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United States Patent and Trademark Office

September 12, 2022

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Performing the Functions and Duties of the
Under Secretary of Commerce
for Intellectual Property
and Director of the United States
Patent and Trademark Office

Netflix v. GoTV
IPR2023-00759
Netflix Ex. 1004

PATENT APPLICATION SERIAL NO._____

U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICE
FEE RECORD SHEET

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01 FC:1011	300.00 OP
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03 FC:1311	200.00 OP
04 FC:1202	1050.00 OP

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PATENT APPLICATION FEE DETERMINATION RECORD
Substitute for Form PTO-875

Application or Docket Number: 11/888,799

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY RATE ($)	SMALL ENTITY FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY FEE ($)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	$150		N/A	$300
SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A	$250		N/A	$500
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	$100		N/A	$200
TOTAL CLAIMS (37 CFR 1.16(i))	41 minus 20 =	21	x $25 =		OR	x $50 =	1050
INDEPENDENT CLAIMS (37 CFR 1.16(h))	3 minus 3 =	0	x $100 =			x $200 =	
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).		$125			$250	
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))			+180 =			+360 =	
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	2050

1
14
28

APPLICATION AS AMENDED – PART II

AMENDMENT A

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE ($)	SMALL ENTITY ADDITIONAL FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	*	Minus	**	=	x $25 =		OR	x $50 =	
Independent (37 CFR 1.16(h))	*	Minus	***	=	x $100 =		OR	x $200 =	
Application Size Fee (37 CFR 1.16(s))					$125			$250	
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					+180 =		OR	+360 =	
					TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

AMENDMENT B

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)	OR	RATE ($)	ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	*	Minus	**	=	x $25 =		OR	x $50 =	
Independent (37 CFR 1.16(h))	*	Minus	***	=	x $100 =		OR	x $200 =	
Application Size Fee (37 CFR 1.16(s))					$125			$250	
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					+180 =		OR	+360 =	
					TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

17224 U.S. PTO
080107

U.S. PTO
11/888799
08/01/2007

Attorney Docket No.: HOMI-P004

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Patent Application

I hereby certify that this transmittal of the below described documents is being deposited with the United States Postal Service in an envelope bearing Express Mail Postage and an Express Mail label, with the below serial number, addressed to the Commissioner for Patents P.O. Box 1450 Alexandria, VA 22313-1450, on the below date of deposit.			
Express Mail Label No.:	EM023309872US	Name of Person Making the Deposit:	Anthony Chou
Date of Deposit:	08/01/07	Signature of the Person Making the Deposit:	Anthony Chou

Inventor(s): Pierre Carion and Kevin Smith

Title: A SERVER METHOD AND SYSTEM FOR RENDERING CONTENT ON A WIRELESS DEVICE

Mail Stop Patent Application
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450
Sir:

Transmittal of a Patent Application
(Under 37 CFR §1.53)

Transmitted herewith is the above identified patent application, including:

X Specification, claims and abstract, totaling 63 pages.
__ Formal drawings, totaling __ pages.
X Informal drawings, totaling 9 pages.
X Declaration and Power of Attorney.
__ Information Disclosure statement.
__ Form 1449
X Assignment(s)
X Assignment Recordation Form (duplicate)
X Request and Certification under 35 U.S.C. 122(b)(2)(B)(i)

FEE CALCULATION

1. BASIC FILING, SEARCH, AND EXAMINATION FEES

	Filing Fees	Search Fees		Examination Fees			
		Small Entity		Small Entity		Small Entity	
Application Type	Fee ($)	Fee ($)	Fee ($)	Fee ($)	Fee ($)	Fee ($)	Fees Paid ($)
Utility	300	150	500	250	200	100	$1,000.00
Design	200	100	100	50	130	65	$
Plant	200	100	300	150	160	80	$
Reissue	300	150	500	250	600	300	$
Provisional	200	100					$

GTV00000027

2. EXCESS CLAIM FEES

Fee Description	Small Entity Fee ($)	Fee ($)
Each claim over 20 or, for Reissues, each claim over 20 and more than in the original patent	50	25
Each independent claim over 3 or, for reissues, each independent claim more than in the original patent	200	100
Multiple dependent claims	360	180

Total Claims		**Extra Claims**	**Fee ($)**	**Fee Paid ($)**	**Multiple Dependent Claims**	
41	minus 20	21	x $50.00	$1,050.00		
	HP = highest number of Independent Claims Paid for, if greater than 3					
Indep. Claims		**Extra Claims**	**Fee ($)**	**Fee Paid ($)**		
3	minus 3	0	x $200.00	$0.00		
	HP = highest number of Independent Claims Paid for, if greater than 3					

3. APPLICATION SIZE FEE

If the specification and drawings exceed 100 sheets of paper, the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).

Total Sheets

Total Sheets		Extra Sheets		Number of each additional 50 or fraction thereof	Fee $		Fee Paid $
73	-100	0	/50			=	$0.00

4. OTHER FEE(S)

Non-English specification, $130 fee (no small entity discount)
Other: Assignment Recordation Fee: $40.00

Total Fees Due ($)
$2,090.00

5. PAYMENT OF FEES

The full fee due in connection with this communication is provided as follows:

1. Not enclosed

   [ ] No filing fee is to be paid at this time.

2. Enclosed

   [X] Filing fee

   [X] Recording assignment

   [X] The Commissioner is hereby authorized to charge any additional fees associated with this communication or credit any overpayment to Deposit Account No.: 50-4160 . A duplicate copy of this authorization is enclosed.

   [X] A check in the amount of $2,090.00

   [ ] Charge any fees required or credit any overpayments associated with this filing to Deposit Account No.: 50-4160.

This application is filed pursuant to 37 C.F.R. § 1.53 in the name of the above-identified Inventor(s).

[X] Customer No: 41066

Please direct all correspondence concerning the above-identified application to the following address:

MURABITO HAO & BARNES LLP
Two North Market Street, Third Floor
San Jose, California 95113
(408) 938-9060

[X] This transmittal ends with this page.

Respectfully submitted,

Date: 8-1-2007

By: _____
Amir A. Tabarrok
Reg. No. 57,137

GTV00000029

Attorney Docket No.: HOMI-P004

Inventor(s): Pierre Carion and Kevin Smith

Title: A SERVER METHOD AND SYSTEM FOR RENDERING CONTENT ON A WIRELESS DEVICE

REQUEST AND CERTIFICATION UNDER 35 U.S.C. 122(b)(2)(B)(i)

I hereby certify that the invention disclosed in the attached application **has not and will not be** the subject of an application filed in another country, or under a multilateral agreement, that requires publication at eighteen months after filing. I hereby request that the attached application not be published under 35 U.S.C. 122(b).

Date: 8-1-2007

By: _____
Amir A. Tabarrok
Reg. No. 57,137

This request must be signed in compliance with 37 CFR 1.33(b) and submitted with the application **upon filing**.

Applicant may rescind this nonpublication request at any time. If applicant rescinds a request that an application not be published under U.S.C. 122(b), the application will be scheduled for publication at eighteen months from the earliest claimed filing date for which a benefit is claimed.

If applicant subsequently files an application directed to the invention disclosed in the attached application in another country, or under a multilateral international agreement, that requires publication of applications eighteen months after filing, the applicant must notify the United States Patent and Trademark Office of such filing within forty-five (45) days after the date of the filing of such foreign or international application. **Failure to do so will result in abandonment of this application (35 U.S.C. 122(b)(2)(B)(iii)).**

UNITED STATES PATENT APPLICATION FOR

A SERVER METHOD AND SYSTEM FOR RENDERING CONTENT ON A WIRELESS DEVICE

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A SERVER METHOD AND SYSTEM FOR RENDERING CONTENT ON A WIRELESS DEVICE

RELATED U.S. PATENT APPLICATION

This Application is related to US Patent Application _____ filed on August 1, 2007, by Carion et al., and entitled "A METHOD AND SYSTEM FOR RENDERING CONTENT ON A WIRELESS DEVICE" with the Attorney Docket No. HOMI-P003 and assigned to the assignee of the present invention.

TECHNICAL FIELD

Embodiments of the present invention relate to the field of wireless communication systems. More particularly, embodiments of the present invention relate to a method and system for rendering applications on a wireless device.

BACKGROUND ART

The widespread and increase in popularity of wireless devices have led to an increase in the number of wireless device types in the world. For example, the use of cellular phones, personal digital assistants (PDAs), PalmPilots, BlackBerrys, laptops, IPods, etc., have become prevalent in the market. The increase in the number of wireless devices has also increased the demand for various applications to run on various wireless devices.

The market is fractured among many manufacturers with different types of wireless devices including brands, models, generations, etc. For example, each year new manufacturers enter the market and existing manufacturers provide new models and new versions for existing wireless devices. Each wireless device is unique based on its brand, model, rendering capability, battery life, processing power, display resolution, color capability, display size, etc., collectively known as wireless device attributes.

Unfortunately, since each wireless device is unique, each application must be tailored in accordance with the wireless device attributes to fully utilize the capabilities of the wireless device. For example, to utilize the entire display of the wireless device, the application must be tailored to render the application in accordance with the display size and resolution of the wireless device.

Unfortunately, the increase in the number of applications, the types of wireless devices and the need to tailor each application to a given wireless device type has increased the cost of developing applications. With ever increasing number of models and brands of wireless devices, the number of applications and application versions required to accommodate all of these different wireless devices has increased as well. Since each application must be specific to a given wireless device type with a given brand and model, applications are substantially developed from the ground up for each wireless

device type. Unfortunately, developing applications from the ground up for each wireless device has increased the cost of developing and customizing each application to accommodate each wireless device brand and model.

Moreover, the increase in cost of developing applications due to the need to tailor each application to all the specific brands and models of wireless devices has hindered and limited the number of titles that a software vendor can produce annually. Software developers simply do not have the time or the resources to take even a single application through a customized quality assurance and debugging process, much less each application for each type of wireless device, thereby limiting the number of titles that a software vendor can produce.

Also, the task of producing all the required versions of a title is not only time consuming and laborious but it also tends to limit upgrades and patches to existing titles. In general, a wireless device runs the application locally and renders the result. Thus, updating applications requires a patch/update to be specially developed for and provided to each wireless device individually. For example, updating/patching an application may require the wireless device user to access the application provider's website via the wireless device and to navigate through multiple pages in order to determine whether an update is ready. When an update is ready, the user actively initiates the update process. As a result, many users may not update their applications due to this laborious process.

SUMMARY

Accordingly, a need has arisen to enable software vendors to provide generic applications regardless of the wireless device type, thereby relieving software vendors from having to tailor their applications for each given wireless device type. Moreover, a need has arisen to not only relieve software vendors from tailoring their applications for a given wireless device type but to provide an output that is device specific based on the wireless device attributes where the output is generated from a generic application. Furthermore, it is advantageous to update and patch various applications without a need to access each wireless device individually. It will become apparent to those skilled in the art after reading the detailed description of the present invention that the embodiments of the present invention satisfy the above mentioned needs.

Embodiments of the present invention relieve software vendors from tailoring their applications based on each wireless device type because the server tailors the output of a generic application based on the wireless device capability. Moreover, embodiments of the present invention execute the requested application on the server. Thus providing software updates and patches for a generic application can be done by patching/updating the generic application on the server, thereby eliminating the need to update/patch each application on each wireless device.

According to one embodiment of the present invention, a wireless device includes an engine/reader. The engine/reader is operable to communicate with a server and receive a series of low level basic commands that layout content, position, etc. for rendering application content on the wireless device. The engine/reader interprets commands of a generic syntax that are device specific in their parameters.

The wireless device may also include a graphical user interface including a plurality of rendering blocks. A custom configuration may be used to customize the appearance of content generated by a requested application rendered on the rendering blocks. In other words, a custom configuration may be a set of low level instructions for preprogramming the plurality of rendering blocks to operate and look a certain way. The graphical user interface is operable for rendering basic commands received from the engine/reader and for customizing the operation and appearance of the requested application based on the custom configuration. The wireless device has software stored therein to implement the embodiments of the present invention.

In one embodiment, generic applications are provided by software vendors and are stored on a remote server. It is appreciated that these applications are not device specific. Once a wireless device in communication with the server requests an application, a message is sent via the engine/reader of the wireless device to the server. The message may include a request for a

specific application as well as information identifying the wireless device type and its capability.

In response to the message from the wireless device, the server accesses the requested application by accessing a library of applications. The library of applications contains generic applications that on one level operate regardless of the device type. The requested application is executed on the server. Moreover, the server may identify a custom configuration to be used for the requested application and the device type. The custom configuration is the theme and determines certain graphical appearances of the requested application. In other words, the custom configuration provides the "look and feel" of the content of the requested application. The server may send a message to the wireless device identifying the custom configuration to be used. If the identified custom configuration is present on the wireless device it is used locally, otherwise the identified custom configuration is downloaded from the server to the wireless device. The custom configuration is specific to the display and audio capabilities of the wireless device and is also specific to the wireless device.

The server may determine the device capabilities (e.g., rendering capability of the wireless device) based on the received identification message and by accessing a library of device profiles. The library of device profiles includes information about the specific wireless device capabilities.

During the execution of an application, the server determines whether the executed application produces dynamic or static pages. If dynamic data is produced, a template engine of the server merges dynamic data provided by a business logic unit and template screens of the requested application provided by executing the application on the server. Business logic facilitates dynamic information exchange between the application executing and the templates. Thus, the template engine provides a high level template (e.g., extensible markup language (XML) format) that includes the merged screens of the requested application and dynamic data provided by the business logic. Accordingly, the resultant output is a high level generic template or page description.

Additionally, the template engine communicates with a device profile of the wireless device and may eliminate content of the requested application that is not supported by the wireless device based on the capabilities of the wireless device. For example, if the server determines that the wireless device has no audio capability, the content related to audio may be eliminated from the template. On the other hand, if a static page is produced, the template engine is bypassed and the static page is supplied to a layout solver directly.

