Intellectual Property Office

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PATENTS ACT 1977

PARTIES	Tytonical Limited
ISSUE	Whether patent application GB 2007362.3 complies with Section 1(2) of the Patents Act 1977
HEARING OFFICER	Nigel Hanley

DECISION

Introduction

1 Patent application GB 2007362.3, published as GB 2595245 A on 24th November 2021. It claims a priority date of 18th May 2020.

2 The application was subject to a Combined Search and Examination. and a first examination report was issued on 23rd October 2020. That report raised objections on the grounds of novelty, inventiveness, clarity, support and that the invention appeared to be excluded as a method of doing business. Although some searching was undertaken and several citations raised, it was made clear to that the applicant that searching was incomplete,

3 Following several rounds of correspondence, the Examiner has accepted the applicant's views that the novelty and inventiveness objections raised in the prosecution so far have been overcome. To avoid any confusion at this point, I reiterate the view that the search is incomplete. As such, the situation regarding novelty and inventive step is overcome in relation to the citations raised so far. Should I find in favour of the applicant it will be necessary for me to refer the application back to the Examiner for completion of the search.

4 However, the attorney has been unable to convince the Examiner that the application complies with Section 1(2) of the Patents Act 1977 ("the Act"). As a consequence, the Examiner offered the applicant a hearing to resolve the issue, but that offer was not taken up. The application has therefore come to me to issue a decision on the papers.

5 No subsequent response was received from the applicant and consequently this decision is based on the papers.

The Matter to be Resolved – Section 1(2)

6 The only matter which falls to be decided in this decision is whether or not the invention is excluded under Section 1(2) as being a method for doing business and/or a computer program.

7 For the avoidance of doubt this decision is based on the latest amended claims and arguments from the applicant received on 14 December 2023. I have also taken into consideration the examiner's position as set out in their pre-hearing report of 15 February 2024.

The Application

8 The application relates broadly to a system for automating electronic payments based on data associated with a person accessing a service for which payment is required. This is achieved by identifying that the person is in the location where the purchase is being made. That identification is carried out using image recognition to match details associated with the person with an image captured at the location, and regularly updated location data associated with a mobile phone registered to the person.

9 Figure 3 of the application provides a very general overview of the system:

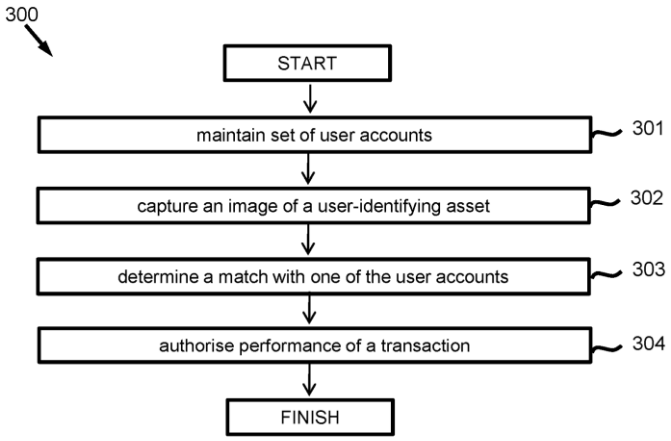

Figure 3

10 The user accounts of step 301 include data associating a user with a mobile device and a set of user identifying features. Such features may be images or text and, in particular, may be an image of a vehicle associated with the user, or a registration mark (number plate) of that vehicle. The user account further includes the location of a mobile device associated with the user account. The location may be updated based on a schedule with the user account recording the location of the mobile device and the time at which that location was recorded.

11 Step 302 involves capturing an image of a user-identifying device at a service location. For example, an automatic number plate recognition (ANPR) camera may be used to capture an image of a vehicle number plate. The time at which such an image is captured is also recorded.

12 At step 303 the image captured at step 302 is compared with the stored user identifying image to try and find a matching user account. As well as using the

captured image, the location of the service location is also compared with mobile device location records of the user accounts. Based on the image similarity and location similarity a match can be determined with one of the user accounts.

