



PATENTS ACT 1977

APPLICANT	Google LLC
ISSUE	Whether patent application GB 1720824.0 complies with section 1(2) of the Patents Act 1977
HEARING OFFICER	J Pullen

DECISION

Introduction

- 1 Patent application GB 1720924.0, entitled “Store visit data creation and management”, entered the national phase on 14 December 2017, derived from WO 2017/106159 A2 published 22 June 2017, with 14 December 2015 as its earliest date. Further, the International Search Report was published 10 August 2017 as WO 2017/106159 A3. The national phase application was published as GB 2555336 A on 25 April 2018.
- 2 In the first examination report, dated 31 December 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 and a method of doing business as such. There have been several rounds of correspondence between the examiner and the applicant’s agents 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 10 October 2022. In response, the applicant filed a request for a decision on the papers in their agent’s letter of 10 November 2022. The examiner then issued a pre-hearing report of 16 November 2022 and indicated that the issue to be decided is whether the invention is excluded as a program for a computer or a scheme, rule or method of doing business as such. No further submissions from the applicant have been received.
- 4 The examiner has deferred updating the search and full examination. If I find the claims to be allowable in terms of Section 1(2), 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 has been extended and is currently 28 February 2023.

- 6 I confirm that in reaching my decision I have considered all documents on file, particularly the amended claims and submissions filed 13 June 2022 and submissions filed in the letter of 28 February 2022.

The invention

- 7 The “Background” section of the description recites:

Store owners may wish to know how many visitors are coming in and out of their store and/or characteristics of the visitors. Further, store owners may wish to understand customer behavior such as their purchase rate, average time in the store, returning visitors, etc. Because smartphones often search for nearby WiFi networks, WiFi routers or other devices can be used to connect to and keep a record of smartphones that pass through the store. The information may then be used to generate analytics data that can be viewed by a store owner. However, such a setup requires additional work by the store owner (installing beacons or changing the WiFi firmware) and causes privacy issues (e.g., the MAC addresses of smartphones passing through the store are known).

- 8 The detailed description states that the illustrative systems and methods are provided for generating and providing analytics data for a store owner while maintaining privacy for customers of the store. The systems and methods allow for the collection of data from a plurality of user devices that are in the vicinity of the store, and for using the data to generate analytics for a store owner. The user devices may provide data to the analytics server without communicating with store devices of the store beyond receiving a pushed signal from the store devices.
- 9 Store devices are deployed within a physical storefront. The store devices may be BLUETOOTH (RTM) beacons or WI-FI routers which are used to push a wireless signal to user devices which are in range of the store devices. The signal may include a store identifier that identifies the store to the user device. The store devices may be configured to not receive a response to the pushed signal from the user device.
- 10 When a user device, such as a smartphone, receives the signal, an application on the user device creates store visit data. The store visit data includes store identifiers that the user has visited, from the received signals, and time data relating to the time of the visit. It is stated that the collection of store visit data at the user device rather than the store device ensures that privacy is maintained between the store devices and the user devices, with the only interaction being the store device pushing the signal to the user device. However, it is then stated that the store device and the user device may engage in typical WI-FI communication as well.
- 11 The user device aggregates store visit data for a plurality of received signals (and store visits) until a certain threshold is reached. In the claimed invention, the threshold relates to a certain number of store identifiers (1000 store identifiers) having been collected. An alternative threshold given, but not claimed, is a certain time frame (a day, a week, etc.) in which to collect store visit data. The user device will transmit the store visit data to an analytics server when the threshold is reached. If the threshold is not reached, no data is transmitted.

- 12 Before transmitting the store visit data, the user device may anonymise the store visit data. A specific time may be replaced by a date, a day or a week of the visit. A random user device identifier may be used instead of an actual device identifier, with the aim of preventing the analytics server identifying the user device, but allowing the detection of repeat visits and a visit history based upon the random user identifier. Alternatively, no user device identifier may be associated with the transmitted store visit data.
- 13 The analytics server receives store visit data from a plurality of user devices. A store owner may submit a store device identifier to the analytics server and the analytics server provides stored store visit data to the store owner based upon this store device identifier. It is stated that the analytics server may also further anonymise the store visit data.
- 14 Embodiments of the invention may use pre-existing equipment (WI-FI routers, for example) with no special setup to push the signal to user devices; installation and setup requirements are reduced compared to other implementations which require the installation of beacons or require a special setup of WI-FI routers.
- 15 The current claim set, as amended with the letter of 13 June 2022, comprises two fully independent claims as follows:

1. A method comprising:

receiving, at a user device comprising one or more processors, a plurality of signals pushed to the user device from a plurality of store devices located in a plurality of physical storefronts, the signals each including a store identifier identifying the associated physical storefront;

wherein, without any communication from the user device back to the store devices, the method further comprises:

generating, by the user device, store visit data in response to receiving the signals, the store visit data comprising the store identifiers and time data representing times associated with visits to the physical storefronts, wherein the store visit data indicates the presence of the user device in the physical storefronts;

aggregating, by the user device, the store visit data for the plurality of signals pushed to the user device;

removing, by the user device, at least a portion of the time data from the aggregated store visit data;

determining, by the user device, whether the aggregated store visit data includes at least a threshold number of store identifiers;

restricting information from the aggregated store visit data that may be used to identify the user device or a user of the user device, wherein the restriction of the information comprises one of:

removing any information that identifies the user device or the user of the user device, and

associating a random device identifier with the aggregated store visit data, wherein the identity of the user device or the user of the user device cannot be determined from the random device identifier; and

in response to determining the aggregated store visit data includes at least the threshold number of store identifiers, transmitting, by the user device, the aggregated store visit data to an analytics server configured to combine the aggregated store visit data with aggregated store visit data from a plurality of other user devices, generate analytics data based on the combined aggregated store visit

data, and provide the analytics data to one or more store owner devices of one or more store owners of the physical storefronts.

15. One or more computer-readable storage media having instructions stored thereon that, when executed by one or more processors, cause the one or more processors to execute operations comprising:

receiving a plurality of signals pushed to the user device from a plurality of store devices located in a plurality of physical storefronts, the signals each including a store identifier identifying the associated physical storefront;

wherein, without any communication from the user device back to the store devices, the operations further comprise: generating store visit data in response to receiving the signals, the store visit data comprising the store identifiers and time data representing times associated with visits to the physical storefronts, wherein the store visit data indicates the presence of the user device in the physical storefronts;

aggregating the store visit data for the plurality of signals pushed to the user device;

removing at least a portion of the time data from the aggregated store visit data;

determining whether the aggregated store visit data includes at least a threshold number of store identifiers;

restricting information from the aggregated store visit data that may be used to identify the user device or a user of the user device, wherein the restriction of the information comprises one of:

removing any information that identifies the user device or the user of the user device, and

associating a random device identifier with the aggregated store visit data, wherein the identity of the user device or the user of the user device cannot be determined from the random device identifier; and

in response to determining the aggregated store visit data includes at least the threshold number of store identifiers, transmitting the aggregated store visit data to an analytics server configured to combine the aggregated store visit data with aggregated store visit data from a plurality of other user devices, generate analytics data based on the combined aggregated store visit data, and provide the analytics data to one or more store owner devices of one or more store owners of the physical storefronts.

The issue to be decided

The issue to be decided is whether the claimed invention relates to excluded subject matter, and in particular whether the invention falls into one of the categories set out in section 1(2)(c) of the Patents Act 1977 as a scheme, rule or method of doing business and/or a program for a computer as such.

The law

- 16 The examiner has raised an objection based upon the fact 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 applicable 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 scheme, rule or method for ... doing business, or a program for a computer;**
- (d) ...;

*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.***

17 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.*

18 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.

19 In *Merrill Lynch*² the Court of Appeal provided a discussion of the scope of the business method exclusion. At page 569 the following is provided by Fox LJ:

Now let it be supposed that claim 1 can be regarded as producing a new result in the form of a technical contribution to the prior art. That result, whatever the technical advance may be, is simply the production of a trading system. It is a data-processing system for doing a specific business, that is to say, making a trading market in securities. The end result, therefore, is simply “a method of doing business”, and is excluded by section 1(2)(c). 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. The section draws no distinction between the method by which the mode of doing business is achieved. If what is produced in the end is itself an item excluded from patentability by section 1(2), the matter can go no further. Claim 1, after all, is directed to “a data processing system for making a trading market”. That is simply a method of doing business. A data processing system operating to produce a novel technical result would normally be patentable. But it cannot, it seems to me, be patentable if the result itself is a prohibited item under section 1(2). In the present case it is such a prohibited item.

