(54) Title: RECORDING SYSTEM

Figure 3
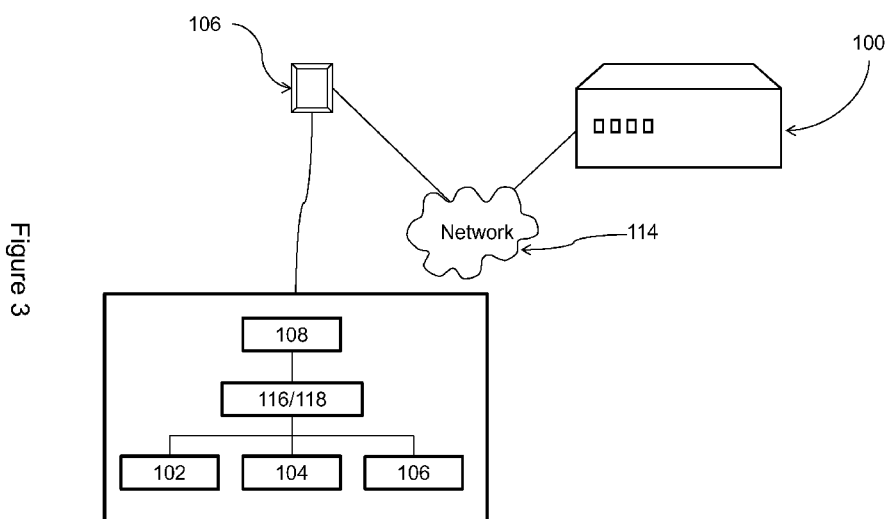
(57) Abstract: A system for recording video, images or sound using a portable computational device; wherein the system includes the steps of starting recording of video, images or sound using a recording system application that is bound to the operating system of the computational device; and forming a recorded file from the recording of the video, images or sound.

RECORDING SYSTEM

Technical Field

[0001] The present invention generally relates to a system of recording images and/or sound on a mobile electronic device.

Background Art

[0002] Each document, reference, patent application or patent cited in this text is expressly incorporated herein in their entirety by reference, which means that it should be read and considered by the reader as part of this text. That the document, reference, patent application, or patent cited in this text is not repeated in this text is merely for reasons of conciseness.

[0003] Reference to cited material or information contained in the text should not be understood as a concession that the material or information was part of the common general knowledge or was known in Australia or any other country.

[0004] In the modern world, concerns relating to personal safety and theft have become more common. Closed circuit television (CCTV) systems that record people's homes and/or place of work are common. Personal alert devices that emit shrieking sounds, tasers, pepper or capsicum spray or other personal safety devices are not uncommon. CCTV is limited to its place of instalment and the other noted devices become useless if the holder of them is disarmed or the device is taken or damaged. Documented recordings of personal safety incursion(s) assist greatly in bringing the perpetrators of the incursion(s) to justice. Where there are no CCTV installations or where recordings from CCTV installations are difficult to obtain their existence offers no assistance to an individual.

[0005] Smart devices such as mobile/cell phones that incorporate a computing system have become ubiquitous and other smart devices such as computer tablets are becoming more and more common. These devices are set up with sound, image and/or video recording capabilities. These capabilities are enabled through applications that sit on the operating system of the computing system used with the smart device, such as Android, iOS or Window's Phone.

[0006] These applications conventionally used on the operating system are not embedded in the operating system. As running smart devices is a battery draining activity and due to size, CPU and memory limitations, the operating systems of smart devices, are not designed to multi-task a plurality of applications at any one time. Consequently, only one application can be actively running at any one time, with additional applications either being shut down when another application is opened or being put into a sleeping mode. Where a recording application is in the process of capturing sound, images or video recording and an intervening action occurs on the smart device, such as receiving a phone call or accessing a web browser, the recording application is forced to stop recording. Also, these devices are typically set up to record directly to the device.

[0007] Where a personal safety incursion occurs while a person is recording with their smart device and they receive an incoming call, text message or otherwise, the recording can be interrupted and the record of the personal safety incursion can be missed. Similarly if the person causing the personal safety incursion steals the phone, or breaks it, retrieving a record of the incursion can be impossible or very difficult.

[0008] Additionally, where a personal safety incursion occurs, a person with a smart device is unable to record the incident and make an outbound phone call at the same time. They are restricted from making phone calls and using their camera to record the incident and dial 911, 000 or 112 (or any other number) at the same time.

Summary of Invention

[0009] The present invention seeks to provide a means to ameliorate, mitigate or overcome, at least one disadvantage of the prior art, or which will at least provide the public with a practical choice.

[0010] In accordance with a first aspect, the present invention provides a system for recording video, images or sound using a portable computational device;

wherein the system includes the steps of starting recording of video, images or sound using a recording system application that is bound to the operating system of the computational device; and

forming a recorded file from the recording of the video, images or sound.