13 The matching process on location filters the user accounts to create a set of accounts from which one is chosen. The filtering process itself, first looks at the location update time and chooses only those that have been updated within a predetermined time (e.g. 48 hours Page 3 line 12-16). A second filter is based on the probability that the user device can be in the service provider location. It does this by determining the time and distance difference between the service provider location and the last known mobile phone location.

14 Having identified a unique user account, a payment transaction can be authorised. For this purpose, the user account data includes payment data. The payment transaction may be payment for vehicle parking, fuel dispensing, etc.

15 Figure 1 of the application shows diagrammatically the various components making up the system and how they are linked.

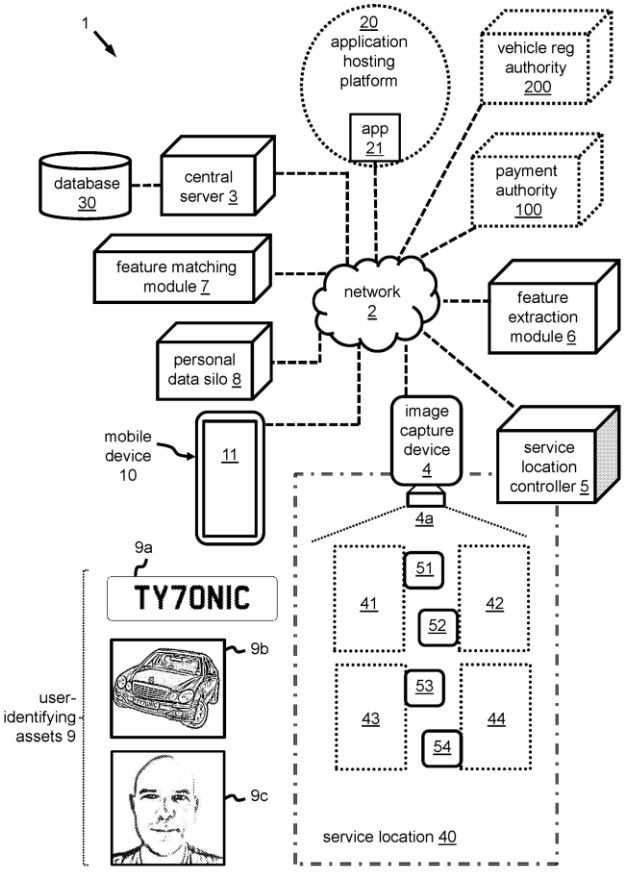

Figure 1

16 Of particular note are the user identifying assets (9a-c) comprising the vehicle registration mark, an image of the vehicle and an image of the person. The service location (40) is shown comprising a number of fuel dispensers (51-54) and a vehicle space (41-44) associated with each fuel dispenser. The service location also includes an image capture device (4).

The law

17 The examiner raised an objection under Section 1(2) of the Act that the invention is not patentable because it relates to one or more categories of excluded matter. The relevant provisions of this section of the Act are shown below:

> *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.*

18 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]. In *Aerotel* the court reviewed the case law on the interpretation of Section 1(2) and set out a four-step test to decide whether a claimed invention is patentable:

> *(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.*

19 The Court of Appeal in *Symbian* made it clear that the four-step test in *Aerotel* was not intended to be a new departure in domestic law; it was confirmed that the test is consistent with the previous requirement set out in case law that the invention must provide a "technical contribution". Paragraph 46 of *Aerotel* states that applying the fourth step of the test may not be necessary because the third step should have covered the question of whether the contribution is technical in nature. It was further confirmed in *Symbian* that the question of whether the invention makes a technical contribution can take place at step 3 or 4.

20 Lewison J (as he then was) in *AT&T/CVON*[3] set out five signposts that he considered to be helpful when considering whether a computer program makes a

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[1] *Aerotel Ltd v Telco Holdings Ltd & Ors Rev 1* [2007] RPC 7
[2] *Symbian Ltd v Comptroller General of Patents* [2009] RPC 1
[3] *AT&T Knowledge Ventures/CVON Innovations v Comptroller General of Patents* [2009] EWHC 343 (Pat)

technical contribution. In *HTC/Apple*[4] the signposts were reformulated slightly in light of the decision in *Gemstar*[5]. 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.*

Application of the Aerotel approach

Step (1): Properly construe the claim

21 The latest claims are those filed on 14 December 2023.

22 There are two independent claims, claims 1 and 28. Aside from the first couple of lines of these claims they are worded substantially the same, with claim 1 being directed to a transaction authorisation system and claim 28 to a computer implemented transaction authorisation method. The scope of the claims is considered to be identical, and I only need to consider claim 1. Claim 28 stands or falls with claim 1.

