

OPINION UNDER SECTION 74A

Patent	GB 2370675
Proprietor(s)	Mr Maurice Bligh
Exclusive Licensee	
Requester	Mr Maurice Bligh, on 1 October 2007
Observer(s)	Mr Shuang-Hua Yang
Date Opinion issued	6 December 2007

The request

1. The comptroller has been requested by the proprietor of GB2370675 B to issue an opinion on whether the SafetyNet system as described at www.firesafetynet.org.uk infringes or will infringe that patent.

Observations

2. Observations were filed by Swindell and Pearson, patent attorneys, acting for Professor Shuang-Hua Yang and Loughborough University, submitting that the request should be refused and that the SafetyNet system, as described in "SafetyNET/ a wireless sensor network for fire protection and emergency responses" by Shuang-Hua Yang and Peter Frederick, does not infringe the patent.

Observations in reply

3. Observations in reply were filed by the requester submitting that the request should be allowed and that SafetyNET does infringe the patent.

Discussion**ALLOWABILITY**

4. The observer submits at section 5.1 of the observations that the Office should decline to issue an opinion under Section 74A (1) (a) on the grounds that the requester has not identified any particular act which

constitutes (or would constitute if done) an alleged infringement of the patent.

5. The requester in his observations in reply under Item 8 addresses this point by clarifying that one of the particular acts he wishes the Comptroller to consider is “activities in continuing to develop” SafetyNet. The following sentence makes clear that he is interested in whether a commercial SafetyNet product also would infringe his patent, though he does not take the opportunity to mention explicitly a particular act or acts in relation to the commercial SafetyNET product. The patent has product claims only and so Section 60 (1) (a) is relevant:

“Subject to the provision of this section, a person infringes a patent for an invention if, but only if, while the patent is in force, he does any of the following things in the United Kingdom in relation to the invention without the consent of the proprietor of the patent, that is to say-

(a) where the invention is a product, he makes, disposes of, offers to dispose of, uses or imports the product or keeps it whether for disposal or otherwise”

6. I think it is reasonable to conclude that activities in “continuing to develop” would in all likelihood include making, using or keeping a product falling in the scope of the patent claims.

7. Further, I think it is reasonable to conclude that making or using or selling or keeping or importing a product falling in the scope of the patent claims are among the acts relevant for assessing whether a commercial version of SafetyNET would infringe the patent.

8. In the present case, assessment of infringement depends on whether the system falls in the scope of the claims of the patent and does not appear to depend on the category of alleged infringement. I am satisfied that sufficient explicit and implicit particular acts may be found in the request and so I allow the request for an opinion.

BACKGROUND

9. The patent document describes an adaptive colour-coded evacuation signalling system for buildings or maritime structures whereby occupants may be guided to safe exits by floor-mounted LED assemblies, the assemblies being controlled by a computer to display various symbols such as green arrows or red triangles in dependence on data received from sensors such as smoke, heat or other detectors. Short textual information is also displayed. The symbols and text displayed may be altered as a fire spreads and some escape routes become no longer safe. The system allows firecrew

to download from the computer a status report or schematic diagram showing the location, spread and nature of a fire prior to or on arrival at the scene.

10. There are two independent claims, claim 1 and claim 6. Claim 1 relates to details of the LED guidance displays while claim 6 relates to the processor.

11. The SafetyNET system ("Secure Adhoc Fire & Emergency safety NETwork) is described in the cited website (www.firesafetynet.org.uk) under "overview" and in a similar journal article available on the website under "publications". The two-page article is entitled "SafetyNET/ a wireless sensor network for fire protection and emergency responses" and it was published in the September 2006 issue of *Measurement and Control* at pages 218-219. The article contains a useful schematic illustration of the proposed communications network. The requester has supplied a copy of the article and a copy of the homepage of the "FireGrid" system (www.firegrid.org.uk) to which the request makes reference.

