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En relación con el Expediente de la referencia y con el fin de dar cumplimiento a la preceptuado por el artículo 4o literal d) numeral 3 de la Convención de París adjunto a este escrito sirvanse encontrar la copia certificada de la solicitud de patente de la cual se reivindica prioridad la cual se encuentra debidamente traducida en sus apartes pertinentes

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remote control unit in addition to a local user interface provided at a control panel of the device itself such as a set of control buttons and LED indicators. Typically a separate remote control unit is used for each individual electronic utility device.

Although some infrared remote control units are programmable and may therefore be adapted for use with several electronic utility devices, the existing approach has several drawbacks. First of all, remote control units have a tendency of disappearing in many homes, especially in families where small children are present. Furthermore, the various remote control units will have to be kept within reach of the intended user and will therefore occupy unnecessary storage space on desktops, table surfaces, etc. Moreover, the user interface of a typical remote control unit has a low level of user friendliness; the user interface is restricted to various small keys or buttons, at best in conjunction with a miniature LCD display. Finally, each type of remote control unit has its own philosophy behind the layout of the keys, etc., thereby making it hard for users to get familiar with all different types of remote control units.

Other electronic utility devices, such as printers, telefax machines, copying machines, or home appliances such as refrigerators or microwave ovens, are usually not operated from an infrared control unit. Instead, the user of these devices is restricted to a normally very limited local user interface, such as a few control buttons and LED indicators, provided at a control panel of the device.

Summary of the Invention

It is an object of the present invention to provide an easier way of accessing, controlling and operating electronic utility devices in a standardized and user-friendly fashion. A second object of the invention is to

drastically reduce the number of required remote control units specifically so that only one control apparatus is required for a large number of electronic utility devices, which may exist in the environment around a user. A third object is to provide an opportunity of remote control of electronic utility devices that traditionally are not provided with such an option. A fourth object is to provide an option for various types of electronic utility devices to connect to a global information network such as the Internet, by using a single type of communication device namely a portable telecommunication apparatus.

The above objects have been achieved by the inventive understanding that a portable telecommunication apparatus preferably a cellular or mobile radio telephone may be used for controlling various electronic utility devices

According to a preferred embodiment of the invention a mobile WAP (Wireless Application Protocol) telephone having a built-in WAP browser is designed to connect via a point-to-point communication link to an electronic utility device through an accessories interface such as a short-range radio link an infrared link or a serial cable link wherein the external utility device is provided with an embedded WAP server and wherein this WAP server is capable of submitting digital information related to the functionality of the external utility device over the point-to-point communication link to the WAP browser of the mobile telephone. The embedded WAP server of the preferred embodiment contains WML (Wireless Markup Language) pages which are transmitted to the WAP client of the mobile telephone and are presented to the user. The user may control the functionality of the external utility device through the user interface of the mobile telephone and the WAP client

A solution to the above objects is defined by the appended independent patent claims Other features advantages and objects of the invention will appear from

the following detailed disclosure of a preferred embodiment from the appended drawings as well as from the subclaims

5 **Brief Description of the Drawings**

The present invention will now be described in more detail with reference to the appended drawings in which

FIG 1 is a schematic illustration of a mobile WAP telephone which may be used for accessing the Internet for performing traditional mobile telecommunications service calls (voice data and fax) and for accessing controlling and operating a plurality of electronic utility devices

FIG 2 is a schematic block diagram of a mobile telephone according to a preferred embodiment of the invention and

FIG 3 is a schematic block diagram of an external utility device according to the preferred embodiment

20 **Detailed Disclosure of a Preferred Embodiment**

FIG 1 is intended to illustrate the general inventive concept according to the present invention, i.e. that a user of a mobile telephone 1 or another type of portable telecommunication apparatus will be able to access control and operate a plurality of telephone accessories home appliances or other external electronic utility devices 30 40 50 through a WAP browser built into the mobile telephone. To this end each external utility device 30 40 50 comprises a respective embedded WAP server from which the WAP browser of the mobile telephone 1 will receive encoded WML pages. The pages transmitted from the embedded WAP server to the mobile telephone 1 represent the services functionalities and applications which are offered by the respective external utility device 30 40 50. As will be described in more detail below the infor-

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mation contents of the WML pages may change dynamically and moreover the user may feed back information to the respective external device 30 40 50 by e.g. filling in WML forms and pushing the information back to the WAP server of the external device 30 40 50. In this way, the user of the mobile telephone 1 may operate the respective external device 30 40 50 and control the functionality thereof.

As shown in FIG 1 the mobile telephone 1 comprises an antenna 10 which in a conventional way is used for connecting the mobile telephone 1 to a mobile telecommunications network 21 through a radio link 23. In a well-known way the mobile telecommunications network 21 for instance GSM offers voice data and fax call services to the user of the mobile telephone 1. By means of the antenna 10, the user of a mobile telephone 1 may also access the Internet 20 or another global information network by using the built-in WAP browser of the mobile telephone 1. To this end graphic information and/or text is presented on a display 13 and a set of cursor navigation keys 14a are provided in a keypad together with a set of ordinary mobile telephone keys 14b. The latter comprise e.g. a YES/OK/ANSWER key a NO/CANCEL/HANG UP key numeric keys 0-9 as well as other character keys such as * and #.

As is well known the mobile telephone 1 also comprises a loudspeaker 11 and a microphone 12. Moreover the mobile telephone 1 of the preferred embodiment shown in FIG 1 comprises an infrared interface 15 such as an IrDA port by means of which the mobile telephone 1 may be connected to a first external utility device in the form of a television set 40 in FIG 1.