[0011] By binding the recording application to the operating system, continuous recoding is enabled without having to multi-task standard applications.

[0012] Preferably, the portable computational device is connected to a wireless network.

[0013] By being connected to a wireless network the recorded files can be transmitted to a remote location for safety via video streaming or video uploading.

[0014] Preferably, the portable computational device is a smart device.

[0015] Preferably, the recorded file is uploaded to at least one remote storage device.

[0016] By storing the files on a remote device the files can be accessed later by the user of the device or others where the recoding may contain relevant details.

[0017] Preferably, the recording of the video, images or sound is uploaded or streamed to at least one remote storage device as the recording is being made.

[0018] By uploading as the recordings are being made, the risk of the recordings being either inadvertently or deliberately lost, damaged or misplaced is minimized.

[0019] Preferably, an application sits on the operating system, wherein the application interfaces with the recording system application to enable a user to control the recording system application.

[0020] By using an application of this kind, not bound to the operating system, non-expert users are able to perform system level recording safely.

[0021] Preferably, the recording system application is arranged to continue the recording of video, images or sound whilst other applications and phone calls are run on the portable computational device.

[0022] Preferably, no visual indication that the device is recording is shown on an external casing of the device.

[0023] In a dangerous situation where your personal safety is put at risk, an entity that is posing the risk is not readily alerted to the recording.

4

[0024] Preferably, the recordings can be accessed at a later time via the remote storage device.

[0025] Where a theft, assault, personal safety incident or otherwise has occurred, this allows recordings of the incident to be accessed at a later date.

[0026] Preferably, the recordings can be accessed through a networked device.

[0027] In accordance with a second aspect, the present invention provides a portable computational device including an operating system, video, image or sound recording hardware and a recording system application bound to the operating system, wherein the recording system application is arranged to record video, images or sound.

[0028] The portable device may be easily transported to enable the recording for personal safety or security reasons.

[0029] Preferably, the device is connected to a wireless network.

[0030] Preferably, the computational device is a smart device.

[0031] Preferably, the recorded file is uploaded or streamed to at least one remote storage device.

[0032] Preferably, the recorded file is uploaded or streamed to at least one remote storage device as the recorded file is being made.

[0033] Preferably, an application that sits on the operating system interfaces with the recording system application to provide a means for a user to control the recording system application.

[0034] Preferably, the recording system application is arranged to continue the recording of video, images or sound whilst other applications are run on the portable computational device.

[0035] Preferably, no visual indication that the device is recording is shown on an external casing of the device.

[0036] Preferably, the recordings can be accessed at a later time via the remote storage through a variety of devices.

Brief Description of the Drawings

[0037] Further features of the present invention are more fully described in the following description of several non-limiting embodiments thereof. This description is included solely for the purposes of exemplifying the present invention. It should not be understood as a restriction on the broad summary, disclosure or description of the invention as set out above. The description will be made with reference to the accompanying drawings in which:

Figure 1 is a flow chart of the interaction with the computerised system of a prior art smart device;

Figure 2 is a schematic of a recording system according to an embodiment of the present invention;

Figure 3 is a schematic of a recording system according to an embodiment of the present invention;

Figure 4 is a screen shot from a smart device using the recording system of an embodiment of the present invention while recording or streaming video;

Figure 5 is a screen shot from a smart device of recorded files recorded using the recording system of an embodiment of the present invention;

Figure 6 is a screen shot from a smart device showing the recording system operating whilst separate applications are run on the smart device; and

Figure 7 is a screen shot of the entrance page of an application for using the recording system of the present invention.

[0038] In the drawings like structures are referred to by like numerals throughout the several views. The drawings shown are not necessarily to scale, with emphasis instead generally being placed upon illustrating the principles of the present invention.

Description of Embodiments

[0039] Referring to Figure 1, conventional smart devices have an interface hierarchy 101 made up of components as illustrated. The components are made up of hardware 103, and an operating system 105 engaging with the hardware 103. The operating

system 105 enables applications 107, that sit on the operating system 105 to interact with the hardware 103 and perform their function. The end use 109 uses the applications 107 to nominate and control the function that the application(s) is to perform.

[0040] Examples of operating systems 105 for smart devices are Android, iOS and Windows Phone. These examples are not exhaustive.

[0041] The operating system 105 acts to facilitate the function of all applications.

[0042] Referring to Figure 2, the recording system of the present invention is illustrated. A smart device 110 has its computer system structured to include a processor 102, read only memory (ROM) 104, random access memory (RAM) 106, applications 108 and an operating system 118.

