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Datasheet for the decision of 20 October 2020

Case Number: T 1013/14 - 3.5.01

Application Number: 10156564.6

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IPC: G06F13/42

Language of the proceedings: EN

Title of invention:
Accessory and mobile computing device communication using an application communication protocol

Applicant:
Apple Inc.

Headword:
Accessory and mobile computing device communication using an application communication protocol/APPLE INC

Relevant legal provisions:
EPC Art. 54, 56

Keyword:
Novelty (yes - after amendment)
Inventive step - tunneling through port associated with accessory specified application communication protocol (yes - after amendment)

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Case Number: T 1013/14 - 3.5.01

D E C I S I O N
of Technical Board of Appeal 3.5.01
of 20 October 2020

Appellant: (Applicant)	Apple Inc. One Apple Park Way Cupertino CA 95014 (US)
Representative:	Barton, Russell Glen Withers & Rogers LLP 4 More London Riverside London SE1 2AU (GB)
Decision under appeal:	**Decision of the Examining Division of the European Patent Office posted on 27 November 2013 refusing European patent application No. 10156564.6 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman	W. Chandler
Members:	N. Glaser
	C. Schmidt

Summary of Facts and Submissions

I. This appeal is against the decision of the examining division to refuse European patent application No. 10156564.6 pursuant to Article 97(2) EPC on the grounds of lack of novelty (Article 54 EPC) and lack of inventive step (Article 56 EPC) over the document Bluetooth SIG: "Architecture & Terminology Overview and Core System package", 26 July 2007, XP002582775, Specification of the Bluetooth System: Core version 2.1+EDR (D1). The division cited but did not use US2008/320190 (D5).

II. In the statement setting out the grounds of appeal, the appellant requested that the decision under appeal be set aside and that a patent be granted on the basis of the main request or one of the auxiliary requests 1 to 3, all filed therewith.

III. In the communication accompanying the summons to oral proceedings, the Board set out its preliminary opinion.

Claim 1 of the main request seemed not to be clear (Article 84 EPC) and not to solve the problem mentioned in the application. Furthermore, the subject matter of claim 1 of the main request seemed not to be novel and/or inventive (Article 56 EPC) over D1.

There were doubts whether claim 1 of auxiliary request 1 had a basis in the application as filed (Article 123(2) EPC). Furthermore, the same objections to the main request would apply to claim 1 of auxiliary request 1.

Auxiliary requests 2 and 3 might not be admitted into the proceedings.

IV. In a reply, the appellant filed arguments in favour of clarity, novelty and inventive step.

V. Oral proceedings took place on 20 October 2020 by videoconference. At the oral proceedings, the appellant filed a new request and declared that this request (labelled "MAIN REQUEST") should replace the main request, that the previous main request should become first auxiliary request and that auxiliary requests 1 to 3 were withdrawn.

VI. Independent claim 1 of the new main request reads as follows:

"A mobile computing device comprising:
a housing;
a communication interface disposed at least partially within the housing, and configured to exchange commands and data with an accessory device, the communication interface having at least one port; an application that uses an application communication protocol and control logic disposed within the housing and communicatively coupled with the communication interface,
the control logic being configured to:
in response to establishing a connection with the accessory device and receiving information via a first port of the communication interface specifying at least one application communication protocol that is to be used by the accessory through the communication interface using an accessory communication protocol,

use a protocol manager to associate the application communication protocol that is to be used by the accessory, with the first port, in a port map,
allow the application to access the port map to see if the application protocol used by the application is present,
matching the application to the first port when the application protocol used by the application is present and associated with first port in the port map; and
routing messages between the application and the accessory device through the communication interface via the first port, which messages are structured in accordance with the application communication protocol used by the application, and wherein the routing comprises using tunnelling commands of the accessory communication protocol to send the messages via the first port using the accessory communication protocol."

Reasons for the Decision

1. The invention

1.1 The invention concerns communication between an accessory and a mobile device (e.g. an iPhone, see paragraph [0029] of the original application). The mobile device executes various kinds of applications, such as programs for playing media assets and programs for controlling accessories ([0035]). There is a vast range of accessories, such as an external speaker, a camera, an automobile, a dish washer and so on ([0030]), which require different application communication protocols in order to communicate with the applications on the mobile device.

1.2 Accessories and mobile devices communicate via an accessory communication protocol ([0052] to [0057]), prior to a selection of an application communication protocol which is then used for communication between the accessory and an application on the mobile device ([0066]). An accessory can provide the mobile device with a list of its supported application communication protocols ([0088]).

1.3 The accessory communication protocol is defined by the mobile computing device and is used when an accessory couples with the mobile computing device to perform initialisation, identification, and/or authentication procedures ([0003]). For that purpose it specifies the commands and data which are exchanged between the accessory and mobile device ([0052] to [0056]), such as a message format, or one or more physical transport links usable for transmitting signals, including "tunnel" commands.

1.4 The application communication protocol, on the other hand ([0066]), specifies the accepted formats for messages that can be exchanged between an accessory and an application, packet structures; commands; lingoes; payload formats; and/or other formats, data structures.

