



Intellectual
Property



Haptics at the EPO

Analysis of decisions by the Boards
of Appeal of the European Patent
Office regarding Haptic Technology



INTRODUCTION

Traditional interfaces in user electronics devices included buttons, dials and touchscreens. We are in a technological revolution in which these traditional user interfaces are being enhanced by the addition of the sense of touch. Haptic feedback is increasingly becoming an expected feature in consumer electronics to allow these devices to seamlessly communicate with us, without creating any noise or requiring our attention to be focused on a visual display.

The use of haptic technology is all around us: in mobile devices, wearable technology, automotive applications, and gaming. As the technology has evolved, increased innovation in this field has led to an increase in the number of patent applications. Some of the top applicants in this field include traditional electronics giants like Samsung, Sony and LG. Tech companies as well, like Google and Microsoft, are also filing patent applications as they develop their consumer products integrating haptic technology. In applied fields, companies like Kyocera are filing patent applications that focus on document handling devices and automotive companies like VW and BMW are also filing applications that focus on implementing haptic feedback in their vehicles' electronics. Finally, a number of patent applications are being filed by companies that concentrate on R&D in haptic technology, like Immersion Corporation, based in California.

In this report, we analyse decisions by the Boards of Appeal of the European Patent Office that are specifically focused in this technical area. This was achieved through a key word search of the Boards of Appeal database for decisions on patent applications that included the word 'haptic', within the last year. We summarise each of these decisions below in order to pick out general trends and lessons that can be applied by potential appellants seeking to obtain European patent protection in this space.

T 1695/15

This appeal related to a patent application filed by Kyocera.

This case demonstrates some important lessons to follow during EPO appeal procedures. The application was refused at first instance for a lack of inventive step, and the appellant appealed so that this decision could be reviewed.

In this case, the appellant got themselves in an intractable procedural tangle. They appealed the original decision using the claims that were refused at first instance. However, they then withdrew those claims in favour of a new claim set, which included features not present in the claims on which the decision was based. The new claims filed in the appeal had actually been deleted by the applicant during the examination procedure. The Board of Appeal took a dim view of this behaviour and refused to allow the newly filed claims into the procedure, arguing that they would contravene their rules of procedure. The relevant rules emphasise that the primary purpose of the appeal is to review the first instance decision, rather than consider new issues.

In a final blow, the appellant attempted to re-introduce the original claims that were filed with the appeal. However, the Board also refused to re-admit these into the procedure, since they had been previously withdrawn.

This case highlights some important procedural points when it comes to appeals. First, the appeal procedure starts before the appeal is even filed. It is critical that any claims that are of interest have been considered at first instance. Otherwise, there is always a risk that they will not be admitted to the procedure. Second, it is important not to withdraw claims from the appeal procedure because, once withdrawn, it may not be possible to re-introduce them later.





T 0166/17

This case related to a patent application filed by Immersion Corp.

The application was refused at first instance for a lack of inventive step. The applicant appealed and found their appeal dismissed because the claims had been amended to include a feature that was not present in the application as filed, following the strict guidance from the Boards of Appeal on “added subject matter” (Art. 123(2) EPC).

The invention in this case related to a haptic monitoring system for team sports. Specifically, the disclosed technique can mutually inform two athletes about their physical performance and can generate haptic feedback to the users based on a combination of vital physical information (e.g. heart rate) and location of both users.

It is envisaged that this technique could be used in the scenario of a team time trial in professional cycling. The patent specification specifically described a technique for instructing a cyclist to take the position of another cyclist for improving the team performance using haptic feedback. Thus, the lead cyclist in a team time trial could receive a haptic instruction to peel off the front, based on the vital physical information of the other cyclists in the group, in order to enhance the overall team performance.

The claims of this application had been amended using basis that referred to the specific example that related to cycling. However, the claims were not limited to cycling, and could have covered any sport. Also, the specific example related to cycling only mentioned monitoring the vital physical information of the cyclists, and not their location, contrary to what was claimed.

The Board of Appeal refused the application for added subject matter, given that the claims related to an “intermediate generalisation” of what had been disclosed in the application as filed.

Following convention, at the EPO added subject matter is always considered before inventive step. This means that inventive step is never even discussed if there is an unresolvable problem with added matter. It is a shame in cases like these that the key issue of inventive step was never even considered.

In cases like this, which involve an intermediate generalisation, it is usually possible to resolve added matter issues in auxiliary requests by filing claims that are of progressively narrower scope, and which focus more and more specifically on the embodiments described in the description. In this case, it seems that it would have been possible to draft a claim based on the team time trial example for professional cyclists, which may have had commercial potential, even though it was only limited to a single sport.

T 2568/17

This case related to another patent application filed by Immersion Corp.

In this application a technique was described for synchronizing haptic effects with audio information and/or video information. The claims defined a technique that used a master time code signal to synchronize the haptic information and the audio or video information. This technology could be used in media streaming when combined with wearable technology such as smart watches.