The layout solver of the server then tailors the template based on the device profile and device capability. In one example, the layout solver also tailors static data based on the device profile and device capability. The layout solver

translates the template and/or static page into a series of basic commands based on the device profile and device capabilities. Basic commands are written in a device independent syntax but tailored based on the wireless device capability. Accordingly, the basic commands are low level compilation operable to render objects using the plurality of rendering blocks of the wireless device. For example, basic commands may be used to layout page content of the requested application. Accordingly, the layout solver receives a generic template and/or static data of the requested application and translates it to application specific commands based on the device's capability. Basic commands are then transmitted to the wireless device for rendering.

The engine/reader of the wireless device receives the basic commands that are tailored and are specific to the wireless device based on device's attributes and capabilities. The syntax of these commands is device generic. The graphical user interface of the wireless device uses the received basic commands and the custom configuration to render the received page. Each command is typically associated with an operation to be performed by a rendering block of the wireless device and carries parameters, content, etc., for operation of that rendering block. Basic commands are used to layout content, position and etc. of the application while the custom configuration is used to customize the "look and feel" of the requested application (e.g., background color). The engine/reader rnay receive messages and content from the server

without further interaction by the user or it may send/receive messages in response to user interaction.

As a result, software vendors do not need to tailor their application to each wireless device. In other words, software vendors can develop a generic application because the output of the generic application is tailored based on each wireless device type using the server. Moreover, since applications and basic commands for rendering applications are performed and generated on the server, providing patches and updates can be facilitated by updating the server, thereby eliminating the need to access each wireless device individually.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1A shows an exemplary communication system in accordance with one embodiment of the present invention including wireless clients and a remote server.

Figure 1B shows an exemplary wireless device protocol stack in accordance with one embodiment of the present invention.

Figures 2A and 2B show an exemplary communication sequence between a wireless device and a remote server in accordance with one embodiment of the present invention.

Figure 3 shows an exemplary wireless device block diagram in accordance with one embodiment of the present invention.

Figure 4 shows an exemplary received compiled page description in accordance with one embodiment of the present invention.

Figure 5 shows an exemplary remote server block diagram in accordance with one embodiment of the present invention.

Figure 6 shows an exemplary computer controlled flow diagram for rendering content on a wireless device in accordance with one embodiment of the present invention.

Figure 7 shows an exemplary computer controlled flow diagram of a server implemented method for processing data for a wireless device in accordance with one embodiment of the present invention.

DETAILED DESCRIPTION

Reference will now be made in detail to embodiments of the present invention, examples of which are illustrated in the accompanying drawings. While the invention will be described in conjunction with these embodiments, it will be understood that they are not intended to limit the invention to these embodiments. On the contrary, the invention is intended to cover alternative, modifications and equivalents, which may be included within the spirit and scope of the invention as defined by the appended claims. Furthermore, in the following detailed description of the present invention, numerous specific details are set forth in order to provide a thorough understanding of the present invention. However, it will be evident to one ordinary skill in the art that the present invention may be practiced without these specific details. In other instances, well known methods, procedures, components, and circuits have not been described in detail as not to unnecessarily obscure aspects of the invention.

NOTATION AND NOMENCLATURE

Some portions of the detailed descriptions which follow are presented in terms of procedures, steps, logic blocks, processing, and other symbolic representations of operations on data bits that can be performed on computer memory. These descriptions and representations are the means used by those skilled in the art to most effectively convey the substance of their work to others

skilled in the art. A procedure, computer executed step, logic block, process, etc., is here, and generally, conceived to be a self-consistent sequence of steps or instructions leading to a desired result. The steps are those requiring physical manipulations of physical quantities.

Usually, though not necessarily, these quantities take the form of electrical or magnetic signals capable of being stored, transferred, combined, compared, and otherwise manipulated in a computer system. It has proven convenient at times principally for reasons of common usage, to refer to these signals as bits, values, elements, symbols, characters, terms, numbers, or the like.

It should be borne in mind, however, that all of these and similar terms are to be associated with the appropriate physical quantities and are merely convenient labels applied to these quantities. Unless specifically stated otherwise as apparent from following discussions, it is appreciated that throughout the present invention, discussions utilizing terms such as "processing" or "creating" or "transferring" or "executing" or "determining" or "instructing" or "issuing" or "halting" or "clearing" or "accessing" or "aggregating" or "obtaining" or "selecting" or "initiating" or "receiving" or "analyzing" or "generating" or "constructing" or "outputting" or "collecting" or "monitoring" or "outputting" or "storing" or "sending" or "receiving" or "identifying" or using" or "rendering" or "translating" or "providing" or the like, refer to the action and processes of a computer system, or similar electronic computing device, that manipulates and transforms data represented

as physical (electronic) quantities within the computer system's registers and memories into other data similarly represented as physical quantities within the computer system memories or registers or other such information storage, transmission or display devices.

A SERVER METHOD AND SYSTEM FOR RENDERING CONTENT ON A WIRELESS DEVICE

The increase in the number of wireless devices has led to an increase in demand for different applications. However, each given application needs to be tailored to a given wireless device type based on the wireless device capability. Embodiments of the present invention relieve software vendors from tailoring their applications based on each wireless device type because the server tailors the output of a generic application based on the wireless device capability. Moreover, embodiments of the present invention execute the requested application on the server. Thus providing software updates and patches for a generic application can be done by patching/updating the generic application on the server, thereby eliminating the need to update/patch each application on each wireless device.

Referring now to Figure 1A, an exemplary communication system 100A in accordance with one embodiment of the present invention including wireless clients and a remote server is shown. In one embodiment, one or more wireless

devices 110 are coupled to a server 130 through a network 120. The wireless device 110 may be any mobile wireless electronic device, e.g., a cellular phone, a personal digital assistant (PDA), a pager, a smart phone, a BlackBerry, a laptop and the like. It is appreciated that the wireless device described herein is exemplary and is not intended to limit the scope of the present invention. Network 120 includes wireless communication capability.

According to an embodiment of the present invention, the remote server executes a generic application. It is generic in that it is not specific to any device or any set of device capabilities. The server will eventually translate the output of the application to a device specific set of commands for transmission to the device 110 for rendering. Likewise, the device 110 sends user input and other data to the remote server 130 for processing.

According to one embodiment of the present invention, a wireless device initiates a message requesting access to a given generic application stored on the server 130. It is appreciated that the wireless device in this embodiment has stored therein a software program or "client" that enables the wireless device to implement the embodiments of the present invention. This client may be downloaded to the wireless device 110 using well known conventional methods.

The server 130 in response to the received message may access the requested application that is generic regardless of the wireless device type.

However, the server 130 generates a device specific result from the generic application, thereby tailoring the output of the generic application based on the wireless device type. The result in one example is a series of basic commands, precompiled and ready for audio and video rendering by the wireless device. During application execution, page layout information is sent to the wireless device for display and audio rendering using the basic commands. Also, user input and other state information is sent from the wireless to the server in accordance with the pages of the application. As a result, software vendors no longer need to tailor their applications for each wireless device type because a generic application can be used by the server to generate a tailored result application for each wireless device type.

Moreover, since the generic application is being executed by the server 130 instead of the wireless device 110, the generic application may be patched and updated on the server 130 without a need to access each wireless device individually. Furthermore, since the application is generic, the update and patch software is likewise device generic, thereby limiting the number of versions needed.

Referring now to Figure 1B, an exemplary wireless device protocol or software stack 100B in accordance with one embodiment of the present invention is shown. In one embodiment, a wireless device may include a hardware component 102, a binary runtime for wireless device (BREW) and/or Java

platform (J2ME) J2ME/BREW 104 for instance, an abstraction layer 106, a graphical user interface 108, a configuration data 112 and a reader/engine 114. It is appreciated that in one embodiment, the graphical user interface 108, abstraction layer 106, J2ME/BREW 104 and the hardware layer 102 are device specific. In comparison, the engine/reader 114 and the configuration data 112 may be device generic in terms of the syntax they use to operate. Blocks 104 through 114 can be downloaded to the device from the server and are called "the client."

The hardware 102 may be the actual circuitry of the wireless device. For example, hardware 102 may be the processor, display components, user inputs, audio rendering devices, etc. BREW 104 is a software platform that may be used to download and run small programs for playing games, sending messages, sharing photos and the like. The main advantage of BREW platform is ease of portability of applications. J2ME 104 is a collection of JAVA application programming interfaces (APIs) for the development of software for resource constrained devices such as PDAs, cellular phones and other consumer appliances. Accordingly, BREW and/or J2ME 104 and the like are software platforms that may be used to enable download, portability of application, running small programs for various applications such as games, sending messages, sharing photos and the like. It is therefore appreciated that the use of J2ME/BREW 104 is exemplary and should not be construed as limiting the scope of the present invention.

The abstraction layer 106 may be a software component used to translate commands and enable the wireless device to implement different embodiments of the present invention. For example, the abstraction layer 106 may be used to facilitate communication between the graphical user interface 108 and the J2ME/BREW 104 layer in accordance with embodiments of the present invention.

A graphical user interface layer 108 includes a number of individual rendering blocks 108a that perform discrete rendering operations to render a received page description. The engine/reader 114 passes commands to these rendering blocks to perform the rendering of the application content. Also, the engine/reader 114 receives user input from these blocks 108a. While the rendering blocks operate in a way that is device specific, they communicate using a device generic syntax. These rendering blocks may be preconfigured to operate and store data (e.g., images, audio data, etc.) in a specific manner. This pre-configuration may set a "look and feel" for a particular application. Once preconfigured, the received page descriptions then include commands that utilize the functionality of the blocks 108a.

The wireless device using the engine/reader 114 communicates with the server 130 via a device generic syntax to read the basic commands of a page description. The engine/reader also communicates to the server. For example,

the engine/reader 114 may send a message that includes a request to access a generic application as well as the identification of the wireless device type. The engine/reader also communicates user actions and other state information to the server. In return, the engine/reader 114 may receive a compiled content from the server 130 that includes a series of basic commands for rendering the requested application. It is appreciated that the series of basic commands are written in a device independent syntax but tailored based on the wireless device rendering capability.

The engine/reader 114 may also receive updates from the requested application based on changes of the server state. For example, if a program with a ticker (e.g., stock ticker) is originally selected, then the engine/reader 114 may receive an update for the ticker periodically. It is appreciated that the engine/reader 114 may receive additional data from the graphical user interface 108 in response to a user interaction (e.g., selecting an icon) and may transmit that data to the server as an event.

The wireless device includes the configuration data 112 component. As discussed above, the configuration data may be used to customize the appearance of the requested application and represents programming and stored content of the graphical user interface 108. In other words, configuration data may be a set of low level instructions for preprogramming a plurality of rendering blocks 108a of the graphical user interface to operate and render data (e.g.,

"look") a certain way. For example, configuration data 112 may be used to customize a "submit" icon to look like an airplane flying away when pressed. The wireless device may store multiple configuration data 112 and cache new configuration data as new applications are accessed. It is appreciated that the terms configuration data and custom configuration are used interchangeably throughout this application.

According to one embodiment, configuration data 112 may include text fonts, text colors, background colors, background images, border thickness, border colors, frame colors of menus, style of menus (e.g., rounded, rectangle and etc.), styles of check boxes (square, round and etc.), images of non-selected icons, images of selected icons, graph colors, information for drawing (e.g., particular text font at a particular location, particular color at a given location, shape of a given size, image at a given point and etc.), icons to use for representing hierarchical data, colors of the bar/animation representing the progress when downloading and an animation to use when download is in progress and the like. It is appreciated that the configuration data 112 discussed above are exemplary and are not intended to limit the scope of the present invention.

The configuration data is programmed into the rendering blocks 108a. The graphical user interface 108 rendering blocks (e.g., icons) 108a render content and enable a user to interact with the requested application. For example a

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"submit" icon may be one of the rendering blocks of the graphical user interface (GUI) 108 that once selected submits a form.

In one example, the rendering blocks 108a may include an edit box for entering text, static text for displaying text, an image, a pop-up menu which may appear in response to a user interaction, a drop-down menu list, tabbed menu for displaying several pages where each tab may display a text and an optional icon, sound for controlling audio (e.g., pause, rewind, stop, play and the like), video to display a video with visual control panel (e.g., pause, rewind, stop, play and the like), ticker to display horizontal scrolling text, check box/radio button to enable selection/de-selection of items, rating control for rating content (e.g., movies), poll control for displaying the current poll result, canvas for drawing objects, a tree for displaying hierarchical data, scroll bar for scrolling up/down and/or left/right, a progress bar to display download progress, a table for displaying data in a tabular form, a calendar for displaying and enabling selection/de-selection of a date and the like. It is appreciated that the rendering blocks discussed above are exemplary and are not intended to limit the scope of the present invention.

In more detail a more comprehensive list of configuration data also known as "skinnable attributes" as well as the rendering blocks and their syntax is provided below. It is appreciated that some of the attributes have "x2" suffix for having two values. A first value is selected for default value and a second value is selected when a default value is not selected.

An edit box is a rendering block for entering text (e.g., a user name, a SSN, etc.). The text may appear in clear form, or as '*' to hide the text when the user uses this edit box to enter a password. Configuration data may include:

font of the text (x2)
color of the text (x2)
background color (x2)
background image (x2)

A static text is a rendering block used to display text. Configuration data may include:

font of the text
color of the text
background color
background image

An image is a rendering block to display an image. An action may be associated to the image, e.g., in response to a user selecting the image, a request may be sent to the server. Configuration data may include:

thickness of the border of the image (x2)
color border of the image (x2)

A pop-up menu is a rendering block which appears on a given user action (e.g., by pressing the right softkey button). Configuration data may include:

color of the frame of the menu
style of the menu (rounded, rectangle, etc.)
font of the text (x2)
color of the text (x2)
background color (x2)

background image (x2)

A list is a rendering block for displaying a list of items in a list. An optional icon may be associated to each item in the list. The user can scroll this list and select an item. Configuration data include:

font of the text (x2)
color of the text (x2)
background color (x2)
background image (x2)
thickness of the border for icons
color of the border for icons

A tabbed menu is a rendering block for a wireless device to display several pages due to a small screen size. Each tab may display a text and an optional icon. Configuration data may include:

font of the text (x2)
color of the text (x2)
background color (x2)
background image (x2)
thickness of the border for icons (x2)
color of the border for icons (x2)

Sound is a rendering block for a non visual control to play sound. This rendering block may optionally include a visual control panel for allowing the user to pause/rewind/stop the sound. The control may include the identification of the sound file to play.

