



PATENTS ACT 1977

APPLICANT	Peng Choo
ISSUE	Whether patent application GB2104196.7 complies with the requirements of sections 1(1)(a), 1(1)(d) and 76
HEARING OFFICER	B Micklewright

DECISION

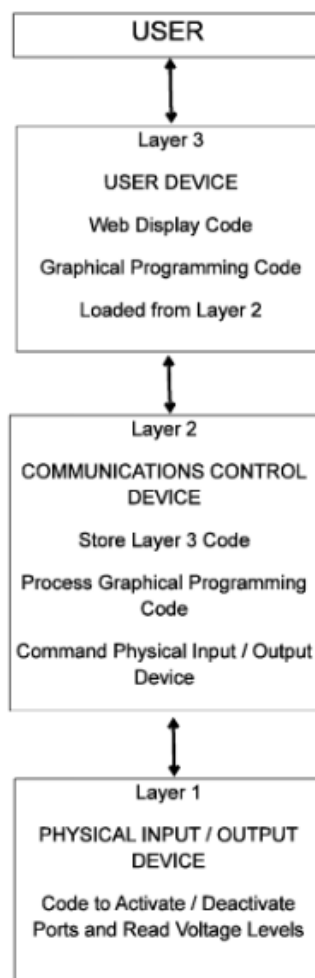
Introduction

- 1 Patent application GB2104196.7, in the name of Peng Choo, is the national phase entry of international application PCT/AU2019/050002 filed under the Patent Cooperation Treaty (PCT) on 03 January 2019 with a claimed priority date of 28 August 2018. It was published under the PCT on 05 March 2020 as WO 2020/041820 A1. The national phase application was allocated the GB publication number GB2593597 A.
- 2 The examiner considered the claimed invention to be excluded from patentability under sections 1(1)(d) and 1(2)(c) of the Patents Act 1977 (“the Act”) as a program for a computer as such. They also considered the invention to lack novelty and an inventive step under sections 1(1)(a) and 1(1)(b) the Act respectively. Moreover the examiner considered the claims filed before their most recent examination report to include added subject matter extending beyond that disclosed in the application as filed, contrary to section 76 of the Act. The applicant disagreed and the matter was therefore referred to me for a decision on the papers.
- 3 Further amendments have been filed since the matter was referred to me. According to the applicant these amendments are intended to address the examiner’s added matter objections. They do not however impact substantially on the other patentability issues raise by the examiner in their examination report of 08 March 2023. I will consider these latest amendments in my decision. I confirm that I have considered all the correspondence on file in reaching my decision.
- 4 I note that the compliance period has expired, and no further extensions are available. It is therefore no longer possible to amend the application and I will consider whether the application in its present form complies with the requirements of the Act.

The invention

- 5 The invention relates to programming control devices via remote connections. In particular it involves a development system within a controller device which is accessible via a network to a user device. This development system enables the creation of a new control web page interface for the controller device. Provision is made for interfacing input/output ports of the controller to the new web page, and controller device port configuration is also made available. The new web page can be displayed and tested. It is stored on the controller device as are all user parameters and code, which may be retrieved in the development area.
- 6 In the description, this functionality of the software development platform is set out as three layers: a physical layer that can activate or deactivate ports and read voltage levels, a communications controller layer that contains code to transmit and receive web pages, and a third layer that contains the code that is executed by the browser on a user's interface device. The invention therefore enables development for many types of controller devices on a user's device using a web browser.

Figure 1.



- 7 The claims considered by the examiner in their most recent report of 08 March 2023 were filed on 23 February 2023. Since that report the applicant filed further

amendments to the claims on 15 May 2023. Of the 12 claims, claim 1 is the only independent claim. It reads, with the latest amendments shown, as follows:

1. A development system within a controller device to create a new web page that includes output control and input data from the controller device, the development system being accessible via a network to a user device, with the purpose of enabling the creation the new control web page interface to the controller device, comprising the steps of:

providing the development system within the controller device,

providing all available controller device port configurations,

providing input/output port interfacing for the new web page,

providing a ~~preview display~~ of the new web page for immediate testing,

providing storage of the newly created web page on the controller device,

providing direct access to the newly created web page as a new interface to the controller device,

providing storage of all user parameters and code in the controller device for later retrieval ~~for the purposes of editing the newly created web page back to the development area~~, and

continuously transferring data to and from the user device to enable ~~real time development and testing~~ immediate testing and development of the new control web page.

