Intellectual Property Office

BL O/211/22

10 March 2022

PATENTS ACT 1977

APPLICANT	Google LLC
ISSUE	Whether patent application GB1713806.6 complies with section 1(2) of the Patents Act 1977
HEARING OFFICER	J Pullen

DECISION

Introduction

1 Patent application GB 1713806.6, entitled 'Cluster based photo navigation', entered the national phase 29 August 2017, derived from WO2016/154808 A1, with 27 March 2015 as its earliest date. It was published as GB 2551667 A on 27 December 2017.

2 In the first examination report, dated 7 January 2021, the examiner raised an objection to the invention as being excluded under section 1(2) of the Patents Act 1977 ("the Act") as a program for a computer as such. There have been several rounds of correspondence between the examiner and the applicant's agents, Kilburn & Strode, without agreement being reached as to a form of claims which would overcome the excluded subject matter objection.

3 A hearing was offered in the examination report of 18 August 2021. In response, the applicant filed amendments and further submissions on 15 October 2021. The examiner then issued a pre-hearing report of 17 November 2021 setting out that the issue to be decided is whether the invention is excluded as a program for a computer or the presentation of information as such. In an email received 20 December 2021, the applicant indicated via their agent that they would not be attending or be represented at a hearing. The applicant was informed that a decision on the papers would be issued and should they wish to submit a skeleton argument, they should do so by 11 January 2022. That date has passed, and no skeleton argument has been received.

4 The examiner has deferred updating the search and full examination. If I find the claims to be allowable it will be necessary to remit the application to the examiner for updating of the search and to complete the examination of the application.

5 I note that the compliance date for the application, 7 January 2022, has now passed.

6 I confirm that in reaching my decision I have considered all documents on file, particularly the amended claims and submissions filed 15 October 2021 and submissions filed in the letters of 26 February 2021 and 15 June 2021.

The invention

7 The “Background” section of the description recites:

> *“Many methods of organizing and navigating images of various scenes captured by multiple users have been used. In some examples, images of the same scenes captured by multiple users may be combined into groups. Such groups may contain various numbers of captured images taken from many angles and distances in relation to the captured scenes. Users may then view the images within a single group without regard to where the images were captured. Thus, the current methods of organizing and navigating images results in an unpredictable display of images which may be unintuitive and jarring to a user.”*

8 More detail regarding the invention is found in the “Overview” section of the description. This states that the technology relates to navigating imagery which has been organised into clusters, based upon “common patterns exhibited when imagery is captured.” The section then states that images of various scenes captured by multiple users may be analysed by one or more computing devices to organize the captured images into clusters that correspond to the same scene and, when organized, satisfy at least one common pattern. A user may select a cluster and be presented with an image from that cluster on their computing device. The user may then pan through images from the selected cluster, with the display switching to a further image from that cluster, in accordance to the common pattern assigned to the images within the cluster. The user is also able to switch to a different cluster, composed of images which satisfied a different or the same common pattern. It is said that the user is provided with a smooth navigation experience that may mimic the way multiple users typically capture the scene that is being displayed.

9 As noted above, captured images of a given scene are grouped together based upon whether or not the captured images satisfy one or more pattern clusters. The pattern clusters may be one of a panoramic pattern cluster, a translation pattern cluster and an orbit pattern cluster. A panoramic pattern relates to images captured from the same location, a panoramic centre, at different angles, perhaps as a user is turning their camera, see Figure 3 below. A translation pattern relates to multiple images captured as the user is moving in a linear direction, see Figure 4. An orbital pattern relates to images of an object captured as a user moves around the object, see Figure 5.

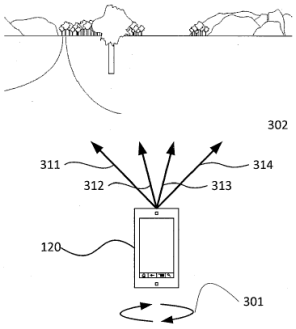

FIGURE 3

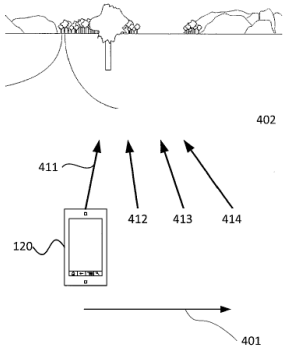

FIGURE 4

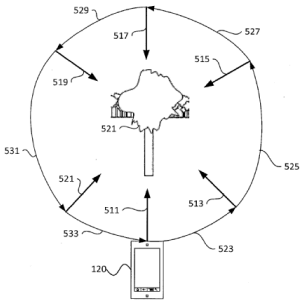

FIGURE 5

10 The current claim set, as amended with the letter of 15 October 2021, comprises three fully independent claims as follows:

Claim 1. A method for organizing and navigating image clusters comprising:
accessing, by one or more processing devices, a set of captured images;
detecting, by the one or more processing devices, whether images within the set of captured images satisfy a predetermined pattern;
grouping, by the one or more processing devices, the images in the set of captured images into a plurality of clusters according to the detected predetermined pattern;
determining, by the one or more processing devices, from the images within a first cluster of the plurality of clusters of captured images, a set of neighboring captured images that are within a predetermined proximity to a first captured image of the set of captured images;
assigning as a drag-target, by the one or more processing devices, one or more neighboring images of the first captured image from the set of neighboring captured images;
assigning as a click-target, by the one or more processing devices, one or more second images from the set of captured images which belong to a second cluster of the plurality of clusters;
receiving, by the one or more processing devices, a request to display the first cluster;
selecting, by the one or more processing devices in response to the request, the first captured image;
providing the first captured image from the first cluster for display; and
providing, by the one or more processing devices in response to a drag event, the one or more neighboring images,
providing, by the one or more processing devices in response to a click event, the one or more second images,
wherein the predetermined pattern is a panoramic pattern, and wherein detecting whether the images within the set of captured images satisfies the predetermined pattern comprises:
identifying, by the one or more processing devices, each possible panoramic circle in the set of captured images, wherein each possible panoramic circle is associated with a subset of the set of captured images and has a view angle for the subset of captured images; and
removing any of the possible panoramic circles in which (i) a number of the subset of captured images is fewer than a predetermined number, and (ii) the view angle is less than a predetermined angle.

Claim 3. A method for organizing and navigating image clusters comprising:
accessing, by one or more processing devices, a set of captured images;
detecting, by the one or more processing devices, whether images within the set of captured images satisfy a predetermined pattern;
grouping, by the one or more processing devices, the images in the set of captured images into a plurality of clusters according to the detected predetermined pattern;

determining, by the one or more processing devices, from the images within a first cluster of the plurality of clusters of captured images, a set of neighboring captured images that are within a predetermined proximity to a first captured image from the first cluster;
assigning as a drag-target, by the one or more processing devices, one or more neighboring images of the first captured image from the set of neighboring captured images;
assigning as a click-target, by the one or more processing devices, one or more second images from the set of captured images which belong to a second cluster of the plurality of clusters;
receiving, by the one or more processing devices, a request to display the first cluster;
selecting, by the one or more processing devices in response to the request, the first captured image;
providing the first captured image from the first cluster for display; and
providing, by the one or more processing devices in response to a drag event, the one or more neighboring images,
providing, by the one or more processing devices in response to a click event, the one or more second images,
wherein the predetermined pattern is an orbit pattern, and wherein detecting whether the images within the set of captured images satisfies the predetermined pattern comprises:
identifying, by the one or more processing devices, for each image in the set of captured images, a ray emanating from the location the image was captured, and in the direction a camera center was pointed when the captured image was taken;
calculating, by the one or more processing devices, intersection points between each ray; and
determining, by the one or more processing devices, orbit centers based on densities of the intersection points.