Video is a rendering block to display a video clip. A visual control panel associated with the video may be displayed to allow the user to pause/rewind/stop the video. The control may include the URL that the wireless device should use to stream the video clip.

Ticker is a rendering block to display a horizontally scrolling text. Configuration data may include:

thickness of the border
color of the border
font of the text
color of the text
background color
background image

Check box / radio button is a rendering block allowing the user to select/deselect an option in a screen. Configuration data may include:

check box style: square, round, etc.
color of the border
font of the text
color of the text
background color

Rating control is a rendering block that allows the user to rate content (e.g., image, video, etc.). This control may display five icons (e.g., stars, thumps up, etc.) and allow the user to select of one the icons. Configuration data may include:

thickness of the border
color of the border
image for non selected icon

image for selected icon

Poll control is a rendering block for displaying a list of selectable propositions to the user. In response to a selection, the server may send the result to the client as a bar graph to show the current result of the poll. Configuration data may include:

thickness of the border
color of the border
background color
background image
font of the text (x2)
color of the text (x2)
colors of the graph bars

Canvas is a rendering block on the screen on which the server can draw elements. The server may send drawing instruction in this canvas such as draw this text with this font at this X/Y position, draw this line with this color between x1/y1 and x2/y2, draw this rectangle at x/y/width/height, draw this image at x/y, etc. It is appreciated that there is no equivalence to the canvas rendering block in a wap browser.

Tree is a rendering block for displaying hierarchical data. Configuration data may include:

font of the text (x2)
color of the text (x2)
icons to use for the nodes of the tree

Scroll bar is a rendering block that indicates that a page can be scrolled up and down or left and right.

Progress bar is a rendering block to provide the user with feedback about the advancement of the process in downloading content. This is a useful feature for lengthy downloads since "loading animation" does not always provide sufficient information as to the advancement of the content download. For example, a process bar may indicate a percentage of advancement. Configuration data may include:

thickness of the border
color of the border
background color
background image
font of the text (x2)
color of the text (x2)
colors of the bar which indicated the progress

Table is a rendering block that may be used to display data in rows/columns. Configuration data may include:

thickness of the border
color of the border
background color
background image
font of the text (x2)
color of the text (x2)

Calendar is a rendering block for allowing the user to pick a date and/or time without the risk of entering invalid data. Configuration data may include:

thickness of the border
color of the border

background color
background image
font of the text (x2)
color of the text (x2)

The GUI 108 uses the configuration data 112 to preprogram the plurality of rendering blocks 108a to operate and look a certain way. For example, the rendering block (e.g., scroll bar) may be customized by the GUI 108 based on the configuration data (e.g., an image of a shamrock leaf during St. Patrick's day) to customize the way the rendering block looks. Accordingly, the GUI 108 may receive compiled content for the requested application that includes a series of basic commands from the engine/reader 114 for rendering a page of the requested application. It is appreciated that the series of basic commands are written in a device independent syntax whose parameters are tailored based on the wireless device capability. The GUI 108 may then render the page of the application based on the received basic commands and the customized preprogrammed plurality of rendering blocks. As a result, the appearance of the received the page of the application and the plurality of rendering blocks are customized based on the configuration data.

Referring now to Figures 2A and 2B, an exemplary communication sequence 200A and 200B between a wireless device 210 and a remote server 230 in accordance with one embodiment of the present invention is shown. At step 212 the client 210 sends a message to the server 230 identifying the wireless device type and its capabilities along with a request to access an

application on the server. It is appreciated that the application is generic and independent of the wireless device type. The request from the client may also be a request to gain access to a specific resource (e.g., an image, sound, etc.). The response from the server may include the requested resource that may further include the version number which may be cached by the client.

In one embodiment, the wireless device type and its capabilities may include the brand, the model and the version number and may include some device capability information such as the screen size, the amount of memory, permanent storage capabilities, the color resolution, the image format, the list of java specification request (JSR) such as video, global positioning system (GPS) capabilities, access to address book, capability to initiate a call, short messaging system (SMS), multimedia messaging service (MMS) and the like. It is appreciated that the list of wireless device type provided herein is exemplary and should not be construed as limiting the scope of the present invention.

In one embodiment, the message from the client 210 may identify the version number of the "client." If the version number is too old or if the user requests a feature that is not available for the current version of the "client", the server may send an update "client" message to the user to notify the user of the user that a new version of the "client" is required. Moreover, the server may provide instructions on how to update the "client." The URL may be sent to the client 210 such that the browser could be launched by the user. Accordingly, the

user can download the new version of the "client" without having to navigate through multiple web pages.

The message 212 may include:

request for a desired "application"
the version number of the client
the screen size
the amount of memory on the wireless device
the client's storage capabilities (size of the available permanent storage)
the number of colors supported by the client
the supported image format
the list of supported JSR. A JSR may be an optional API, not required by the J2ME specification, that the client may support. JSR may include video, GPS capabilities, access to the address book, capability to initiate a phone call/send a SMS/ send a MMS from the application, etc.

In response to the message 212, the server 230 identifies the requested application and its corresponding custom configuration to be used by the client 210. At step 214, the server 230 sends a message to the client 210 identifying the corresponding custom configuration.

In one embodiment, the message identifying the custom configuration may indicate a version of the custom configuration selected for use with the requested application. The message communicated at step 214 may include:

the configuration data commonly known as skin version number for the requested application
the version number of the loading animation
the page identification and version number of the first page to display

The client may cache data in its permanent memory. As a result, the client may request for the resources it needs by checking the status of its cache. For example, if a given resource for the requested application is not available in its cache or is stored with a different version number, then the client may request the identified resource from the server. Therefore, in response to receiving the message identifying the custom configuration, the client 210 determines whether the custom configuration has been previously stored in its cache. If the client 210 determines that the custom configuration is already present, the client 210 may further determine whether the stored information is the latest version. According to one embodiment, if the client 210 is unable to locate the identified custom configuration or its latest version, then it may send a request 216 to download the identified information (e.g., custom configuration) from the server 230.

It is appreciated that the request 216 is not necessarily limited to the custom configuration and may be extended to any information. For example, the request from the client 210 may include a request for an image, an audio sound, a loading animation that is displayed on the wireless device during download showing the download progress (e.g., download 57% complete) and the like. Other requests may include a request for a loading animation or a request to download a first page of the application.

It is appreciated that the server 230 in response to a request from the client 210 may send the requested content to the client 210. For example, the

server 230 may send a custom configuration description, an application, a loading animation description that may be a static text, a static image, an animated image and the like. For static text, the content of the text may be provided, for a static image the identification of the image and its version number may be provided and for an animated image the identification of the image, the number of frames and the delay between frames may be provided. It is appreciated that the server in response to the request from the client sends the version number of the requested resource, which may be cached by the client.

It is appreciated that any image regardless of the context (e.g., configuration data, loading animation, etc.) may be identified by its identification number and its corresponding version number. In one embodiment, the client may store as many images as it can in a LRU (least recently used) cache to avoid wasting bandwidth in asking for images. Each time an image is sent from the server, the version number may be changed to clear the image in client's cache and ask the server for a new one.

It is further appreciated that similar caching mechanism may be used for other resources such as configuration data, the pages and the sound files. In one embodiment, the client may implement the optimal caching strategy (e.g., for low-end handsets, the cache will be very limited and the client will try to cache in order of priority such as the configuration data, the loading animation, images, etc.). It is also appreciated that a server may send a message to the client requesting the client to change or adopt a new caching strategy.

In this example, at step 218, the server 230 in response to the request from the client 210 sends the custom configuration to the client 210. The client 210 in one embodiment, caches the downloaded custom configuration such that it can be retrieved at a later time. The custom configuration may include a list of default values including default font, default color, default border color, default border thickness, default background color, default image, default menu style, default image for selected/non-selected icons and the like. The custom configuration may also include a list of optional values such as default font for edit zone, default font for ticker, default background color for static text (e.g., article) and the like where each optional value may be identified by an identification number. It is appreciated that the list provided herein regarding the custom configuration is exemplary and is not intended to limit the scope of the present invention.

At step 219, the device requests the first page of the application. At step 220, the server 230 sends the requested application content (e.g., the first page of the requested application). According to one embodiment, the requested application content is received as compiled content that includes a series of basic commands representing a page description. Basic commands are precompiled by the server 230 and ready for rendering by the client 210. It is appreciated that basic commands are written in a syntax that is device generic regardless of the device type but whose parameters are tailored based on the wireless device

capabilities. As such, precompiled basic commands are discrete low level rendering commands tailored based on the rendering capability of the client 210.

In one example, a page description contains basic commands that may include a description of the scrolling area (e.g., starting and ending vertical positions), the horizontal and vertical coordinates, the width, the height, the type of component to be displayed (e.g., text, image, video, audio and the like), the unique identification of the rendering block to be used to render the component, related parameters for the rendering block and for display components (e.g., version number of the image) and the like. As a result, the client 210 may draw the screen according to the description as specified by the received discrete low level basic commands and in accordance with the identified custom configuration.

The client 210 according to one embodiment caches the downloaded compiled content such that it can be retrieved at a later time. For example, when a client is surfing the Internet, it may cache the displayed page such that the client can browse back without having to download the page again.

According to one embodiment, when content is received by the client 210 from the server 230, the older version of the content may be cleared from the cached memory in order to save space. For example, when a new version of a custom configuration is downloaded the older version may be cleared to free up

memory space and the new one may be cached instead. In some embodiments, the client 210 may prioritize caching to achieve an optimal caching strategy, particularly for memory constraint wireless devices. According to one embodiment, the caching strategy of the client 210 may be modified by the server 230. It is appreciated that when enough memory space is available, the client 210 may store as much content as possible (e.g., custom configuration, animation download and the like) to avoid wasting bandwidth by repeatedly having to download them at a later time.

It is appreciated that steps 218 and 220 are shown as separate downloads, however, separate downloads for application content and the determined custom configuration are exemplary and should not be construed as limiting the scope of the present invention. Accordingly, the custom configuration and application content may be downloaded simultaneously. Moreover, it is appreciated that additional information (e.g., loading animation) may be downloaded separately or simultaneously with custom configuration and/or application. It is appreciated that the client 210 at step 222 may optionally send an acknowledgement message to the server 230 indicating successful receipt of the requested information.

At step 224, update (e.g., a new page) for the application may be pushed by the server 230 to the client 210 without user interaction. Pushed contents may be referred to as asynchronous messages that are sent by the server without

user interaction that are triggered by a specific on the server side. For example, if the requested application has a ticker for displaying scrolling text (e.g., stock update) then as soon as an update is available the new text may be pushed to the client 210 to update the ticker. These asynchronous messages are not possible for wap application in a browser because using wap browser the only possible solution is to cyclically poll the server to determine whether new material is ready. As a result, wap wastes bandwidth and is not suitable for real-time notification such as SMS messaging.

In one example, at step 226 of Figure 2B, the client 210 may initiate an action/command. An action may include a command that controls an edit box, controlling buttons, selection/de-selection of a check box or controlling a menu that when activated triggers an action, etc. An action may be described by page identification and some parameters to reflect the action of the user (e.g., the identification of the triggering control, the content of the edit zones, the selected item, etc.). For example, the client 210 may be in the process of filling out a form and the initiated command may be selecting the "submit" button to submit the completed form. As a result of the user interaction, at step 228 the server may send a new page to the client 210. For example, the new page may be a confirmation number and an indication that the submitted form was properly received.

It is appreciated that user interaction 232 may result in new page to be displayed at step 234. It is also appreciated that at step 236, a new page (e.g., asynchronous message) may be sent from the server 230 without an action by the client 210. For example, the client 210 may be reading news on the Internet using the wireless device. When breaking news occurs, the update may be pushed to the client 210, updating the page. In another example, the client 210 may be involved in SMS messaging and once a new message is ready, the message may be pushed as a new page by the server 230. For example, pushing a message from the server 230 to the client 210 may include an error message that something has happened on the server (e.g., server will be in maintenance and the user should disconnect and check back in a few minutes).

In one embodiment, the server 230 may push a message to the client 210 to clear pages history. During the user navigation, the client may keep the path history of the user such that the user can press the "back" key to go to the previous screen without requesting for the page to be downloaded again. Storing the path history is convenient because it allows a smooth user experience but it may require a large amount of memory on a wireless device. Accordingly, the server message may be used to notify that some pages in history can be safely cleaned up. In one example, this mechanism may be activated during a quality assurance when "out of memory" issues are detected and a message to clear pages history to ensure that memory is always available.

Similarly, a message from the server 230 to the client 210 to clear cache may be used to cleanup some resources in the cache in order to free up space in the memory. Moreover, a message may be sent from the server 230 to the client 210 to obtain client's status information that may be used for debugging purpose and the like. Obtaining client's status may be used to collect dynamic information about the wireless device at any given time to detect potential problems. As a result of receiving the status information, the client 210 may send a message providing status information for its cache, the history of pages, the amount of available memory, etc.

Referring now to Figure 3, an exemplary wireless device block diagram 300 in accordance with one embodiment of the present invention is shown. The wireless device 300 may implement the process for facilitating communication between the wireless device and the server as shown in Figures 1A-2B and includes a bus 302 or other communication mechanism for communicating information, and a processor 360 coupled with bus 302 for processing information.