[0043] The applications 108 sit on the operating system 118 and are allocated memory and prevalence according to the rules of the operating system 118. As the operating system 118 is for a smart device 110, applications that are not in use on screen are shut down or put into a sleep mode to allow processing of the application on screen and to preserve battery charge.

[0044] The recording is undertaken using recording system application 116. The recording system application 116 records images or video using a lens of the smart device 110. Alternatively, or in conjunction with the image or video recording, the recording system application 116 can record sound using a microphone of the smart device 110.

[0045] Alternatively the recording of the image or video and or sound can be captured with a camera, video camera or microphone that is distal to the smart device 110. In this scenario, the camera, video camera or microphone is connected to the smart device through wiring, or wirelessly.

[0046] The recording system application 116 is bound to the operating system 118 with system level access. This enables the recording system application 116 to record images, video or sound continuously at the operating system level while other applications 108 are run on the smart device 110.

[0047] Therefore if incoming calls or other actions are undertaken, the recording of images, video or sound continues whilst the incoming call or other action is received.

[0048] The smart device 110 is wirelessly linked to a wireless transmitter/receiver 111. The wireless transmitter/receiver 111 allows images, video and/or sound recorded by the smart device 110 to be uploaded onto a remote storage device 112. This allows a record of the recorded images, video and/or sound to be available even if the smart device 110 becomes damaged, stolen or lost.

[0049] In one example the wireless transmitter/receiver 111 is part of a wireless Local Area Network (LAN). The smart device 110 transmits recorded images, video and/or sound to the LAN onto a local storage device 112 such as a hard drive, server or otherwise. This example is particularly useful for use in a private setting where controlling digital security access to a smart device 110 is important, but a recording of where and what a user has been doing is helpful.

[0050] A second embodiment of the invention is illustrated in Figure 3. For convenience, features of the second embodiment that are similar or correspond to features of the first embodiment have been referenced with the same reference numerals.

[0051] In the second embodiment, the applications 108 sit on the operating system 118 and are allocated memory and prevalence according to the multitasking rules of the operating system 118. As the operating system 118 is for a smart device 110, applications that are not in use on screen are shut down or put into a sleep mode to allow processing of the application on screen and to preserve battery charge.

[0052] The recording is undertaken using recording system application 116. The recording system application 116 records images or video using a lens of the smart device 110. Alternatively, or in conjunction with the image or video recording, the recording system application 116 can record sound using a microphone of the smart device 110.

[0053] In the second embodiment, the smart device 110 is wirelessly connected to an open network 114 such as a telecommunications network, WiFi network or otherwise. Using the open network 114, the recorded images, video or sound can be transferred or

copied from the smart device 110 across numerous remote storage servers 100, in what is commonly referred to as cloud storage.

[0054] Alternatively, the smart device 110 can be set up to transfer the recorded images, video or sound to a specific storage device through the open network 114.

[0055] In one embodiment of the present invention, equally applicable to both the first and second embodiments noted above, the smart device 110 includes an application that displays to the user and enables the user to initiate and control the recording of the image, video or sound. This application is linked to a service application that together establish the recording system application 116 that is bound to the operating system and acts as an intermediary between the application and the operating system. As the service application is bound to the operating system, the recording of image(s), video and/or sound is performed separately to the operation of applications on the smart device. Therefore the recording of image(s), video and/or sound is not interrupted, or put into a mode of suspension when applications are open or used on the smart device at the application level.

[0056] In an alternative embodiment, the service application is embedded in the operating system.

[0057] In one embodiment of the present invention, the recording of images, video and/or sound is streamed to the storage device 112 or remote storage servers 100. When the recording is stopped the stored file is completed. Alternatively the streamed recording is stopped and stored.

[0058] In an alternative embodiment, the recording of images, video and/or sound is recorded internally on the smart device for a predetermined period, i.e. 20 minutes and then uploaded to the storage device 112 or remote storage servers 100. The recording can continue once the currently recorded period is uploaded either automatically, or it may need to be manually initiated.

[0059] Alternatively, the recording can be continued whilst another recording is being uploaded.

[0060]   In yet a further alternative embodiment the smart device 110 can recognize that the smart device's memory capabilities are nearing their limits, cease recording and upload the recoded image(s), video and/or sound.

[0061]   In an embodiment of the present invention, where no wireless signal is available, the smart device 110 can record the image(s), video and/or sound internally in an encrypted format. When the signal is re-established the smart device can send the recorded image(s), video and or sound to the storage device 112 or remote servers 100.

[0062]   Referring to Figure 4, a recording screen shot 400 of the application interface used by the user to start recording a video is shown. A record icon 401 is used to initiate the recording of a video. When initiated, the recording is started on the operating system level and the user is then able to exit the application interface and continue recording.