Claim 5. A method for organizing and navigating image clusters comprising:
accessing, by one or more processing devices, a set of captured images;
detecting, by the one or more processing devices, whether images within the set of captured images satisfy a predetermined pattern;
grouping, by the one or more processing devices, the images in the set of captured images into a plurality of clusters according to the detected predetermined pattern;
determining, by the one or more processing devices, from the images within a first cluster of the plurality of clusters of captured images, a set of neighboring captured images that are within a predetermined proximity to a first captured image of the set of captured images;
assigning as a drag-target, by the one or more processing devices, one or more neighboring images of the first captured image from the set of neighboring captured images;
assigning as a click-target, by the one or more processing devices, one or more second images from the set of captured images which belong to a second cluster of the plurality of clusters;
receiving, by the one or more processing devices, a request to display the first cluster;
selecting, by the one or more processing devices in response to the request, the first captured image;
providing the first captured image from the first cluster for display; and
providing, by the one or more processing devices in response to a drag event, the one or more neighboring images,
providing, by the one or more processing devices in response to a click event, the one or more second images,
wherein the predetermined pattern is a translation pattern, and wherein detecting whether images within the set of captured images satisfies the predetermined pattern comprises:
identifying, by the one or more processing devices, for each image in the set of captured images, an adjacent initial set of candidate images; and
reserving, by the one or more processing devices, for each image, the candidate images in the initial set of candidate images which are located closest to the image, and are within an angle threshold of a viewing angle of the image.

11 It can be seen that each of these claims is directed to a different predetermined pattern which is used by the one or more computing devices to group the images into clusters, from which the first captured image and the neighbouring images are derived. Neither the applicant nor the examiner have raised any plurality objection or

comments, and as I see no reason to differ I will proceed on the basis that the claims are unified.

The law

12 The examiner has objected that the invention is excluded from being patented as a program for a computer or the presentation of information, as such. The relevant section of the Act is s.1(2), the most relevant provisions of which are shown below with my emphasis added:

> *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-*
>
> *(a) ...;*
> *(b) ...;*
> *(c) …; **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.***

13 The Court of Appeal has said that the issue of whether an invention relates to subject matter excluded by Section 1(2) must be decided by answering the question of whether the invention reveals a technical contribution to the state of the art. The Court of Appeal in *Aerotel/Macrossan*[1] set out the following four-step approach to help decide the issue:

> *(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.*

14 The operation of the approach is explained at paragraphs 40-48 of the judgment. Paragraph 43 confirms that identification of the contribution is an exercise in judgment involving the problem said to be solved, how the invention works and what its advantages are; essentially, what it is the inventor has really added to human knowledge, looking at substance, not form. Paragraph 47 adds that a contribution which consists solely of excluded matter will not count as a technical contribution.

15 In *Symbian*[2] the Court of Appeal reaffirmed the *Aerotel* approach while considering a question of "technical contribution" as it related to computer programs emphasising the need to look at the practical reality of what the program achieved, and to ask whether there was something more than just a "better program".

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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 v Comptroller-General of Patents*, [2009] RPC 1

16 The case law on computer implemented inventions was further elaborated in *AT&T/CVON*[3] (*AT&T*) which provided five helpful signposts to apply when considering whether a computer program makes a relevant technical contribution. In *HTC v Apple*[4], Lewison LJ reconsidered the fourth of these signposts and felt that it expressed too restrictively. 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.*

17 I must bear in mind that the signposts are helpful guidelines for a technical contribution and should not be applied in a prescriptive manner. I must decide whether the claimed invention makes a technical contribution when considered on its own merits.

Assessment

(1) Properly construe the claim

18 There are three fully independent claims and none of these actually define that the images correspond to the same scene, as specified in the description. The description makes it clear, in paragraphs 1, 19, 20 and 42-45, that the while the initial images may be of various scenes, the clusters each relate to the same scene. I will construe:

> "detecting, by the one or more processing devices, whether images within the set of captured images satisfy a predetermined pattern;
> grouping, by the one or more processing devices, the images in the set of captured images into a plurality of clusters according to the detected predetermined pattern;"

as

> "detecting, by the one or more processing devices, whether images within the set of captured images satisfy a predetermined pattern *for the same scene*;
> grouping, by the one or more processing devices, the images in the set of captured images into a plurality of clusters *for the same scene* according to the detected predetermined pattern;"

[3] *AT&T Knowledge Ventures/Cvon Ltd* [2009] EWHC 343 (Pat)
[4] *HTC Europe Co Ltd v Apple Inc* [2013] EWCA Civ 451

19 I am also of the opinion that the first captured image must also be from the first cluster. This is apparent later in the claim where a request to display the first cluster is received and the first image is selected and provided for display. This means that

> "determining, by the one or more processing devices, from the images within a first cluster of the plurality of clusters of captured images, a set of neighboring captured images that are within a predetermined proximity to a first captured image of the set of captured images"

will be construed as:

> "determining, by the one or more processing devices, from the images within a first cluster of the plurality of clusters of captured images, a set of neighboring captured images that are within a predetermined proximity to a first captured image of the *first cluster* of captured images"

20 Any images in the set of captured images which do not relate to the scene are presumably ignored.

21 Later in each of the independent claims, one or more images are assigned as drag-targets and click-targets but are not referred to again in the claims. It is assumed, and will be construed, that the provided one or more images for a detected drag event or a detected click event are the images assigned as drag-targets or click-targets respectively.

