from patentability under section 1(2). I have reviewed the application in its entirety and have been unable to find anything that can form the basis of a patentable invention. I therefore refuse the application in accordance with section 18(3).

## **Appeal**

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

**H Jones**

Deputy Director acting for the Comptroller