[0063]   In one embodiment there is no indication shown on the cover of the smart device 110 that the recording is underway. In another embodiment, an indication, for example in the form of an illuminated light on the cover of the smart device 110 indicates that recording is underway.

[0064]   In an embodiment of the present invention, recording using the recording system of the present invention can be initiated using a dedicated shortcut key or button, or a combination of keys or buttons on the smart device 110. This enables the initiation of a recording in a dangerous situation without having to take the time and to make obvious the initiation of the recording.

[0065]   Referring to Figure 5, a storage screen shot 500 of recorded files 503 is shown. These recorded files are stored remotely on one of the storage devices 112 or remote servers 100. These recorded files can be accessed through the application that the user uses to interface with the recording system.

[0066]   Referring to Figure 6, an application screen shot 600 of a separate application open on the smart device 110 is shown while the recording system is still recording. The active icon 605 indicates that the smart device 110 is still recording in spite of separate applications being open.

[0067] Referring to Figure 7, a login page 700 for the application that interfaces with the recording system of the present invention is shown. The application acts to provide and interface for the user to the recording capabilities.

[0068] Modifications and variations such as would be apparent to the skilled addressee are considered to fall within the scope of the present invention. The present invention is not to be limited in scope by any of the specific embodiments described herein. These embodiments are intended for the purpose of exemplification only. Functionally equivalent products, formulations and methods are clearly within the scope of the invention as described herein.

[0069] Reference to positional descriptions, such as lower and upper, are to be taken in context of the embodiments depicted in the figures, and are not to be taken as limiting the invention to the literal interpretation of the term but rather as would be understood by the skilled addressee.

[0070] Throughout this specification, unless the context requires otherwise, the word *"comprise"* or variations such as *"comprises"* or *"comprising"*, will be understood to imply the inclusion of a stated integer or group of integers but not the exclusion of any other integer or group of integers.

[0071] Also, future patent applications maybe filed in Australia or overseas on the basis of, or claiming priority from, the present application. It is to be understood that the following provisional claims are provided by way of example only, and are not intended to limit the scope of what may be claimed in any such future application. Features may be added to or omitted from the provisional claims at a later date so as to further define or re-define the invention or inventions.

CLAIMS:

1.   A system for recording video, images or sound using a portable computational device;

wherein the system includes the steps of starting recording of video, images or sound using a recording system application that is bound to the operating system of the computational device; and

forming a recorded file from the recording of the video, images or sound.

2.   The system as claimed in Claim 1, wherein the portable computational device is connected to a wireless network.

3.   The system as claimed in Claim 1 or 2, wherein the portable computational device is a smart device.

4.   The system as claimed in Claim 1, 2 or 3, wherein the recorded file is uploaded or streamed to at least one remote storage device.

5.   The system as claimed in Claim 4, wherein the recording of the video, images or sound is uploaded or streamed to at least one remote storage device as the recording is being made.

6.   The system as claimed in any one of the preceding claims where an application sits on the operating system, wherein the application interfaces with the recording system application to enable a user to control the recording system application.

7.   The system as claimed in any one of the preceding claims, wherein the recording system application is arranged to continue the recording of video, images or sound whilst other applications and phone calls are run on the portable computational device.

8.   The system as claimed in any one of the preceding claims, wherein no visual indication that the device is recording is shown on an external casing of the device.

9.   The system as claimed in any one of the preceding claims, wherein the recordings can be accessed at a later time via the remote storage device.

10.   The system as claimed in Claim 9, wherein the recordings can be accessed through a networked device.

11.   A portable computational device including an operating system, video, image or sound recording hardware and a recording system application bound to the operating system, wherein the recording system application is arranged to record video, images or sound.

12.   The portable computational device as claimed in Claim 11, wherein the device is connected to a wireless network.

13.   The portable computation device as claimed in Claim 11 or 12, wherein the computational device is a smart device.

14.   The portable computation device as claimed in Claim 11, 12 or 13, wherein the recorded file is uploaded or streamed to at least one remote storage device.

15.   The portable computation device as claimed in Claim 14, wherein the recorded file is uploaded or streamed to at least one remote storage device as the recorded file is being made.

16.   The portable computation device as claimed in any one of Claims 11 to 15, where an application that sits on the operating system interfaces with the recording system application to provide a means for a user to control the recording system application.

17.   The portable computation device as claimed in any one of Claims 11 to 16, wherein the recording system application is arranged to continue the recording or streaming of video, images or sound whilst other applications are run on the portable computational device.

18.   The portable computation device as claimed in any one of the preceding claims, wherein no visual indication that the device is recording is shown on an external casing of the device.