22 Related to this, outside of the claims and the summary of the invention, the terms "drag event" and "click event" are not used in the specification as filed. However, the description, at paragraph 56, suggests that these are regular drags or clicks input via touch sensitive screen or a mouse. There is nothing else in the description to suggest otherwise.

23 In each of the independent claims, each cluster relates to the same predetermined pattern type: in claim 1 every cluster relates to a panoramic pattern, in claim 3 every cluster relates to an orbit pattern, and in claim 5 every cluster relates to a translation pattern. Each must also relate to the same scene, given the construction given above.

24 In relation to claim 1, it appears that a reference to the coordinates of the camera which captured the first image should be included within the claim as this necessary to determine the panoramic centre and the panoramic circle defined in the claim.

(2) Identify the actual contribution

25 In their letter of 15 October 2021, the applicant has submitted that the technical contribution "may therefore be seen as an improved user interface in which likelihood of user error is reduced, as different types of user input leads to different outcomes."

26 The examiner has indicated that they consider the actual contribution to be: "a means of grouping images that correspond to predetermined arrangements and displaying one or more images from one or more groups in response to a user input."

27 Following the guidance provided in *Aerotel*, it is useful to consider how the invention works, the problem said to be solved and the advantages of the invention.

28 The invention works as previously set out above, I will not restate that here.

29 The problem addressed by the invention is said to be that “current methods of organizing and navigating images results in an unpredictable display of images which may be unintuitive and jarring to a user”. The solution is to group images of the same scene within clusters, the clusters being determined based upon whether or not the images satisfy a given predetermined pattern as claimed. A set of neighbouring images of a first image within a cluster are identified. When a user selects a cluster to view, the first image is displayed. When a user provides a drag input, one or more neighbouring images of a first image is displayed. When a user provides a click input, one or more images from a second cluster is displayed.

30 The advantage is said to be that it provides a smooth image navigation experience to the user.

31 There is no suggestion in any of the documents on file that the system which implements the invention is anything other than a conventional computer or networked computers. There appears to be no contribution within the hardware used to put the invention into practice.

32 Given the above, it is my opinion that, based upon what has been added to human knowledge, the actual or alleged contribution, is:

> Computer-implemented methods of grouping images that correspond to predetermined patterns into clusters relating to the same scene, identifying neighbouring images for a first image of the first cluster, displaying a first image from a first cluster in response to a user request, displaying one or more neighbouring images from the first cluster in response to a drag input, and displaying one or more images from a second cluster in response to a click input.

(3) Ask whether it falls solely within the excluded subject matter, and (4) Check whether the actual or alleged contribution is actually technical in nature

33 In the course of examination, the applicant has submitted that the invention does provide the required technical contribution and so does not fall solely within the excluded categories, with reference to signposts i), iv) and v) of the *HTC v Apple*/*AT&T* signposts, listed above. There is also a general submission that because the invention enables images that are part of the same scene to be automatically grouped for subsequent display rather than requiring manual input, saving time and computational resources, the invention is actually technical in nature.

34 I note that the saving time and manual input is usually the point of using a computer for a given task and does not point to a technical contribution of itself. It is established law that computerising a task does not make that task technical, what is important is the nature of the task.

35 In relation to signposts i), iv) and v), the applicant has submitted that these are satisfied because the invention provides an improved user interface, which allows the user to navigate between clusters with fewer inputs required, and which in turn provides a significant reduction in the likelihood that a user will unintentionally switch to the incorrect cluster. It is alleged that the computer is able to more quickly and efficiently determine which images to display in response to either a click event or a drag event. It is submitted that because the invention means that the user is less likely to input the incorrect input, the invention saves processing resources and power when the user then attempts to correct their error.