The law

8 Section 1 the Act sets out the requirements for patentable inventions:

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

9 Section 1(2) of the Act states:

1.-(2) 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—

...

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

...

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 The provisions of Section 1(2) were considered by the Court of Appeal in *Aerotel*¹ where a four-step test was set out to decide whether a claimed invention was excluded from patent protection:

(1) Properly construe the claim;

(2) Identify the actual contribution;

(3) Ask whether it falls solely within the excluded subject matter;

(4) Check whether the actual or alleged contribution is actually technical in nature.

11 It was stated by Jacob LJ in *Aerotel* that the test is a re-formulation of and is consistent with the previous 'technical effect approach with rider' test established in previous UK case law. Kitchin LJ noted in *HTC v Apple*² that the *Aerotel* test is followed in order to address whether the invention makes a technical contribution to the art, with the rider that novel or inventive purely excluded matter does not count as a 'technical contribution'.

12 Lewison J in *AT&T/CVON*³ set out five signposts that he considered to be helpful when considering whether a computer program makes a technical contribution. Lewison LJ reformulated the signposts in *HTC v Apple* in light of the decision in *Gemstar*⁴. The signposts 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;

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

iv) Whether the program makes the computer a better computer in the sense of running more efficiently and effectively as a computer;

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

13 Section 2 of the Act relates to novelty, and states:

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

² *HTC Europe Co Ltd v Apple Inc* [2013] EWCA Civ 451

³ *AT&T Knowledge Ventures/CVON Innovations v Comptroller General of Patents* [2009] EWHC 343 (Pat)

⁴ *Gemstar-TV Guide International Inc v Virgin Media Ltd* [2010] RPC 10

2.-(1) An invention shall be taken to be new if it does not form part of the state of the art.

(2) The state of the art in the case of an invention shall be taken to comprise all matter (whether a product, a process, information about either, or anything else) which has at any time before the priority date of that invention been made available to the public (whether in the United Kingdom or elsewhere) by written or oral description, by use or in any other way.

14 Section 76 of the Act relates to added subject matter and states:

76.-(2) No amendment of an application for a patent shall be allowed under section 15A(6), 18(3) or 19(1) if it results in the application disclosing matter extending beyond that disclosed in the application as filed.

Assessment

Added subject matter

15 The applicant has amended claim 1 with a review to removing the added subject matter identified by the examiner. I will consider whether the claims as amended include added subject matter extending beyond that disclosed in the application as filed.

16 Claim 1 as amended includes a step of “*providing a display of the new web page for immediate testing*”. The description implicitly includes a step of displaying the new web page in a user’s browser. The only reference in the description to “immediate testing” is on page 9 which states:

“As the code is being written by the user, it can be tested immediately by pressing the “Run Code” button above the port configuration area. The users custom web page is displayed in a boxed window below the development area.”

17 The context to this extract is the user developing code for the new web page. I note that the user’s custom web page is then displayed in a boxed window. I therefore conclude that the feature of “*providing a display of the new web page for immediate testing*” is disclosed in the application as filed.

18 Claim 1 has been amended to remove the reference to providing storage for all user parameters and code in the controller device specifically for the purpose of editing the newly created webpage. This feature is now limited to storing this data so that it can be retrieved into the development area at a later date. It is apparent in the application as filed that such data is stored in the controller device and is retrieved to the development area. This feature does not therefore constitute added subject matter.

19 Claim 1 has also been amended to replace a reference to enabling “real time development and testing” of the new control web page to “immediate testing and development” in the context of continuously transferring data to and from the user device. I take this to mean that data is transferred between the user device and the controller device in a manner such that, when the user selects an element in the web page for testing (two examples specified in the description are switching an output

port on or off, and running code), this promptly connects to the controller device in order to carry out the action and transmit some sort of response or update to the web page on the user device. This is disclosed in the application as filed and does not therefore constitute added subject matter.

- 20 The examiner also objected to added subject matter in dependent claims 4, 6 and 7. Claims 4 and 6 have now been deleted and claim 7 has been amended to remove the added subject matter.
- 21 I therefore conclude that the claims in their present form do not include added subject matter which was not disclosed the application as filed.