19.   The portable computation device as claimed in any one of the preceding claims, wherein the recordings can be accessed at a later time via the remote storage through a variety of devices.
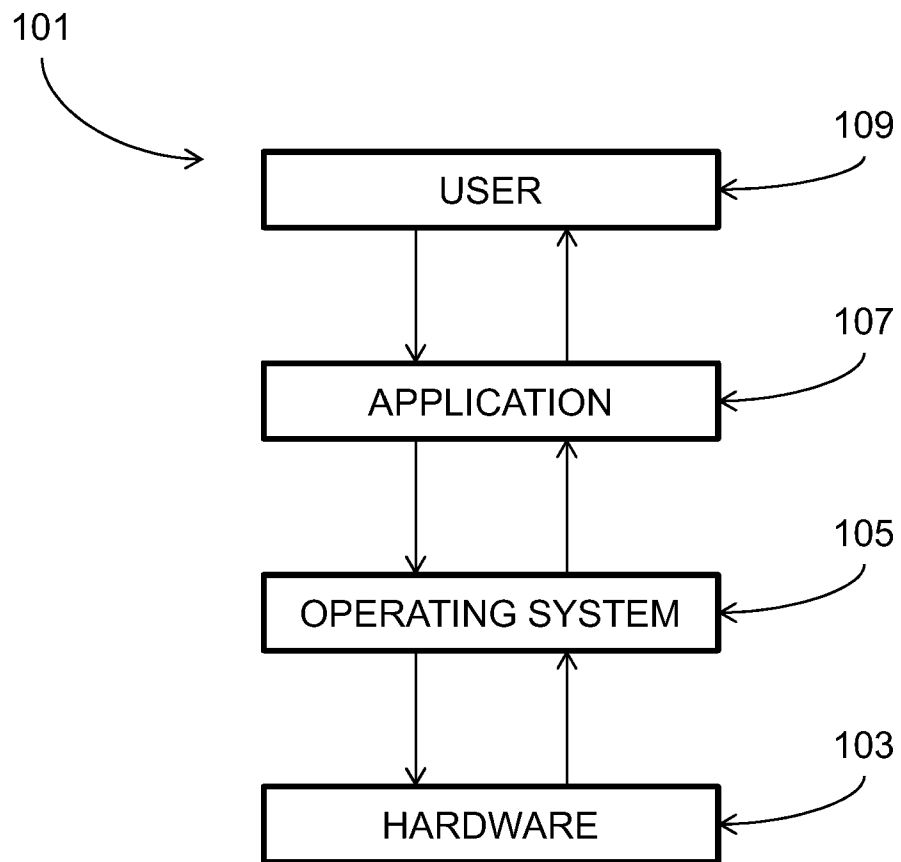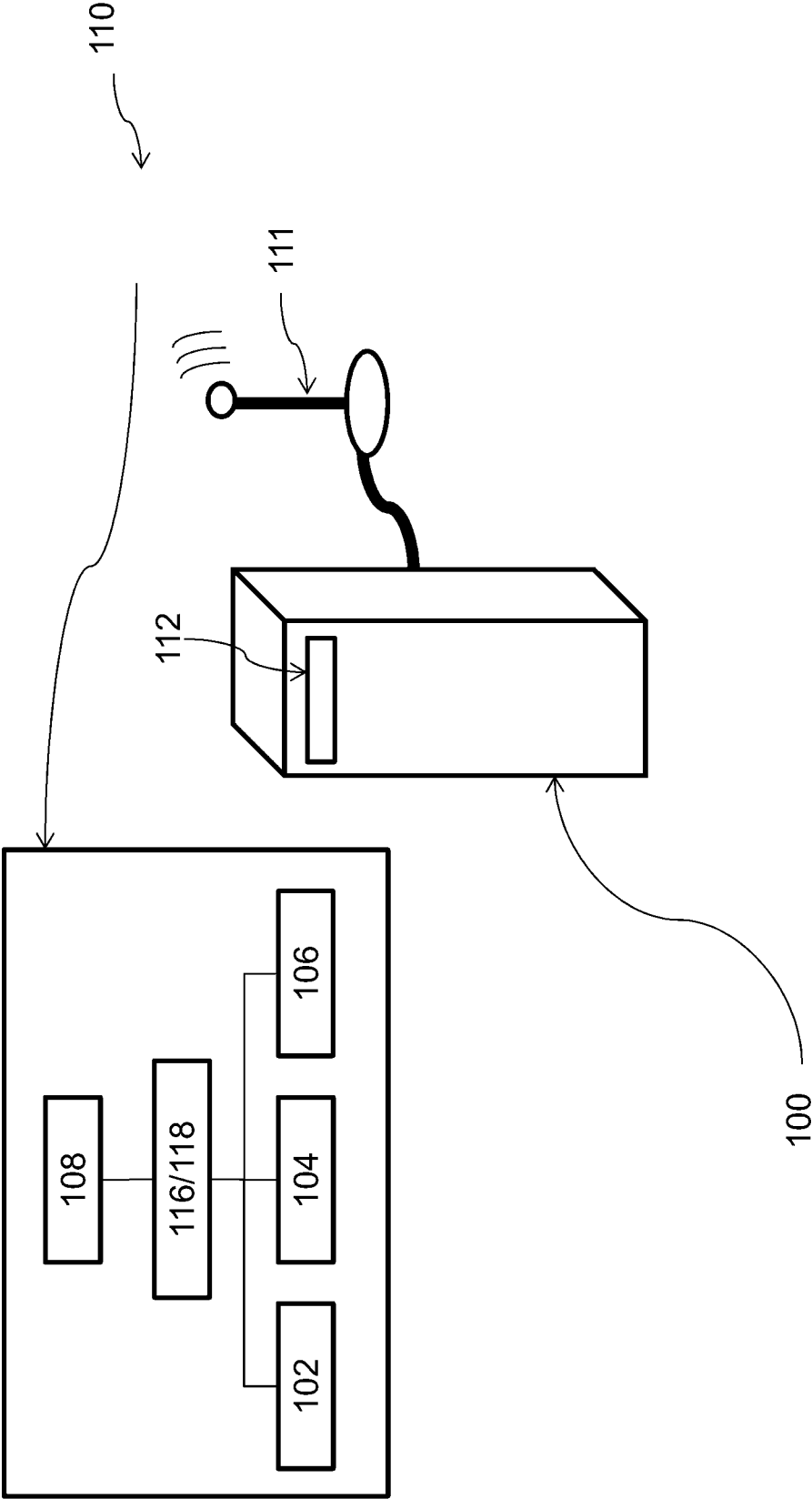
101