23 Claim 1 reads as follows:

> *1. A transaction authorisation system comprising a plurality of mobile devices each configured by a transaction authorisation application, a central server, and an image capture device, wherein:*
>
> *the central server is configured to maintain a set of user accounts, each associated with a corresponding one of the mobile devices, each user account comprising:*
>
> *a set of user-identifying features, including at least one of: an image of a user-identifying asset, and information that is derivable from an image of a user-identifying asset*
>
> *location data, including the location of the associated mobile device, and a location update time for indicating when that location of the associated mobile device was updated;*

[4] *HTC v Apple* [2013] EWCA Civ 451
[5] *Gemstar-TV Guide International Inc v Virgin Media Ltd* [2010] RPC 10

transactional data, such as user payment card data, for performing a transaction;

each of the plurality of mobile devices is configured by the application to determine and transmit its location to the central server so as to update the location data of the user account with which that mobile device is associated;

an image capture device located at a service location, the image capture device being configured to automatically capture and transmit an image of a user-identifying asset;

the central server being configured to receive the image from the image capture device, or features derived from that image, and in response determine a match with one of the user accounts dependent on:

image similarity, including the similarity of features of the captured image, and those of the set of user-identifying features; and

location similarity, including the similarity of the known location of the service location, and the location of the mobile device; and

the central server being further configured to authorise use of the transactional data of the user account with which a match has been determined to perform a transaction, thereby to permit service provision at the service location;

wherein the set of user-identifying features in each user account comprises an alphanumeric string, and the system further comprising a feature extraction module configured to receive images from the image capture device and process them to extract a set of features comprising a corresponding extracted alphanumeric string for use in matching with user account alphanumeric strings, thereby to determine a match with at least one of the user accounts;

wherein matching based on the similarity of the known location of the service location, and a mobile device location comprises filtering out user accounts that have a mobile device location update older than a threshold amount; and

wherein matching based on the similarity of the known location of the service location, and a mobile device location comprises:

calculating a time difference between a time of capture of the image of the user-identifying asset, and the time of the mobile device location update;

calculating a distance between the known location of the service location, and that of the mobile device location;

determining the probability of the mobile device travelling the calculated distance within a period corresponding to the calculated time difference; and

filtering out user accounts where the determined probability is below a predetermined value.

24 The claims are considered to be straightforward to construe. The following points are nevertheless noted.

25 The claim specifies that the user account includes transactional data *such as* user payment card data. An example of this is provided at the lines 1-3 of page 14 of the specification. Consequently, although the application is generally restricted to payment transactions using a payment card, I consider the skilled person would not necessarily consider it to be restricted to payment cards *per se,* and the reference to payment card data is an example to clarify the nature of the transactional data.

26 I note also that the user identifying features of the claim are restricted to alphanumeric data. Based on the description the skilled person would interpret this as vehicle number plate data, and the feature extraction module is a reference to an ANPR system.

27 I have also given thought to the term "service location". This requires little further explanation but is considered to be a location where a service that requires authorisation is provided. An example used in the specification is a refuelling station where payment for fuel is required. In essence it is intrinsically linked with a service that requires payment or authorisation.

Step (2): Identify the actual or alleged contribution.

28 As is usual in applications like this there is some disagreement between the Examiner and the Applicant as to what constitutes the contribution. The Examiner for their part states that they see it as:

> *"A transaction authorisation system using known image recognition and location technologies, whereby a match with a stored user profile is made using both an alphanumeric string extracted from an image at a service location and a determined probable location of a mobile device associated with the user profile. The match based on location of the mobile device is made by filtering out accounts where the location of the mobile device has not been recently updated and a calculated probability that the device could have moved from the last known location to the service location in the time since the last location update is below a given value. Thus the system and method of claims 1 and 28 provide a more secure transaction authorisation by taking into account time, location and a recognisable asset to authorise the transaction, even where the alpha-numeric string extracted from the image is not an exact match and/or the location of the mobile device cannot be retrieved at the time of the transaction."*

