



PATENTS ACT 1977

APPLICANT

KHALIL ARAFAT

ISSUE

Whether patent application number
GB0903896.9 complies with Section
1(1)(b)

HEARING OFFICER

Peter Slater

DECISION

Introduction

- 1 Patent application GB0903896.9 entitled "User interface for an electronic device having a touch-sensitive surface" was filed in the name of Khalil Arafat on 6 March 2009. The application was then published as GB2459345 on 28 October 2009.
- 2 The examiner has maintained throughout the examination process that the invention as claimed does not involve an inventive step. Despite numerous rounds of correspondence, the applicant has not been able to overcome this objection.
- 3 The matter therefore came before me at a hearing on 10 March 2010 where the applicant Mr Khalil Arafat attended in person accompanied by his patent attorney Mrs Alison Wheatley of Haseltine Lake. The examiner Mr Richard Corken was also present.

The Invention

- 4 The invention relates to a touch sensitive user interface for an electronic device, for example, a mobile telephone, Personal Digital Assistant (PDA), MP3 player or similar hand-held device. The application as a whole describes various embodiments whereby gestures or combinations of gestures (e.g. movements of

the finger across the surface of a touch-sensitive display associated with the device) can be used to invoke specific functions, such as, launching an application, dialing telephone numbers or controlling audio playback in an MP3 player.

- 5 The invention more specifically relates to an arrangement in which a first gesture, for example, a movement of the finger from left-to-right across the screen is used to move to the next page in a sequence of pages whilst a second gesture, retracing the path of the first gesture, for example, a reverse stroke of the finger from right-to-left across the display causes the display to move back to the previous page in the sequence. If the user then, combines or links these gestures to create a third gesture e.g. by stroking the finger first from left-to-right and then right-to-left without removing his finger from the surface of the screen, an additional function is invoked.
- 6 At the hearing, Mr Arafat provided a simple demonstration of an application on his mobile phone to illustrate how his invention was intended to operate. The demonstration showed how you could easily pan an image back and forth on the display by stroking your finger across the screen in an upward and/or downward motion respectively and how by linking these two motions without removing your finger from the screen, the display could be turned off and the speaking clock activated.
- 7 The most recent set of claims were filed on 8 March 2010. There are three independent claims (1, 10 & 13) which read as follows:

1. A user interface, for use with an electronic device having a touch-sensitive surface, configured for:

performing a first action in response to a user performing a first gesture comprising a first movement across the touch-sensitive surface, the first movement comprising tracing out a first path on the touch-sensitive surface;

performing a second action in response to a user performing a second gesture comprising a second movement across the touch-sensitive surface, the second movement comprising tracing out a second path on the touch-sensitive surface, the second path being substantially a reverse of the first path; and

performing a third action in response to a user performing a third gesture comprising the first movement linked to the second movement across the touch-sensitive surface, the second movement being performed subsequent to the first movement;

wherein the third action does not comprise the first action and the second action, and wherein user contact with the touch-sensitive surface is maintained between the first movement and the second movement.

10. A method for a user to interface with an electronic device having a touch-sensitive surface, comprising:

performing a first action in response to a user performing a first gesture comprising a first movement across the touch-sensitive surface, the first movement comprising tracing out a first path on the touch-sensitive surface;

performing a second action in response to a user performing a second gesture comprising a second movement across the touch-sensitive surface, the second movement comprising tracing out a second path on the touch-sensitive surface, the second path being substantially a reverse of the first path; and

performing a third action in response to a user performing a third gesture comprising the first movement linked to the second movement across the touch-sensitive surface, the second movement being performed subsequent to the first movement;

wherein the third action does not correspond to the first action and the second action, and wherein user contact with the touch-sensitive surface is maintained between the first movement and the second movement.

13. An electronic device, comprising:

a touch-sensitive surface; and

a processor configured for:

performing a first action in response to a user performing a first gesture comprising a first movement across the touch-sensitive surface, the first movement comprising tracing out a first path on the touch-sensitive surface;

performing a second action in response to a user performing a second gesture comprising a second movement across the touch-sensitive surface, the second movement comprising tracing out a second path on the touch-sensitive surface, the second path being substantially a reverse of the first path; and

performing a third action in response to a user performing a third gesture comprising the first movement linked to the second movement across the touch-sensitive surface, the second movement being performed subsequent to the first movement;

wherein the third action does not correspond to the first action and the second action, and wherein user contact with the touch-sensitive surface is maintained between the first movement and the second movement.