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

² *Merrill Lynch's Application* [1989] R.P.C. 561

- 20 In *Symbian*³ 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”.
- 21 The case law on computer implemented inventions was further elaborated in *AT&T/CVON*⁴ (*AT&T*) which provided five helpful signposts to apply when considering whether a computer program makes a relevant technical contribution. In *HTC v Apple*⁵, 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.*

- 22 I must bear in mind that the signposts are guidelines for a technical contribution and should not be applied in a prescriptive manner. I also note that the paragraph after signposts in the *AT&T* judgment cautions me to consider if the claimed technical effect lies solely in excluded matter if I decide that there is a technical effect based upon the signposts. I must decide whether the claimed invention makes a technical contribution when considered on its own merits.

Assessment

(1) Properly construe the claim

- 23 Claim 1 and claim 15 differ slightly in scope. Claim 15 has no antecedent for the user device and is drafted in such a manner that it potentially assigns all the functions of the claimed instructions to a single processor, even though the functionality requires at least two processors – at least one each for the user device and the analytics server, these two devices being separate entities.
- 24 Having identified these differences, I am minded to construe claim 15 to be consistent with the method of claim 1 as I do not believe they are sufficient to impact on the assessment of excluded matter. Therefore, I will base my assessment on claim.
- 25 It is also noted that claim 8 defines a system comprising a computing device operably coupled to at least one memory and configured to perform a method according to any of claims 1 to 7. Similarly in relation with claim 15, the scope of this claim is obscured by the fact that the functions of two computing devices are defined

³ *Symbian Ltd v Comptroller-General of Patents*, [2009] RPC 1

⁴ *AT&T Knowledge Ventures/Cvon Ltd* [2009] EWHC 343 (Pat)

⁵ *HTC Europe Co Ltd v Apple Inc* [2013] EWCA Civ 451

in claim 1 – functions carried out by the user device and also some functions of the analytics server in the final part of claim 1 – but the claim is directed only to a single computing device and appears to attribute all of the functions to the single computing device. As with claim 15, I am not convinced that this issue is material to the matter for me to decide.

- 26 The claimed invention relates to various functions of a user device and an analytics server. The description, at paragraph 24, states that the user devices can be any one of a number of known computing devices, such as smart phones or cellular telephones but also televisions and set-top boxes. Whilst some of the suggested computing devices that can function as a user device seem somewhat fanciful, it is clear that the user device is a suitably programmed computing device which is capable of receiving signals and transmitting aggregated store visit data to the analytics server, most suitably a smartphone with an appropriate application or app.
- 27 An analytics system, according to paragraph 26, includes either general purpose or special purpose processors, memory such as storage or RAM. Paragraph 27 describes that the system has software-implemented modules which provide various functions. Various paragraphs of the description, such as 52 & 53, use analytics system and analytics server interchangeably. Paragraphs 36, 39 & 40 all describe the analytics system as a remote server. From these paragraphs it is clear that the analytics server of the claimed invention is supposed to be the described analytics system. The analytics server/system must be operable to provide analytics data to store owner devices, which can be the same types of computing devices as the user devices from paragraph 24. It is apparent that the claimed analytics server can be a suitably programmed computer.
- 28 However, the claimed invention also implicitly requires store devices located in physical storefronts which push signals including a store identifier to the user devices. The description provides two possible types of devices which can function as a store device to push signals including a store identifier to the user device – a WIFI router and a beacon, such as a BLUETOOTH (RTM) beacon. The description, at paragraph 35 & 36, clarifies that the “store identifier” is different to the store device identifier given the definitions of the signal including an identifier “such as a store identifier (identifying the particular store the user device is at) or a store device identifier (e.g., a MAC address or other identifier that specifically identifies a store device)” – from paragraph 35.
- 29 The other point of construction that requires attention is where the “restricting information” step actually takes place. The majority of the functions of claim 1 are specifically assigned to the user device, while the analytics server is assigned other functions relating to the combination of aggregated store visit data and distribution of analytics data. The description suggests assigning the restricting information function, at least in terms of removing any user device identifier, to either the user device, at step 327 of Fig 3 described at paragraph 50, or the analytics server, at step 420 of Fig 4 described at paragraph 59 or paragraph 52. I also note claim 5 which defines that the transmission of aggregated store visit data to the analytics server comprises the “restricting information from which the analytics server can determine an identity of the user device or a user of the user device from inclusion within the aggregated store visit data transmitted to the analytics server.” This implicitly requires the restriction to take place at the user device since the data is

restricted before transmission. However, the invention of claim 1 must be taken to encompass the “restricting information” step at either of the user device or the analytics server.

(2) Identify the actual contribution

30 In their letters of both 28 February 2022 and 13 June 2022 the applicant has not provided any analysis of the actual contribution of the claim. Instead, submissions are made based upon the claimed invention having technical contribution.