The mobile telephone 1 also comprises a system or accessories connector 16 by means of which the mobile telephone 1 may be connected through a serial cable 52 (e.g. RS232) or through direct galvanic contact to a

second external utility device in the form of a digital camera 50 of FIG 1

The mobile telephone 1 additionally comprises a second antenna 17 for establishing a short-range radio link
5 32 such as a Bluetooth link to a third external utility device in the form of a combined printer/fax/copier in FIG 1

An essential portion 200 of the mobile telephone 1 is shown in FIG 2. A controller or CPU 210 is coupled to a
10 random access memory 220 and to drivers 250 for the user interface formed by the display 13 and the keypad 14a-b. The controller 210 is also connected to a permanent memory 230 in the form of a flash memory. The flash memory 230 comprises an operating system 232 as well as an information
15 access program in the form of a WAP client 240 which will be described in more detail below. The mobile telephone also comprises drivers 260, 262 and 264 for the external device interfaces 15, 16 and 17 in FIG 1. In more detail driver 260 is an RS232 module for the system or accessories
20 connector 16, driver 262 is an IrDA module and driver 264 is a Bluetooth module.

As shown in FIG 2 the WAP client 240 comprises a stack of protocols 241-246 as well as a datapath selector 248 the purpose of which will be described later. On a
25 first level or top level 241 a WAP browser application is provided which when executed by the controller 210 will form a graphical user interface on the display 13 and allow the user to access the embedded WAP servers of the available external utility devices 30, 40, 50. A second level
30 242 is a wireless session protocol. As a third and fourth level respectively a wireless transport protocol and a wireless datagram protocol are provided respectively. The protocols 241-244 are all essentially known per se and are not described in more detail herein.

On a fifth level 245 a respective adaption layer is provided for the serial cable interface 16 260 the infrared interface 15, 262 and the Bluetooth interface 17 264 The physical layer of the respective interface is provided as a sixth protocol level 246 The adaption layer 245 thus adapts the overlying wireless datagram protocol 244 to three different bearers i.e. cable infrared and Bluetooth

Moreover a GSM layer 245 246 is also provided as is generally known in the field of mobile WAP telephones for providing the first communication link 22 between the antenna 10 and the Internet 20

The purpose of the datapath selector 248 is to direct WML requests from the WAP browser 241 to either the first communication link 22 (through a circuit-switched GSM data call connection or through SMS-Short Messages Services) or to the respective external device interface 16 52, 260 (cable) 15 42 262 (infrared) and 17 32 164 (Bluetooth) In the preferred embodiment this differentiation is achieved through a new address scheme for the Uniform Resource Identifier (URI)/Uniform Resource Locator (URL) For instance when access is to be made across the first communication link 22 to ordinary web sites on the Internet 20 the ordinary URI/URL format "http // " may be used Conversely when any of the external utility devices 30, 40 50 is to be accessed the URI/URL may look like "local //

FIG 3 is a schematic illustration of an essential portion 300 of any of the external utility devices shown in FIG 1 i.e. the printer/fax/copier 30 the television set 40 or the digital camera 50 A controller or CPU 310 is connected to a random access memory 320 and a driver 350 for a local user interface The local user interface may for instance be buttons for capturing deleting or scrolling through pictures and a miniature LCD display on

the digital video camera 50 program selection buttons
volume controls brightness controls etc on the
television set 40, or a telephone number keypad, a start
button and a stop button on the printer/fax/copier 30

5 The controller 310 is coupled to a non-volatile
memory 330 which is a flash memory in the preferred em-
bodiment The flash memory 330 comprises an embedded WAP
server 340, which will be described in more detail below
Finally the external utility device 300 comprises a remote
10 control interface driver 360 which is coupled to the
physical cable connector of the digital camera 50 to the
infrared port of the television set 40 or to the Bluetooth
module of the printer/fax/copier 30 of FIG 1

The WAP server 340 comprises a virtual file system
15 332 which has the purpose of storing a plurality of WML
pages 338 and optionally a plurality of WML scripts in a
structured and readable way The WAP server 340 also
comprises a Server Side Include module 336 which enables a
program developer to insert directives inside the WML code
20 to instruct the WAP server 340 to replace the directive
with a dynamic content upon retrieval of the WML code

The WAP server 340 also comprises a Common Gateway
Interface (CGI) module 334 for enabling user input from the
WAP client of the mobile telephone 1 to the WAP server 340
25 of the external device 300 The Common Gateway Interface
module 334 also comprises a set of CGI routines that when
executed by the controller 310 controls a respective
aspect or parameter of the functionality provided by the
external utility device 300 For instance if the external
30 utility device 300 is a digital camera 50 different CGI
routines are provided for controlling e g the picture
resolution for scrolling through pictures stored in the
camera for capturing a new picture for setting date/time
etc

Moreover the WAP server 340 comprises a stack of protocols 341-346 which correspond to the stack of protocols 241-246 in the mobile telephone 200 shown in FIG 2. At a top level a WAP server application protocol 341 is provided. Then follows a wireless session protocol 342, a wireless transport protocol 343, a wireless datagram protocol 344, an adaption layer for different physical interfaces (cable, infrared or Bluetooth) and finally a physical interface layer 346. Preferably, the protocol stack of the WAP server 340 is adapted to all possible bearers even if only one physical bearer 360 is used (such as either cable, infrared or Bluetooth). This makes it easier to design a generic embedded WAP server 340, which may be used in different external utility devices.

The WML contents of the WAP server 340, i.e. the WML pages 338 and optionally the WML scripts are preferably stored as pre-compiled binary WML files. Alternatively, the contents may be stored as non-binary WML files which are encoded into binary WML files by the WAP server 340 upon request from the WAP client 240 of the mobile telephone 1.

The rest of this specification will deal with the use of the mobile telephone 1/200 of FIG 2 for controlling the external utility device 200 of FIG 3. Obviously the user must be able to easily access at least his/her favorite external utility devices 30, 40, 50 from the mobile telephone 1. Preferably a dynamic menu system is implemented in the mobile telephone 1 which allows the addition of a short cut menu option for connecting to a respective external utility device 30, 40, 50. Preferably the external utility devices 30, 40, 50 are designed to transmit an initial sequence of identifying commands to the WAP client 240 of the mobile telephone 1/200 when the mobile telephone and the external utility device are interconnected.

Thus useful information such as physical bearer type (cable infrared or Bluetooth) possibly an address identifier (particularly in the case of Bluetooth) as well as the name of a WML start page are submitted by the WAP server 340 to the WAP client 240 upon interconnection of the mobile telephone 1/200 and the external utility device 30 40 50/300. These parameters are stored together with the respective shortcut in the dynamic menu system of the mobile telephone 1/200. Alternatively some of the parameters above particularly the name of the start page may be standardized e.g. index.wml. Still another alternative at least for some physical bearers particularly Bluetooth is that the name of the start page is retrieved through service discovery.