12. SafetyNET proposes a three-layer wireless communication and control system. In the lowest layer sensors for occupancy, heat, smoke or integrity are coupled by a building wireless network. Information about the building, occupants, and locations of the firecrew is collected from the sensor network for wireless transmission to a (second) fire tender network layer where the information is presented. Information about the building such as a floor plan and hydrant status is downloaded to the tender network from a central database located at a remote control centre, which constitutes the topmost (third) layer. The fire tenders communicate one-way with emergency personnel by Digital Audio Broadcasting (DAB). An emergency response management system at the control centre in the top layer provides the firecrew with up-to-date critical information. It is stated that SafetyNET will help prevent firefighter casualties caused by inadequate information about the nature of the emergency they are attending. The problems that SafetyNET seeks to overcome are explained in the first paragraph of the overview and in an identical passage in the similar *Measurement and Control* article: "When the first responders arrive on site, they have very limited information about the building, occupants and/or the location of the hazard. They do not know if they need to enter the building, whether it is safe to enter and how to most efficiently deal with the hazard".

CLAIM 1 CONSTRUCTION

13. Claim 1 recites the following:

"A colour-coded evacuation signalling system wherein a network of illuminated, direction-indicating symbols and text messages, displayed

in any required language or combination of required languages, is configured by light emitting diodes (LED's) contained in transparent-covered assembly units, connected in series to form a continuous strip or array laid flush in the centre of uncovered or covered floors, corridors, walkways within land-based buildings and maritime structures, to guide walking or crawling evacuees who may find themselves in low-light conditions or in a smoke fog during a fire or general emergency, initially away from predetermined and assessed developing danger zones, represented by the colour red, and then via assessed safe routes, represented by the colour green, leading to the nearest and safest assessed designated exits”

14. The standard principles of claim construction were set out by Lord Hoffmann in *Kirin-Amgen and others v Hoechst Marion Roussel limited and others* [2005] RPC 9 (see paragraphs 32-52). The key point made in that judgement was that the approach in construing a claim should be to establish “what a person skilled in the art would have thought the patentee was using the language of the claim to mean”. I should consequently put a purposive construction on the claims, interpret them in the light of the description and drawings as instructed by Section 125 (1) and take account of the Protocol to article 69 of the EPC.

15. Looking first at claim 1, the phrase “A colour-coded evacuation signalling system wherein” seems clear. The meaning of “colour-coded” is clear from the definition in the latter part of the claim where green and red are identified as code colours for safety and danger respectively, while the meaning of “evacuation signalling system” is evidently a visible signalling system in which visible signals are used to convey messages to evacuees. The “wherein” confirms that what follows is a definition of the evacuation signalling system to which the claim is drawn.

16. The phrase: “a network of illuminated, direction-indicating symbols and text messages, displayed in any required language or combination of required languages” could be clearer. “illuminated” appears to mean “emitting light” rather than receiving illuminating light. “direction-indicating symbols and text messages” presents some difficulty because it could mean “direction-indicating symbols and direction-indicating text messages” or “direction-indicating symbols, and any category of text messages”, but on reference to the embodiments there are no direction-indicating text messages and so the latter interpretation is taken. A further difficulty is whether both symbols and text messages are required; in other words, would a system which used only symbols, but no text messages, or text messages but no symbols, fall in the scope of the claim if it had all the other relevant features. My view is that both symbols and text messages are required. The sentence in the Summary of the Invention section at page 5 lines 1-4, for example, appears to confirm this: “At strategic stages the arrows are interspersed with static green

coloured text messages or 'comfort guides', for example, relating to distances towards assessed safe exits". I recognise that figures 1 and 2 illustrate arrangements where no text messages are shown, but the purpose of these figures appears to be for showing how the system adaptively changes the direction of the direction-indicating arrows. The lack of text messages appears to be attributable to the scale of the drawings.

17. The passage: "is configured by light emitting diodes (LED's) contained in transparent-covered assembly units" appears to mean that the "illuminated" symbols and text messages are produced by LEDs visible through a transparent cover, as described in relation to figure 6. I take "transparent" to mean that the cover does not diffuse or scatter the LED light. This property is required so that the symbols and text remain legible.