The Law

- 8 The examiner has raised an objection under section 1(1)(b) of the Patents Act 1977 that the invention does not involve an inventive step; The relevant parts of Section 1 read as follows:

1(1) A patent may be granted only for an invention in respect of which the following conditions are satisfied:

- (a);*
- (b) It involves an inventive step;*
- (c);*
- (d)*

- 9 Section 3 of the Act reads:

3 An invention shall be taken to involve an inventive step if it is not obvious to a person skilled in the art, having regard to any matter which forms part of the state of the art by virtue only of Section 2(2) above and disregarding Section 2(3) above).

- 10 I do not propose to quote sections 2(2) and 2(3) here, but it follows from these that the state of the art comprises all matter which has at any time before the priority date of the application been made available to the public, whether in the UK or elsewhere.

- 11 This is assessed on the basis of the well-known *Windsurfing*¹ approach, as reformulated by Jacob LJ in *Pozzoli*² (see paragraph 23 of the Court of Appeal's judgment). The four steps of the test are now:

(1)(a) Identify the notional "person skilled in the art"

(1)(b) Identify the relevant common general knowledge of that person;

(2) Identify the inventive concept of the claim in question or if that cannot readily be done, construe it;

(3) Identify what, if any, differences exist between the matter cited as forming part of the "state of the art" and the inventive concept of the claim or the claim as construed;

(4) Viewed without any knowledge of the alleged invention as claimed, do those differences constitute steps which would have been obvious to the person skilled in the art or do they require any degree of invention?

¹ *Windsurfing International Inc v Tabur Marine (Great Britain) Ltd*

² *Pozzoli SpA v BDMO SA* [2007] EWCA Civ 588

Applying the Windsurfing/Pozzoli test

Step 1: Identification of the notional “person skilled in the art” and the relevant common general knowledge of that person

- 12 This presents no real problems as both the applicant and the examiner agree that the person skilled in the art would be someone having knowledge of touch sensitive user interfaces, and that he would be familiar with devices such as Palm’s Graffiti® system or Apple’s iPod/iPhone® touch sensitive user interfaces for inputting commands into hand-held electronic devices using a stylus or finger to tap or stroke across the screen.

Step 2: Identify the inventive concept of the claim in question or if that cannot readily be done, construe it;

- 13 The inventive concept would appear to lie in increasing the functionality of the user-interface using only a limited number of gestures, more specifically in linking two gestures or movements, for example, of the user’s finger across the screen to create a third gesture which can be used to perform a third action or function within the device. The second of the two gestures being the reverse of the first, and whereby user contact with the touch-sensitive surface is maintained throughout the motion.

Step 3: Identify what, if any, differences exist between the matter cited as forming part of the “state of the art” and the inventive concept of the claim or the claim as construed;

- 14 The examiner has cited the following two documents US6094197 (BUXTON) and WO01/02949 A1 (LI) as forming part of the state of the art.
- 15 The first of these *BUXTON* discloses a graphical user interface using a pen or stylus on a virtual keyboard to input commands using a variety of linked movements to perform different tasks. Placing the pen momentarily on a virtual key causes the corresponding character to be output e.g. tapping the “a” key outputs an “a” on the screen (see figure 7). Dragging the pen upward in a vertical motion from the initial character invokes a “shift” operation outputting a capital “A” (see figure 8), a horizontal stroke to the right invokes a “ctrl” operation producing a “^a” (see figure 9) and a horizontal stroke to the right followed immediately by an upward stroke invokes a “ctrl+shift” to produce a “^A” (see figure 10). Particularly important to note is that the pen is said to “remain in contact with the surface of the screen on which the keyboard image is displayed substantially throughout the rightward-and-then-upward motion” (see column 6, lines 61-66).
- 16 The examiner argues that *BUXTON* discloses an arrangement in which a first stroke results in a first action, and a second stroke results in a second action and a third stroke, which is a combination of the first and second strokes, results in a third action which is neither the first action or the second action. More specifically, *BUXTON* shows a first stroke resulting in a “shift-a”, a second stroke resulting in “ctrl-a” and a third stroke which results in a third but different action “ctrl-shift-a”. He considers the only difference between this disclosure and the invention as

claimed is that there is no disclosure of the second gesture being in substantially the reverse direction of the first.

