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Singh et al.

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(54) **AUTOMATIC MULTIMEDIA UPLOAD FOR PUBLISHING DATA AND MULTIMEDIA CONTENT**

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

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Related U.S. Application Data

(63) Continuation of application No. 14/172,913, filed on Feb. 5, 2014, which is a continuation of application No. 13/740,214, filed on Jan. 13, 2013, now Pat. No. 8,700,790, which is a continuation of application No. 12/333,303, filed on Dec. 11, 2008, now Pat. No. 8,392,591.

(60) Provisional application No. 61/017,202, filed on Dec. 28, 2007.

(51) **Int. Cl.**
G06F 15/16 (2006.01)

(52) **U.S. Cl.**
USPC **709/230**

(58) **Field of Classification Search**
CPC H04L 64/403
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

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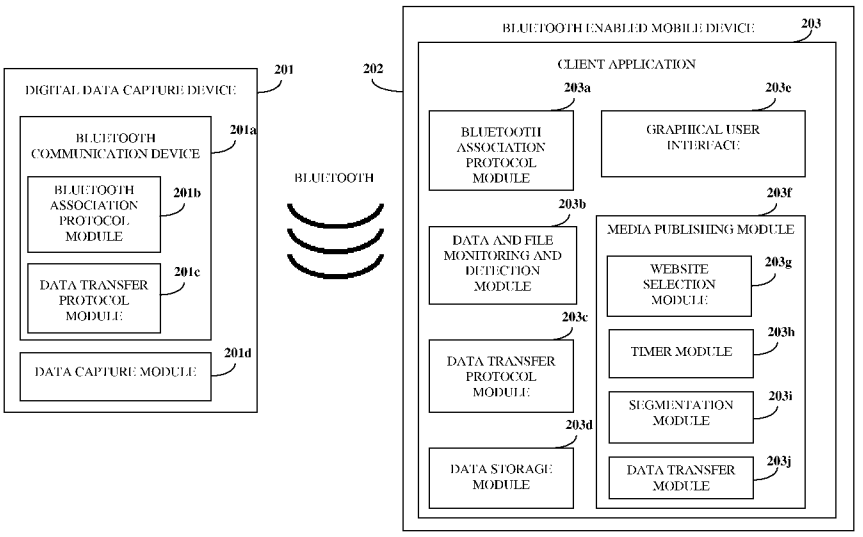
(57) **ABSTRACT**

Disclosed herein is a method and system for utilizing a digital data capture device in conjunction with a Bluetooth (BT) enabled mobile device for publishing data and multimedia content on one or more websites automatically or with minimal user intervention. A client application is provided on the BT enabled mobile device. In the absence of inbuilt BT capability, a BT communication device is provided on the digital data capture device. The BT communication device is paired with the BT enabled mobile device to establish a connection. The client application detects capture of data and multimedia content on the digital data capture device and initiates transfer of the captured data, multimedia content, and associated files. The digital data capture device transfers the captured data, multimedia content, and the associated files to the client application. The client application automatically publishes the transferred data and multimedia content on one or more websites.

26 Claims, 5 Drawing Sheets



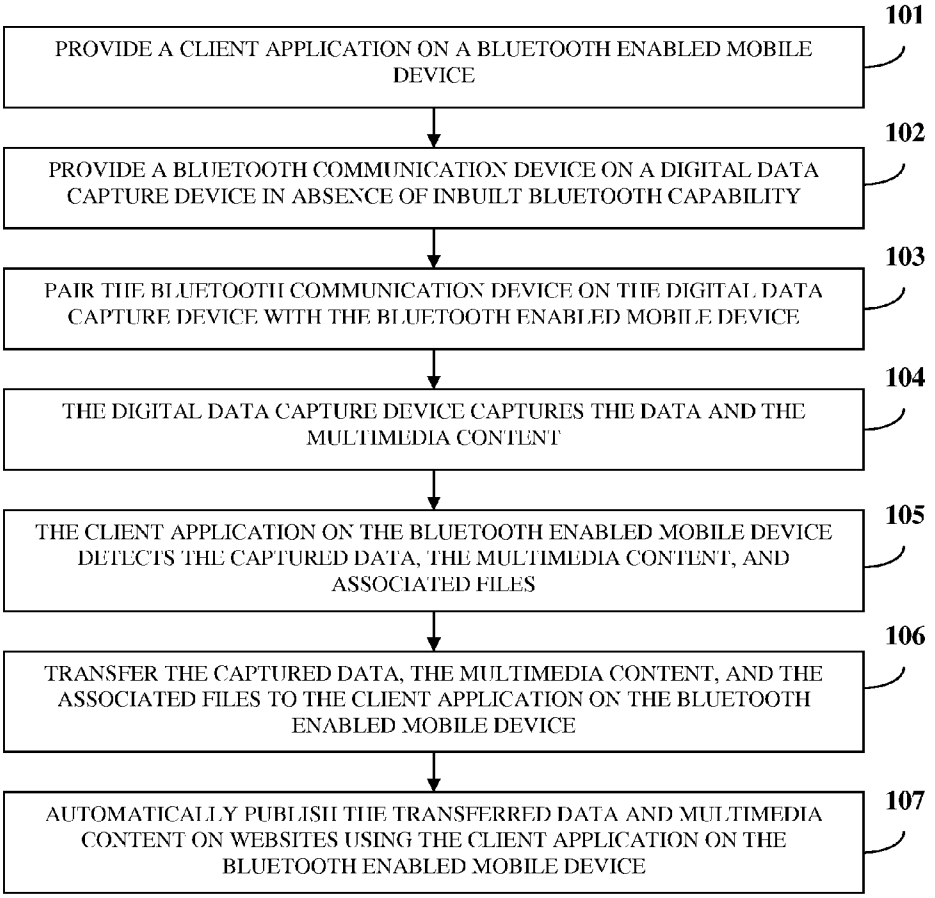

101
PROVIDE A CLIENT APPLICATION ON A BLUETOOTH ENABLED MOBILE DEVICE
102
PROVIDE A BLUETOOTH COMMUNICATION DEVICE ON A DIGITAL DATA CAPTURE DEVICE IN ABSENCE OF INBUILT BLUETOOTH CAPABILITY
103
PAIR THE BLUETOOTH COMMUNICATION DEVICE ON THE DIGITAL DATA CAPTURE DEVICE WITH THE BLUETOOTH ENABLED MOBILE DEVICE
104
THE DIGITAL DATA CAPTURE DEVICE CAPTURES THE DATA AND THE MULTIMEDIA CONTENT
105
THE CLIENT APPLICATION ON THE BLUETOOTH ENABLED MOBILE DEVICE DETECTS THE CAPTURED DATA, THE MULTIMEDIA CONTENT, AND ASSOCIATED FILES
106
TRANSFER THE CAPTURED DATA, THE MULTIMEDIA CONTENT, AND THE ASSOCIATED FILES TO THE CLIENT APPLICATION ON THE BLUETOOTH ENABLED MOBILE DEVICE
107
AUTOMATICALLY PUBLISH THE TRANSFERRED DATA AND MULTIMEDIA CONTENT ON WEBSITES USING THE CLIENT APPLICATION ON THE BLUETOOTH ENABLED MOBILE DEVICE