Wireless device 300 also includes a volatile memory 310, such as a random access memory (RAM) or other dynamic storage device, coupled to bus 302 for storing information and instructions to be executed by processor 360. Volatile memory 310 also may be used for storing temporary variables or other

intermediate information during execution of instructions to be executed by processor 360.

Wireless device 300 further includes a non-volatile memory 320 such as read only memory (ROM) or other static storage device coupled to bus 302 for storing static information and instructions for processor 360. A non-volatile storage device 320, such as a magnetic disk or flash memory, is provided and coupled to bus 302 for storing information and instructions and may store the persistent internal queue. According to one embodiment, the instructions for implementing the virtual device may be stored on any one of the memory components (e.g., RAM, ROM, non-volatile storage device and etc.). Wireless device 300 may be coupled via bus 302 to a display 350, such as liquid crystal display (LCD), for displaying information on the wireless device.

The term "computer-readable medium" as used herein refers to any medium that participates in providing instructions to processor 360 for execution. Such a medium may take many forms, including but not limited to, non-volatile media, volatile media, and transmission media. Non-volatile media includes, for example, optical or magnetic disks or the like. Volatile media includes dynamic memory and the like.

The wireless device 300 further includes a transceiver 330 for facilitating wireless communication with a remote server. The transceiver 330 may receive a

series of basic commands from a remote server that may be used to render application and/or content on the display 350.

In one embodiment, the wireless device 300 further includes button inputs 340 e.g., a keyboard, for facilitating user interaction. For example, button inputs 340 may be used to navigate a website, enter email addresses, enter telephone numbers and the like. It is appreciated that button inputs 340 may be soft key buttons, a plurality of mechanical buttons, a rotating input component, a sliding input component, a voice activation component and the like.

The wireless device 300 may further include a microphone 380 for facilitating voice and audio input. The wireless device 300 may also include a speaker 370 for outputting audio. For example, the speaker 370 may be used to output a sound file such as mp3 or output voice outputs.

Referring now to Figure 4, an exemplary received compiled page description 400 in accordance with one embodiment of the present invention is shown. The compiled page description includes a series of basic commands. Each basic command may describe a given component on the page of the requested application to be rendered and includes a rendering block to be used. For example, a basic command 410 may be a description for rendering an image whereas a basic command 430 may be the description for rendering a video clip.

Accordingly, a collection of basic commands 410, 430 and 490 forms a single unified page to be rendered by the wireless device.

Basic commands are received from a remote server. The plurality of basic commands may be used by the wireless device to render application content (e.g., pages of the requested application) on the wireless device. For example, basic command 410 may include descriptions for rendering an image by specifying the Cartesian coordinates 412 and 414 of a screen region. Moreover, basic command 410 may further include the width 416 and the height 418 of the screen region to include image.

It is appreciated that the Cartesian coordinates 412 and 414 fields and the width 416 and height 418 fields may be the absolute coordinates and size of the renderable component on a given page of a requested application. However, it is appreciated that these fields may also include relative size and location of a given component for a given page of the application to be rendered.

In one embodiment, the object or renderable component may be identified by an object identifier 420 field. For example, the renderable object may be identified as an image. The image in one example may include an identification number 422 to identify the unique image that reflects the most recent image. The command also identifies the render block that is used to render the object.

It is appreciated that the basic command 410 may further include an identification of a rendering block 424. As a result, the rendering block 424 for providing user interaction may be identified. It is appreciated that basic commands may further include other field components for additional information e.g., immediate data, such as text. Thus it is appreciated that the fields described herein are exemplary and are not intended to limit the scope of the present invention.

Referring now to Figure 5, an exemplary remote server block diagram 500 in accordance with one embodiment of the present invention is shown. A client 510 is in communication with a remote server 590. As discussed above, the client 510 may initially send a message to the remote server 590 to request an application as well as identify the client's 510 type and its capabilities. A decoding system 520 of the server 590 receives the message from the client 510.

The decoding system 520 in response to the received message may access a library of applications 530 in order to locate and execute the requested application (e.g., Texas Holdem Poker, Internet and the like). It is appreciated that applications stored in the library of applications 530 are generic regardless of the device type. The requested application is then executed on the server 590. An application is defined by an application description file and a set of static resources, e.g., images, sounds, URLs, etc. The application description file

describes all the screens of the application and the custom configuration of the application.

The decoding system 520 may also access a library of custom configuration data 540, where each application may have a corresponding custom configuration data to customize the appearance of the application. In response to the received message and after identifying the proper custom configuration, the decoding system 520 sends a message to the client 510 identifying the custom configuration data. In one embodiment, if the client 510 does not have the identified custom configuration, it may request it and the decoding system 520 may send the identified custom configuration to the client 510.

During application execution, pages are generated for display on the wireless device. During a page generation, the server determines whether the requested application generates static or dynamic data. For static applications such as viewing pictures or for pure text, the decoding system 520 may send a static page to a layout solver 580 described below. On the other hand for dynamic pages such as real-time data, the server 590 inserts the dynamic data into a generic template and alters the resultant template based on the client profile.

More specifically, for dynamic data, the decoding system 520 communicates a page of the application to a template engine 550. The page is generic template describing the screen in a high level language, e.g., XML. The template engine 550 generates a dynamic page template by merging dynamic data with the generic template. The template engine 550 may be coupled to business logic 570 that computes dynamic data according to application execution. The business logic 570 may use model-view-controller architecture such that the user interface does not affect data handling and such that the data can be re-organized without changing the user interface. The request through the user interface of the wireless device results in an action in the business logic unit 570.

The business logic 570 may supply dynamic data to the template engine 550 for incorporation into a generic template. The template engine 550 according to one embodiment merges dynamic data provided by business logic 570 and generates screens of the requested application executed by the server to form a generic template. Thus, the template engine 550 provides a high level template (e.g., extensible markup language (XML) format) that includes the merged screens of application and dynamic data provided by the business logic 570.

According to one embodiment, the template engine 550 is also coupled to a library of device profiles 560. The library of device profiles 560 may include information on device capabilities. For example, the library of device profiles 560

may include information on the screen size, screen resolution, color resolution and the like. The server determines the client's 510 capabilities by accessing the library of device profiles 560 and based on the received message from the client 510 identifying itself (e.g., brand, model, memory size and the like).

As a result, the template engine 550 may eliminate content from its dynamic template output that is not supported by the client 510. For example, if the application includes an audio component but the client 510 does not have audio capability, then the template engine 550 may eliminate audio component from the generic template output. In another example, when the client 510 is short in memory, the template engine 550 may eliminate big images. Thus, a dynamic and high level template that includes data supported by the client 510 is generated. The dynamic template output from the template engine 550 may be in a high level language, e.g., XML.

The generic template supplied from 530 and the dynamic template supplied from 550 do not contain any specific or actual screen dimensions but rather only contain relative screen locations. At this stage, the templates are not very device specific regarding screen sizes, dimensions, etc.

The template engine 550 sends the high level and dynamic template to the layout solver 580. The layout solver 580 may also receive static page descriptions from the decoding system 520. In response to receiving the high

level and dynamic template and/or static pages, the layout solver 580 translates the received information into a series of basic commands based on the client's capabilities.

The layout solver 580 may access the library of device profiles 560 to determine client's capabilities. The layout solver 580 may use the client's capabilities to tailor the received information (e.g., static application and/or dynamic application) based on the requesting client's 510 capability.

It is appreciated that basic commands may be low level compilation operable to render application content on the client 510 using the rendering blocks of the wireless device. For example, basic commands may layout page content for the requested application. Accordingly, the layout solver 580 receives a dynamic template from the template engine 550 and/or receives a static page from the decoding system 520 and translates it to device specific commands based on the client's capability.

It is appreciated that the specific commands based on the client's capability are written in a syntax that is device generic regardless of the wireless device type. However, the parameters of the basic commands are tailored based on the wireless device capabilities. The basic commands are then transmitted to the client 510 for rendering. In one embodiment, the basic commands are the compiled page description 400 as described in Figure 4.

In one embodiment, the client 510 may initiate a further action by making a selection (e.g., selecting a selectable icon, sending SMS message and the like). The server 590 may receive the initiation of a command from the client 510 and cause an application (e.g., a new application or the requested application) to execute accordingly or provide an update. In one embodiment, the server 590 may automatically provide an update and push content to the client 510 without user involvement (e.g., when SMS message is ready for the client 510, when a stock update is ready in a ticker and the like).

Different blocks have been described as separate units. However, it is appreciated that each functional unit described herein may be integrated as a single working unit. As such, depiction of functional units as separate units is exemplary and should not be construed as limiting the scope of the present invention.

Referring now to Figure 6, an exemplary computer controlled flow diagram 600 for rendering content on a wireless device in accordance with one embodiment of the present invention is shown. At step 610, the wireless device may send a message to a remote server requesting an application as well as identifying itself and its capability (e.g., screen size, screen resolution and the like). At step 620, the wireless device receives a message from the server identifying a custom configuration to be used to pre-configure a plurality of

rendering blocks of the wireless device. The custom configuration customizes the look and feel of the content displayed on the wireless device from execution of the requested application.

According to one embodiment, the wireless device may store multiple custom configurations. As a result, when the custom configuration to be used is identified by the server, the wireless device may determine whether the custom configuration is present on the wireless device. If the custom configuration is not present, the wireless device at step 630 requests a download of the custom configuration from the server. According to one embodiment, the downloaded custom configuration may be cached by the wireless device for later use to conserve bandwidth. It is appreciated that steps 610-630 are for setup purposes and may not be necessary upon subsequent action by the user or the server when an application is being executed.

At step 640, the wireless device receives compiled content generated in part from execution of the requested application by the server. It is appreciated that the compiled content may include basic commands that are expressed in a syntax that is generic to the wireless device but where the parameters of the basic commands are based on the wireless device capability.

At step 650, the wireless device uses a graphical user interface to generate renderable content based on the received compiled content and the

custom configuration. In one embodiment, content is rendered by processing the compiled content using the reader and by issuing commands from the reader to rendering blocks of the graphical user interface based on the rendering commands of the compiled content. Accordingly, at step 660, the content is rendered by the wireless device.

It is appreciated that in response to rendering content, a user of the wireless device may initiate an action (e.g., by selecting an icon) that may further cause a message to be sent to the server. The server in response to a user interaction may compile additional content and send the additional compiled content to the wireless device. It is appreciated that since the setup for the requested application has been completed, steps 610-630 may be eliminated during user interaction with the rendered application. It is further appreciated that the server may automatically and without initiation of an action by the user push additional e.g., updated compiled content to the wireless device. For example, in an SMS application, a message may be ready for the wireless device. The server may send the message to the wireless device without initiation by the user.

Referring now to Figure 7, an exemplary computer controlled flow diagram 700 of a server implemented method for processing data for a wireless device in accordance with one embodiment of the present invention is shown. At step 710, the server may receive a message from a client requesting execution of an application and identifying the client and the client's capability. In response to

receiving the message, at step 720 the server may locate the requested application as well as the corresponding custom configuration for the requested application by accessing a library of applications and a library of configuration data respectively. It is appreciated that applications in the library of applications are device generic.

At step 730, the server may send a message to the client identifying the corresponding custom configuration to use for the requested application. If the client requests a download of the custom configuration, at step 740 the server may send the custom configuration to the client. At this stage, the setup for executing an application is complete.

At step 750, the server may execute the requested application. The server may then determine whether the executed application produces dynamic or static content. If the content produced is dynamic, at step 760 the server uses a template engine to generate a generic template that contains dynamic data. In one embodiment, the template generated may be in compliance with extensible markup language (XML) and the like.

According to one embodiment, the template engine eliminates content produced that are not supported by the wireless device. For example, the template engine may use a library of device profiles and the identified device capability from the wireless device to determine the capability of the wireless

device. As a result, content that is not supported by the wireless device may be eliminated.

At step 770, the layout solver receives either static data or dynamic data. In either case, the layout solver uses the device profile to tailor and translate or compile the received data into commands of a generic syntax whose parameters are tailored based on the capability of the wireless device. For example, the layout solver may determine the content layout on a given page of the requested application by providing the coordinates, size, object identifier, object identification and the like. The generated basic commands are discrete low level commands operable to render content on the wireless device. Thus, basic commands are generated in a syntax that is generic to the wireless device but are application specific based on the wireless device capability.

At step 780, the discrete low level basic commands may be transmitted to the client for rendering. It is appreciated that in response to a user interaction received, the server may produce and compile additional content. According to one example, the server may produce additional content without involvement by the wireless device user (e.g., when a message in SMS messaging is ready for the wireless device). It is appreciated that since the setup for the requested application and its corresponding custom configuration is complete, execution of additional content may be performed without execution of steps 710-740.

Accordingly, applications can be developed in a generic manner regardless of the device type. Developing generic applications regardless of the wireless device type is in part possible because the server may be used to operate on a generic application and tailor the result of executing a generic application based on a wireless device capability. As a result, software vendors are relieved from tailoring their application to each wireless device. In other words, software vendors can develop a generic application because the output of the generic application can be tailored based on each wireless device type by the server. Moreover, since applications and basic commands for rendering applications are performed on the server, providing patches and updates can be facilitated by updating the server, thereby eliminating the need to access each wireless device individually.

In the foregoing specification, embodiments of the invention have been described with reference to numerous specific details that may vary from implementation to implementation. Thus, the sole and exclusive indicator of what is, and is intended by the applicants to be, the invention is the set of claims that issue from this application, in the specific form in which such claims issue, including any subsequent correction. Hence, no limitation, element, property, feature, advantage or attribute that is not expressly recited in a claim should limit the scope of such claim in any way. The specification and drawings are, accordingly, to be regarded in an illustrative rather than a restrictive sense.

CLAIMS

What is claimed is:

1. A server implemented method for processing data for a wireless device, said method comprising:

executing an application program which generates content operable to be rendered on said wireless device and wherein said content is wireless device generic;

generating a first screen description based on said content and based on a device profile of said wireless device wherein said device profile describes a rendering capability of said wireless device;

translating said first screen description into a second screen description comprising discrete low level rendering commands that are within said rendering capability of said wireless device but that are of a syntax that is wireless device generic; and

providing said second screen description for transmission to said wireless device.