109

| USER |

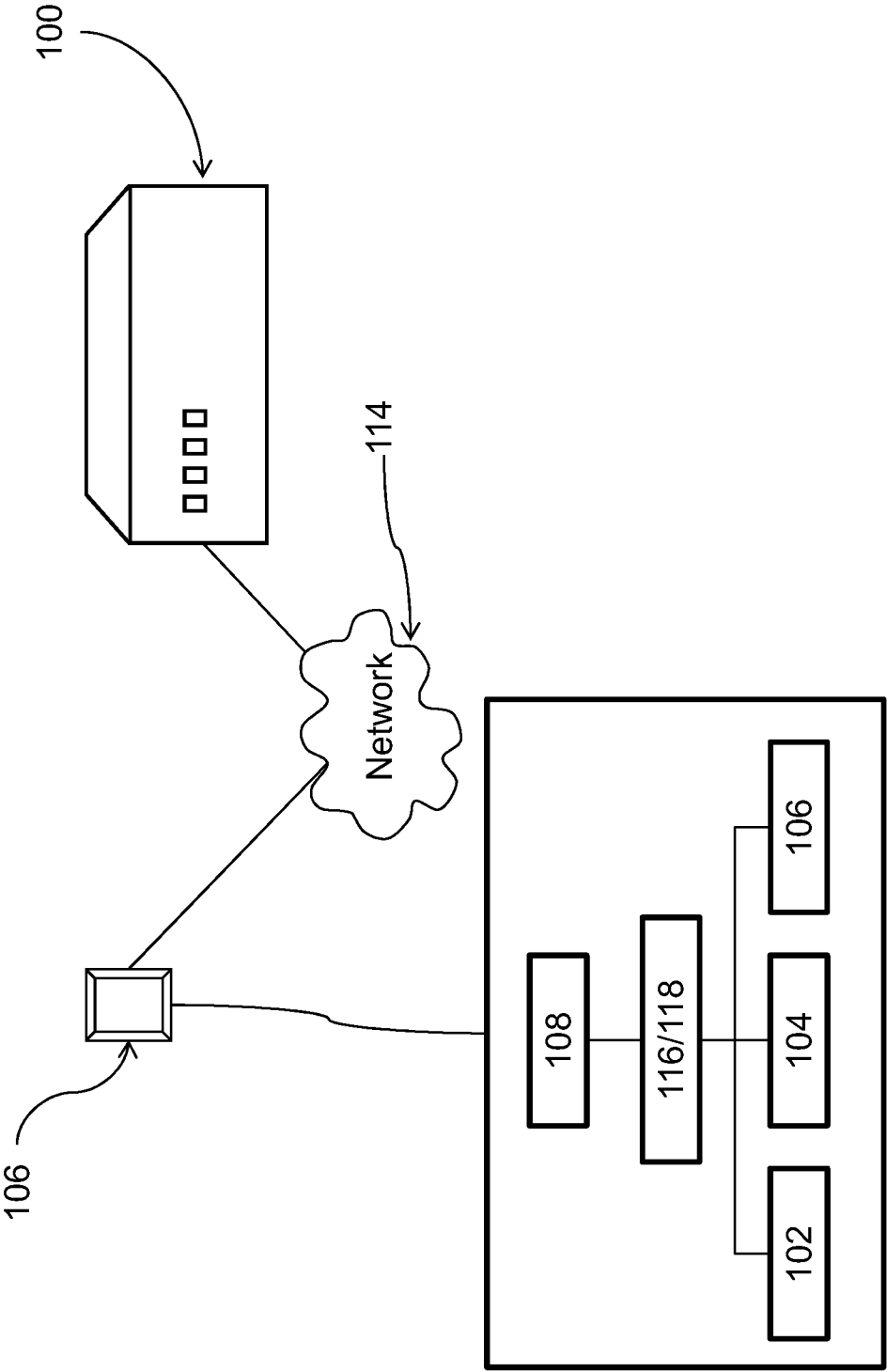107

| APPLICATION |

105

| OPERATING SYSTEM |

103

| HARDWARE |

Figure 1

Figure 2

Figure 3

Figure 4