Three use cases involving the mobile telephone 1 and the digital camera 50 will now be described. It is assumed that the digital camera 50 is capable of producing digital pictures and storing them locally in e.g. the flash memory 330. As described above the digital camera 50 is connected through a serial cable 52 to the accessories interface 16 of the mobile telephone 1. Obviously the camera could equally well have been connected via an infrared or Bluetooth interface. The digital camera 50 is provided with the WAP server 340 shown in FIG 3.

The mobile telephone 1 is provided as described above with the WAP client 240 shown in FIG 2. Initially the user takes a few pictures using the digital camera 50. The user then connects his/her mobile telephone 1 to the digital camera 50 by means of the serial cable 52. A WML start page is then transmitted by the WAP server 340 to the WAP client 240 across the serial cable 52 and the start page is presented on the display 13. The start page contains a plurality of controls representing different functions of the digital camera 50. The user may for instance choose to view the pictures captured in the

disconnect the mobile telephone 1 from the digital camera 50 as described above

In a third use case it is assumed that the digital camera has a malfunction. The user notices this and connects the camera 50 to the mobile telephone 1 as described above. The WAP server 340 of the camera 50 executes a predetermined error diagnosis WML page 338 which in turn invokes a CGI routine of the CGI module 334. The CGI routine fetches an error code from the controller 310 and this error code is submitted together with a predetermined HTTP address by the WAP server 340 to the WAP client 240 of the mobile telephone 1. A dial-up GSM data connection 22 (FIG 1) is established with an Internet service provider, as described above. The WAP browser 240 of the mobile telephone 1 connects to the predetermined HTTP address which points at a help-desk web site provided by the manufacturer or supplier of the digital camera 50. The error code is then transferred to the help-desk web site which will return a clear-text message illustrative image etc which explains the nature of the error and how it is best dealt with by the user.

The present invention has been described above with reference to a preferred embodiment. However, other embodiments than the one described above are equally possible within the scope of the invention as defined by the appended independent claims which is readily realized by a man skilled in the art. Specifically other physical bearers than cable infrared and short range radio link are possible within the scope of the invention. Also, the invention is applicable to other electronic utility devices than the ones exemplified above including but not limited to video recorders, hifi stereos air conditioners refrigerators or microwave ovens.

Moreover the WAP client of the mobile telephone may be substituted for another information access program for

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accessing a global information network possibly different
than Internet Correspondingly the WAP server of the
external utility devices may be substituted for another
kind of information provider server

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5 A portable telecommunication apparatus as in any preceding claim wherein the information access program (240) comprises a module (248) for distinguishing between requests for accessing the global information network (20) and requests for accessing the external device (30 40, 50) and in response directing information traffic from the information access program (240) to the first communication link (22) and the second communication link (32 42 52) respectively

6 A portable telecommunication apparatus as in any preceding claim wherein the apparatus is a mobile telephone

7 An electronic utility device (300) of a type which provides a functionality to a user the device comprising a programmable controller (310) a memory (320 330) coupled to the controller and an external control interface (360) for remotely controlling the functionality of the device characterized by an information provider program (340) stored in the memory (320 330) and executable by the controller (310) the information provider program being adapted to communicate with an external portable telecommunication apparatus (1 200) through the external control interface (360) according to at least one protocol (341-345) for accessing a global information network (20) and being adapted to supply the portable telecommunication apparatus with digital information (338) which is stored in the memory (320 330) and is related to the functionality of the device

8 An electronic utility device as in claim 7 wherein the global information network (20) is the Internet and wherein the information provider program (240) comprises a WAP server (241)

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- 9 An electronic utility device as in claim 7 or 8 wherein the information provider program (340) is adapted to receive control information from the portable telecommunication apparatus (1 200) through the external control interface (360) and is adapted to use the control information for controlling the functionality of the device
- 10 10 An electronic utility device as in any of claims 7-9 wherein the digital information (338) stored in the memory (320, 330) comprises WML files
- 11 An electronic utility device as in any of claims 7-10 wherein the digital information (338) stored in the memory (320 330) comprises WML scripts
- 12 An electronic utility device according to any of claims 7-11 wherein the external control interface (360) is an infrared interface a serial cable interface or a short-range radio interface
- 13 A method for operating an electronic utility device (300) from a portable telecommunication apparatus (1 200) characterized by the steps of
- providing the electronic utility device (300) with an embedded information server (340)
- providing the portable telecommunication apparatus (1 200) with an information access program (340) for accessing a global information network (20)
- operatively connecting the portable telecommunication apparatus to the electronic utility device over a communication link (32 42 52) capable of transferring digital information between the electronic utility device and the portable telecommunication apparatus

storing digital information (338) which is related to a functionality of the electronic utility device in the electronic utility device and

transmitting the digital information from the information server (340) of the utility device to the information access program (240) of the portable telecommunication apparatus

14 A method as in claim 13 wherein the information server (340) of the electronic utility device (300) is a WAP server and the information access program (240) of the portable telecommunication apparatus (1 200) is a WAP client

15 15 A method as in claim 13 or 14 comprising the further steps of

connecting to the global information network (20) from the information access program (240) and

communicating digital information between the electronic utility device (300) and the global information network using the information access program (240) of the portable telecommunication apparatus (1 200) as an intermediate link

16 A method as in any of claims 13-15 wherein the portable telecommunication apparatus (1 200) is a mobile telephone

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Huvudkassan Krossen

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ABSTRACT

A portable telecommunication apparatus (200) has a user interface (250) a programmable controller (210) a memory (220 230) coupled to the controller and an information access program (240) such as a WAP browser which is stored in the memory and is executable by the controller. The information access program provides access for a user to a global information network such as Internet through the user interface and a first wireless communication link. The apparatus also has an external device interface (260 262 264) for connecting an external device to the portable telecommunication apparatus over a second communication link. The information access program (240) allows the user to control the external device through the user interface (250) the external device interface (260, 262, 264) and the second communication link.