1.5 The invention enables a simplified set up of the communication between an accessory and an application on the mobile device. Upon connection of the accessory with the mobile device via a first port of a communication interface, the mobile device is informed about the application communication protocol that is to be used by the accessory. This information is stored in a port map in which the application communication protocol that is to be used by the accessory is associated with the first port. When an application

wants to exchange messages with a connected accessory, it is checked whether the application protocol used by the application is present in the port map. Messages between the application and the accessory device are routed through the communication interface via the first port. These messages are structured in accordance with the application communication protocol used by the application. The routing comprises using tunnelling commands of the accessory communication protocol to send the messages via the first port using the accessory communication protocol.

2. Main request

2.1 Claim 1 of the main request was filed during oral proceedings. It is based on claim 1 of the third auxiliary request and on the embodiment detailed in the application at paragraphs [0026], [0074], [0076], [0088] to [0095] and [0099] to [0104].

2.2 These amendments clarify the technical effect of the invention which is "a more direct and rapid communication between an accessory device and an application on a mobile device" (see paragraphs 1.4 and 1.5 above).

2.3 This effect is achieved by using an application communication protocol which is specified by the accessory device upon connection to the mobile computing device and which is then associated by a protocol manager of the control logic of the mobile computing device in a port map with a port of the communication interface of the mobile device. Thereafter, messages, structured in an application communication protocol, can be routed between an application on the mobile device and the accessory by

using a "tunnelling" command of the accessory communication protocol.

2.4 Claim 1 is novel (Article 54 EPC) over D1 which is a specification of the Bluetooth System in general. D1 is a conglomerate of two different documents; volume 1, Architecture & Terminology Overview, having originally 96 pages, of which D1 contains only pages 9 to 72, and volume 3, Core System Package, having originally 268 pages, of which D1 contains only pages 13 to 201. There is, however, no concise, self-contained disclosure in D1 of a mobile device as now defined in claim 1 of the new main request.

2.5 Figure 2.1 on page 20, in volume 1, illustrates the Bluetooth core system architecture. Bluetooth devices are said to exchange protocol signaling when they want to inter-operate and it may be assumed that a mobile computing device as well as an accessory (not disclosed in D1) both comprise such a Bluetooth core system. The Bluetooth Controller may be seen to correspond to the control logic of the mobile computing device of claim 1; it implements three of the four system protocols (Radio, LC and LMP protocol) and offers an interface for the fourth protocol, the Logical Link Control and Adaptation Protocol (L2CAP), which is contained in a Bluetooth application in a "host system". The L2CAP is illustrated to offer services for applications, see Figure 3.2, on page 27, volume 3.

2.6 Claim 1 differs from this standard Bluetooth architecture of D1 by the specific features relating to the "application-driven" communication with an accessory, that is, the specification of an application communication protocol by an accessory, the use of a port map, the association the application communication

protocol to a first port of the port map, the matching of the application to the first port and the routing of messages between application and accessory device via the first port, whereby tunneling commands of the accessory communication protocol are used to send the messages via the first port using the accessory communication protocol.

2.7 The distinguishing features achieve the effect of "a more direct and rapid communication between an accessory device and an application on a mobile device", see point 2.2 above. The objective technical problem could therefore be formulated as how to achieve a more direct and rapid communication between two devices which are both equipped with a Bluetooth core system.

2.8 D1, volume 3, page 29, discloses that applications use the most appropriate types of logical links and services for data communication with another Bluetooth device, see page 29, third paragraph. An application is also said to be able to discover via a service discovery protocol (SDP) the services which are available on the other device, see page 113, volume 3, part B. Faced with the objective problem, the skilled person would probably improve the ability of discovering services, such as preconfiguring services to be used by the devices.

2.9 However, the Board finds no reasonable incentive to modify D1, in particular the SDP service, in the manner claimed. The Board also finds no evidence that all these features can be regarded as forming part of common general knowledge. The Board therefore judges that claim 1 involves an inventive step over D1 (Article 56 EPC).

2.10 Claim 1 is also novel (Article 54 EPC) over D5 which was not discussed in the impugned instance. D5 discloses how to set-up the communication between a host device (corresponding to the mobile computing device) and an accessory via an intermediate device, see paragraphs [0011] and [0036] to [0039]. The intermediate device "tunnels" the messages between accessory and host device, see paragraphs [0049], [0069] and [0070], whereas claim 1 defines the control logic of the mobile computing device to perform a "tunneling" function. D5 further mentions using different protocols, on one side, between host device and intermediate device, and, on the other side, between intermediate device and accessory, see paragraph [0063] to [0066].

2.11 The intermediate device is present in all communication exchanges between host device and accessory and there is no motivation for the skilled person to remove it, which he would have to do in order to arrive at the subject-matter of claim 1. There is also no disclosure in D5 of an accessory identifying an application communication protocol for communication with an application on the host device. Claim 1 is therefore inventive over D5 (Article 56 EPC).

2.12 Accordingly, the Board concludes that claim 1 is novel and inventive over the documents D1 and D5.

3. Since the appellant's main request is allowed, auxiliary request 1 need not be considered.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the examining division with the order to grant the patent on the basis of the "MAIN REQUEST" filed at the oral proceedings before the Board and a description to be adapted.

The Registrar: The Chairman:

T. Buschek W. Chandler

Decision electronically authenticated