- 17 The applicant on the other hand, appears to be arguing that the purpose of the strokes in *BUXTON* is to invoke the individual “shift” and “ctrl” commands themselves e.g. a rightward stroke generates a “ctrl” function and an upward stroke a “shift” function. Thus replicating the physical action of pressing a “shift” or “ctrl” key on a conventional keyboard. A rightward stroke followed by an upward stroke invoking the “ctrl” and “shift” functions simultaneously to produce an action which essentially replicates the simultaneous pressing of the corresponding keys on a keyboard. He argues that this does not amount to a third action in the sense of the invention as claimed, it is merely a combination of the modifiers “ctrl” and “shift”, or to put it another way, merely a combination of the first and second actions. Therefore it is considered that the difference between the invention as claimed and the disclosure in *BUXTON* is not merely that the second path is substantially a reverse of the first path but also that the third action is different to the first and second actions and not merely a combination of the two.
- 18 I am not entirely convinced by the applicant’s argument in this respect, as far as I can see, *BUXTON* discloses an arrangement in which an upward movement (a first gesture), a horizontal movement (a second gesture) and a combination of the two (a third gesture) can be used to create three entirely different outcomes or actions e.g. outputting a letter “A”, “^a” or “^A” on the display respectively. Hence, I would have to agree with the examiner, in saying that the only difference between the invention as claimed, and *BUXTON* is that the second path, traced out during the second gesture is substantially a reverse of the first path traced out in the first gesture.
- 19 The second of the citations, *LI* discloses a touch-sensitive display in which the motion of a user’s finger across the display can be used to control the functions of an MP3 player. For example, movement of the finger across the display from left-to-right causes the player to advance to the next song whilst movement of the finger from right-to-left causes the player to return to the previous song (see page 11, lines 19 to 27). *LI* goes on to describe how additional commands or functions can be performed by combining motions or gestures e.g. a repeated back and forth motion in a generally left-to-right and right-to-left direction may be used to remove the current song from memory (see page 13, line 29 to page 14, line 3). However, there appears to be nothing in *LI* to suggest that during the repeated back and forth motion, the user’s finger remains in contact with the screen. This would therefore appear to be the most significant difference between this citation and the invention as claimed. However, the examiner also considers the fact that *LI* discloses a repeated back and forth motion to be different to the invention as claimed which arguably requires only a single back and forth motion. However, I am not convinced that this is true, and the applicant has not argued this point to any extent.

Step 4: Viewed without any knowledge of the alleged invention as claimed, do those differences constitute steps which would have been obvious to the person skilled in the art or do they require any degree of invention?

- 20 Having identified the differences that exist between the cited prior-art and the invention as claimed, it is now for me to decide whether said differences would have been obvious to the person skilled in the art at the time of the invention or whether a certain degree of invention was required on his part. In doing so, I must avoid looking at the cited prior-art under the influence of the present application, and should attempt to place myself in the shoes of the skilled person faced with the problem at hand. Putting it another way, I must beware of using hindsight or *ex-post facto* analysis to arrive at the invention.
- 21 Turning first to the disclosure in *BUXTON*. Having found that the only difference between the invention as claimed and that disclosed in *BUXTON* is that the second path, traced out during the second gesture is substantially a reverse of the first path traced out in the first gesture, I must decide whether this would have been obvious to the person skilled in the art.
- 22 The applicant argues that the objective of the invention is to increase the functionality of the interface using a limited number of gestures. This is achieved by linking existing movements to form a complete gesture and that paths are traced whilst the user maintains contact with the screen such that the linked movements cause a third action to be carried out which is not a combination of actions caused by a mere combination of the movements and that the second movement traces a path that is the reverse the first movement. He argues that there is nothing in *BUXTON* which would suggest such a solution, and that *BUXTON* merely discloses combining movements in order to combine modifiers, it does not disclose generating a third action from a gesture which constitutes linked movements. *BUXTON* merely discloses a combination of movements, a rightward movement and an upward movement to carry out a combination of actions, the movements not being linked to define a third gesture for a third action as required by the claims.
- 23 Furthermore, the applicant argues that *BUXTON* actually teaches away from the idea of the second path being substantially a reverse of the first path. Referring to the disclosure contained in column 21 beginning at line 18, where *BUXTON* states that “if no significant angular changes are detected, the mark is considered to be a straight line”. Therefore, in a gesture which comprises a movement which traces out a path which is the reverse of the first i.e. where the angular change is 0°, it would be considered a straight line and the second gesture would not be registered. In fact, the applicant argues that *BUXTON* would seem to exclude this as an option, and that there is a reason why a person skilled in the art would not wish to choose the option of a reverse path when confronted with this disclosure. He concludes that the person skilled in the art would have to make a decision to try an option that is expressly excluded and which is counter intuitive, and hence would require a degree of invention on their part.
- 24 The examiner on the other hand argues, that given the common general knowledge and the disclosure in *BUXTON*, “*it would seem that merely making the second action a reverse of the first action would be obvious to a skilled worker to try, and that whilst there is nothing to suggest that you would want to do this, there is no reason why a worker skilled in the art would not wish to choose it; it is*