FIG. 1

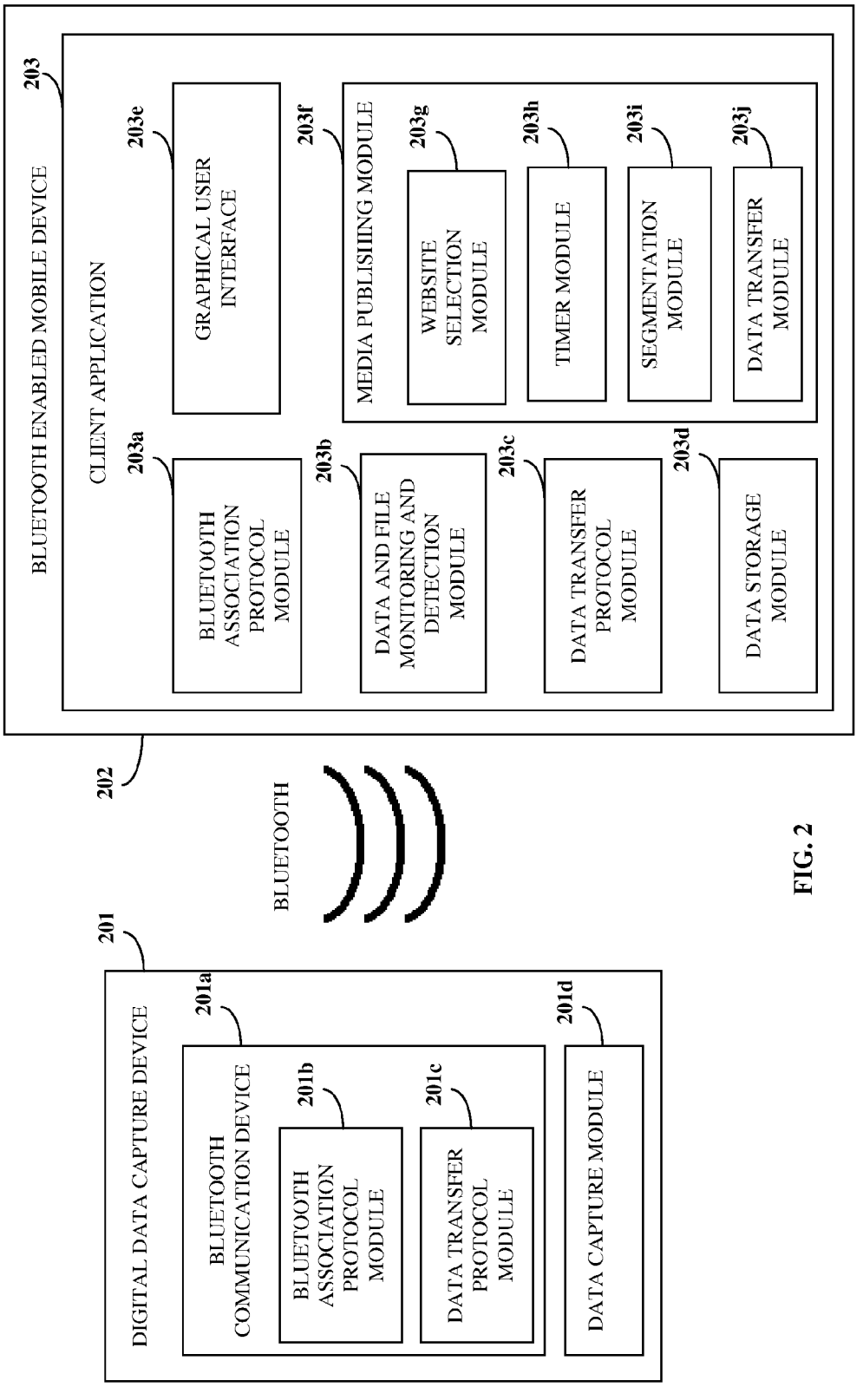

BLUETOOTH ENABLED MOBILE DEVICE
203
CLIENT APPLICATION
203a
BLUETOOTH ASSOCIATION PROTOCOL MODULE
203b
DATA AND FILE MONITORING AND DETECTION MODULE
203c
DATA TRANSFER PROTOCOL MODULE
203d
DATA STORAGE MODULE
203e
GRAPHICAL USER INTERFACE
203f
MEDIA PUBLISHING MODULE
203g
WEBSITE SELECTION MODULE
203h
TIMER MODULE
203i
SEGMENTATION MODULE
203j
DATA TRANSFER MODULE
202
BLUETOOTH
201
DIGITAL DATA CAPTURE DEVICE
201a
BLUETOOTH COMMUNICATION DEVICE
201b
BLUETOOTH ASSOCIATION PROTOCOL MODULE
201c
DATA TRANSFER PROTOCOL MODULE
201d
DATA CAPTURE MODULE