Figure 5

605

600

Figure 6

700

• Did you forget your password?
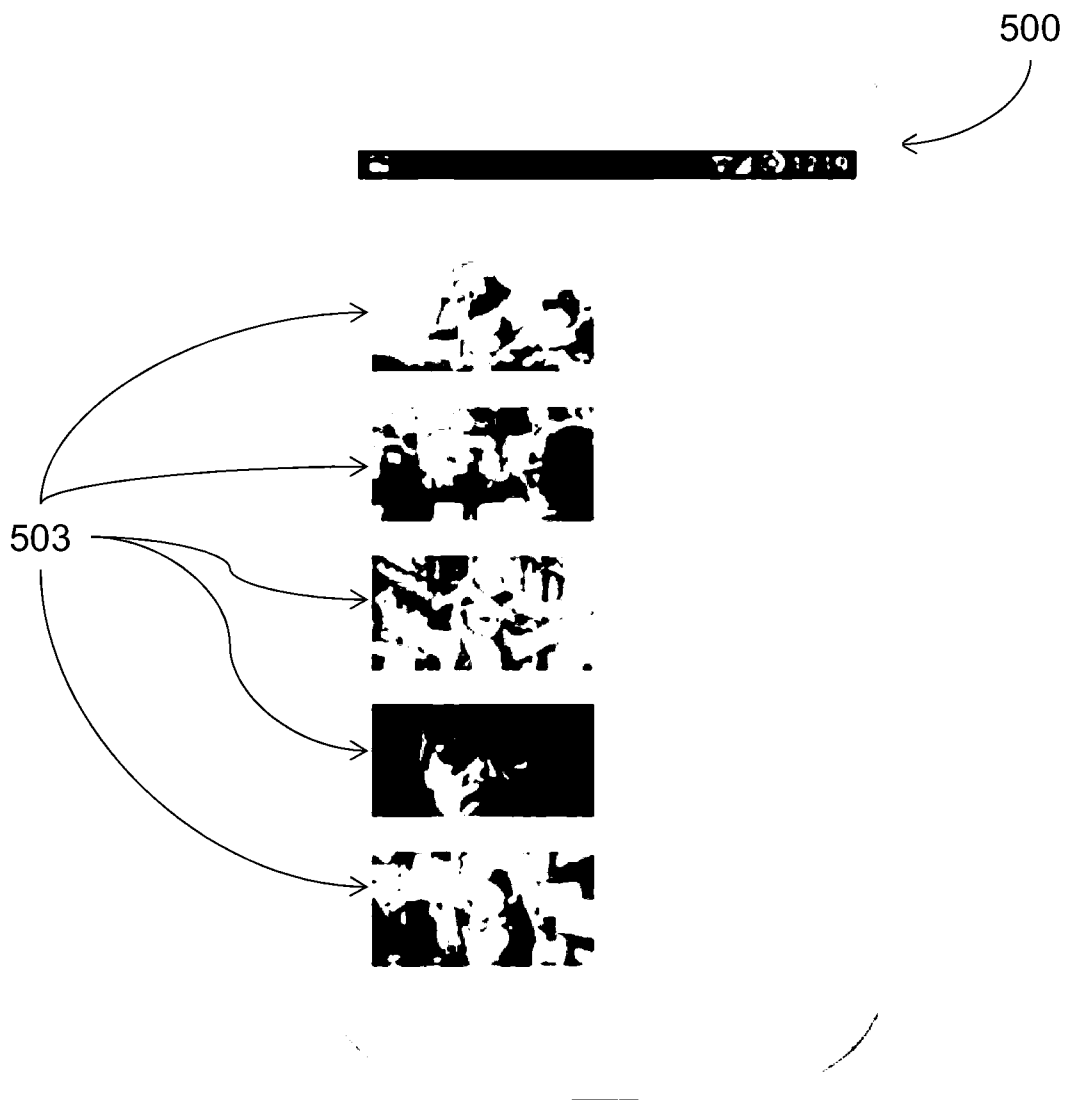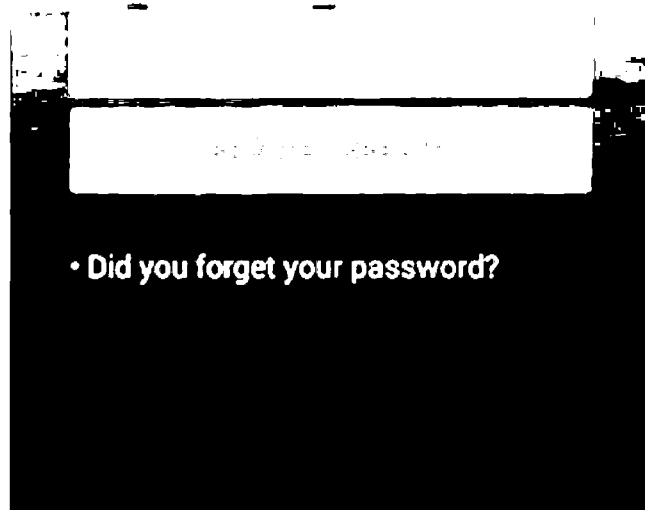
Figure 7