2. A method as described in Claim 1 wherein said first screen description is of a syntax that is wireless device generic and wherein further said first screen description is within the rendering capability of said wireless device.

3. A method as described in Claim 2 wherein said first screen description contains relative screen location and display object size information and is independent of screen dimensions.

4. A method as described in Claim 1 wherein said first screen description is substantially compliant with extensible markup language (XML) syntax.

5. A method as described in Claim 1 wherein said low level rendering commands of said second screen description are operable to be executed by a plurality of rendering blocks of a graphical user interface of said wireless device.

6. A method as described in Claim 5 wherein said low level rendering commands comprise physical screen positions of display elements.

7. A method as described in Claim 5 wherein a low level rendering command comprises:

specifications of a location and a size of a screen area; and

an identification of a particular rendering block of said plurality of rendering blocks of said graphical user interface to operate within said screen area.

8. A method as described in Claim 7 wherein said low level rendering command further comprises parameters associated with said particular rendering block.

9. A method as described in Claim 1 further comprising transmitting said second screen description to said wireless device.

10. A method as described in Claim 1 wherein said second screen description comprises display and audio rendering commands.

11. A method as described in Claim 1 wherein said application program is wireless device generic and wherein further said content generated by said application comprises a screen description template that is wireless device generic.

12. A method as described in Claim 1 further comprising, in response to a request for executing said application program, causing to be transmitted a custom configuration to said wireless device wherein said custom configuration is specific for said application program and is operable to configure a plurality of rendering blocks of a graphical user interface of said wireless device.

13. A method as described in Claim 1 wherein said server comprises a plurality of device profiles and further comprising:

receiving an identification of a type of said wireless device; and

identifying said device profile based on said type of said wireless device.

14. A server system comprising a processor coupled to a bus and a memory coupled to said bus wherein said memory comprises instructions that when executed cause said processor to implement a method for processing data for a wireless device, said method comprising:

executing an application program which generates content operable to be rendered on said wireless device and wherein said content is wireless device generic;

generating a first screen description based on said content and based on a device profile of said wireless device wherein said device profile describes a rendering capability of said wireless device;

translating said first screen description into a second screen description comprising discrete low level rendering commands that are within said rendering capability of said wireless device but that are of a syntax that is wireless device generic; and

providing said second screen description for transmission to said wireless device.

15. A server system as described in Claim 14 wherein said first screen description is of a syntax that is wireless device generic and wherein further said first screen description is within the rendering capability of said wireless device.

16. A server system as described in Claim 15 wherein said first screen description contains relative screen location and display object size information and is independent of screen dimensions.

17. A server system as described in Claim 14 wherein said first screen description is substantially compliant with extensible markup language (XML) syntax.

18. A server system as described in Claim 14 wherein said low level rendering commands of said second screen description are operable to be executed by a plurality of rendering blocks of a graphical user interface of said wireless device.

19. A server system as described in Claim 18 wherein said low level rendering commands comprise physical screen positions of display elements.

20. A server system as described in Claim 18 wherein a low level rendering command comprises:

specifications of a location and a size of a screen area; and

an identification of a particular rendering block of said plurality of rendering blocks of said graphical user interface.

21. A server system as described in Claim 20 wherein said low level rendering command further comprises parameters associated with said particular rendering block.

22. A server system as described in Claim 14 wherein said method further comprises transmitting said second screen description to said wireless device.

23. A server system as described in Claim 14 wherein said second screen description comprises display and audio rendering commands.

24. A server system as described in Claim 14 wherein said application program is wireless device generic and wherein further said content generated by said application comprises a screen description template that is wireless device generic.

25. A server system as described in Claim 14 wherein said method further comprises, in response to a request for executing said application program, causing to be transmitted a custom configuration to said wireless device wherein said custom configuration is specific for said application program and is operable to configure a plurality of rendering blocks of a graphical user interface of said wireless device.

26. A server system as described in Claim 14 wherein said memory comprises a plurality of device profiles and wherein said method further comprises:

receiving an identification of a type of said wireless device; and

identifying said device profile based on said type of said wireless device.

27. A server system as described in Claim 14 wherein said memory comprises a plurality of custom configurations and wherein said method further comprises:

receiving an identification of a type of said wireless device;

receiving an identification of said application program from said wireless device; and

identifying said custom configuration of said plurality of custom configurations based on said type of said wireless device and based on said identification of said application program.

28. A server system comprising:

a memory coupled to said bus;

a transceiver coupled to said bus operable to communicate with said wireless device; and

a processor coupled to a bus and operable to execute an application program which generates content for rendering on a wireless device and wherein

said content is wireless device generic and wherein further said processor is operable to implement:

a device profile library operable to store a device profile describing the rendering capability of said wireless device;

a screen layout generator operable to generate a first screen description based on said content and based on said device profile of said wireless device; and

a screen layout translator operable to translate said first screen description into a second screen description comprising discrete low level rendering commands that are within said rendering capability of said wireless device but that are of a syntax that is wireless device generic.

29. A server system as described in Claim 28 wherein said first screen description is of a syntax that is wireless device generic and wherein further said first screen description is within the rendering capability of said wireless device.

30. A server system as described in Claim 29 wherein said first screen description contains relative screen location and display object size information and is independent of screen dimensions.

31. A server system as described in Claim 28 wherein said first screen description is substantially compliant with extensible markup language (XML) syntax.

32. A server system as described in Claim 28 wherein said low level rendering commands of said second screen description are operable to be executed by a plurality of rendering blocks of a graphical user interface of said wireless device.

33. A server system as described in Claim 32 wherein said low level rendering commands comprise physical screen positions of display elements.

34. A server system as described in Claim 32 wherein a low level rendering command comprises:

specifications of a location and a size of a screen area; and

an identification of a particular rendering block of said plurality of rendering blocks of said graphical user interface.

35. A server system as described in Claim 34 wherein said low level rendering command further comprises parameters associated with said particular rendering block.

36. A server system as described in Claim 28 wherein said transceiver is operable to transmit said second screen description to said wireless device.

37. A server system as described in Claim 28 wherein said second screen description comprises display and audio rendering commands.

38. A server system as described in Claim 28 wherein said application program is wireless device generic and wherein further said content generated by said application comprises a screen description template that is wireless device generic.

39. A server system as described in Claim 28 wherein said processor in response to a request for executing said application program, is operable to cause to be transmitted a custom configuration to said wireless device wherein said custom configuration is specific for said application program and is operable to configure a plurality of rendering blocks of a graphical user interface of said wireless device.

40. A server system as described in Claim 39 wherein said memory comprises a plurality of custom configurations and wherein processor is further operable to receive an identification of a type of said wireless device and receive an identification of said application program from said wireless device and further operable to identify said custom configuration of said plurality of custom configurations based on said type of said wireless device and based on said identification of said application program.

41. A server system as described in Claim 28 wherein said memory comprises a plurality of device profiles and wherein said transceiver is operable to receive an identification of a type of said wireless device wherein said processor is operable to identify said device profile of said plurality of device profiles based on said type of said wireless device.

A SERVER METHOD AND SYSTEM FOR PROCESSING CONTENT FOR RENDERING ON A MOBILE DEVICE

ABSTRACT

A server implemented method for processing data for a wireless device. The server in response to a user request executes an application program for generating content for rendering on the wireless device where the content is wireless device generic. A first screen description based on the content and a device profile of the wireless device is generated. The device profile may describe a rendering capability of the wireless device. The first screen may be in a syntax generic format independent of the wireless device type and describe relative screen location and display object size information independent of screen dimensions. The first screen is translated into a second screen description that includes discrete low level rendering commands within the rendering capability of the wireless device that is syntax generic. Low level rendering commands include physical screen positions of display elements. The translated second screen is then transmitted to the wireless device.