FIG. 2

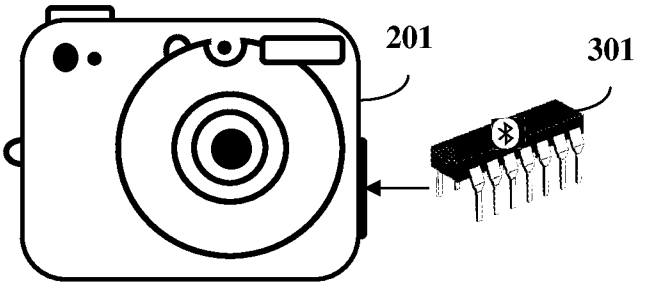


FIG. 3A

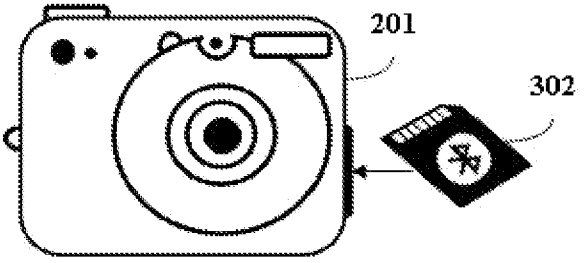


FIG. 3B

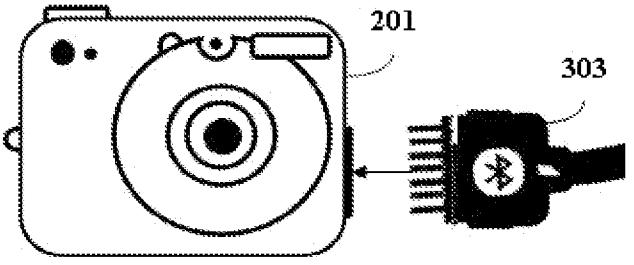


FIG. 3C

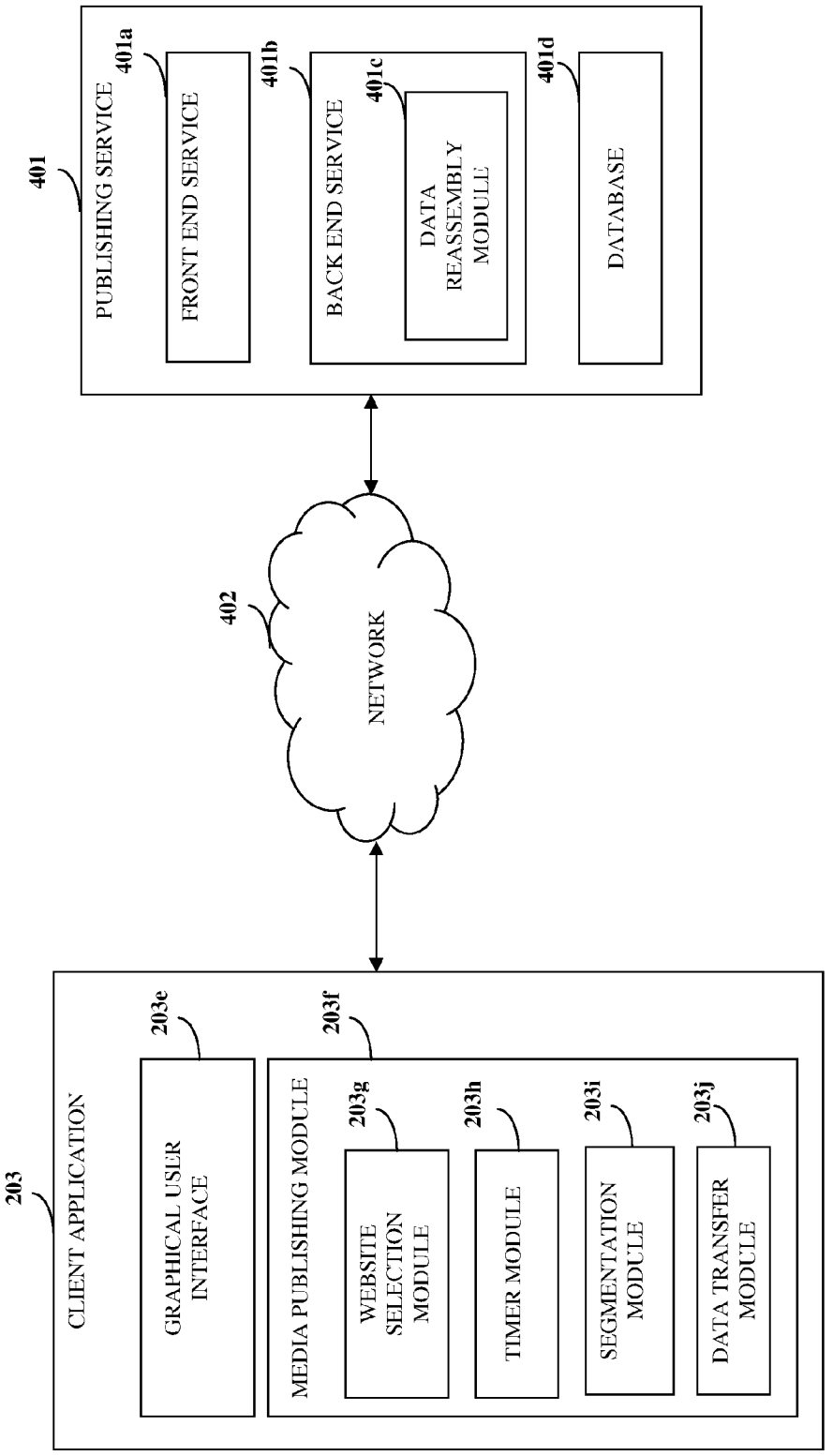

401
PUBLISHING SERVICE
401a
FRONT END SERVICE
401b
BACK END SERVICE
401c
DATA REASSEMBLY MODULE
401d
DATABASE
402
NETWORK
203
CLIENT APPLICATION
203e
GRAPHICAL USER INTERFACE
203f
MEDIA PUBLISHING MODULE
203g
WEBSITE SELECTION MODULE
203h
TIMER MODULE
203i
SEGMENTATION MODULE
203j
DATA TRANSFER MODULE

FIG. 4

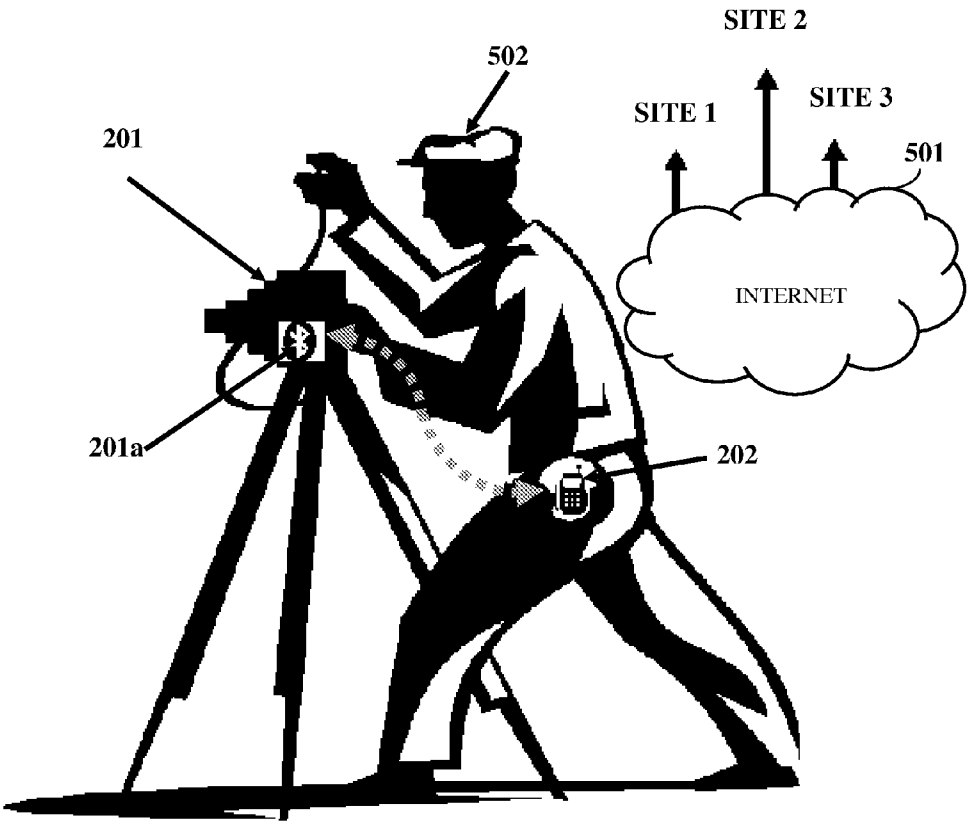


FIG. 5

AUTOMATIC MULTIMEDIA UPLOAD FOR PUBLISHING DATA AND MULTIMEDIA CONTENT

CROSS REFERENCE TO RELATED APPLICATIONS

1. This application is a continuation application of non-provisional patent application Ser. No. 14/172,913, titled "Automatic multimedia upload for publishing multimedia content", filed on Feb. 5, 2014 in the United States Patent and Trademark Office, which is a continuation application of non-provisional patent application Ser. No. 13/740,214, titled "Automatic multimedia upload for publishing multimedia content", filed on Jan. 13, 2013 in the United States Patent and Trademark Office, which is a continuation application of non-provisional patent application Ser. No. 12/333,303, now U.S. Pat. No. 8,392,591, titled "Automatic multimedia upload for publishing multimedia content", filed on Dec. 11, 2008 in the United States Patent and Trademark Office, which claims the benefit of U.S. provisional patent application No. 61/017,202, titled "Automatic multimedia upload for publishing multimedia content", filed on Dec. 28, 2007 in the United States Patent and Trademark Office. The specifications of the above referenced applications are incorporated herein by reference in their entirety.
2. The following patent application is incorporated herein in its entirety: U.S. Non-provisional patent application Ser. No. 11/901,802, titled "Online Publishing Of Multimedia Content", filed on Sep. 19, 2007 in the United States Patent and Trademark Office.

BACKGROUND

This invention, in general, relates to distribution of multimedia content. More particularly, this invention relates to pairing a digital data capture device in conjunction with a mobile device for automatically publishing data and multimedia content on one or more websites simultaneously.

A user may need to capture and publish data and multimedia content on the internet in real time. Typically, the user would capture an image using a digital camera or a video camera, store the image on a memory device of the digital camera, and transfer the image to a computing device such as a personal computer (PC). In order to transfer the image to the PC, the user would transfer the image off-line to the PC, use a cable such as a universal serial bus (USB) or a memory stick and plug the cable into the PC. The user would then manually upload the image onto a website which takes time and may be inconvenient for the user.