In the prior art that was considered by the Board, a method was disclosed for providing haptic effects, such as vibrations, to a user when audio/video information is played back. To achieve that, haptic information was transmitted within an audio/video stream to indicate to the receiver which haptic effect is to be provided with which audio/video data. The prior art did not specifically disclose that a master time code signal was provided to synchronise the haptic information and the audio or video information. However, it was known from another document to assign a time stamp to each frame in a stream of audio and video frames to achieve synchronisation. The Board of Appeal decided that it would be obvious to use these time stamps from the prior art in order to synchronise the haptic effects.

This case was all about inventive step, and whether it would be considered obvious to combine the disclosure from two documents. In this case, the Board decided against the appellant. However, it is always difficult to predict the outcome of a finely balanced case when it comes to inventive step. Therefore, the appellant took a good decision in taking this case to a final decision because there was always a chance that the case could have been decided in their favour, thereby providing valuable patent protection for use in the field of media streaming.

T 1773/15

This case related to a patent application filed by Kyocera.

The invention in this case related to tactile feedback for an input unit. Specifically, the invention described an input apparatus capable of providing the realistic click sensation, similar to that obtained when the push-button switch is operated.

The realistic click sensation is provided by a drive signal when the pressure load detected by a load detection unit satisfies a predetermined standard, the drive signal has a frequency between 140 Hz and 250 Hz, and the drive signal being used for a period determined in a range from $1/4$ period to $5/4$ period of the drive signal.

The application was refused at first instance for added subject matter. Claim 1 referred to “plural sensors” in the load detection unit when the specification only described “plural strain gauge sensors”. In some auxiliary requests, the applicant corrected one reference of “plural sensors” to “plural strain gauge sensors” but left the other unchanged. The Board concluded that the claim covered an embodiment in which the load detection unit comprises plural strain gauge sensors and other sensors, but the application documents did not provide a basis for such an embodiment. In addition, the Board also found no basis for claiming the frequency (between 140 Hz and 250 Hz) and period ($5/4$ period or less) interval in combination. Consequently, the Board concluded that claim 1 as amended extends beyond the content of the application documents as originally filed.

Art. 123(2) EPC

Art. 123(2) EPC requires that a European patent application may not be amended in such a way that it contains subject-matter which extends beyond the content of the application as filed. This is applied very strictly by the EPO, and any amendment must be directly and unambiguously derivable from the application as filed. This means that an application is vulnerable to refusal if a claim has been amended to use language that does not have directly worded basis in the application as filed.

T 2741/16

The invention related to a device comprising a touch screen that provides tactile feedback upon sensing a touch by a user's finger. Specifically, the invention described a device having a touchscreen that facilitates a user's manipulation of text by incorporating haptic feedback effects in response to a user's gestures and/or based on the content of the text. Therefore, a user can more easily and efficiently manipulate and interact with text, regardless of the size of the text, the size of the touchscreen, or whether the user can see the text under the user's pointing finger or other object.

The application was refused at first instance for non-compliance for added subject matter, and because the claims were unclear. In the appeal, while claim 1 was considered novel, it was found lacking inventive step in view of the prior art. The claimed concept of "dynamically generated text" was considered analogous to the text in a preview window shown in a figure in the prior art. The appellant argued that the prior art did not disclose evaluation of a relative position (or distance) of the finger with respect to dynamically generated content, but only of absolute position on the screen. The Board concluded that the claim language did not require the different

haptic events to depend on position relative to characters or words in the text.

Hence, evaluation of an absolute position in the prior art is not excluded by the wording of the claim.

The appellant also filed two auxiliary requests, which is normally good practice in appeals. However, claim 1 of the first auxiliary request was considered as lacking clarity as well as devoid of inventive step for being a trivial modification which the skilled person would carry out to provide a further indication to the user regarding the progress of selecting text. The second auxiliary request was late filed and was adjudged to include contradictory features which meant that it was not admitted into the procedure.



T 0990/14

The invention in this Immersion Corp. case related to a haptic feedback interface device using electroactive polymer (EAP) actuators to provide haptic sensations and/or sensing capabilities. Specifically, the interface device includes a sensor device that detects the manipulation of the interface device by the user and outputs sensor signals representative of the manipulation, and an electroactive polymer actuator responsive to input signals and operative to output a force to the user caused by motion of the actuator. The output force provides a haptic sensation to the user.

The application was refused at first instance for non-compliance on grounds of a lack of inventive step and added subject matter.

On appeal, the objection of added matter was overcome by a simple amendment made in the main request. The only difference between the subject-matter of claim 1 and the closest prior art was that the actuator is an electrorestrictive electroactive polymer actuator. The Board agreed with the appellant that the problem to be solved by the invention is to provide a haptic feedback device which is lower in cost to manufacture while still offering to the user an effective haptic feedback. None of the other prior art documents seem to suggest using a polymer actuator. Therefore, the Board adjudged the subject matter of claim 1 to involve an inventive step. The decision under appeal was set aside and case was remitted to the Examining Division with the order to grant a patent on the basis of the main request as filed.