To be published together with FIG 2

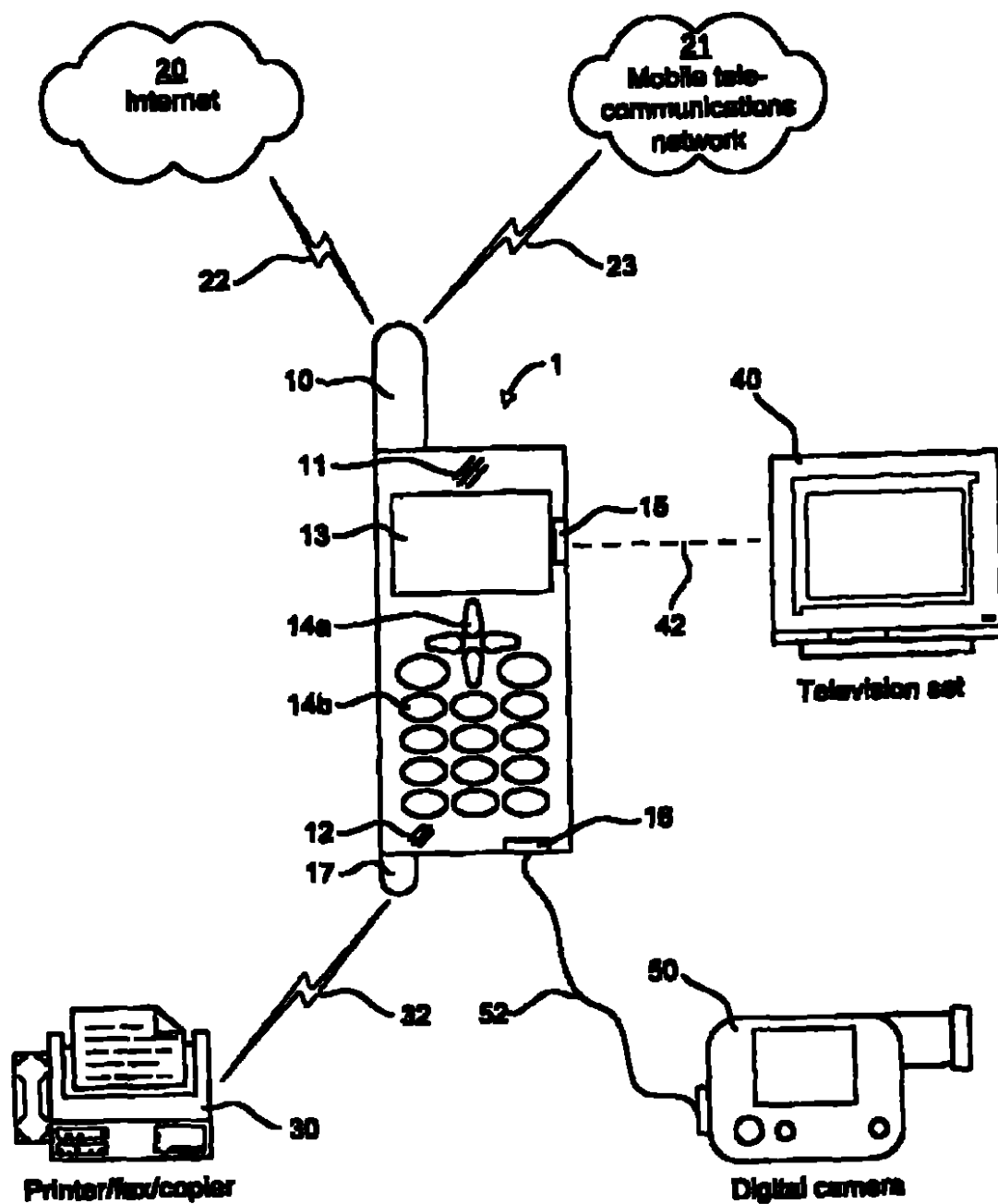
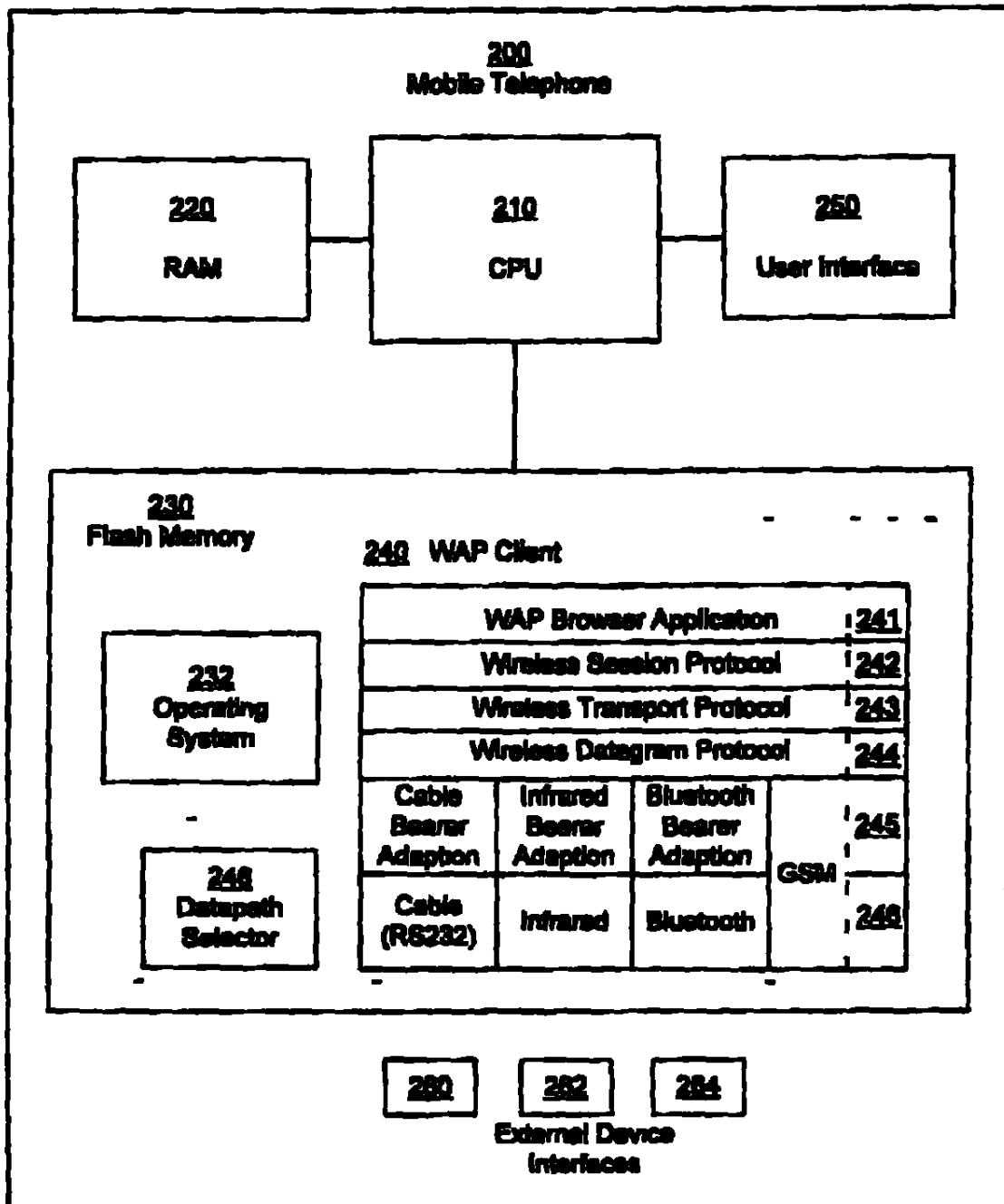