Therefore, there is a need for a method and system to utilize a digital data capture device in conjunction with a mobile device for automatically detecting capture of data and multimedia content, transferring the captured data and multimedia content to the mobile device, and publishing the data and multimedia content on one or more websites automatically or with minimal user intervention.

SUMMARY OF THE INVENTION

This summary is provided to introduce a selection of concepts in a simplified form that are further described in the detailed description of the invention. This summary is not intended to identify key or essential inventive concepts of the claimed subject matter, nor is it intended for determining the scope of the claimed subject matter.

The method and system disclosed herein addresses the above stated need for utilizing a digital data capture device in conjunction with a Bluetooth™ (BT) enabled mobile device for publishing data and multimedia content on one or more websites automatically or with minimal user intervention. The digital data capture device is physically separated from the BT enabled mobile device.

In the method and system disclosed herein, a client application is provided on a BT enabled mobile device. In the absence of in-built BT capability in the digital data capture device, a BT communication device is provided on the digital data capture device. The BT communication device may, for example, be an in-built BT capability chip, a BT memory card, or an external BT device. The BT communication device on the digital data capture device is paired with the BT enabled mobile device to establish a connection between the digital data capture device and the BT enabled mobile device.

A user may capture data and multimedia content using the digital data capture device. The digital data capture device may, for example, be a digital camera, a video camera, or other digital modular camera systems. The client application on the BT enabled mobile device detects the captured data, multimedia content, and files associated with the captured data and the multimedia content on the digital data capture device by communicating over a wireless BT protocol. The captured data, multimedia content, and the associated files are automatically transferred to the client application on the BT enabled mobile device from the digital data capture device.

The detection and transfer of the captured data, the multimedia content, and the associated files may be initiated by the client application of the BT enabled mobile device. The detection and transfer of the captured data, the multimedia content, and the associated files to the BT enabled mobile device may be initiated by the digital data capture device when the client application is unable to detect the captured data, the multimedia content, and the associated files from the digital data capture device.

The user may configure a timer setting and select the websites for publishing using the client application on the BT enabled mobile device. The client application selects the websites for publishing the transferred data and the multimedia content based on user preferences configured on the Bluetooth enabled mobile device. The client application also sets time for publishing the transferred data and the multimedia content automatically or with minimal user intervention. The client application on the BT enabled mobile device automatically publishes the transferred data and multimedia content on one or more websites using the settings configured by the user. The method and system disclosed herein thereby enables the user to capture data and multimedia content, for example, audio, video, text, and images, automatically upload the captured data and multimedia content onto a BT enabled mobile device, and publish the data and multimedia content on one or websites automatically or with minimal user intervention. The user may therefore publish data and the multimedia content on immediate capture of the data and the multimedia content on the digital data capture device.

The method and system disclosed herein is described with reference to a BT communication protocol. The method and system disclosed herein may be realized with wireless protocols, for example, Zigbee® protocol, Wibree™ protocol, Ultra-Wide Band (UWB) protocol, and other wireless protocols for wireless personal area networks.

BRIEF DESCRIPTION OF THE DRAWINGS

The foregoing summary, as well as the following detailed description of the invention, is better understood when read in

conjunction with the appended drawings. For the purpose of illustrating the invention, exemplary constructions of the invention are shown in the drawings. However, the invention is not limited to the specific methods and instrumentalities disclosed herein.

FIG. **1** illustrates a method of utilizing a digital data capture device in conjunction with a Bluetooth enabled mobile device for publishing data and multimedia content on one or more websites automatically or with minimal user intervention.

FIG. **2** illustrates a system for utilizing a digital data capture device in conjunction with a Bluetooth enabled mobile device for publishing data and multimedia content on one or more websites automatically or with minimal user intervention.

FIGS. **3**A-**3**C exemplarily illustrate the Bluetooth communication device options used on the digital data capture device for establishing a Bluetooth connection with the client application on the Bluetooth enabled mobile device.

FIG. **4** exemplarily illustrates a system for publishing data and the multimedia content using a client application on a mobile device on one or more websites simultaneously.

FIG. **5** exemplarily illustrates a user utilizing a digital camera in conjunction with a Bluetooth enabled mobile device for publishing data and multimedia content on one or more websites automatically or with minimal user intervention.

DETAILED DESCRIPTION OF THE INVENTION

FIG. **1** illustrates a method of utilizing a digital data capture device **201** in conjunction with a Bluetooth™ enabled mobile device **202** for publishing data and multimedia content on one or more websites automatically or with minimal user intervention. The term "Bluetooth enabled mobile device" is herein referred to as "mobile device". The digital data capture device **201** is physically separated from the mobile device **202** as illustrated in FIG. **2**. The digital data capture device **201** may, for example, be a digital camera, a video camera, digital modular camera systems, or other digital data capturing systems.

In the method disclosed herein, a client application **203** is provided **101** on the mobile device **202**. In the absence of inbuilt Bluetooth (BT) capability in the digital data capture device **201**, a BT communication device **201***a* is provided **102** on the digital data capture device **201**. The BT communication device **201***a* may, for example, be an inbuilt BT capability chip **301**, a BT memory card **302**, or an external BT device **303** as illustrated in FIGS. **3**A-**3**C respectively. The external BT device **303** may, for example, be attached to a universal serial bus (USB), a firewire interface, or a power port of the digital data capture device **201**. BT provides a method of connecting and exchanging information between devices, for example, mobile phones, laptops, personal computers (PCs), printers, digital cameras, etc. over a secure and globally unlicensed short-range radio frequency.

The BT communication device **201***a* on the digital data capture device **201** is paired **103** with the mobile device **202** to establish a connection between the digital data capture device **201** and the mobile device **202**. BT pairing involves establishing a connection between two BT devices that mutually agree to communicate with each other. A BT device that wants to communicate only with a trusted device can cryptographically authenticate the identity of another BT device. BT pairing occurs when the BT communication device **201***a* agrees to communicate with the mobile device **202** in order to establish a connection. In order to initiate the pairing process between the BT communication device **201***a* and the mobile device **202**, a common password known as a passkey is exchanged between the BT communication device **201***a* and the mobile device **202**. A passkey is a code shared by the BT communication device **201***a* and the mobile device **202**.

A user sets a discoverable mode for the mobile device **202**. When set to the discoverable mode, the mobile device **202** will allow the BT communication device **201***a* on the digital data capture device **201** to detect the mobile device's **202** presence and attempt to establish a connection. In order to initiate the pairing process, the BT communication device **201***a* will send the BT communication device name of a predefined number of characters, for example, up to 255 characters, and the BT address to the mobile device **202**. The BT communication device **201***a* then prompts the user of the mobile device **202** to enter the passkey code in order to accept the pairing with the BT communication device **201***a* on the digital data capture device **201**. On entering the passkey by the user of the mobile device **202**, the entered passkey is matched with the passkey of the BT communication device **201***a*. If a match is found, a trusted pair is automatically established.

The user captures **104** data and multimedia content using the digital data capture device **201**. The data and multimedia content may, for example, comprise image files, audio files, video files, text files, or any combination thereof. The client application **203** on the mobile device **202** detects **105** the captured data, the multimedia content, and files associated with the captured data and the multimedia content. The client application **203** then initiates the transfer of the captured data, the multimedia content, and the associated files in a pull mode of operation. In the pull mode, the client application **203** periodically polls the digital data capture device **201** to determine the creation of a new file in the digital data capture device **201**. The digital data capture device **201** then automatically transfers **106** the captured data, the multimedia content, and the associated files to the client application **203** on the mobile device **202** using one or a combination of file transfer protocols. The file transfer protocols may, for example, be one or a combination of BT profile protocols such as the object exchange (OBEX) protocol, the generic object exchange profile (GOEP) protocol, etc. The file transfer protocols may, for example, also be the media transfer protocol (MTP), the picture transfer protocol (PTP), and the PictBridge protocol implemented using a USB.