31 The examiner has set out their analysis of the actual contribution, taking into account the problem addressed and the nature of the hardware involved. Their resulting contribution is:

a computer-implemented method of obtaining and aggregating store visit data for each of a plurality of user devices and transmission of the aggregated data – in an anonymised form – to an analytics server to generate analytics data, which is in turn provided to store owner devices of one or more store owners.

32 For my part I think it is worth considering the problem addressed; how the invention works; and the advantages of the invention.

33 The problem addressed by the invention and its advantages can be considered together. The description at paragraph 2 suggests the issues to be solved as relating to the collection of store visit data such that a store owner may better understand customer behaviour, without requiring the store owner to install additional equipment and whilst seeking to protect the privacy of shoppers. The easing of installation and set-up requirements are reiterated at paragraph 19. However, the invention as claimed does not necessarily address these issues since the claimed invention encompasses the use of beacon devices, for example, which are dedicated devices which would require installation. At paragraph 13, a further brief summary of the aims of the embodiments is provided:

“generating and providing analytics data for a store owner while maintaining privacy for customers of the store.”

34 This seems to me to be an accurate summary of the problem addressed by the invention and the advantage provided.

35 The invention works by using suitably programmed computing devices, whether a WI-FI router or beacon in terms of the store devices, a smartphone or tablet computer in terms of the user devices or a computing device in terms of the analytics server. There is no suggestion in the specification that any of these pieces of hardware is, of themselves, individually new or that they interact according to a new communication protocol. The invention lies in the functions that the computing devices are programmed to undertake.

36 In light of the above, I am of the opinion that the actual contribution of the invention defined in claim 1 is:

A computer-implemented method of generating and providing user visit analytics data for a store owner while maintaining privacy for customers of the

store which uses suitably programmed user devices, store devices and an analytics server, the method comprising:

receiving, at a user device comprising one or more processors, a plurality of signals pushed to the user device from a plurality of store devices located in a plurality of physical storefronts, the signals each including a store identifier identifying the associated physical storefront;

wherein, without any communication from the user device back to the store devices, the method further comprises:

generating, by the user device, store visit data in response to receiving the signals, the store visit data comprising the store identifiers and time data representing times associated with visits to the physical storefronts, wherein the store visit data indicates the presence of the user device in the physical storefronts;

aggregating, by the user device, the store visit data for the plurality of signals pushed to the user device;

removing, by the user device, at least a portion of the time data from the aggregated store visit data;

determining, by the user device, whether the aggregated store visit data includes at least a threshold number of store identifiers;

in response to determining the aggregated store visit data includes at least the threshold number of store identifiers, transmitting, by the user device, the aggregated store visit data to an analytics server configured to combine the aggregated store visit data with aggregated store visit data from a plurality of other user devices, generate analytics data based on the combined aggregated store visit data, and provide the analytics data to one or more store owner devices of one or more store owners of the physical storefronts;

wherein, either before or after transmission of the aggregated store visit data from the user device to the analytics server, restricting information from the aggregated store visit data that may be used to identify the user device or a user of the user device, wherein the restriction of the information comprises one of:

removing any information that identifies the user device or the user of the user device, and

associating a random device identifier with the aggregated store visit data, wherein the identity of the user device or the user of the user device cannot be determined from the random device identifier.

***(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***

- 37 In their submissions, the applicant has stated that they believe that the invention provides a technical contribution due to an increase in data security. This increased data security relates to the security of user data and is provided by the following features of the claim which all help ensure that the user device cannot be individually identified:

- (1) *preventing the user device from communicating with the store devices beyond receiving the pushed signals (i.e. not transmitting any data to the store devices);*
- (2) *removing a portion of the time data;*
- (3) *aggregating the store visit data;*
- (4) *only transmitting the store visit data to the analytics server when a threshold number of store identifiers is reached; and*
- (5) *restricting information from the aggregated store visit data that may be used to identify the user device or a user of the device by (a) removing any information that identifies the user or the user device and/or (b) associating a random device identifier with the aggregated store visit data whereby the user device or a user of the device cannot be identified by the random device identifier.*