INTERNATIONAL SEARCH REPORT	International application No.
	PCT/AU2015/000519

A. CLASSIFICATION OF SUBJECT MATTER
H04L 29/06 (2006.01) G06F 9/445 (2006.01) G06F 15/16 (2006.01)

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

<u>Internal databases</u> provided by IP Australia searched for the applicant names. <u>Google Patents</u> with keywords (smartphone, smartwatch, save to cloud, spy recording, personal safety, breadcrumb trail, CCTV, surveillance, real-time sound, alsa, jackd) and similar terms. <u>Espacenet</u> searched with keywords "WILLIAMS JEREMY" OR "WILLIAMS JEREMY LEE " as the inventor. WPIAP, EPODOC: Searched with keywords (record sound, record media, wireless, smart, smartphone, upload, streaming cloud, background, application, service, network, smartphone spying, smartphone tracking, smartphone evidence, smartphone cloud, smart phone jackd, remote access) and like terms.

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
	Documents are listed in the continuation of Box C	

X	Further documents are listed in the continuation of Box C	X	See patent family annex

*	Special categories of cited documents:		
"A"	document defining the general state of the art which is not considered to be of particular relevance	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"E"	earlier application or patent but published on or after the international filing date	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"L"	document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"O"	document referring to an oral disclosure, use, exhibition or other means	"&"	document member of the same patent family
"P"	document published prior to the international filing date but later than the priority date claimed		

Date of the actual completion of the international search	Date of mailing of the international search report
17 September 2015	17 September 2015
Name and mailing address of the ISA/AU	**Authorised officer**
AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA Email address: pct@ipaustralia.gov.au	Marthinus Van Der Westhuizen AUSTRALIAN PATENT OFFICE (ISO 9001 Quality Certified Service) Telephone No. 0262832283

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X Y	WO 2013/184180 A2 (NEXT LEVEL SECURITY SYSTEMS, INC.) 12 December 2013 Title, Abstract; paragraphs [0007-0008], [0015], [0033-0041], [0051], [0060-0066] Whole of document	1-6, 9-16 and 19 7, 8, 17 and 18
Y	US 2012/0196571 A1 (GRKOV et al.) 02 August 2012 Title, Abstract; paragraph [0302]	7 and 17
Y	US 2013/0183924 A1 (SAIGH et al.) 18 July 2013 Title, Abstract; paragraph [0077]	8 and 18

This Annex lists known patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document/s Cited in Search Report		Patent Family Member/s	
Publication Number	**Publication Date**	**Publication Number**	**Publication Date**
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		US 2013329047 A1	12 Dec 2013
US 2012/0196571 A1	02 August 2012	US 2012196571 A1	02 Aug 2012
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		AU 2011207398 B2	20 Nov 2014

Due to data integration issues this family listing may not include 10 digit Australian applications filed since May 2001.

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Patent Document/s Cited in Search Report		Patent Family Member/s	
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		US 2015230072 A1	13 Aug 2015
		WO 2011091322 A2	28 Jul 2011
		WO 2014015141 A1	23 Jan 2014

End of Annex

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Form PCT/ISA/210 (Family Annex)(July 2009)