18. The words: "connected in series to form a continuous strip or array laid flush in the centre of uncovered or covered floors, corridors, walkways within land-based buildings and maritime structures" appear to be relatively clear though there is a presumed missing "or" before "walkways". It is not wholly clear if "uncovered or covered" applies to the corridors and/or walkways but this appears to be a reasonable construction. It is clear that the assembly units (see figure 6) must be laid flush, for example by providing a recess in the floor or other walking surface to accommodate them. It is clear that the claim requires the assemblies to lie in the centre of the corridor, but some small offset from the centre could be allowable when assessing scope because such an offset would clearly make no difference to the operation of the system and the description does not elaborate the need for location in the precise centre. (I take this to be the appropriate purposive construction of this feature)

19. The passage "to guide walking or crawling evacuees who may find themselves in low-light conditions or in a smoke fog during a fire or general emergency" throws up an interesting point. Presumably the system is applicable also to the guidance of evacuees who are running or are in wheelchairs. I note that this phrase "walking or crawling" is used several times in the description, but the term "evacuee" without a qualifier is also used. I feel that the scope of the system should properly be assessed in terms of its own features rather than aspects of other entities, such as evacuees, interacting with it. Hence "walking or crawling" should be given a very broad construction in my view.

20. The phrase: "initially away from predetermined and assessed developing danger zones, represented by the colour red" in expanded form is: "initially away from predetermined danger zones, represented by the colour red, and assessed developing danger zones, also represented by the colour red", where a "predetermined danger zone" is a danger zone that is known to be a danger zone before the emergency, and an "assessed developing

danger zone” is a danger zone that the system determines, using intelligence, to be a zone that was previously safe but is now dangerous. On referring to figures 1 and 2 it can be seen that red crosses may be used to denote a danger zone and these of course do not of themselves indicate direction, but these figures are of a scale which does not allow all symbols or text messages to be shown clearly. The examples mentioned in the summary of the invention at the foot of page 5 make clear that inverted triangle symbols (which point away from danger) and/or text messages are used to emphasise danger. Hence my construction of this part of the claim is that red direction-indicating symbols and/or red text messages are required to guide evacuees away from immediate danger, as a first priority. Figures 5,7 and 9 disclose details of red direction-indicating symbols and/or red text messages.

21. The words: “and then via assessed safe routes, represented by the colour green” are clear. Intelligence is used to determine a safe route, which is coded green. The final phrase “leading to the nearest and safest assessed designated exits” raises the point as to whether the nearest safe exit will be the safest exit of all the safe exits. The passage at page 2 lines 11-18 suggests that the emphasis of the invention is dispersal via nearest exits - if all evacuees use the nearest safe exit then less crowding should ensue. Hence the nearest exit is indeed deemed to be the safest exit. The words “and safest” add nothing.

ASSESSMENT OF WHETHER SafetyNET FALLS IN THE SCOPE OF CLAIM 1.

22. The observer submits in the observations at 1.1 that the described SafetyNET system is not:

“a colour-coded evacuation signalling system”,

nor does it include:

“LEDs contained in transparent covered assembly units, connected in series to form a continuous strip or array laid flush in the centre of uncovered or covered floors ... within land based buildings and maritime structures”,

and consequently that SafetyNET cannot infringe claim 1 because it does not include all of the features recited in claim 1.

23. The requester, in his observations in reply at item 2, states that:

“The point is laboured that safetyNET does not embody LED technology or illuminated displays to guide evacuees away from danger

and towards safety via safe assessed routes leading to safe assessed designated exits”,

but then appears to abandon this point without rebutting it. Also, at Item 3 of his observations in reply, purporting to rebut the observer’s comments, he quotes various passages of the description, but these relate to features which do not appear in claim 1.

24. Like the observer, I can find no mention of LED guidance strips or arrays in the description of SafetyNET, nor can I can find any mention of colour-coding. Since some at least of the essential features of the invention are not present in the SafetyNET system as described in the overview or the *Measurement and Control* article both available at www.firesafetynet.org.uk I do not consider that SafetyNET falls in the scope of claim 1 of GB2370675 B.

CLAIM 6 CONSTRUCTION

25. Claim 6 of GB2370675 B is as follows. I have separated out the four “location” clauses and underlined the verbs relating to the power supply processor below for ease of reference (they are not separated out or underlined respectively in the specification).