29 The attorney for their part in their letter of 14th December 2023, provides a much shorter version of any contribution:

> *"The technical contribution isn't an improved payment system. Rather it resides in how a server can reliably determine which user account is the correct one to authorise for a particular purpose."*

30 However, there does not appear to be any disclosure in the application for the use of the system in any way other than as a transaction authorising system. I agree that it is not restricted to payment *per se*, but it is nevertheless directed at automatically authorising a user to receive a service provided at a specific service location. Contrary to the agent's arguments the contribution is clearly linked to provision of a service at a service location and is inherently transactional in nature.

31 They offer several further observations on the application making it clear that although the claims are limited to a "transaction authorisation system" that should not preclude the invention from being patentable as "the underlying means via which a transaction is authorised is technical in nature".

32 To illustrate this point, they point out that invention solves a number of technical problems associated with determining a match on a user account that occur by using image similarity, location similarity and time similarity. As part of the time similarity criteria, they further provide a scenario where a specific problem associated with the mobile device being unable to transmit a location to the server is resolved by calculating a probability that the mobile device can be in that location using the last known position in the user account, the service location and the times of both.

33 Given the conflicting views, I feel it would be better to consider the contribution myself. I am helped in this by the guidance provided in paragraph 43 of *Aerotel*, where the court accepted the proposition that identifying the contribution 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."*

34 Although identifying the contribution involves more than just working out what is new and inventive in the claimed invention, some consideration of the prior art is nevertheless helpful when assessing what the inventor has really added to human knowledge.

35 The Examiner has identified a number of prior art documents. In the initial search reported to the applicant on 23rd October 2023 four documents were identified. These documents show that using a combination of location, provided by a user device such as a mobile phone, and image recognition such as ANPR, to match a user to a stored user profile at a central server and thus authorise a payment or other transaction was well known. It follows that as they are well known they cannot be considered to add to the contribution.

36 The Examiner then conducted some further searching in conjunction with the report issued on 15th February 2024. At paragraph 10 of the report, they cite several examples of documents that show deriving location from a mobile phone, and calculating a probability that a user could have travelled to a new location from the last known location of the device in the time elapsed since that location was updated, is known from the prior art. It follows that this feature cannot be considered to add to the contribution made by the application.

37 I would add one final observation. The application uses standard techniques for recognising the “image”. There is no improved image recognition technique.

38 At this point, I think it useful to take a step back and look at exactly “What has the inventor really added to human knowledge “ as Aerotel makes clear at paragraph 43. To my mind, this appears to lie in the algorithm used for matching a user account. This appears in both the Examiner’s and Attorney’s characterisation of the contribution. A key part of this is the “filtering out user accounts that have a mobile device location update older than a predetermined amount” or “where the probability of the mobile device travelling the calculated distance with in a period corresponding to the calculated time difference…is below a certain value”. The notable feature this provides is the filtering of user profiles based on location so that the step of determining a match takes place on a subset of the user data.

39 Taking all these factors into consideration, I consider the contribution to be:

> *A transaction authorisation system for authorising a transaction at a service location using known image recognition and location technologies, comprising:*
>
> *maintaining a database of user account data including, for each user: a vehicle registration mark, a last known location of a mobile device associated with the user, a time that last known location was updated and transactional data;*
>
> *for a user at a service location finding a matching user account from the database of user accounts by:*
>
> > *comparing a similarity of ANPR data retrieved from an image captured at the service location with the vehicle registration mark data of each user;*
> >
> > *comparing a similarity of the location of the service location with a location of each user by filtering out accounts where the location of the mobile device has not been updated recently and further filtering out accounts based on a calculated probability that the mobile device could not have moved from the last known location to the service location in the time since the last location update, and*
>
> *and authorising a transaction using the matching user’s transactional data, to provide a reliable authorisation even where an exact match with the ANPR data is not possible and/or the location of the mobile device cannot be retrieved at the time of the transaction.*

Step (3) Does the contribution fall solely within excluded subject matter?

40 The third step of the *Aerotel* test involve considering whether the contribution falls solely within excluded categories. In this instance, I believe it does. It appears to me to be a method of doing business and/or a computer program.