Excluded subject matter

- 22 I will use the *Aerotel* approach in my analysis of excluded subject matter

Step (1): properly construe the claim

- 23 The invention defined in claim 1 relates to a development system for creating a web-based control interface for a controller device. The development environment is accessed on the user device with all relevant data transferred from the controller device to the user device via a network. In particular data is transferred between the controller device and the user device so as to enable the development and testing of the new control web page via the user device.
- 24 The claim includes various steps in which the controller device providing various elements but does not always make clear where these provided elements are received, whether by the user device or elsewhere. When considering the claim as a whole read in the light of the description, it would seem that they are provided to the user device so that the user can develop and test the new webpage.

Step (2): identify the actual contribution

- 25 Notwithstanding my consideration of novelty below, I will consider the contribution made by the invention. Identifying the contribution in the second step of this test is critical and I refer to the following paragraph in *Aerotel* for guidance:

“43. The second step – identify the contribution - is said to be more problematical. How do you assess the contribution? Mr Birss submits the test is workable – it is an exercise in judgment probably involving the problem said to be solved, how the invention works, what its advantages are. What has the inventor really added to human knowledge perhaps best sums up the exercise. The formulation involves looking at substance not form – which is surely what the legislator intended.”

- 26 The applicant did not comment specifically on the nature of the contribution but did state: *“this invention discloses a system for creating a new web page that forms part of the control device as a new interface to the device.”*
- 27 The invention relates to providing to a user a development system for enabling a user to develop a web page for controlling a controller device. The main advantage appears to be that the development system, whilst stored within the controller device, is provided to the user via their own device, as is the control web page once

it has been developed. The claimed invention achieves this by ensuring that the relevant data is provided to the user device, the relevant data including controller device port configurations, input/output interfacing for the new web page, display of the new web page, and user parameters and code (as defined by the user during development), stored in the controller device for later retrieval. Data is continuously transferred between the controller device and the user device to enable development and testing of the new webpage.

- 28 The applicant's submissions are included in this contribution, and I will therefore consider the contribution to be that defined in the above paragraph.

Step (3): ask whether it falls solely within the excluded subject matter; step (4): check whether the actual or alleged contribution is actually technical in nature

- 29 For convenience I will consider steps (3) and (4) together.

- 30 An invention is not excluded from patentability merely because it is implemented as a computer program. What is key is whether the contribution made by the claimed invention makes a technical contribution. The *AT&T* signposts are useful pointers as to whether an invention implemented as a computer program makes a technical contribution and I will consider them in turn.

Signpost i): whether the claimed technical effect has a technical effect on a process which is carried on outside the computer

- 31 The applicant considered the contribution to make a technical effect on a process carried on outside the computer, stating:

"The invention as described in the originally filed description is not only a computer program software development platform but also includes directly interacting hardware that is outside the computer. This is described as the "physical layer". The physical layer hardware device has the technical effect of becoming an output eg: activating ports that turn a device on or off. The software can also configure the physical layer hardware to become an input for data from the physical device to directly effect the computer program display and interact with any user enabled code in the software development platform."

- 32 In a later letter the applicant also stated:

"The interface allows programming of devices outside the computer interface as a primary function of this invention. The program being incorporated into a "newly constructed web page" that is capable of on/off display of sensor data to and from the device that is outside the computer."

- 33 I do not agree with the applicant that the invention involves a technical effect on a process outside of the computer. The current claims no longer refer to a "physical layer", but I take it to include the physical controller device itself. The "computer system" of this signpost includes both the controller device, the user device, and the network which connects the two devices so that they can exchange data. The invention relates to a development system for creating a web page, the web page acts as an interface for controlling the controller device and is able to output control data to the controller device, and also receive input data to the device. It does not

relate to directly controlling the controller device, or to adding specifically defined interface features which improve control of the controller device, but rather to a platform for enabling users to create, on their device, a web page for controlling the device. The development system sits entirely with the computer system, either on the controller device or on the user's device. I cannot therefore identify an effect on a process outside of the computer. Signpost i) does not therefore point to a technical contribution.

Signpost 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

- 34 The development system operates through a user's web browser. It does not operate at the architecture level of the computer but rather at the application level and it does not have an effect produced irrespective of the data being processed or the applications being run. Signpost ii) does not therefore indicate a technical contribution.

Signposts iii), iv): whether the claimed technical effect results in the computer being made to operate in a new way; whether the program makes the computer a better computer in the sense of running more efficiently and effectively as a computer

- 35 For convenience I will consider signposts iii) and iv) together.