100A

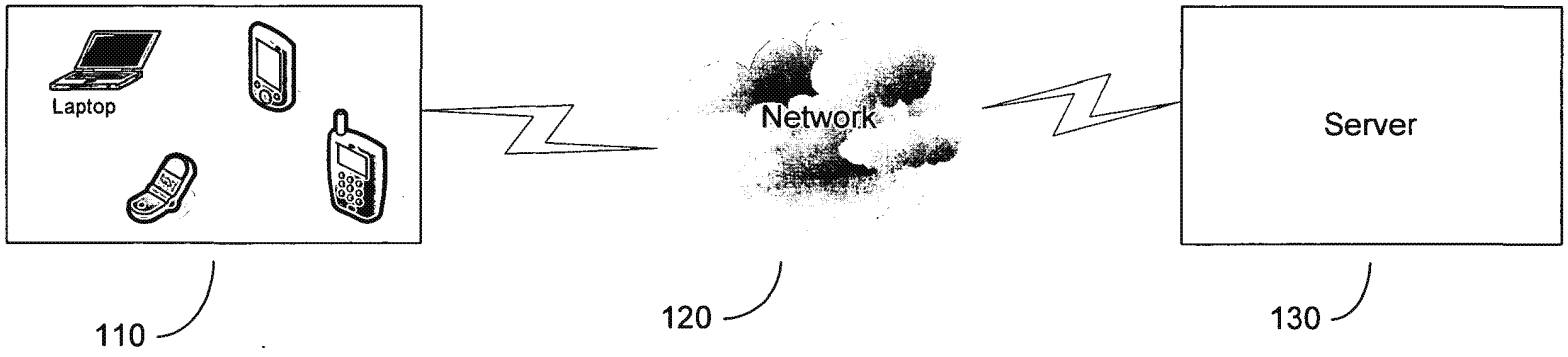


FIGURE 1A

GTV00000095

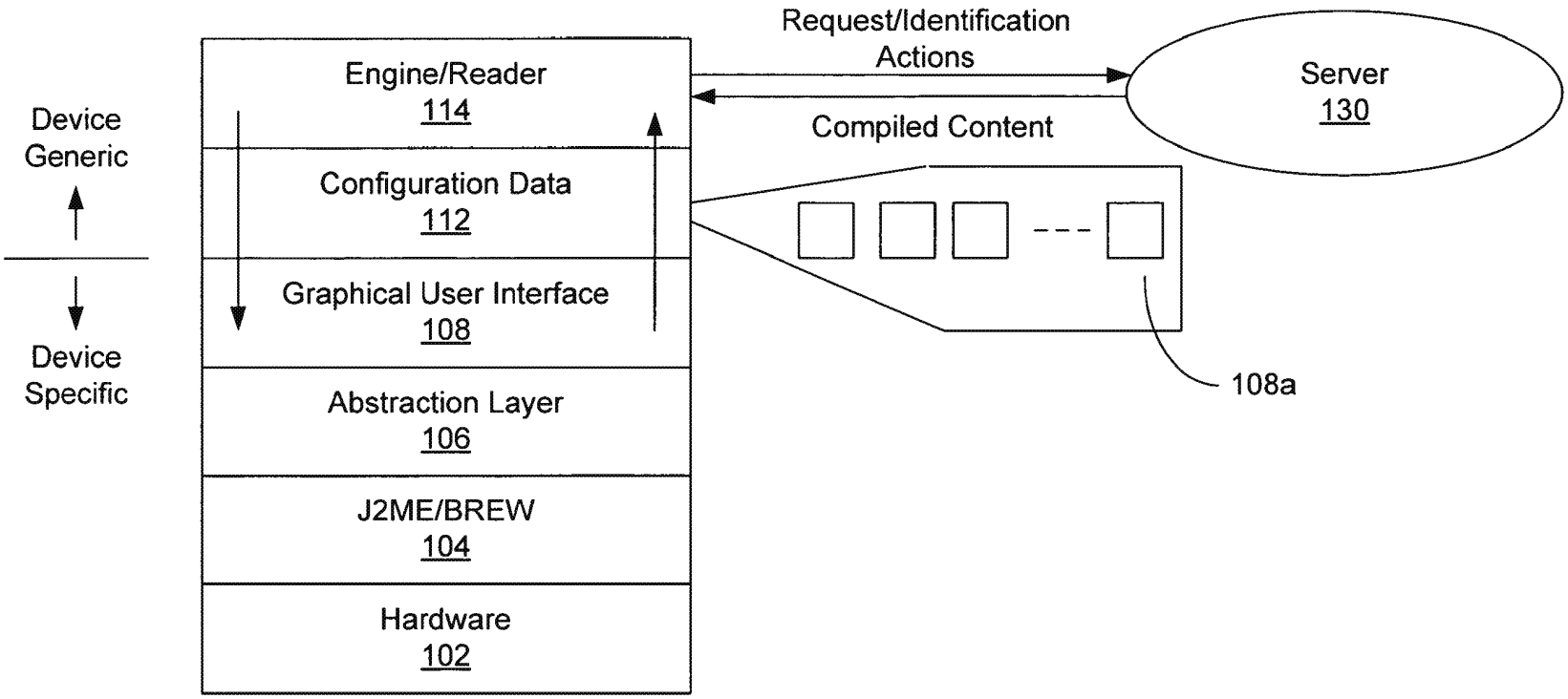


FIGURE 1B

GTV00000096

200A

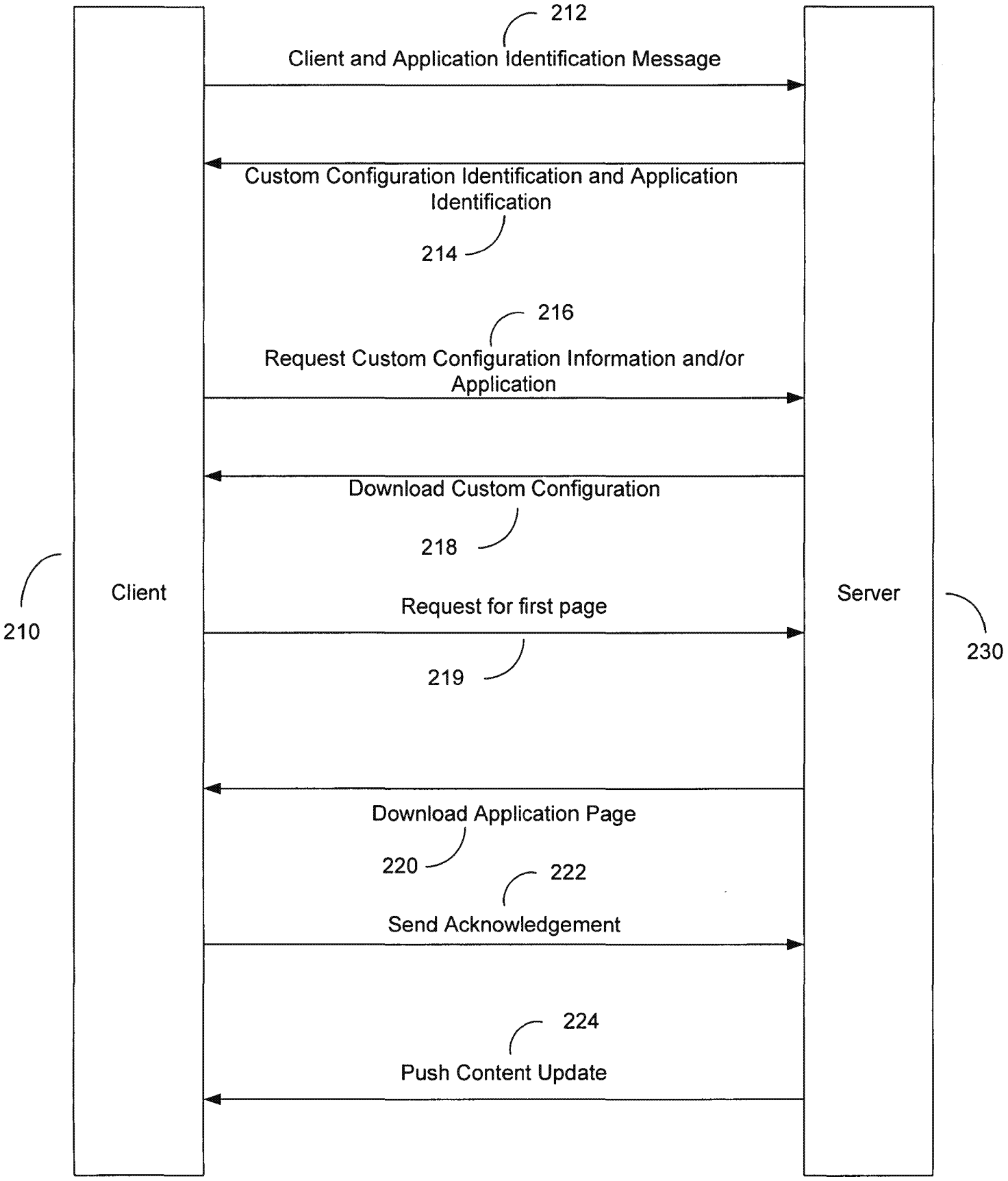


FIGURE 2A

200B

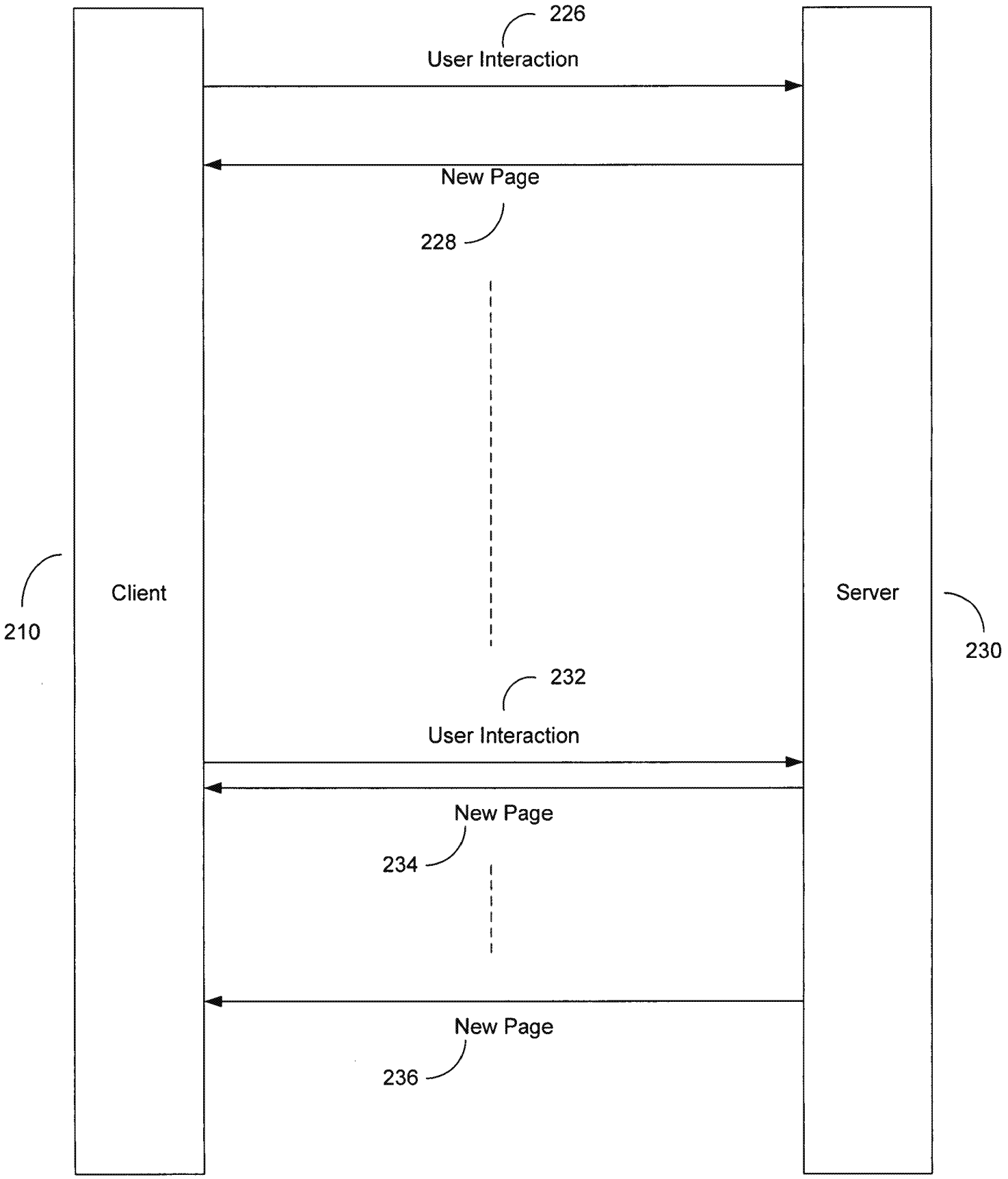


FIGURE 2B

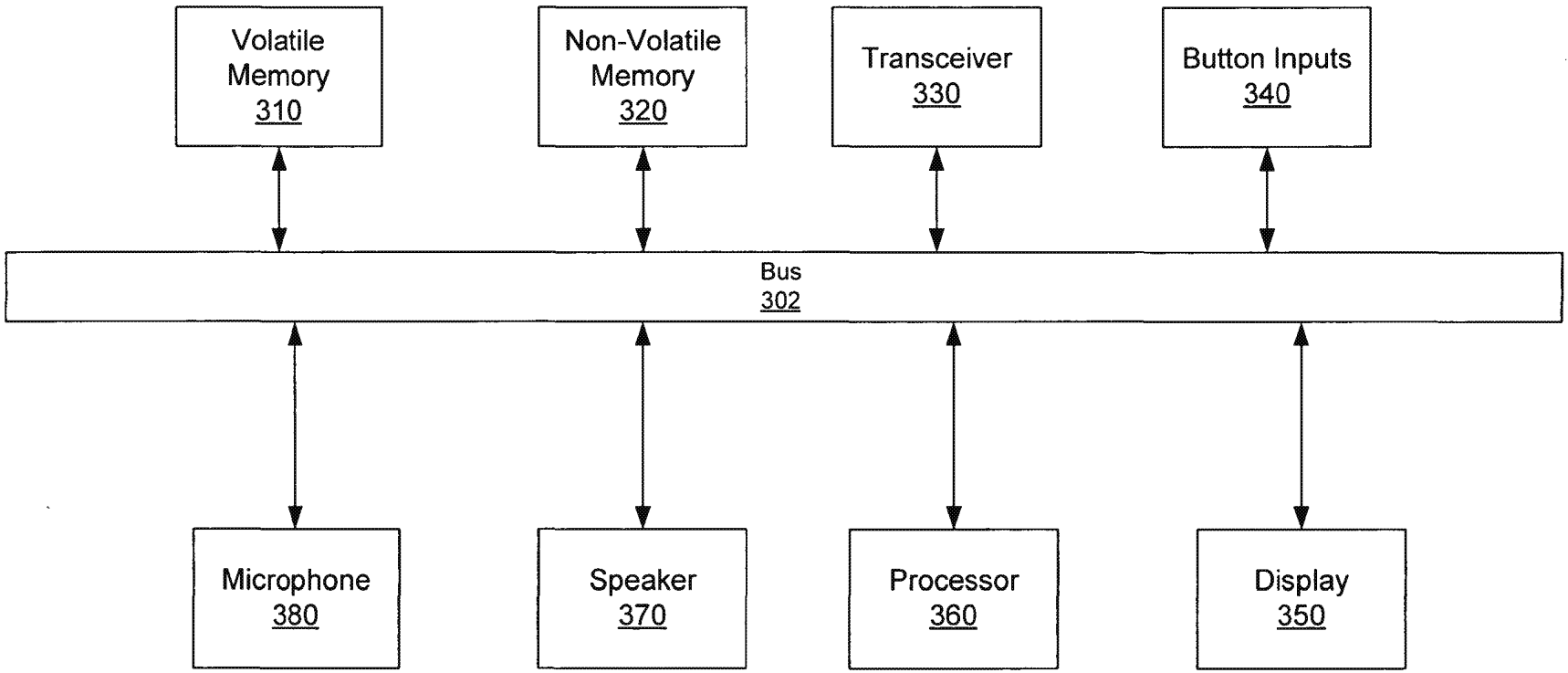


FIGURE 3

GTV00000099

400

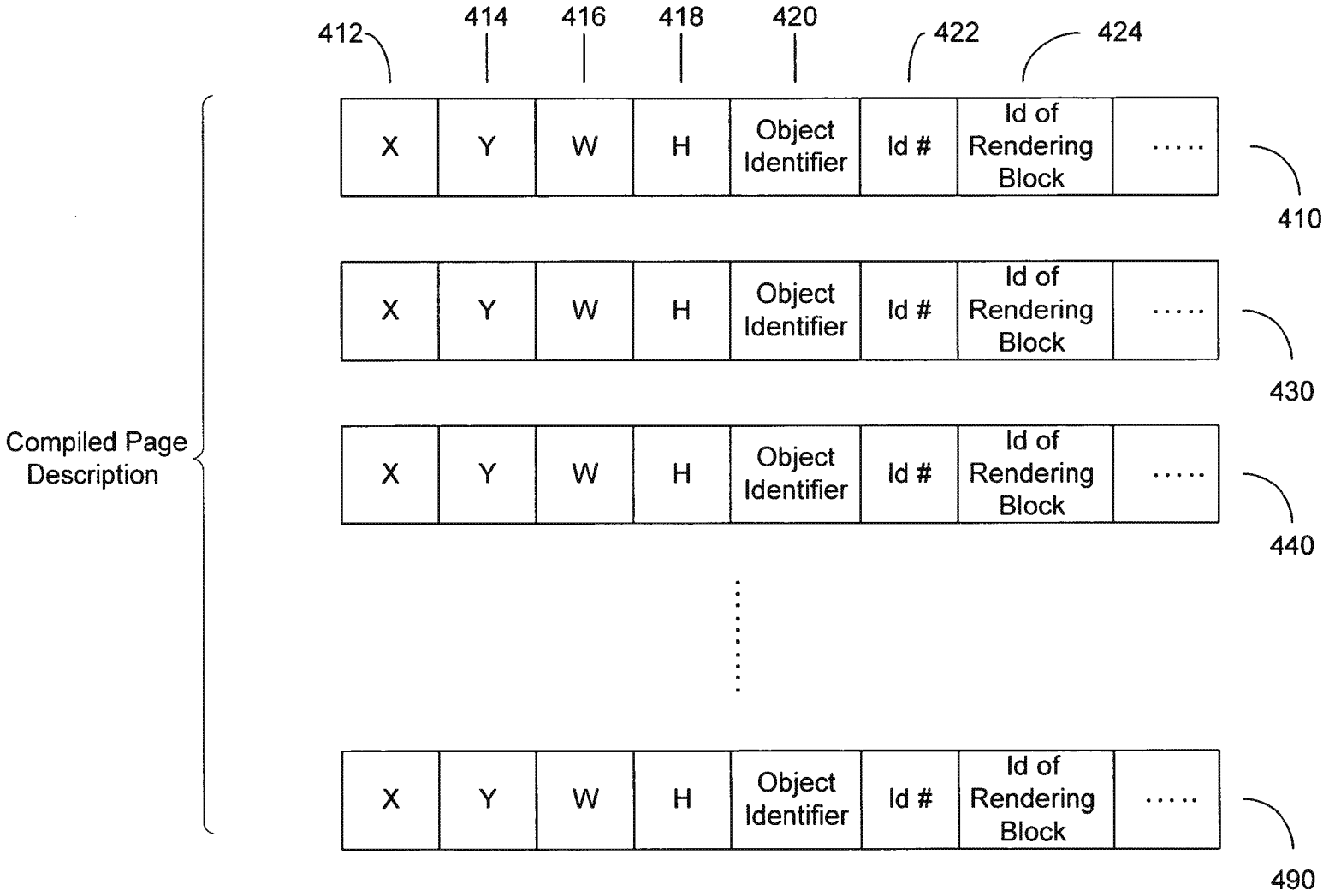


FIGURE 4

GTV00000100

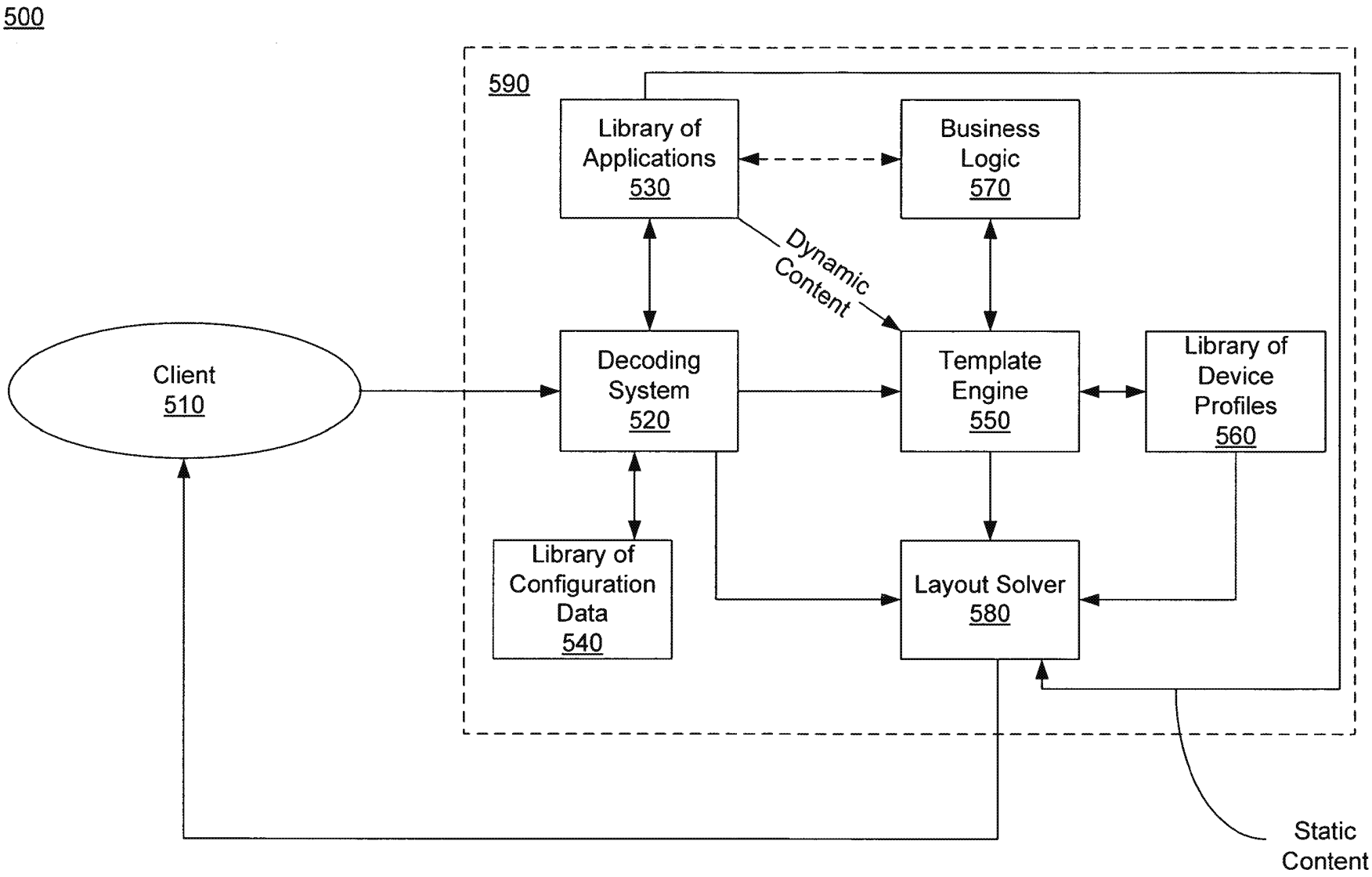


FIGURE 5

GTV00000101

600

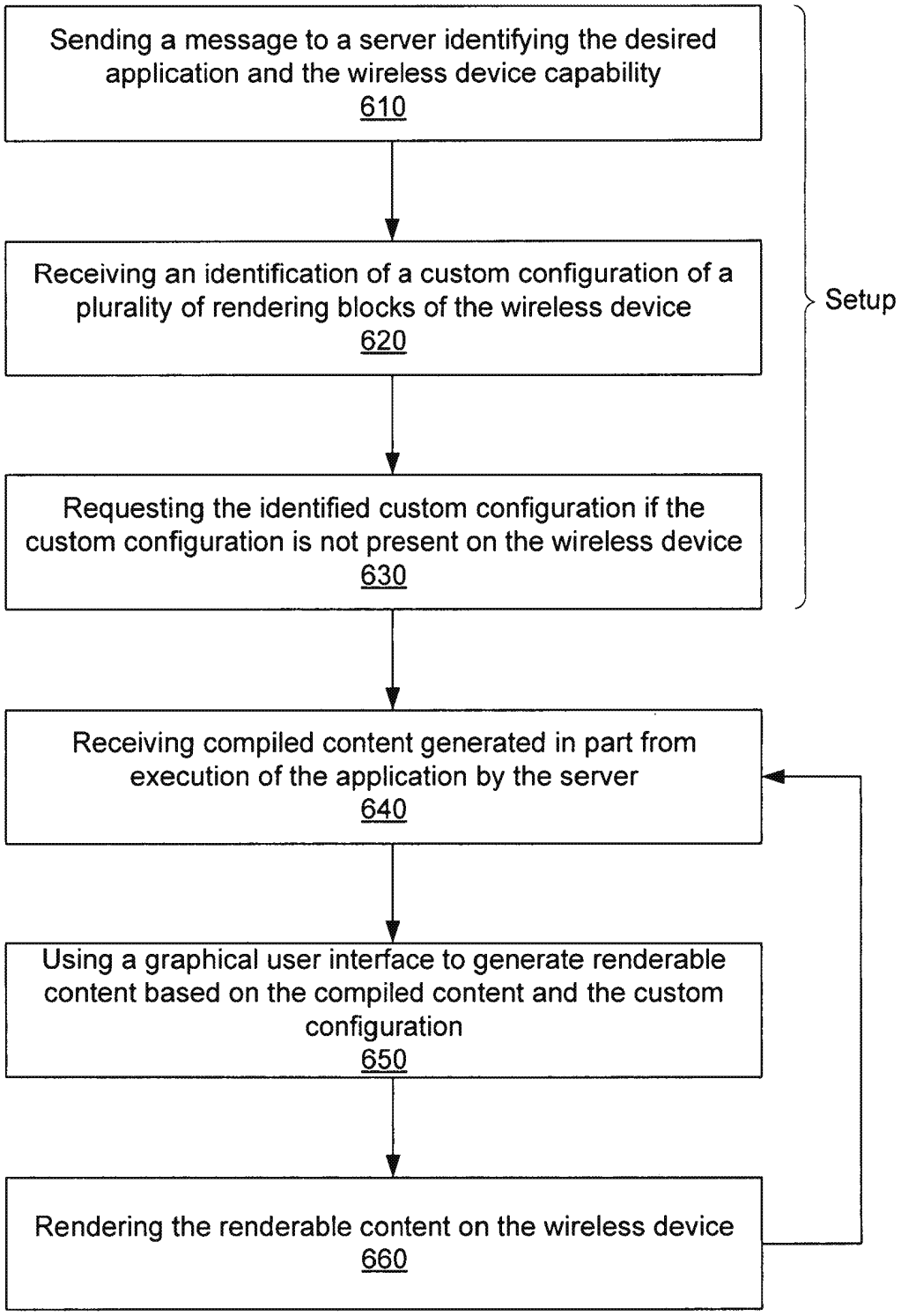

Sending a message to a server identifying the desired application and the wireless device capability
610
Receiving an identification of a custom configuration of a plurality of rendering blocks of the wireless device
620
Requesting the identified custom configuration if the custom configuration is not present on the wireless device
630
Setup
Receiving compiled content generated in part from execution of the application by the server
640
Using a graphical user interface to generate renderable content based on the compiled content and the custom configuration
650
Rendering the renderable content on the wireless device
660

FIGURE 6

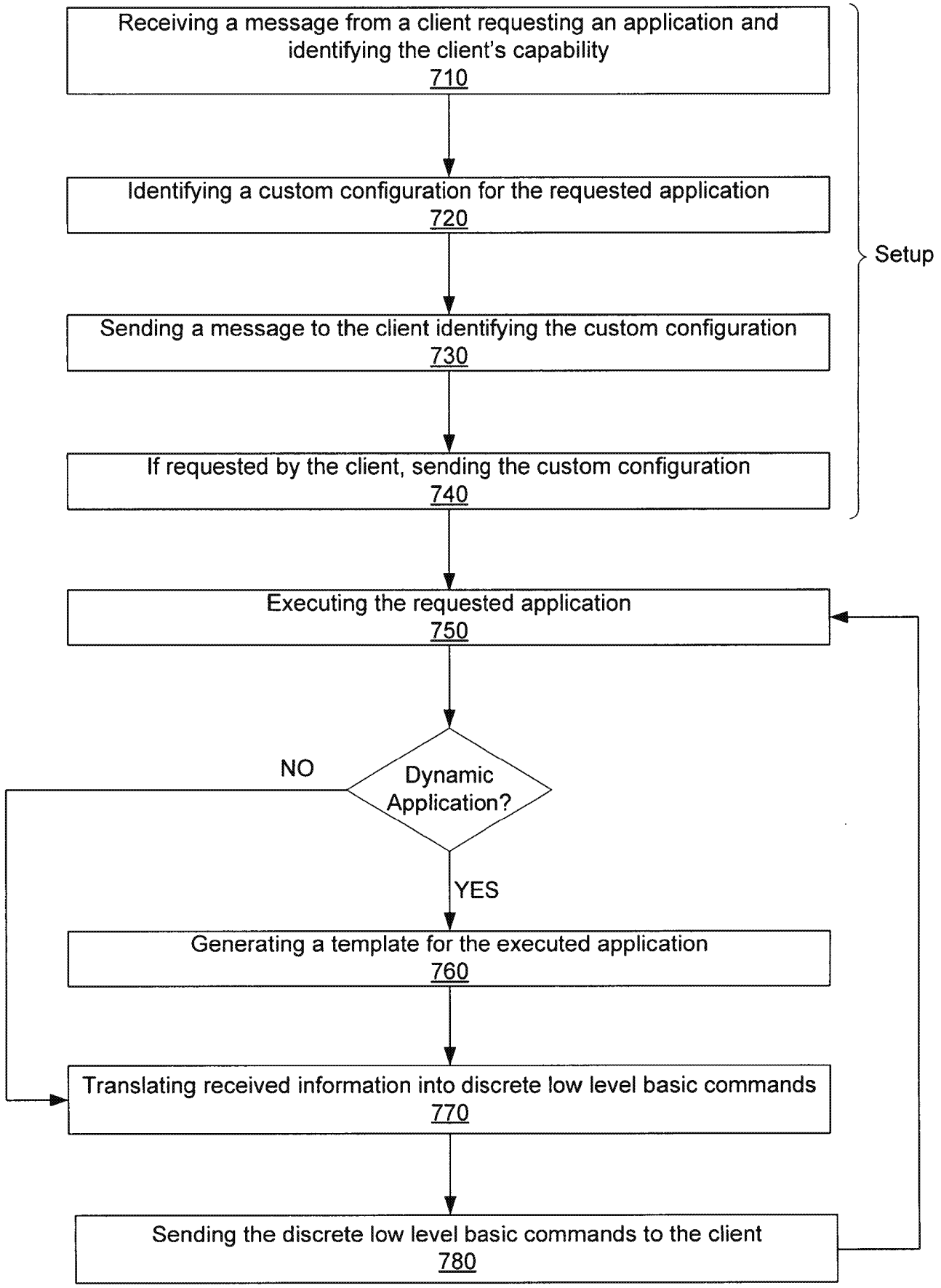

700
Receiving a message from a client requesting an application and identifying the client's capability
710
Identifying a custom configuration for the requested application
720
Sending a message to the client identifying the custom configuration
730
If requested by the client, sending the custom configuration
740
Setup
Executing the requested application
750
Dynamic Application?
NO
YES
Generating a template for the executed application
760
Translating received information into discrete low level basic commands
770