41 There is little doubt in my mind that the overriding intent of the claim is to authorise a transaction for a user. That is a business method. Specifically, in authorising the

transaction, it makes three business decisions. Firstly, is the image similar to one in a user account? Secondly, is the current stored location of the user device older than predetermined amount and thirdly, is the probability of the user device being in the service location above a certain amount? These are not technical decisions; they are business decisions as they influence the authorisation of the transaction.

42 While the proposed invention may well represent a better business method for dealing with authorising a transaction from a user account, this is immaterial when it comes to patentability, as Fox LJ made clear in *Merrill Lynch's Application*[6] [1989] RPC 561:

> *The fact that the method of doing business may be an improvement on previous methods of doing business does not seem to me to be material. The prohibition in section 1(2)(c) is generic; qualitative considerations do not enter into the matter.*

43 The fact that it is implemented on a computer, the use of a computer to implement a better business method does not confer patentability. Birss J (as he then was) confirmed this at paragraph 35 of *Halliburton Energy Services*[7]

> *The business method cases can be tricky to analyse by just asking whether the invention has a technical effect or makes a technical contribution. The reason is that computers are self evidently technical in nature. Thus when a business method is implemented on a computer, the patentee has a rich vein of arguments to deploy in seeking to contend that his invention gives rise to a technical effect or makes a technical contribution. For example the computer is said to be a faster, more efficient computerized book keeper than before and surely, says the patentee, that is a technical effect or technical advance. And so it is, in a way, but the law has resolutely sought to hold the line at excluding such things from patents.*

44 The invention therefore appears to be nothing more than a method of doing business.

45 Having concluded that the claim is a method of doing business, I do not necessarily need to consider the computer program exclusion.

46 However, in case I am wrong in my conclusions above, it would, I think be helpful, to consider the computer program objection in a little more detail. In order to do this, I will consider the contribution against the AT&T signposts.

47 The attorney has referred only to the first and fifth signposts. I will do the same. Specifically, no argument has been made in respect of signposts (ii), (iii), or (iv), the so-called *better computer* signposts. In the absence of any argument, I take the view

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[6] *Merrill Lynch's Application* [1989] RPC 561.
[7] *Halliburton Energy Services Inc* [2011] EWHC 2508 (Pat).

that they are not relevant in determining whether or not there is a technical contribution in this case.

First signpost – whether the claimed technical effect has a technical effect on a process which is carried on outside the computer

48 The claimed technical effect can be viewed as a “transaction authorisation system”. Whilst it contains multiple integers, it is difficult to see what effect, if any, exists outside or external to the authorisation system. As a consequence, this signpost. does not therefore point to the invention being patentable.

Fifth signpost - whether the perceived problem is overcome by the claimed invention as opposed to merely being circumvented

49 In order to meet the fifth signpost, the problem must be a technical problem. An invention which overcomes such a technical problem is considered to have a technical character derived from the technical nature of the problem (per Birss J in *Lantana [2013] EWHC 2673 (Pat)*).

50 The applicant argues that the system provides a more reliable method of authorising transactions which overcomes problems in the prior art when accurate location data cannot be acquired. It does this by making use of past location data and an assessment of whether or not the user could be at a new location based on this old location data and the time that has elapsed. This method does not actually solve the problem of determining an accurate location. Rather , it provides a classic example of a workaround for dealing with the perceived problem of determining accurate location data at the time a transaction is being made. It is a method which circumvents the need for that up-to-date location data by using old location data. Consequently, this signpost provides no help to the applicant.

51 Given I can find no technical effect in the contribution of the claims, I consider that the application may be further excluded as a computer program under Section 1(2)(c).

52 In summary, the application is considered to be nothing more than a business method and/or a computer program as such. Accordingly, it falls within the exclusions of Section 1(2)(c) of the Act and is excluded from patentability.

Conclusion

53 I have decided that the independent claims of the application, claims 1 and 28, fall solely within matter excluded under Section 1(2) as a method of doing business and/or as a program for a computer as such. Having reviewed the application, I do not consider that any saving amendments are possible. I therefore refuse the application under section 18(3).

Appeal

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

NIGEL HANLEY
Patent Examination Group Head