Fig 1

**Fig 2**

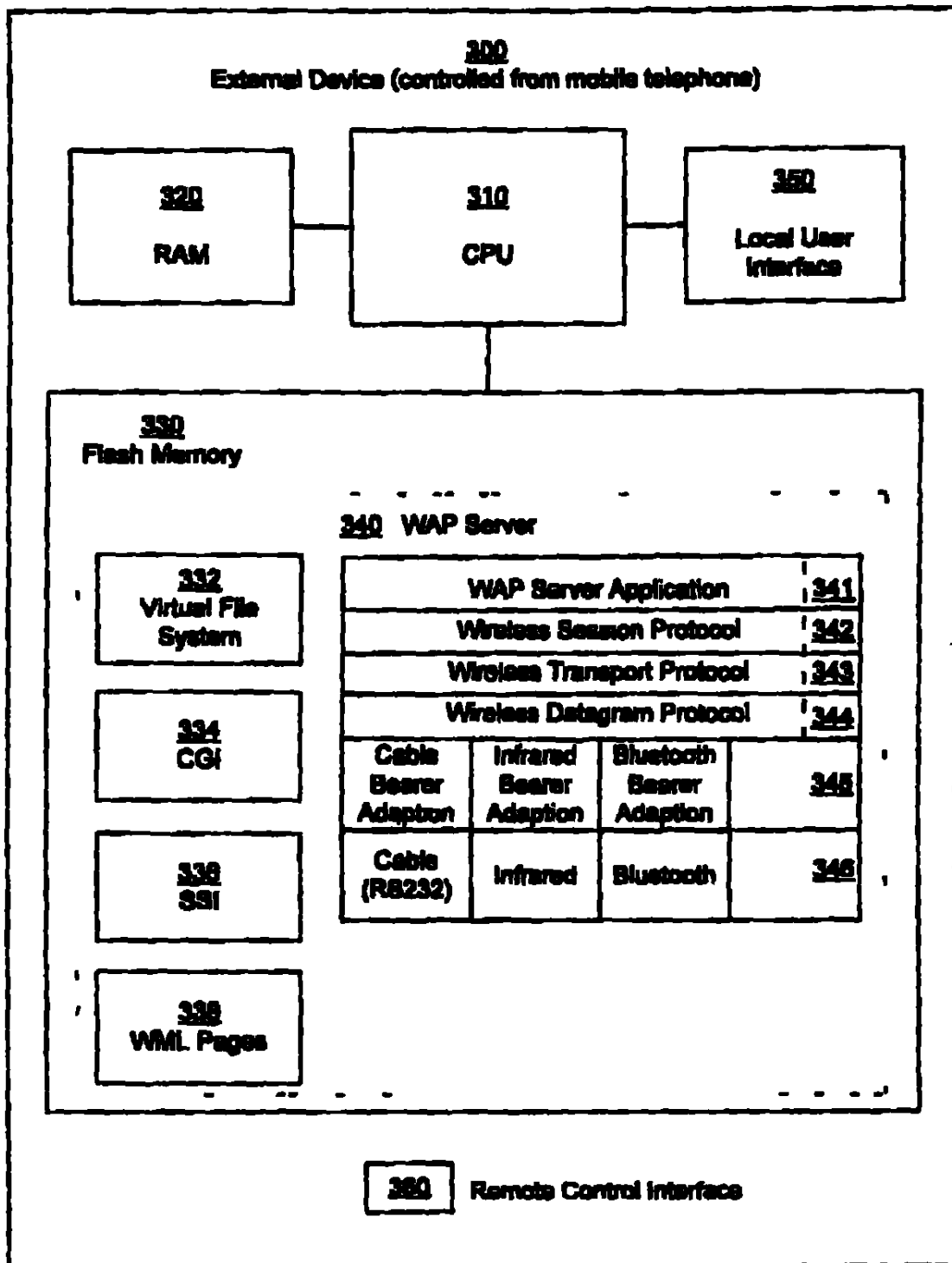


Fig 3

53 *52* *24*

Solicitud de Patente No. 9904398-6

CERTIFICADO

La presente certifica que la adjunta es una copia verdadera del documento tal como fue radicado originalmente ante la Oficina de Registro y Patentes relacionada con la siguiente solicitud de patente

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Por la Oficina de Registro y Patentes