Sending the discrete low level basic commands to the client
780

FIGURE 7

Declaration and Power of Attorney for a Patent Application

Declaration

As below named inventor, I hereby declare that my residence post office address, and citizenship are as stated below my name. Further, I hereby declare that I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

A SERVER METHOD AND SYSTEM FOR RENDERING CONTENT ON A WIRELESS DEVICE

the specification of which:

_X_ is attached hereto, or
_____ was filed on _____ as application serial no. _____ : and
_____ was amended on _____

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above; and

I acknowledge the duty to disclose information which is material to the patentability of this application in accordance with Title 37, Code of Federal Regulations, Section 1.56.

Foreign Priority Claim

I hereby claim foreign priority benefits under Title 35, United States Code Section 119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

Number	Country	Date Filed	Priority Claimed	
			____ yes	____ no
			____ yes	____ no

U.S. Priority Claim

I hereby claim the benefit under Title 35, United States Code, Section 120 and 119(e) of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, Section 112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, Section 1.56(a) which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

Serial Number	Filing Date	Status (patented/pending/abandoned)

Power of Attorney

As a named inventor, I hereby appoint practitioners associated with this Customer Number:

41066

as attorney(s) or agent(s) to prosecute the application identified above, and to transact all business in the United States Patent and Trademark Office connected therewith.