In this case, with the added matter objection been easily overcome, the inventive step was successfully argued on the basis that providing a cheaper alternative to that known in the art is inventive. This is a good example of effective use of the appeal procedure to overturn an incorrect decision by the examining corps.

T 1446/16

This case related to a patent application filed by Immersion Corp.

The invention related to a device in which a dynamic haptic effect is produced. Specifically, the invention describes generation of a haptic effect based on the synthesis of a gesture made on a 2D touch screen and a movement detected by an accelerometer.

The amplitude and/or frequency of a vibration may be varied based on a gesture made on a 2D touch screen and according to the movement of the device, as detected by an accelerometer.

This allows modification of a haptic signal based on the behaviour of a user. For example, a haptic effect could be modified if an accelerometer indicates that a user is walking or running. This can make the haptic effect more noticeable when the user is active.

The patent application was refused at first instance for added subject matter. Specifically, the applicant sought to broaden the scope of claim 1 beyond the scope of claim 1 as originally filed.

The main focus of the written proceedings in the appeal was this added subject matter point, and the appellant failed to persuade the Board of Appeal that the amended claims were directly and unambiguously derivable from the application as filed.

Shortly before the oral proceedings the appellant filed an auxiliary request that the Board agreed did not contain added matter. However, the appellant had not submitted detailed arguments on inventive step for this claim set in advance of the hearing. When it came to inventive step, the prior art demonstrated that it was known to modify a haptic effect based on the pressure exerted by a user on a touchscreen. The difference between this and the invention was to modify the haptic effect instead based on information received from an accelerometer, rather than the pressure on a touchscreen. It was known from a separate document that a haptic effect could be modified based on movement and acceleration, and the Board concluded that it would have been obvious for a skilled person to combine these two techniques and arrive at the claimed subject matter.

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T 2224/15

The invention in this Immersion Corp. case related to providing haptic feedback in accordance with a user's current mood or emotional state. Specifically, the invention described a haptic system including a sensing device, a digital processing unit, and a haptic generator. The sensing device employs sensors to sense mood information indicating user's modalities and subsequently issues a sensing signal according to the user's modalities. Upon receipt of the sensing signal(s), the digital processing unit identifies a user's condition or mood. After generating a haptic signal according to the user's condition, a haptic generator generates haptic feedback in response to the haptic signal.

The application was refused at first instance for a lack of novelty and a lack of inventive step.

With its statement setting out the grounds of appeal, the appellant filed amended claims which the Board agreed were novel, but thought were obvious. The appellant argued that none of the prior art documents disclosed or suggested the feature that the user's emotional state is to be deduced from certain facial expressions sensed by video recordings. However, one of the prior art documents disclosed that the haptic signal may also contain video images taken by the user's mobile phone. From that teaching, the Board argued that the skilled person would deduce that a user's current mood may well be determined by

way of recordings of the user's facial expressions.

Hence, in the Board's view, the skilled person would simply apply video recordings of the communicating user's face by means of the user's mobile phone.

Intermediate Generalisations

Art. 123(2) EPC does not only apply to things that have been added to claims. It can also apply where a feature has been broadened. In one hypothetical example, imagine a claim that referred to a haptic device including a sensing unit. The claim may need to be amended during prosecution to overcome prior art, and the description may give examples of sensing units that included a temperature sensor, a pressure sensor and a galvanic response sensor. Seeking to obtain the broadest protection possible the claim may be amended to refer to an "environmental sensor", since that would cover the three specific examples described in the specification. However, such an amendment may be objected to as an intermediate generalisation, if the language was not present in the application as filed. In the eyes of the EPO there is only a direct and unambiguous disclosure of a "sensing unit" in general terms, and the more specific examples of a temperature sensor, a pressure sensor and a galvanic response sensor.

Conclusion

The The eight decisions summarised above include six patent applications filed by Immersion Corp and two from Kyocera. These two companies appear to be over-represented in appeal proceedings in comparison to the number of patent applications filed in this technical area, suggesting a strategic aim within these organisations to pursue appeals. This may be indicative of the value of the cases, and in the case of Immersion Corps, in particular, of the potential to generate licensing income in this field. There was only one successful appeal, which overturned the first instance decision. This is an unfavourable comparison with the average statistics for EPO appeals, although it is perhaps difficult to draw any general conclusions from this on a limited number of cases.

One general trend that stands out from these decisions is the necessity to comply with Board of Appeal procedures and to deal with added subject matter – Art. 123(2) EPC – as early in the procedure as possible. It is often true that the most contentious point in an examining decision appeal is that of inventive step. It is important in appeal proceedings that a detailed discussion of inventive step actually takes place, and this is simply not possible until there is a claim set on file that is clear and which satisfies Art. 123(2) EPC.

Get In Touch

If you would like to know more about how our expertise in haptic technology and the computer implemented invention sector then please get in touch.

We welcome enquiries via computertech@gje.com and will be delighted to explain in more detail why you should consider GJE for your IP needs.



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