(FIRMA) ASA DAHLBERG

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REIVINDICACIONES

○ 1 Un aparato de telecomunicación portátil (1 200) con una interfaz de usuario (13 14 a y b) un controlador programable (210) una memoria (220 230) acoplada a la memoria y un programa de acceso a información (240) almacenado en la memoria y ejecutable por el controlador donde el programa de acceso a información le provee acceso a un usuario a una red de información global (20) a través de la interfaz del usuario y a un primer enlace inalámbrico de comunicación (22) el aparato también consta de una interfaz de un dispositivo externo (15 a 17) para conectar un dispositivo externo (30 40 50) a un aparato de telecomunicaciones portátil en un segundo enlace de comunicación (32 42 52) caracterizado en que el programa de acceso a información (240) se adapta para permitir que el usuario controle el dispositivo externo (30 40 50) por medio de la interfaz de usuario (13 14 a y b) de la interfaz del dispositivo externo (15 y 17) y del segundo enlace de comunicación (32 42 52)

2 Un aparato de telecomunicación portátil tal como en la reivindicación 1 donde la red de información global (20) es el Internet y el programa de acceso a información (240) consta de un explorador de Internet (241)

○ 3 Un aparato de telecomunicación portátil tal como en la reivindicación 2 donde el programa de acceso a información (240) consta de un explorador WAP (241)

4 Un aparato de telecomunicación portátil tal como en la reivindicación anterior donde el primer enlace de comunicación (22) es una conexión de datos inalámbrica en un sistema móvil de telecomunicaciones y donde el segundo enlace de comunicación (32 42 52) es un enlace infrarrojo (42) un enlace de cable seriado (52) o un enlace de radio de corto alcance (32)

5 Un aparato de telecomunicación portátil tal como se describe en cualesquiera de las reivindicaciones anteriores donde el programa de acceso de información (240) consta de un módulo (248) para distinguir entre las

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solicitudes para acceder a la red de información global (20) y las solicitudes para acceder al dispositivo externo (30 40 50) y al responder como dirigir el tráfico de información desde el programa de acceso de información (240) al primer enlace de comunicación (22) y al segundo enlace de comunicación (32 42 52) de manera respectiva

6 Un aparato de telecomunicación portátil tal como se describe en cualesquiera de las reivindicaciones anteriores donde el aparato es un teléfono móvil

7 Un dispositivo electrónico de utilidad (300) de una clase que proporciona una funcionalidad para un usuario el dispositivo consta de un controlador programable (310) una memoria (320 330) acoplada al controlador y una interfaz de control externo (360) para controlar de manera remota la funcionalidad del dispositivo caracterizado por un programa proveedor de información (340) almacenado en la memoria (320 330) y ejecutable por el controlador (310) el programa proveedor la información está siendo adaptado para comunicarse con un aparato portátil externo de telecomunicación (1 200) a través de una interfaz de control externo (360) de acuerdo con por lo menos un protocolo (341 a 346) para acceder a una red de información global (20) y está siendo adaptado para proporcionar al aparato portátil de telecomunicación información digital (338) que se almacena en la memoria (320 330) y se relaciona con la funcionalidad del dispositivo

8 Un dispositivo electrónico de utilidad tal como se describe en la reivindicación 7 donde la red de información global (20) es el Internet y donde el programa proveedor de información (240) consta de un servidor WAP (241)

9 Un dispositivo electrónico de utilidad tal como se describe en la reivindicación 7 u 8 donde el programa proveedor de información (340) es adaptado para recibir información de control desde el aparato de telecomunicación portátil (1 200) a través de la interfaz de control externo

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(360) y es adaptado para utilizar la información de control para controlar la funcionalidad del dispositivo

10 Un dispositivo electrónico de utilidad tal como se describe en cualesquiera de las reivindicaciones 7 a 9 donde la información digital (338) almacenada en la memoria (320 330) consta de archivos WML

11 Un dispositivo electrónico de utilidad tal como se describe en cualesquiera de las reivindicaciones 7 a 10 donde la información digital (338) almacenada en la memoria (320 330) consta de secuencia de comandos WML

12 Un dispositivo electrónico de utilidad de acuerdo con cualesquiera de las reivindicaciones 7 a 11 donde la interfaz de control externo (360) es una interfaz infrarroja una interfaz de cable seriado o una interfaz de radio de corto alcance

13 Un método para operar un dispositivo electrónico de utilidad (300) desde un aparato de telecomunicación portátil (1 200) caracterizado por los siguientes pasos

poder proporcionar el dispositivo electrónico de utilidad (300) con un servidor de información integrada (340)

poder proporcionar el aparato de telecomunicación portátil (1 200) con un programa de acceso a información (240) para acceder a una red de información global (20)

poder conectar de manera operativa el aparato de telecomunicación portátil al dispositivo electrónico de utilidad sobre un enlace de comunicación (32 42 52) capaz de transferir de manera digital información entre el dispositivo electrónico de utilidad y el aparato de telecomunicación portátil

poder almacenar información digital (338) que se refiere a una funcionalidad del dispositivo electrónico de utilidad en el dispositivo electrónico de utilidad y

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poder transmitir la información digital desde el servidor de información (340) del dispositivo de utilidad hasta el programa de acceso a información (240) del aparato de telecomunicación portátil

14 Un método tal como se describe en la reivindicación 13 donde el servidor de información (340) del dispositivo electrónico de utilidad (300) es un servidor WAP y el programa de acceso a información (240) del aparato de telecomunicación portátil (1 200) es un cliente WAP

15 Un método tal como se describe en la reivindicación 13 o 14 que consta de los siguientes pasos adicionales

poder conectarse a la red de información global (20) desde el programa de acceso a información (240) y

poder comunicar información digital entre el dispositivo electrónico de utilidad (300) y la red de información global utilizando el programa de acceso a información (240) del aparato de telecomunicación portátil (1 200) como un enlace intermedio

16 Un método tal como se describe en cualesquiera de las reivindicaciones de la 13 a la 15 donde el aparato de telecomunicación portátil (1 200) es un teléfono móvil

RESUMEN

Un aparato de telecomunicación portátil (200) tiene una interfaz de usuario (250) un controlador programable (210) un memoria (220 230) acoplada al controlador y un programa de acceso a información (240) tal como un explorador WAP almacenado en la memoria y ejecutable por el controlador. El programa de acceso a información provee acceso a un usuario a una red de información global como por ejemplo el Internet a través de la interfaz de usuario y del primer enlace de comunicación inalámbrico. El aparato también cuenta con una interfaz de dispositivo externo (260 262 264) para conectar un dispositivo externo a un aparato de telecomunicación portátil en un segundo enlace de comunicación. El programa de acceso a información (240) permite que el usuario controle el dispositivo externo a través de la interfaz de usuario (250) de la interfaz de dispositivo externo (260 262 264) y el segundo enlace de comunicación.