- 36 The claimed invention relates to providing a development system for enabling a user to develop a new web page for control of a controller device. It does not change the way the computer itself operates and any improvements in efficiency and effectiveness lie in improvements in the development system rather than in improvements to the computer itself. These signposts do not therefore point to a technical contribution.

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

- 37 The contribution made by the claimed invention solves the problem of how to provide a development environment for developing new webpages for controlling controller devices. This is not a technical problem but is rather a problem lying in the field of computer programming. The solution, to store the system in the controller device and provide the system on a user device, also lies entirely in the field of computer programming. The claimed invention does not therefore provide a technical solution to a technical problem.

- 38 Taking a step back, the contribution relates to providing a system for developing new control web pages, used for control of a controller device, to a user device. It does not relate to controlling the device itself, nor does it involve any specific tools for providing, in a web page, specific control of a controller device. Rather it provides an environment for the user to develop such tools. The advantages lie in the way the development environment is made available to the user. The invention does not therefore make a technical contribution but lies solely in the excluded field of a program for a computer as such.

Novelty

39 The examiner considered that the invention defined in claim 1 was not new because it had already been disclosed in the following documents:

D1: US8190274 (Konieczny)

D2: EP1296232 (Lo)

D3: US2015/277404 (Maturana)

40 These documents were all cited in the international search report produced by the PCT International Search Authority as part of the PCT international phase, although only D1 was cited for novelty and inventive step.

41 D1 discloses a system for accessing a control module for a control device via two interface modules stored in the control device (see for example column 1 lines 45-58 and Figures 4 and 5). The second interface module is transferred via a network to an operating device for operation by a user and D1 discloses accessing this module via a web browser on the client operating device (see for example column 2 lines 19-41). Data is transmitted between the first interface module on the control device and the second interface module on the operating device for creating, processing and/or executing a control function on the control device. The system provides web-based tools for controlling the control device and also a development environment for configuring this web page, including program editors and a human-machine interface (HMI) designer. Data for the control application can be manipulated by these tools. The system can be used for I/O configuration and would therefore provide available port configurations. The components of the second interface (the engineering application) are stored on the control device.

42 In relation to novelty, the applicant stated:

"It is observed that the novelty in the originally filed description includes the ability for the user of the software development platform to easily create complete web pages that are in communication with the layer 1 physical input/output controller and include output control and input data from the layer 1 physical input/output controller. The software development platform and the user developed web page are linked by constant communication to the later 1 physical device and act as one interacting system."

43 The applicant also states that the invention configures a control device in a different way to that of the prior art. They do not however elaborate as to how it works in a different way. D1 provides a software platform for the development of web pages used for control devices. It discloses all the features of claim 1. I therefore conclude that claim 1 lacks novelty over D1.

44 D2 relates to a system for programming a programmable controller whereby an engineering tool, residing on a server, is made available to a user over a network from within a web browser. The programming code itself is also stored on the server after being generated by the user from within the browser. It is compiled on the server and is then downloaded to the controller device. D2 also discloses that developing the programming code may comprise generating configuration data for

the controller via a configuration editor stored on the server. D2 does not however disclose a development system for the creation of a new web page that includes output control data and input data from the controller device. Rather it appears to be about generating code to program or configure the controller. Nor is the development system stored on the controller device. Rather it is stored on a central server. Claim 1 is therefore novel over D2.

- 45 D3 relates to a system for generating human-machine interface (HMI) applications for the purpose of controlling industrial controllers in automation systems. These HMIs allow operators to view telemetry and status data associated with the automation system and control some aspects of system operation. D3 discloses a cloud HMI generation system that converts an HMI application or project to a web-based application capable of execution on a cloud platform for access by personnel from any location. D3 does not however disclose the storage of the development system within the controller devices themselves. Rather it is stored in a cloud platform. Claim 1 is therefore novel of D3.

Other matters

- 46 I have found that the claimed invention is excluded from patentability and also that claim 1 lacks novelty over D1. Given these conclusions, and also given, as the compliance period has expired and cannot be further extended, the application can no longer be amended, there is no need to consider whether the dependent claims are novel or whether any of the claims involve an inventive step.

Conclusion

- 47 I have found that the claimed invention is excluded from patentability as a program for a computer as such. I have also found that claim 1 is not new in the light of the disclosure of D1 and it is no longer possible to amend the application. I therefore refuse the application under section 18(3).

Appeal

- 48 Any appeal must be lodged within 28 days after the date of this decision.

B MICKLEWRIGHT

Deputy Director, acting for the Comptroller