The picture transfer protocol (PTP) allows the transfer of images from digital cameras to computers and other peripheral devices without the need of additional device drivers. The media transfer protocol is a custom extension to the PTP and allows the protocol to be used for devices other than digital cameras, for example digital audio players and other portable media devices, for example portable video players. The PictBridge protocol allows images to be printed directly from digital cameras to a printer, without having to connect the camera to a computer.

The transfer of the data, the multimedia content, and the associated files may also take place in a push mode of operation. In the push mode, the BT communication device **201***a* sends a signal to the client application **203** on creation of a new file. By implementation of a handshake protocol, the BT communication device **201***a* automatically transfers captured data, the multimedia content, and the associated files to the client application **203** on the mobile device **202**. For some external digital data capture devices, the client application **203** may not be able to detect the creation of a new file. In such cases, the digital data capture device **201** signals the client application **203** in the event a new file is created. A file event listener in the client application **203** listens for the signal from

the digital data capture device **201**. The user may then initiate the transfer by a press of a button or a key on the digital data capture device **201**.

In the case of a mobile device **202** with limited memory and processing capabilities, the client application **203** partitions the multimedia content of large files stored on the mobile device **202** into multiple data segments. The data segments are tagged with segment identifiers using the client application **203**. The tagged data segments are transferred from the client application **203** of the mobile device **202** to a publishing service **401** via a network **402** as illustrated in FIG. **4**.

When the client application **203** is unable to detect the captured data, the multimedia content, and the associated files from the digital data capture device **201**, the digital data capture device **201** initiates detection and transfer of the captured data, the multimedia content, and the associated files to the mobile device **202**.

The user may also set preferences on the mobile device **202**. The user preferences may, for example, comprise the websites selected for publishing the data and the multimedia content. The user may configure a timer setting and the websites on the mobile device **202** for publishing the data and the multimedia content. The user may also set timer and action settings for publishing the data and the multimedia content. The user may set the timer setting to, for example, a "no-wait-automatic" setting, a "wait-X-minutes-automatic" setting, and a "wait-X-minutes-user-input-cancel" setting. The client application **203** on the mobile device **202** selects the websites for publishing the transferred data and the multimedia content based on user preferences configured on the mobile device **202**. The client application **203** also sets time for publishing the transferred data and the multimedia content automatically or with minimal user intervention.

The client application **203** on the mobile device **202** then automatically publishes **107** the transferred data and multimedia content on one or more websites. If the user configures the timer setting to "no-wait-automatic", the data and the multimedia content are automatically published on one or more websites based on the user preferences configured on the mobile device **202** without waiting for a certain period of time. If the user configures the timer setting to "wait-X-minutes-automatic", the client application **203** will wait for "X" minutes for the user to change or cancel publishing. If there is no user action for "X" minutes, the client application **203** will automatically publish the data and multimedia content to one or more websites based on the user preferences. Further, if the user configures the timer setting to "wait-X-minutes-user-input-cancel", the client application **203** will wait for "X" minutes for an input from the user. If there is no input from the user, the client application **203** cancels the publishing of the data and multimedia content. The publishing of the data and multimedia content on one or more websites simultaneously is explained in the detailed description of FIG. **4**.

The user may therefore capture data, for example, audio, video, text, and images, automatically upload the captured data onto the mobile device **202**, and publish the data and multimedia content on one or websites automatically or with minimal user intervention. The method disclosed herein thereby enables the user to publish data and the multimedia content on immediate click of an image or recording of a video on the digital data capture device **201** without having to manually upload the data onto a computing device and then publish the data on the websites.

FIG. **2** illustrates a system for utilizing a digital data capture device **201** in conjunction with a BT enabled mobile device **202** for publishing data and multimedia content on one or more websites automatically or with minimal user intervention. The system disclosed herein comprises a digital data capture device **201** and a client application **203** provided on the BT enabled mobile device **202**. The digital data capture device **201** and the mobile device **202** are physically separated from each other. The digital data capture device **201** comprises a BT communication device **201***a* and a data capture module **201***d*.

The BT communication device options used on the digital data capture device **201** for establishing a BT connection with the client application **203** on the BT enabled mobile device **202** are exemplarily illustrated in FIGS. **3**A-**3**C. The BT communication device **201***a* may, for example, be an in-built BT capability chip **301** as illustrated in FIG. **3**A, a BT memory card **302** as illustrated in FIG. **3**B, or an external BT device **303** as illustrated in FIG. **3**C.

The BT communication device **201***a* comprises a BT association protocol module **201***b* and a data transfer protocol module **201***c*. The client application **203** on the mobile device **202** comprises a BT association protocol module **203***a*, a data and file monitoring and detection module **203***b*, a data transfer protocol module **203***c*, a data storage module **203***d*, a graphical user interface (GUI) **203***e*, and a media publishing module **203***f*. The BT association protocol module **201***b* of the digital data capture device **201** and the BT association protocol module **203***a* of the client application **203** enable the pairing between the BT communication device **201***a* and the mobile device **202**. The pairing of the BT communication device **201***a* and the mobile device **202** is explained in the detailed description of FIG. **1**. The data capture module **201***d* captures the data and the multimedia content on the digital data capture device **201**.

The data and file monitoring and detection module **203***b* of the client application **203** monitors and detects the capture of the data, the multimedia content, and the files associated with the captured data and the multimedia content. On detection, the data transfer protocol module **203***c* of the client application **203** initiates the transfer and download of the captured data, the multimedia content, and the associated files from the digital data capture device **201**. When the client application **203** is unable to detect the captured data, the multimedia content, and the associated files from the digital data capture device **201**, the data transfer protocol module **201***c* of the digital data capture device **201** initiates the transfer of the captured data, the multimedia content, and the associated files to the mobile device **202**.

The data transfer protocol module **201***c* of the digital data capture device **201** transfers the captured data, the multimedia content, and the associated files to the client application **203**. The data storage module **203***d* stores the captured data, the multimedia content, and the associated files on the mobile device **202**. The user may also set preferences on the mobile device **202** using the GUI **203***e* of the client application **203**. The user preferences may, for example, comprise the websites selected for publishing the data and the multimedia content. The GUI **203***e* enables the user to configure a timer setting and websites on the mobile device **202** for publishing the data and the multimedia content. The user may also set timer and action settings for publishing the data and the multimedia content using the GUI **203***e*. The user may set a timer setting, for example, a "no-wait-automatic" setting, a "wait-X-minutes-automatic" setting, and a "wait-X-minutes-user-input-cancel" setting as explained in the detailed description of FIG. **1**.

The media publishing module **203***f* automatically publishes the transferred data and the multimedia content on one or more of the websites. The media publishing module **203***f*

comprises a website selection module **203***g*, a timer module **203***h*, a segmentation module **203***i*, and a data transfer module **203***j*. The website selection module **203***g* selects the websites for publishing the data and the multimedia content based on settings and user preferences configured by the user on the mobile device **202**. The timer module **203***h* sets the time for publishing the transferred data and the multimedia content automatically or with minimal user intervention. The timer setting may be set for automatic publishing of the multimedia content or a time based wait mode where user interaction is required. The timer module **203***h* sets the timer based on a timer setting, for example, a "no-wait-automatic" setting, a "wait-X-minutes-automatic" setting, and a "wait-X-minutes-user-input-cancel" setting configured by the user. The timer module **203***h* ensures that if the user does not wish to publish the transferred data and multimedia content, the user has time to decide whether to publish or not. The user may also configure the client application **203** to automatically delete the data, the multimedia content, and the associated files after the data and the multimedia content have been posted and published on one or more websites based on user preferences.