“A colour-coded evacuation signalling system wherein a power supply processor being also a programmable, interactive micro processing unit, contains pre-programmed schematic and alpha-numeric data relating to

the location of designated exits within land-based buildings and maritime structures;

the location of predetermined hazards or areas deemed to be danger zones;

the location of a structure’s network of detectors, multi-functional or otherwise, for detecting smoke, heat, CO², CO, combustible gas, toxic gas, or related hazardous elements;

the location of the signalling system’s LED display units

for the purpose of correlating the whereabouts of fire and smoke; time-identifying an outbreak and progress of fire and smoke; tracking the progress of fire and smoke; recording temperatures and air quality influenced by fire and smoke; for the purpose of assessing and re-assessing what areas of a structure are subsequently to be deemed as danger zones or safety zones, and for the purpose of instructing the

system's LED display units to illuminate and define, or re-define, assessed danger routes/exits, and assessed safety routes/exits, for the routing and re-routing of evacuees during a fire or gas-leak emergency"

26. The meaning of "A colour-coded evacuation signalling system wherein" is clear as discussed above in relation to claim 1. "a power supply processor being also a programmable, interactive micro processing unit" appears to mean a processor operable to control the supply of power to the LEDs as described at page 9 lines 4-8, which processor comprises a microprocessor unit (or microcontroller unit) which is programmable and interactive. The term "programmable" appears to relate to the loading of data (such as the locations) rather than programs. The term "interactive" is not used in the description, but its natural meaning suggests that the processor unit must both act upon something and be acted on by that thing, that is, a two way or bilateral relationship. In the computer arts the term "interactive" tends to mean a bilateral relationship between a human user and the computer.

27. The passage: "contains pre-programmed schematic and alpha-numeric data relating to the location of" is not wholly clear because although the term "pre-programmed" clearly relates to storage of data before the system is put to use, the term "schematic and alpha-numeric data" is not the same as the term "alpha-numeric schematic" in the relevant part of the description at page 10. However, it appears that the various locations are stored diagrammatically and that the various text messages to be displayed in the context of these locations are stored as alphanumeric data.

28. In the phrase: "the location of designated exits within land-based buildings and maritime structures" it is plain that "and" should be "or" and would be understood as such.

29. The words: "the location of predetermined hazards or areas deemed to be danger zones" is clear. Certain things are deemed to be hazards before any incident occurs.

30. The passage: "the location of a structure's network of detectors, multi-functional or otherwise, for detecting smoke, heat, CO², CO, combustible gas, toxic gas, or related hazardous elements" is slightly flawed in that the "structure" on the face of it reflects only onto the maritime structure and not the land buildings, but purposive construction allows sense to be made of the phrase and "structure" will be understood to mean "building" as well as "maritime structure". The phrase: "multi-functional or otherwise" is taken to mean that some detectors or detector nodes could provide sensing of several "hazardous elements". Referring to page 9 lines 15-17, it will be seen that there is no support here for sensors for "combustible gas" or "toxic gas". In fact I can find no support anywhere in the original disclosure for the use of such sensors, and their introduction during amendment does not appear to

have been allowable. For purposes of this opinion I will treat claim 6 as if these classes of sensor were not specified. In any event the term: “related hazardous elements” would probably cover such sensors from the point of view of the infringement assessment.

31. The phrase: “the location of the signalling system’s LED display units for the purpose of correlating the whereabouts of fire and smoke” is clear. The processor needs to know where the display units are in relation to the fire and the smoke detected by the sensors in order to provide guidance.

32. The words: “time-identifying an outbreak and progress of fire and smoke” is clear, though it should notionally be preceded by a phrase such as “the processor” as the previous clauses recite a list of location data classes, which list ends before the present phrase. The processor keeps a record of when the fire starts and the history of its spread. Both fire and smoke are logged, not fire alone or smoke alone.

33. The feature: “tracking the spread of fire and smoke” is clear. Both fire and smoke are tracked.

34. Similarly, “recording temperatures and air quality influenced by fire and smoke; for the purpose of assessing and re-assessing what areas of a structure are subsequently to be deemed as danger zones or safety zones” is clear. The temperature and air quality are both recorded, the processor decides what zones are safe or not safe in dependence on this data, and the processor makes this assessment more than once.