Para ser publicado junto con la figura 2

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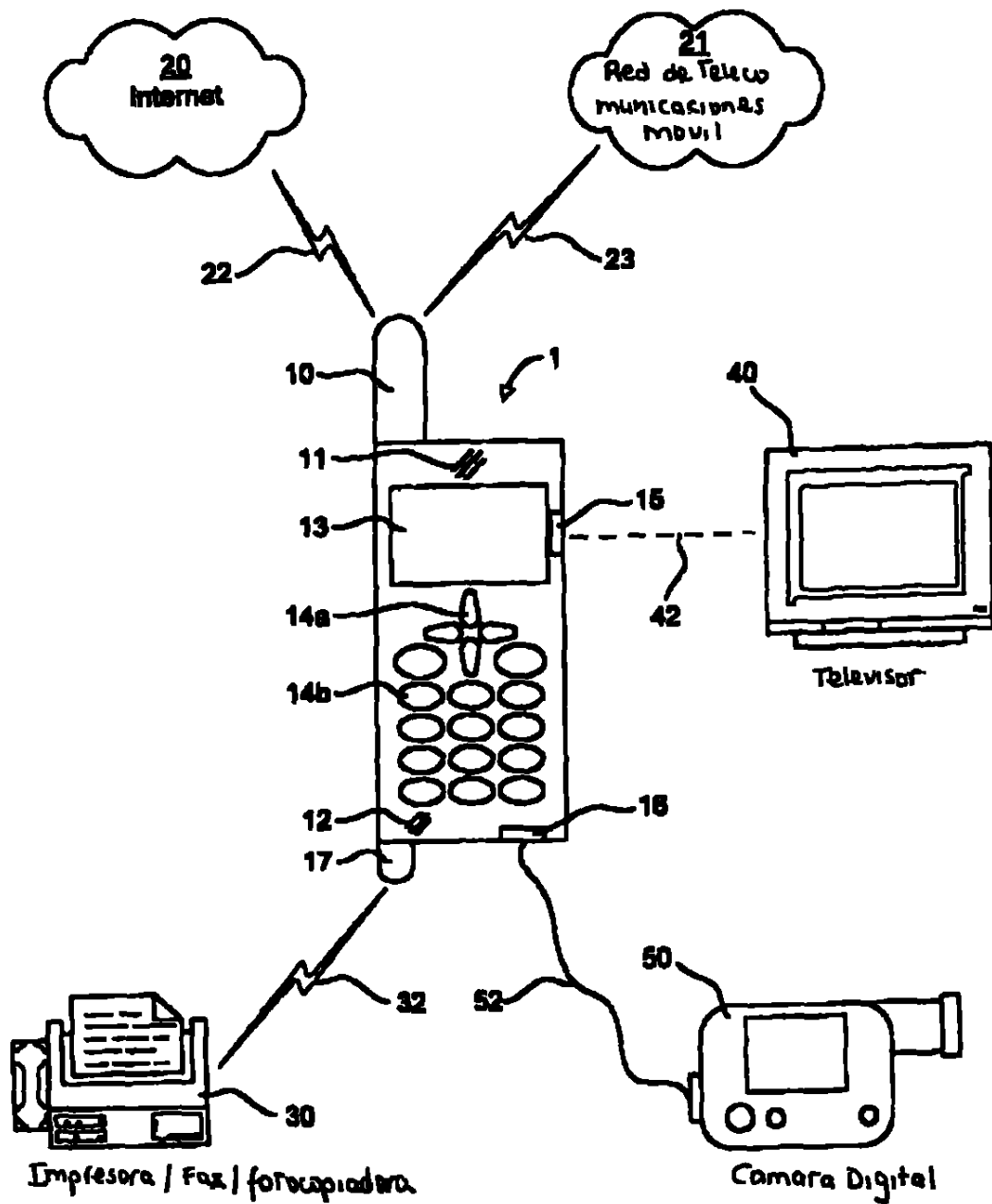