In the case of a mobile device **202** with limited memory and processing capabilities, the client application **203** partitions the multimedia content of large files stored on the mobile device **202** into multiple data segments using the segmentation module **203***i*. The segmentation module **203***i* generates segment identifiers and tags the data segments with the segment identifiers. The data transfer module **203***j* transfers the data, the tagged data segments, and the multimedia content from the client application **203** to the publishing service **401** via a network **402** for publishing on the websites automatically.

FIG. **4** exemplarily illustrates a system for publishing data and the multimedia content using a client application **203** on a mobile device **202** on one or more websites simultaneously. The system disclosed herein comprises a client application **203** and a publishing service **401** connected via a network **402**. The client application **203** comprises a media publishing module **203***f* as explained in the detailed description of FIG. **2**. The media publishing module **203***f* comprises the website selection module **203***g*, the timer module **203***h*, the segmentation module **203***i*, and the data transfer module **203***j*. The website selection module **203***g* selects the websites based on user preferences configured by the user on the mobile device **202**. The timer module **203***h* sets the time for publishing the transferred data and the multimedia content automatically or with minimal user intervention. The timer module **203***h* ensures that the publishing service **401** obtains the data, the multimedia content, and the associated files to publish on the selected websites based on the time set by the user.

In the case of limited memory and processing capabilities of the mobile device **202**, the segmentation module **203***i* of the client application **203** partitions the multimedia content of large files into multiple data segments. The segmentation module **203***i* generates segment identifiers and tags the data segments with the segment identifiers. The segment identifiers may, for example, be one or more of transaction identifiers, sequence numbers, and timestamps. The segment identifiers are used later by a back end service **401***b* of the publishing service **401** to reassemble the data segments in a predetermined sequence to create a multimedia object. The data transfer module **203***j* transfers the data, the tagged data segments, and the multimedia content from the client application **203** to the publishing service **401** via the network **402**. The network **402** may, for example, be a wireless network, a cellular network, or the internet **501**.

The publishing service **401** comprises a front end service **401***a*, a back end service **401***b*, and a database **401***d*. The transferred data and multimedia content is stored in the database **401***d* of the publishing service **401**. A protocol is provided for synchronizing user publishing information between the client application **203** and the publishing service **401**. The user publishing information may, for example, comprise user preferences of the websites and the timer setting. The data transfer module **203***j* may transfer the data and the multimedia content as a single multimedia file, multiple data segments in the case of large files, or electronic mail attachments to the back end service **401***b* of the publishing service **401** via the front end service **401***a*. The back end service **401***b* comprises a data reassembly module **401***c*. If the back end service **401***b* receives the multimedia content in the form of multiple data segments, the data reassembly module **401***c* reassembles the data segments in a predetermined sequence using the segment identifiers. The back end service **401***b* then creates a multimedia object from the transferred data and multimedia content. The multimedia object is transferred from the back end service **401***b* to the front end service **401***a* and then published on the websites selected by the user.

FIG. **5** exemplarily illustrates a user **502** utilizing a digital camera in conjunction with a Bluetooth enabled mobile device **202** for publishing data and multimedia content on one or more websites automatically or with minimal user intervention. The digital camera is physically separated from the mobile device **202** as illustrated in FIG. **5**. The digital camera comprises a BT communication device **201***a* such as an in-built BT capability chip **301**, a BT memory card **302**, or an external BT device **303** or dongle externally attached to the digital camera as illustrated in FIGS. **3**A-**3**C. The external BT dongle may be attached to a USB, a firewire interface, or a power port of the digital camera. The BT communication device **201***a* on the digital camera is paired with the mobile device **202** to establish a connection. The user **502** may capture an image using the digital camera. The client application **203** on the mobile device **202** detects the captured image and initiates the transfer of the captured image and the associated files. The digital camera automatically transfers the captured image and the associated files to the client application **203** on the mobile device **202**.

The client application **203** automatically publishes the transferred image on one or more websites via the internet **501**. The user **502** may set preferences in the mobile device **202**. The user preferences, for example, comprise the websites selected for publishing the transferred image. The user **502** may select websites, for example, Flickr™, Picasa™, YouTube™, eBay®, etc. and store the preferences on the mobile device **202**. The user **502** may also set the timer setting for publishing the transferred image on the selected websites. After the captured image is transferred to the mobile device **202**, the client application **203** publishes the capture image on the selected websites based on the default timer and website settings configured by the user **502** on the mobile device **202**.

Consider an example where a user **502** records a video using a BT enabled video camera. The video camera immediately establishes a connection with the user's **502** BT enabled mobile device **202**. On detection of the recorded video by the client application **203** on the mobile device **202**, the video camera automatically transfers the recorded video to the user's **502** mobile device **202**. In the case of limited memory and processing capabilities of the mobile device **202**, the recorded video may be streamed as data segments from the mobile device **202** to the publishing service **401**. The client application **203** individually tags the data segments with segment identifiers and transfers the tagged data seg-

ments from the mobile device **202** to the back end service **401***b* of the publishing service **401** via the front end service **401***a*. The back end service **401***b* of the publishing service **401** reassembles the data segments in a predetermined sequence using the segment identifiers to create the multimedia object. The multimedia object is an aggregation of the reassembled data segments. The multimedia object is then transferred from the back end service **401***b* to the front end service **401***a* and automatically published by the front end service **401***a* on one or more websites selected by the user **502**.

Consider another example where a user **502** may record videos or capture images at different points in time and automatically uploads and publishes the videos and images on one or more websites. Consider an investigative reporter, Jane, working for a prominent newspaper in New York City. Each day, she moves around the city chasing leads, interviewing people, videotaping her stories, taking pictures, and tracking down her next big story. When she is working on a story with an associate writer, she may need to upload her videos and pictures and send it immediately to the associate writer. The method and system disclosed herein enables Jane to automatically upload pictures and videos taken using her digital camera or video camera onto a mobile device **202** and publish the pictures, videos, etc. from her mobile device **202** to the internet **501** with one click or touch of a button.

On one click or touch of a button, the pictures and videos are published and immediately made available on Jane's private blog that may be accessed by the newspaper editor and her associates in the news office. When she is collaborating with an associate on a story, they may see each other's progress in real time. Since sharing information with the associate over electronic mails (emails) may be inconvenient, Jane records her progress on the story in the voice format and publishes. The associate may access the information from Jane's blog site, thereby saving considerable time.

Exemplarily, the method and system disclosed herein may be implemented in technologies that are pervasive, flexible, and capable enough of accomplishing the desired tasks of the method and system. The method and system disclosed herein is realized with, but not limited to Bluetooth communication protocol. Wireless protocols, for example, Zigbee® protocol, Wibree™ protocol, Ultra-Wide Band (UWB) protocol, and other wireless protocols for wireless personal area networks may be employed to accomplish the tasks of the method and system disclosed herein. The mobile device **202** may, for example, be a ubiquitous mobile phone. The use of personal digital assistants (PDAs) without telephony support is also fairly widespread. The client application **203** may be deployed on mobile devices with limited or no telephony support. These mobile devices may support Java of Sun Microsystems Inc., more specifically Java 2 Micro Edition (J2ME™), Windows Mobile .Net Compact Framework of Microsoft, Inc., Symbian™, Linux framework. The client application **203** may, for example, be implemented on the J2ME platform. These environments provide functionalities in the libraries to create the GUI **203***e* and perform all the required functions of the method and system disclosed herein. Other advantages of these frameworks are portability across mobile devices that run on different operating systems.