35. Finally in claim 6, the words: “and for the purpose of instructing the system’s LED display units to illuminate and define, or re-define, assessed danger routes/exits, and assessed safety routes/exits, for the routing and re-routing of evacuees during a fire or gas-leak emergency” are clear, but “gas-leak” should be ignored as there is no support for it in the original disclosure. This claim consequently relates to fire and smoke only. The phrase “illuminate and define” appears to mean “to emit light and thus define”.

ASSESSMENT OF WHETHER SafetyNET FALLS IN THE SCOPE OF CLAIM 6.

36. The observer submits that SafetyNET does not include “a colour coded evacuation signalling system nor a processor containing data relating to the location of the LED display units. I agree. I can find no mention of a colour-coded evacuation signalling system or a processor containing data relating to LED display locations.

37. The requester at Item 4 of his observations in reply submits that

the observer has discussed only part of claim 6. This is true but of course the requester only needs to show that any one of the features required by the claim is absent from the alleged infringing product to demonstrate that the product as a whole does not infringe, and I note that in the requester's reply no argument is submitted on the parts of claim 6 which the observer discusses.

38. The requester at Item 5 points to the last sentence of the Field of the Invention section: "Provision is also made for in-going firefighters to access a schematic picture pertaining to the location, extent and nature of a fire, prior to entering a structure". However, this feature does not appear in claim 6 and so is not relevant for assessment of infringement thereof.

39. The requester at Item 6 in his observations in reply disputes the observation that "there is no suggestion in GB2370675 that the LED display units should be used for any purpose other than for guiding evacuees to exits". The requester points to various parts of the description and claims which demonstrate that evacuees are not merely guided to exits *but also away from danger*. This is a valid point; I agree that the LED system is claimed to operate in the way suggested by the requester, to define and redefine assessed danger routes and exits, and assessed safety routes and exits. That is a narrower construction and therefore a narrower monopoly than that being argued by the observer, but I nevertheless agree it is the correct one.

40. None of the requester's arguments demonstrate that the SafetyNET system includes a colour coded evacuation signalling system or a processor containing data relating to the location of the LED display units. Since these features at least would be required in a product in order for it to infringe, I consequently conclude that the SafetyNET system does not fall in the scope of claim 6 of GB2370675 B.

DEPENDENT CLAIMS

41. Claims 2 to 5 depend from claim 1. Claims 7 and 8 depend from claim 6. Claim 9 depends from claim 1 and also, independently, from claim 6. Claim 10 depends from claim 6. The dependent claims are reasonably clear and appear to depend properly from claims 1 or 6. The scopes of these claims are thus narrower than the scopes of claims 1 or 6 and since SafetyNET does not fall in the scope of claims 1 or 6, it cannot fall in the scope of the dependent claims.

COMMENTS ON THE OBSERVATIONS IN REPLY

42. At Item 7, the requester turns to the observations that claims 6 and 7 to 10 cannot infringe because they do not include “all the features recited in claim 6”. The requester submits that it “cannot be morally right for someone to use fundamental elements of a patentee’s intellectual property with impunity, based on the claim that they are not using the whole of the intellectual property”. However, the scope of patent protection is defined by the claims and if something does not fall in the scope of the claim then there is not infringement. The wording of the whole claim is critical. It is necessary to refer to the description to determine what a term of the claim means; this is discussed in Section 125. It is sometimes permissible to read sense into a claim if it has been drafted with a certain lack of care so that it accidentally excludes something that was intended to be covered. It is not, however, permissible to ignore clearly defined elements recited in the claim.

SECTION 60 (5)

43. As I have concluded that SafetyNET falls in the scope of no claim of the patent, there is no need to assess whether the exclusions of Section 60 (5) are relevant.

Opinion

44. I conclude that the “SafetyNet” system as described in the overview and journal article both available at www.firesafetynet.org.uk does not fall in the scope of the claims of GB2370675 B and therefore that the development of this system and its commercial application would not infringe GB2370675 B.

Application for review

45. Under section 74B and rule 77H, the proprietor may, within three months of the date of issue of this opinion, apply to the comptroller for a review of the opinion.

NOTE

This opinion is not based on the outcome of fully litigated proceedings. Rather, it is based on whatever material the persons requesting the opinion and filing observations have chosen to put before the Office.

K. Sylvan, Examiner