- 38 In correspondence with the examiner, the applicant has cautioned against considering each of the above features individually and has stated that each must be considered “in the context of the method defined in amended claim 1.”
- 39 Additionally, the applicant has submitted that the above features prevent the user’s location from being tracked by store owners and/or third parties and additionally results in a reduction of the likelihood of another device establishing connection with, and pushing malicious content onto, the user device.
- 40 The first of these additional points, regarding the prevention of location tracking, is covered by my characterisation of the contribution as “maintaining privacy for customers”. I am therefore satisfied that I am taking this into account.
- 41 Considering the second of these additional points, it is apparent that the claimed invention and the features above are silent with respect to how the user device may interact with devices other than the store devices and the analytics server. The description also appears to be silent on the issue. Therefore, I cannot see any way the user device may be protected with respect to communications with additional devices. This is not a persuasive submission.
- 42 It must also be stated that feature (1) - preventing the user device from communicating with the store devices beyond receiving the pushed signals – is not a wholly accurate characterisation of the claimed invention. The claimed invention actually recites “*without any communication from the user device back to the store devices*”. This is different to actively preventing communication, which is not specifically mentioned in the specification as filed, as far as I can ascertain, and of course is an inherent feature of those embodiments where the store devices are beacon devices which cannot receive signal since they only have transmitting capability.
- 43 In my opinion, the context of the method of claim 1, and its contribution as identified above, is a scheme, rule or method for doing business. It falls within the category in a similar fashion to the double-entry bookkeeping and “three tray” examples and the French and German translations of Art. 52 provided in paragraphs 69-70 of *Aerotel*. The collection, aggregation, anonymisation and distribution of store visit data that the invention requires is conducted only to provide store owners with more information about customers visiting their physical stores. This is “in the domain of economic

activities”. The invention serves no other purpose than this. It is a business method carried out for commercial reasons.

- 44 I reiterate that I have noted the data security features above and the submissions that the applicant has made about that. However, I must remember the guidance in *Merrill Lynch* and I paraphrase the guidance here in relation to the present invention and its contribution: the claimed invention concerns a method for doing a specific business, that is to say, collecting customer data via their user devices (such as smartphones). The end result, therefore, is simply “a method of doing business”, and is excluded by section 1(2)(c). Whilst the present business method may provide the user privacy (data security) features outlined by the applicant, this is immaterial. The prohibition in section 1(2)(c) is generic and qualitative considerations do not enter into the matter – whilst the present business method may provide user privacy benefits over a business method that does not remove, replace or generalise elements of the collected data related to the specifics of the store visit data, the end result of the present invention is still a business method.
- 45 It must also be remembered that the above data security features are applicable only to the present invention and relate only to the generalisation or anonymisation of customer visit data. Feature (1) only concerns how the user device interacts with the store devices of the present invention and no more than that. Each of features (2)-(5) concern how collected store visit data is manipulated within the context of the present invention only with no generally applicable method of manipulating data in order to secure it. The closest feature to general application would appear to be (4): only transmitting collected store visit data when a threshold number of store identifiers is reached. However, this is linked to the collection of store visit data, which is data related to a business method. Whilst the applicant has submitted that reducing the number of times store visit data is transmitted objectively reduces the risk that an interception of the data could be cross-referenced with other data to infer information about the user from the store visit data, and so improves data security, this is a circumvention of the problem of data security by potentially reducing the number of transmissions compared to a theoretical alternative rather than the invention providing a more secure data transmission itself. This argument is therefore not persuasive.
- 46 I therefore find that the present invention is excluded from patentability since the contribution relates only to a scheme, rule or method for doing business, as such.
- 47 The examiner in their reports has set out an objection to the invention also being excluded from patentability also as a program for a computer, as such. They have set out the *AT&T* signposts, as recited above.
- 48 The applicant has not provided any specific observations on the *AT&T* signposts, and their submissions are based on the invention having a technical contribution as a whole without any reference to the individual excluded categories.
- 49 I also note paragraph 41 of the *AT&T* judgement:

“If there is a technical effect in this sense [of satisfying at least one signpost], it is still necessary to consider whether the claimed technical effect lies solely in excluded matter.”

50 This is effectively what I have achieved above: I have decided that the claimed technical effect lies solely in excluded matter as a scheme, rule or method for doing business, in light of the guidance of *Merrill Lynch*. There is no technical effect provided by the computers implementing the claimed method outside of the business method and so the claimed invention is also excluded as a program for a computer, as such.

I have also reconsidered the other independent claim and reviewed the dependent claims. None of these claims would add anything to the contribution of claim 1 that removes the claimed invention from the excluded categories.

Conclusion

51 The application does not comply with section 1(2) as it relates to scheme, rule or method for doing business, as such, and also a program for a computer, as such. I therefore refuse the application under section 18(3).

Appeal

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

J PULLEN

Deputy Director, acting for the Comptroller