merely an implementation of an already known combination of gestures.” Hence, the examiner does not consider the invention as claimed to involve an inventive step over the disclosure in *BUXTON* when combined with the common general knowledge.

- 25 Whilst I have some sympathy with the applicants arguments, and would have to agree that the disclosure in *BUXTON* would seem to exclude a combination of movements where the first and second paths follow a straight line i.e. where there is little or no change in angle between movements of the pen in an upward or horizontal direction, I am not convinced that this would have deterred the person skilled in the art from trying to create a third controlling gesture which was a combination of two others following a forward and reverse path. Indeed, the disclosure in *BUXTON* at column 7, lines 14 to 20 would seem to suggest that other actions or combinations of modifiers can be invoked by making compound marks or gestures in other directions. For example, “*a leftward-rightward or rightward-leftward compound stroke combines the “ctrl” and “alt” modifiers.* This would seem to imply that combinations of gestures involving forward and reverse movements were envisaged by *BUXTON*. I therefore, do not think it unreasonable to assume that the person skilled in the art when confronted with the disclosure in *BUXTON* would have considered using a combination of linked gestures in a forward and reverse motion to create a third gesture capable of invoking a third action and that this would not have required any invention on their part. Hence, I do not consider the invention as claimed to involve an inventive step over *BUXTON* when combined with the common general knowledge at that time.
- 26 Turning now to the disclosure in *LI*. Having found that the difference between the invention as claimed and that disclosed in *LI* is that there is no disclosure in *LI* to suggest that during the repeated back-and-forth motion, the user’s finger remains in contact with the screen, I must again decide whether this would have been obvious to the person skilled in the art at the time of the invention.
- 27 The applicant argues that, in considering the teachings of *LI*, there appears to be nothing that would have guided the skilled person to have adapted the gestures of *LI* to a repeated back and forth motion in a generally left-to-right and right-to-left direction in which the user’s finger remains in contact with the touchpad, and that there is nothing to guide the skilled person to consider linking movements to create additional actions as required by the claims. In fact, the specific example disclosed in *LI*, in which songs are removed from an MP3 player following a repeated left-to-right and right-to-left movement of the finger would again seem counter intuitive and would potentially lead to erroneous deletion of songs if the finger were allowed to remain in contact with the screen or continuous cycling back and forth between songs.
- 28 Here again, I am not convinced by the applicant’s argument, *LI* clearly discloses an arrangement whereby a movement of the finger across the display from left-to-right causes the MP3 player to advance to the next song whilst movement of the finger from right-to-left causes the player to return to the previous song, and a repeated back and forth motion in a generally left-to-right and right-to-left direction may be used to remove the current song from memory. The fact that the

invention requires the additional step of the user's finger remaining in contact with the screen during the repeated the back and forth motion would appear to involve no inventive step and would have been obvious to the person skilled in the art given the disclosure in *L1* at the time of the invention. Indeed, it would seem highly likely that any repeated back-and-forth motion of the finger would have required it to remain in contact with the screen, and it would be less likely for the user to lift their finger at the ends of the motion. Hence, I do not consider the invention as claimed to involve an inventive step over *L1* when combined with the common general knowledge at that time.

Conclusion

- 29 I conclude that the invention as defined in independent claims 1, 10 and 13 is lacking in an inventive step. However, I am not entirely convinced that there is nothing of inventive merit in the application as a whole or the dependent claims. I have therefore decided to give the applicant two months from the date of this decision in which to file further amendments to the claims as they currently stand. If he does so, the application will be remitted to the examiner for further processing. If no amendments are filed, the application will be refused under section 18(3).

Appeal

- 30 Under the Practice Direction to Part 52 of the Civil Procedure Rules, any Appeal must be lodged within 28 days of the receipt of this decision.

P Slater

Deputy Director acting for the Comptroller