Fig 1

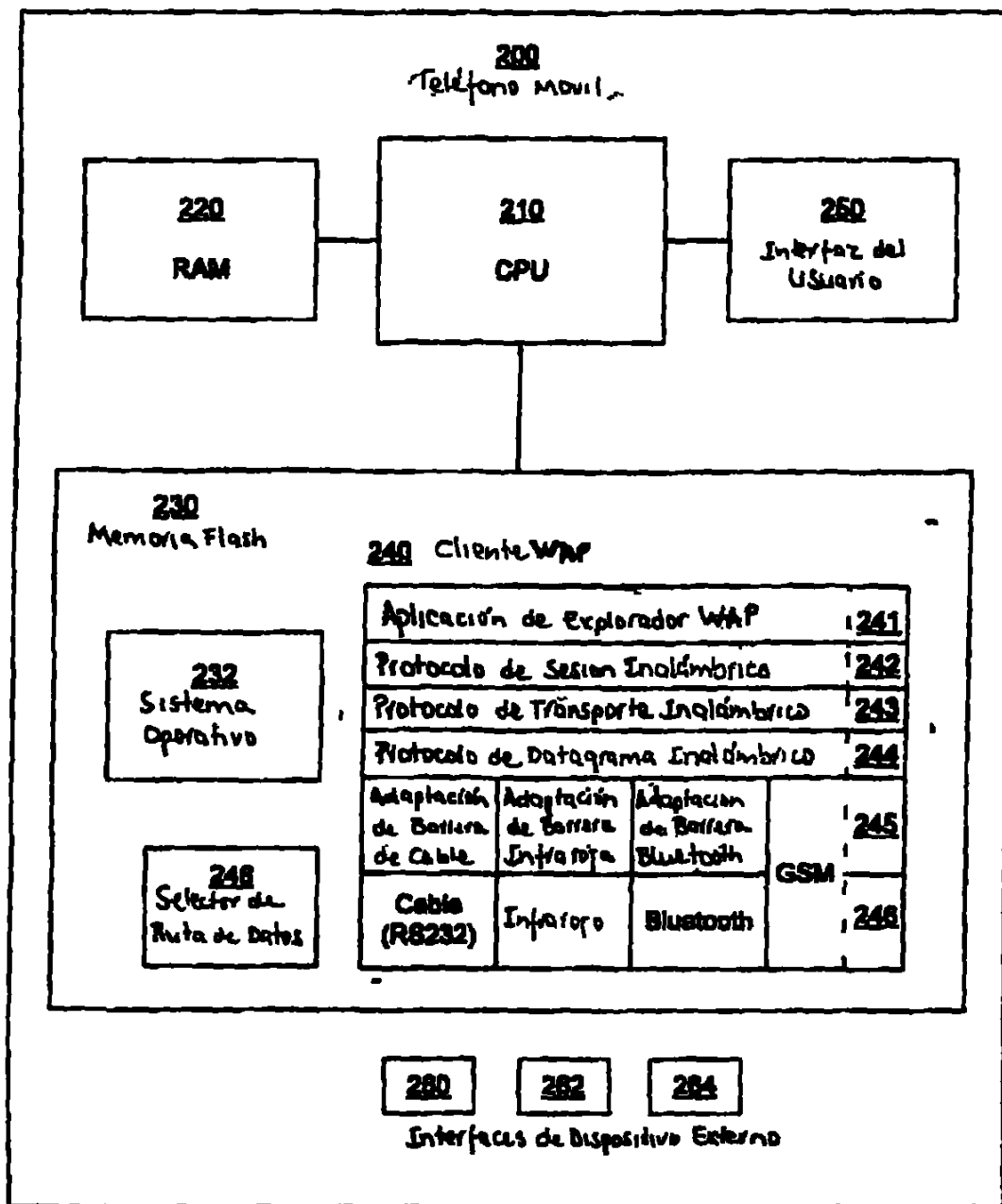


Fig 2

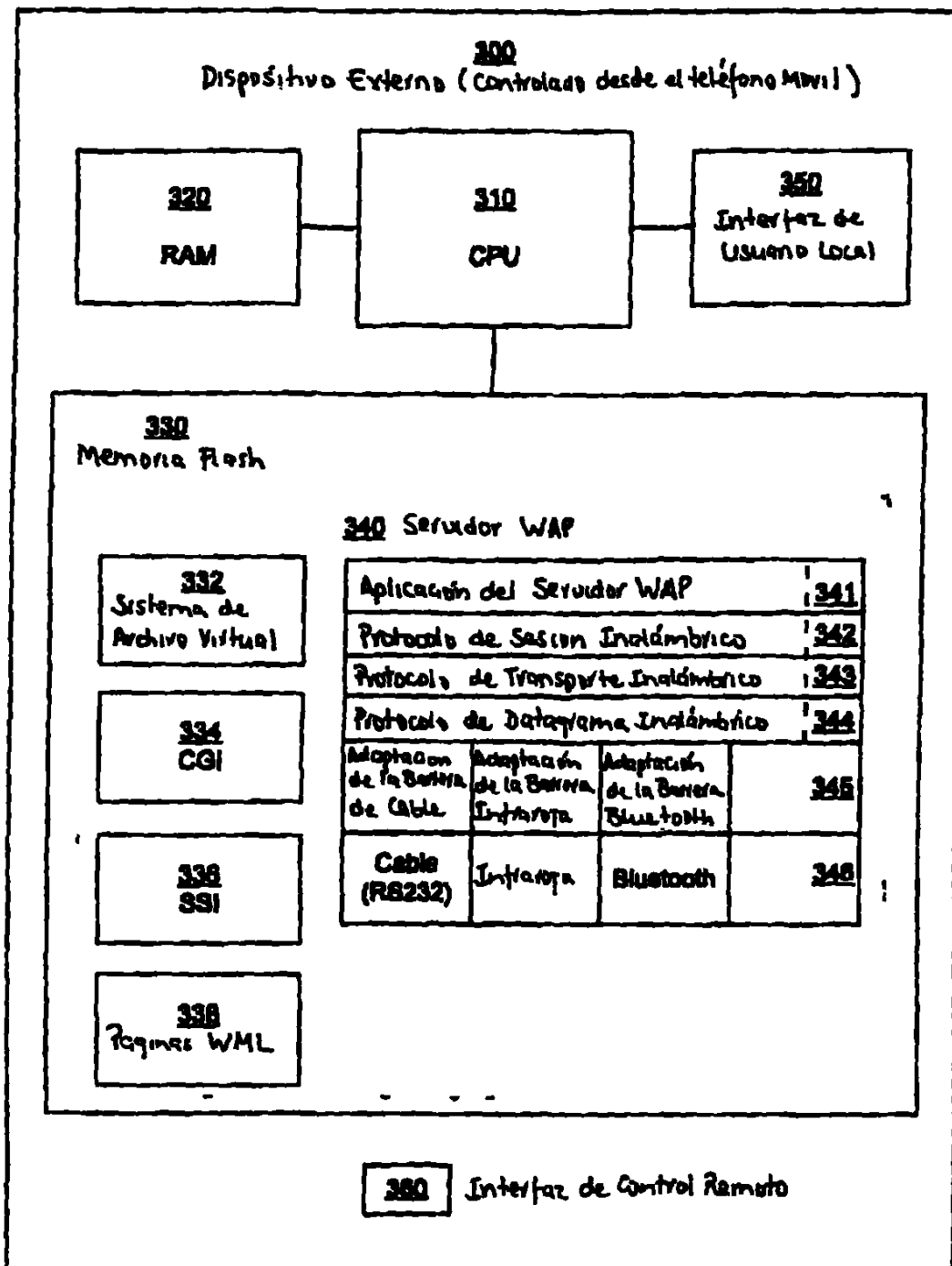


Fig 3