36 I am not convinced that this is an inherent or inevitable benefit of the invention as it relies on the user remembering which input relates to which control action – displaying one or more images within the first cluster for a drag or displaying one or more images within a different cluster for a click. This seems to be no different from any number of computer interfaces which rely upon the user to remember the correct user input for their desired result.

37 The pre-hearing report mentions the judgment of *Gemstar v Virgin*[5]. I have considered this, especially in relation to the "Single Channel" patent, EP 0969662 B1. This invention related to the provision of an intuitive user interface that made a VCR recording system and process both easy and convenient to operate. The invention provided a better or more intuitive user interface. Mann J analysed the invention in terms of the relevant case law, such as *Aerotel*, *Symbian*, *AT&T* and *Raytheon*[6]. He concluded that the provision of the improved user interface of the Single Channel patent was excluded as a program for a computer, the presentation of information or the combination of these two categories of exclusions, as such. This was because the underlying computer was not made to work better, faster or differently in the sense of processing data in a manner that improves the performance of the computer as a computer. The internal operation of the computer did not amount to an internal technical effect. Likewise, there was no external technical effect on a process outside of the computer. Whilst the display of the information on the screen of the system was different, this was not enough to provide an external technical effect because the invention related to a way of handling specific data and not a generally applicable method of operating a computer.

38 The above all seems to be true of the present invention. In the present invention, and its identified contribution, images are displayed, and different images are displayed based on user input but there is no technical manipulation of those images. The grouping of images of a scene into clusters based upon the images satisfying one of the predetermined patterns is, in my opinion, no more than data processing involving the sorting of the images into groups rather than an improved process of manipulating the data forming the images themselves. This means that there is no external technical effect on a process outside of the computer, and signpost i) is not satisfied.

39 With respect to the internal workings of the computer, the computer is not inherently faster, more efficient or effective, or made to operate in a new way, as a computer. The invention does not operate at the level of architecture of the computer. The

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[5] *Gemstar-Tv Guide International Inc & Ors v Virgin Media Ltd & Anor* [2009] EWHC 3068 (Ch)
[6] *Raytheon Co's Application* [2008] RPC 3

invention relates to the sorting, grouping and displaying images of a scene and switching between images of the scene based upon the type of user input. It is all task-specific rather than generally applicable. In light of this, signposts ii), iii) and iv) are not met.

40 In relation to a technical problem being solved, in light of *Gemstar*, it seems that providing a better or improved user interface, as submitted by the applicant, cannot be considered to be a technical problem. Thus, signpost v) is not met.

41 None of the *HTC v Apple*/*AT&T* signposts point towards the invention providing a technical contribution.

42 In their letter of 15 October 2021, the applicant has referred to Office decision *Lenovo (Singapore) Pte. Ltd. (BL O/017/20)* in support of the present invention being more than a program for a computer, as such. In that decision, the hearing officer was satisfied that signposts iv) and v) were met and the applicant submits that similar reasoning applies to the present invention. However, the invention at suit in Lenovo related to the interpretation of handwriting input via handwriting strokes to determine a ranked list of potential words the user intended to input, using both candidate machine input scores and spell-checker confidence scores. The highest ranked word is provided to a user application. The hearing officer held that the invention related to the disambiguation of user input and there was an improvement in the accuracy and reliability of input to a user application and that this was technical. The Hearing Officer drew comparisons with the first application at suit in *HTC v Apple*.

43 In contrast to *Lenovo* the present invention does not relate to how a user's input is interpreted by the computer to better reflect their intentions. While the present invention involves the use of different inputs, the claimed invention and the specification as a whole is silent on how those inputs are recognised by the computer. I must conclude that drags and clicks are received and interpreted by the computer in a conventional manner and that it is only the action which the computer carries out in response to those inputs is changed. Given this, the reasoning of *Lenovo* is not applicable to the present invention.

44 Having carefully considered the submissions on file, I find that the contribution is not technical and, following *Gemstar,* the present invention is excluded from patentability under section 1(2)(c) as a program for a computer, as such, under section 1(2)(d) as the presentation of information, as such, or a combination of these two categories of excluded matter, as such.

Conclusion

45 The application does not comply with section 1(2) as it relates to a program for a computer, as such, and/or the presentation of information, as such. I therefore refuse the application under section 18(3).

Appeal

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

J Pullen

Deputy Director, acting for the Comptroller