The client application **203** may be rendered independent of the operating system of the mobile device **202**. One of the transport mechanisms to achieve the connectivity between the publishing service **401** and the client application **203** is the wireless internet. While most PDAs have an inbuilt wireless network card for the internet connectivity, the mobile phones may transfer data to the publishing service **401** over the telephony network at near broadband speeds. Some of the mobile phones equipped with both wireless network and telephony data capabilities may use either of the two to communicate with the publishing service **401**. The transport protocol that is used between the client application **203** and the publishing service **401** may be hypertext transfer protocol (HTTP) or extensible markup language-remote procedure calls (XML-RPC). The back end service **401***b* may, for example, be developed in Java.

It will be readily apparent that the various methods and algorithms described herein may be implemented in a computer readable medium appropriately programmed for general purpose computers and computing devices. Typically a processor, for e.g., one or more microprocessors will receive instructions from a memory or like device, and execute those instructions, thereby performing one or more processes defined by those instructions. Further, programs that implement such methods and algorithms may be stored and transmitted using a variety of media, for e.g., computer readable media in a number of manners. In one embodiment, hardwired circuitry or custom hardware may be used in place of, or in combination with, software instructions for implementation of the processes of various embodiments. Thus, embodiments are not limited to any specific combination of hardware and software. A "processor" means any one or more microprocessors, Central Processing Unit (CPU) devices, computing devices, microcontrollers, digital signal processors or like devices. The term "computer-readable medium" refers to any medium that participates in providing data, for example instructions that may be read by a computer, a processor or a like device. Such a medium may take many forms, including but not limited to, non-volatile media, volatile media, and transmission media. Non-volatile media include, for example, optical or magnetic disks and other persistent memory volatile media include Dynamic Random Access Memory (DRAM), which typically constitutes the main memory. Transmission media include coaxial cables, copper wire and fiber optics, including the wires that comprise a system bus coupled to the processor. Common forms of computer-readable media include, for example, a floppy disk, a flexible disk, hard disk, magnetic tape, any other magnetic medium, a Compact Disc-Read Only Memory (CD-ROM), Digital Versatile Disc (DVD), any other optical medium, punch cards, paper tape, any other physical medium with patterns of holes, a Random Access Memory (RAM), a Programmable Read Only Memory (PROM), an Erasable Programmable Read Only Memory (EPROM), an Electrically Erasable Programmable Read Only Memory (EEPROM), a flash memory, any other memory chip or cartridge, a carrier wave as described hereinafter, or any other medium from which a computer can read. In general, the computer-readable programs may be implemented in any programming language. Some examples of languages that can be used include C, C++, C#, or JAVA. The program will use various security, encryption and compression techniques to enhance the overall user experience. The software programs may be stored on or in one or more mediums as an object code. A computer program product comprising computer executable instructions embodied in a computer-readable medium comprises computer parsable codes for the implementation of the processes of various embodiments.

Where databases are described such as the database **401***d*, it will be understood by one of ordinary skill in the art that (i) alternative database structures to those described may be readily employed, and (ii) other memory structures besides databases may be readily employed. Any illustrations or descriptions of any sample databases presented herein are

illustrative arrangements for stored representations of information. Any number of other arrangements may be employed besides those suggested by, e.g., tables illustrated in drawings or elsewhere. Similarly, any illustrated entries of the databases represent exemplary information only; one of ordinary skill in the art will understand that the number and content of the entries can be different from those described herein. Further, despite any depiction of the databases as tables, other formats including relational databases, object-based models and/or distributed databases could be used to store and manipulate the data types described herein. Likewise, object methods or behaviors of a database can be used to implement various processes, such as the described herein. In addition, the databases may, in a known manner, be stored locally or remotely from a device that accesses data in such a database.

The present invention can be configured to work in a network environment including a computer that is in communication, via a communications network, with one or more devices. The computer may communicate with the devices directly or indirectly, via a wired or wireless medium such as the Internet, Local Area Network (LAN), Wide Area Network (WAN) or Ethernet, Token Ring, or via any appropriate communications means or combination of communications means. Each of the devices may comprise computers, such as those based on the Intel® processors, AMD® processors, Sun® processors, IBM® processors etc., that are adapted to communicate with the computer. Any number and type of machines may be in communication with the computer.

The foregoing examples have been provided merely for the purpose of explanation and are in no way to be construed as limiting of the present method and system disclosed herein. While the invention has been described with reference to various embodiments, it is understood that the words, which have been used herein, are words of description and illustration, rather than words of limitation. Further, although the invention has been described herein with reference to particular means, materials and embodiments, the invention is not intended to be limited to the particulars disclosed herein; rather, the invention extends to all functionally equivalent structures, methods and uses, such as are within the scope of the appended claims. Those skilled in the art, having the benefit of the teachings of this specification, may effect numerous modifications thereto and changes may be made without departing from the scope and spirit of the invention in its aspects.

We claim:

1. A method of segmented file transfer from a Bluetooth enabled mobile device to a web service, the method comprising:

providing a software module on the Bluetooth enabled mobile device, the software module, performing;

determining size of a file to be transferred;

segmenting said file into data segments at an application layer level, wherein said file is segmented in part due to size of said file and data transfer capabilities of said Bluetooth enabled mobile device, wherein data in said data segments comprises one or more of said file data and data associated with said file data;

applying a segment identifier to each of said data segments at the application layer level;

applying a user identifier to each of said data segments for the destination web service at the application layer level, wherein said user identifier uniquely identifies a particular user of the web service;

transferring a data segment along with said user identifier and said segment identifier to the web service, wherein transferring the data segment further comprises one or more of:

configuring the data segment so that the data segment can be received by the web service; and

configuring the data segment so that the data segments can be reassembled using segment identifiers by the web service;

receiving a reply message from the web service, corresponding to successful completion of said data segment transfer;

repeating the step of data segment transfer and the step of receiving the reply message, until all the data segments have been transferred to the web service successfully, wherein if segmented file transfer is interrupted, the software module further performs:

sending, a synchronization request to the web service from the application layer level, corresponding to asking the web service about the segmented file data the web service has successfully received, for said user identifier, after a network connection to the web service is restored;

receiving, a synchronization reply back from the web service at the application layer level, corresponding to indicate segmented file data said web service has successfully received, for said user identifier; and

resuming, the segmented file transfer based on the synchronization reply received, for said user identifier.

2. The method of claim **1**, wherein the data associated with file data is at least one of name of the file, size of the file, and type of file.

3. The method of claim **1**, wherein said file data comprises one or more of audio data, video data, image data, text data, or digital data.

4. The method of claim **1**, wherein the user identifier comprises one or more elements from user information, and wherein the one or more elements of the user information comprise user-name, user-password, user-device-information, user settings, or user preferences.

5. The method of claim **1**, wherein said data transfer capabilities of said Bluetooth enabled mobile device are dependent on the limited network processing capability of the mobile device cellular network internet connection.

6. The method of claim **1**, wherein the application layer is defined as one of following, the layer 7 in the OSI layer stack, or the application layer of the Internet protocol suite.

7. The method of claim **1**, wherein the segment identifier corresponds to the content range of said file data that is being transferred in a given data segment.

8. A method of segmented file transfer from a Bluetooth enabled mobile device to a web service, the method comprises:

determining size of file to be transferred by the Bluetooth enabled mobile device;

transferring said file by the Bluetooth enabled mobile device to the web service, wherein transferring said file comprises, the Bluetooth enabled mobile device, performing:

segmenting said file into data segments at an application layer level, wherein said file is segmented in part due to size of said file and data transfer capabilities of said Bluetooth enabled mobile device, wherein data in said data segments comprises one or more of said file data and data associated with said file data;

applying a segment identifier to each of said data segments at the application layer level;

applying a user identifier to each of said data segments for the destination web service at the application layer level, wherein said user identifier uniquely identifies a particular user of the web service;

transferring a data segment along with said user identifier and said segment identifier to the web service, wherein transferring the data segment further comprises one or more of:

configuring the data segment so that the data segment can be received by the web service; and

configuring the data segment so that the data segments can be reassembled using segment identifiers by the web service;

receiving a reply message from the web service, corresponding to successful completion of said data segment transfer;

repeating the step of data segment transfer and the step of receiving the reply message, until all the data segments have been transferred to the web service successfully, wherein if segmented file transfer is interrupted, the Bluetooth enabled mobile device further performs:

sending, a synchronization request to the web service from the application layer level, for said user identifier, after a network connection to the web service is restored;

receiving, a synchronization reply back from the web service at the application layer level, corresponding to the successfully received data of said file by said web service, for said user identifier; and

resuming, the segmented file transfer by transferring remaining data of the file based on the synchronization reply received, for said user identifier.

9. The method of claim **8**, wherein the data associated with file data is at least one of name of the file, size of the file, and type of file.

10. The method of claim **8**, wherein said file data comprises one or more of audio data, video data, image data, text data, or digital data.

11. The method of claim **8**, wherein the user identifier comprises one or more elements from user information, and wherein the one or more elements of the user information comprise user-name, user-password, user-device-information, user settings, or user preferences.

12. The method of claim **8**, wherein said data transfer capabilities of said Bluetooth enabled mobile device are dependent on the limited network processing capability of the mobile device cellular network internet connection.

13. The method of claim **8**, wherein the application layer is defined as one of following, the layer 7 in the OSI layer stack, or the application layer of the Internet protocol suite.

14. The method of claim **8**, wherein the segment identifier corresponds to the content range of said file data that is being transferred in a given data segment.

15. A method of segmented file transfer from a Bluetooth enabled mobile device to a web service, the method comprising:

providing a software module on a Bluetooth enabled mobile device, the software module, performing;

determining size of a file to be transferred;

segmenting said file into a first data segment and a second data segment at an application layer level, wherein said file is segmented in part due to size of said file and data transfer capabilities of said Bluetooth enabled mobile device, wherein the second data segment comprises file data and the first data segment comprises data associated with file data, and wherein the data associated with file data is at least one of name of the file, size of the file, and type of the file;

applying a user identifier to said first data segment at the application layer level, wherein the user identifier uniquely identifies a particular user of a web service;

transferring said first data segment along with said user identifier to the web service;

receiving a reply message from the web service, corresponding to successful completion of said first data segment transfer;

applying said user identifier to said second data segment at the application layer level;

transferring said second data segment along with said user identifier to the web service;

receiving a reply message from the web service, corresponding to successful completion of said second data segment transfer, wherein if said second data segment transfer is interrupted, the software module further performs:

sending, a synchronization request to the web service from the application layer level, for said user identifier, after a network connection to the web service is restored;

receiving, a synchronization reply back from the web service at the application layer level, corresponding to the successfully received data of said second data segment by said web service, for said user identifier;

resuming, the segmented file transfer by transferring remaining data of the second data segment based on the synchronization reply received, wherein resuming the segmented file transfer of remaining data comprises, the software module, performing:

creating one or more data segments at the application layer level, wherein the one or more data segments comprise remaining data of the second data segment;

applying a segment identifier to each of said one or more data segments at the application layer level;

applying said user identifier to each of said one or more data segments at the application layer level; and

transferring said one or more data segments along with said user identifier and said corresponding segment identifier to the web service, wherein transferring the data segment further comprises one or more of:

configuring the data segment so that the data segment can be received by the web service; and configuring the data segment so that the data segments can be reassembled using segment identifiers by the web service.

16. The method of claim **15**, wherein said file data comprises one or more of audio data, video data, image data, text data, or digital data.

17. The method of claim **15**, wherein the user identifier comprises one or more elements from user information, and wherein the one or more elements of the user information comprise user-name, user-password, user-device-information, user settings, or user preferences.

18. The method of claim **15**, wherein said data transfer capabilities of said Bluetooth enabled mobile device are dependent on the limited network processing capability of the mobile device cellular network internet connection.

19. The method of claim 15, wherein the application layer is defined as one of following, the layer 7 in the OSI layer stack, or the application layer of the Internet protocol suite.

20. The method of claim 15, wherein the segment identifier corresponds to the content range of the remaining data of the file.

21. A method of segmented file transfer from a Bluetooth enabled mobile device to a web service, the method comprising:

determining size of file to be transferred by the Bluetooth enabled mobile device;

transferring said file by the Bluetooth enabled mobile device to the web service, wherein transferring said file comprises, the Bluetooth enabled mobile device, performing:

segmenting said file into a first data segment and a second data segment at an application layer level, wherein said file is segmented in part due to size of said file and data transfer capabilities of said Bluetooth enabled mobile device, wherein the second data segment comprises file data and the first data segment comprises data associated with file data, and wherein the data associated with file data is at least one of name of the file, size of the file, and type of the file;

applying a user identifier to said first data segment at the application layer level, wherein the user identifier uniquely identifies a particular user of a web service;

transferring said first data segment along with said user identifier to the web service;

receiving a reply message from the web service, corresponding to successful completion of said first data segment transfer;

applying said user identifier to said second data segment at the application layer level;

transferring said second data segment along with said user identifier to the web service;

receiving a reply message from the web service, corresponding to successful completion of said second data segment transfer, wherein if said second data segment transfer is interrupted, the Bluetooth enabled mobile device performs:

sending, a synchronization request to the web service from the application layer level, for said user identifier, after a network connection to the web service is restored;

receiving, a synchronization reply back from the web service at the application layer level, corresponding to the successfully received data of said second data segment by said web service, for said user identifier;

resuming, the segmented file transfer by transferring remaining data of the second data segment based on the synchronization reply received, wherein resuming the segmented file transfer of remaining data comprises, the Bluetooth enabled mobile device, performing:

creating one or more data segments at the application layer level, wherein the one or more data segments comprise remaining data of the second data segment;

applying a segment identifier to each of said one or more data segments at the application layer level;

applying said user identifier to each of said one or more data segments at the application layer level; and

transferring said one or more data segments along with said user identifier and said corresponding segment identifier to the web service, wherein transferring the data segment further comprises one or more of:

configuring the data segment so that the data segment can be received by the web service; and

configuring the data segment so that the data segments can be reassembled using segment identifiers by the web service.

22. The method of claim 21, wherein said file data comprises one or more of audio data, video data, image data, text data, or digital data.

23. The method of claim 21, wherein the user identifier comprises one or more elements from user information, and wherein the one or more elements of the user information comprise user-name, user-password, user-device-information, user settings, or user preferences.

24. The method of claim 21, wherein said data transfer capabilities of said Bluetooth enabled mobile device are dependent on the limited network processing capability of the mobile device cellular network internet connection.

25. The method of claim 21, wherein the application layer is defined as one of following, the layer 7 in the OSI layer stack, or the application layer of the Internet protocol suite.

26. The method of claim 21, wherein the segment identifier corresponds to the content range of the remaining data of the file.

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