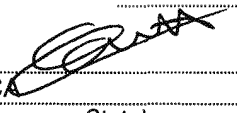
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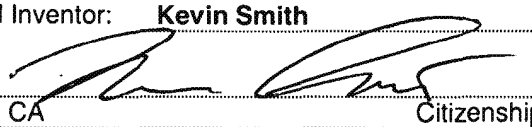
Signatures

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

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Inventor's Signature  Date 07/25/07
Residence San Diego, CA Citizenship USA
(City State)
P.O. Address 8257 Calle Morelos, San Diego, CA 92126

SCORE Placeholder Sheet for IFW Content

Application Number: **11888799** Document Date: **08/01/2007**

The presence of this form in the IFW record indicates that the following document type was received in paper and is scanned and stored in the SCORE database.

- Drawings

Images of the original documents are scanned in gray scale or color and stored in SCORE. Bi-tonal images are also stored in IFW. Defects visible in both IFW and SCORE are indicative of defects in the original paper documents.

To access the documents in the SCORE database, refer to instructions developed by SIRA.

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- Other USPTO employees can bookmark the current SCORE URL (http://es/ScoreAccessWeb/).
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Form Revision Date: December 8, 2006

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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
11/888,799	08/01/2007		2050	HOMI-P004	41	3

CONFIRMATION NO. 5349

MURABITO HAO & BARNES LLP
Third Floor
Two North Market Street
San Jose, CA95113

FILING RECEIPT

Date Mailed: 08/16/2007

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please write to the Office of Initial Patent Examination's Filing Receipt Corrections. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Applicant(s)

Pierre Carion, La Jolla, CA;
Kevin Smith, San Diego, CA;

Power of Attorney: The patent practitioners associated with Customer Number 41066

Domestic Priority data as claimed by applicant

Foreign Applications

If Required, Foreign Filing License Granted: 08/15/2007

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US11/888,799**

Projected Publication Date: Request for Non-Publication Acknowledged

Non-Publication Request: Yes

Early Publication Request: No

Title

Server method and system for rendering content on a wireless device

Preliminary Class

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at http://www.uspto.gov/web/offices/pac/doc/general/index.html.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, http://www.stopfakes.gov. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4158).

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Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of

Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign AssetsControl, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371 (c) DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NUMBER
11/888,799	08/01/2007	Pierre Carion	HOMI-P004

CONFIRMATION NO. 5349

MURABITO HAO & BARNES LLP
Third Floor
Two North Market Street
San Jose, CA 95113

FORMALITIES LETTER

Date Mailed: 08/16/2007

NOTICE TO FILE CORRECTED APPLICATION PAPERS

Filing Date Granted

An application number and filing date have been accorded to this application. The application is informal since it does not comply with the regulations for the reason(s) indicated below. Applicant is given TWO MONTHS from the date of this Notice within which to correct the informalities indicated below. Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1.136(a).

The required item(s) identified below must be timely submitted to avoid abandonment:

- Replacement drawings in compliance with 37 CFR 1.84 and 37 CFR 1.121(d) are required. The drawings submitted are not acceptable because:
  - The drawings must be reasonably free from erasures and must be free from alterations, overwriting, interlineations, folds, and copy marks. See Figure(s) 1A (copy mark).

Applicant is cautioned that correction of the above items may cause the specification and drawings page count to exceed 100 pages. If the specification and drawings exceed 100 pages, applicant will need to submit the required application size fee.

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If you are not using EFS-Web to submit your reply, you must include a copy of this notice.

mbuong

Office of Initial Patent Examination (571) 272-4000, or 1-800-PTO-9199
PART 3 - OFFICE COPY

OIPE IAP6 AUG 27 2007 PATENT & TRADEMARK OFFICE

Attorney Docket No.: HOMI-P004

I hereby certify that this transmittal of the below described document is being deposited with the United States Postal Service in an envelope bearing First Class Postage and addressed to the Commissioner of Patents and Trademarks, P.O. Box 1450, Alexandria, VA 22313-1450, on the below date of deposit.					
Date of Deposit:	8/22/07	Name of Person Making the Deposit:	Mina Oliveri	Signature of the Person Making the Deposit:	Mina Oliveri

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application of:	Carion, et al.	Confirmation No.:	Not yet assigned.
Serial No.:	11/888,799	Art Unit:	Not yet assigned.
Filed:	8/01/07	Examiner:	Not yet assigned.
For:	A SERVER METHOD AND SYSTEM FOR RENDERING CONTENT ON A WIRELESS DEVICE		

INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In accordance with the duty of disclosure provisions of 37 C.F.R. §1.56, there is hereby provided certain information which the Examiner may consider material to the examination of the subject U.S. patent application. It is requested that the Examiner make this information of record if it is deemed material to the examination of the application.

1. ☒ Enclosures accompanying this Information Disclosure Statement are:

1a. ☒ A list of all patents, publications, applications, or other information submitted for consideration by the office.

1b. ☐ A legible copy of :

☐ Each foreign patent;

☐ Each publication or that portion which caused it to be listed on the PTO-1449;

☐ For each cited pending U.S. application, the application specification including the claims, and any drawing of the application, or portion of the application which caused it to be listed on the PTO-1449 including any claims directed to that portion;

☐ all other information or portion which caused it to be listed on the PTO-1449.

1c. ☐ An English language copy of search report(s) from a counterpart foreign application or PCT International Search Report.

1d. ☐ Explanations of relevancy (ATTACHMENT 1(d), hereto) or English language abstracts of the non-English language publications.

2. ☒ This Information Disclosure Statement is filed under 37 C.F.R. §1.97(b):

2a. ☐ Within three months of the filing date of a national application other than a continued prosecution application under §1.53(d);

2b. ☐ Within three months of the date of entry of the national stage as set forth in §1.491 in an international application;

2c. ☒ Before the mailing of the first Office action on the merits;

2d. ☐ Before the mailing of a first Office action after the filing of a request for continued examination under §1.114.

3. ☐ This Information Disclosure Statement is filed under 37 C.F.R. §1.97(c) after the period specified in 37 C.F.R §1.97(b), but before the mailing date of any of a final action under 37 C.F.R. §1.113, a notice of allowance under 37 C.F.R. §1.311 or an action that otherwise closes prosecution in the application.

(Check either Item 3a or 3b)

3a. ☐ The Certification Statement in Item 5 below is applicable. Accordingly, no fee is required.

3b. ☐ The $180.00 fee set forth in 37 C.F.R. §1.17(p) in accordance with 37 C.F.R. §1.97(c) is:

☐ enclosed
☐ to be charged to Murabito, Hao & Barnes Deposit Account No. 50-4160 (order no.).

(Item 3b to be checked if any reference known for more than 3 months)

4. ☐ This Information Disclosure Statement is filed under 37 C.F.R. §1.97(d) after the period specified in 37 C.F.R. §1.97(c), but on or before the date of payment of the issue fee.

(Check either Item 4a or 4b)

4a. ☐ The Certification Statement in Item 5 below is applicable.

4.b ☐ The $180.00 fee set forth in 37 C.F.R. §1.17(p) is:
enclosed.to be charged to Murabito, Hao & Barnes Deposit Account No. 50-4160 (order no.).

5. ☐ Certification Statement (applicable if Item 3a or Item 4a is checked)

(Check either Item 5a, 5b or 5c)

5a. ☐ In accordance with 37 C.F.R. §1.97(e)(1), it is certified that each item of information contained in this Information Disclosure Statement was first cited

in a communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this Information Disclosure Statement.

5b. ☐ Each item of information contained in this information disclosure statement was cited in a communication from a foreign patent office in a counterpart application, and the communication was not **received** by any individual designated in 37 C.F.R. §1.56(c) more than thirty days prior to the filing of this information disclosure statement.

5c. ☐ Pursuant to 37 C.F.R. §1.704(d), each item of information contained in this information disclosure statement was cited in a communication from a foreign patent office in a counterpart application, and the communication was not **received** by any individual designated in 37 C.F.R. §1.56(c) more than thirty days prior to the filing of this information disclosure statement.

6. ☐ Copies of each cited U.S. patent and each U.S. patent application publication are not enclosed pursuant to the USPTO OG Notice dated 05 August 2003 waiving the requirement under 37 C.F.R. 1.98(a)(2)(i) for U.S. patent applications filed after June 30, 2003.

7. ☐ This application is a continuation application under 37 C.F.R. §1.53(b) or (d).

(Check appropriate Items 7a, 7b and/or 7c)

7a. ☐ A Petition to Withdraw from issue under 37 C.F.R. §1.313(b)(5) is concurrently filed herewith.

7b. ☐ Copies of publications listed on Form PTO-1449 from prior application Serial No. **XXXX**, filed on **XXXX** , of which this application claims priority under 35 U.S.C. §120, are not being submitted pursuant to 37 C.F.R. §1.98(d).

7c. ☐ Copies of the publications listed on Form PTO-1449 were not previously cited in prior application Serial No. , filed on , and are provided herewith.

8. ☐ This is a Supplemental Information Disclosure Statement. (Check Item 8a)

8a. ☐ This Supplemental Information Disclosure Statement under 37 C.F.R. §1.97(f) supplements the Information Disclosure Statement filed on ******. A bona fide attempt was made to comply with 37 C.F.R. §1.98, but inadvertent omissions were made. These omissions have been corrected herein. Accordingly, additional time is requested so that this Supplemental Information Disclosure Statement can be considered as if properly filed on **********.

9. ☐ In accordance with 37 C.F.R. §1.98, a concise explanation of what is presently understood to be the relevance of each non-English language publication is:

(Check Item 9a, 9b, or 9c)

9a. ☐ satisfied because all non-English language publications were cited on the

enclosed English language copy of the PCT International Search Report or the search report from a counterpart foreign application indicating the degree of relevance found by the foreign office.

9b. ☐ set forth in the application.

9c. ☐ enclosed as an attachment hereto.

10. ☒ The Commissioner is authorized to charge any additional fee required or credit any overpayment for this Information Disclosure Statement and/or Petition to Murabito, Hao & Barnes Deposit Account No. 50-4160.

11. ☒ No admission is made that the information cited in this Statement is, or is considered to be, material to patentability nor a representation that a search has been made (other than a search report of a foreign counterpart application or PCT International Search Report if submitted herewith). 37 C.F.R. §§1.97(g) and (h).

Respectfully submitted,

Date: August 22, 2007



57,137

Amir A. Tabarrok (Reg. No.)
MURABITO, HAO & BARNES
Two North Mark Street, Third Floor
San Jose, CA 95113
(408) 938-9060

OIPE IAP6 AUG 27 2007 PATENT & TRADEMARK OFFICE

Attorney Docket No.: HOMI-P004

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Patent Application

Inventor(s): Carion, et al.

Group Art Unit: Not yet assigned.

Filed: 08/01/2007

Examiner: Not yet assigned.

Application No.: 11/888,799

Title: A SERVER METHOD AND SYSTEM FOR RENDERING CONTENT ON A WIRELESS DEVICE

Form 1449

U.S. Patent Documents

Examiner Initial	No.	Patent No.	Date	Patentee	Class	Sub-class	Filing Date
	A	6,884,172	04/26/2005	Lloyd, et al.	463	42	10/25/2001
	B						
	C						

Other Documents

Examiner Initial	No.	Author, Title, Date, Place (e.g. Journal) of Publication
	D	
	E	
	F	

Examiner	Date Considered

Examiner: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

IFW

OIPE IAP1 OCT 15 2007

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APPLICATION NUMBER	FILING OR 371 (c) DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NUMBER
11/888,799	08/01/2007	Pierre Carion	HOMI-P004

CONFIRMATION NO. 5349

MURABITO HAO & BARNES LLP
Third Floor
Two North Market Street
San Jose, CA 95113

FORMALITIES LETTER

Date Mailed: 08/16/2007

NOTICE TO FILE CORRECTED APPLICATION PAPERS

Filing Date Granted

An application number and filing date have been accorded to this application. The application is informal since it does not comply with the regulations for the reason(s) indicated below. Applicant is given TWO MONTHS from the date of this Notice within which to correct the informalities indicated below. Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1.136(a).

The required item(s) identified below must be timely submitted to avoid abandonment:

- Replacement drawings in compliance with 37 CFR 1.84 and 37 CFR 1.121(d) are required. The drawings submitted are not acceptable because:
  - The drawings must be reasonably free from erasures and must be free from alterations, overwriting, interlineations, folds, and copy marks. See Figure(s) 1A (copy mark).

Applicant is cautioned that correction of the above items may cause the specification and drawings page count to exceed 100 pages. If the specification and drawings exceed 100 pages, applicant will need to submit the required application size fee.

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https://sportal.uspto.gov/authenticate/AuthenticateUserLocalEPF.html

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Office of Initial Patent Examination (571) 272-4000, or 1-800-PTO-9199
PART 2 - COPY TO BE RETURNED WITH RESPONSE

OIPE IAP1
OCT 15 2007
PATENT & TRADEMARK OFFICE

Docket No.: HOMI-P004

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

I hereby certify that this transmittal of the below described document is being deposited with the United States Postal Service in an envelope bearing First Class Postage and addressed to the Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on the below date of deposit.					
Date of Deposit:	10/11/07	Name of Person Making the Deposit:	Mina Oliveri	Signature of the Person Making the Deposit:	Mina Oliveri

Inventor(s): Pierre Carion and Kevin Smith

Application No.: 11/888,799 Group Art Unit: Unassigned.

Filed: 08/01/2007 Examiner: Unassigned.

Confirmation No: 5349

Title: A SERVER METHOD AND SYSTEM FOR RENDERING CONTENT ON A WIRELESS DEVICE

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

RESPONSE TO NOTICE TO CORRECTED APPLICATION PAPERS

Sir:

In response to the Notice to File Corrected Application Papers (Filing Date Granted) mailed 8/16/07, please find enclosed:

[X] 9 sheets of Substitute drawings in compliance with 37 CFR 1.84

[X] Copy of Notice to be returned with response

Extension of Term

1. The proceedings herein are for a patent application and the provisions of 37 C.F.R. 1.136 apply.

(a) [ ] Applicant petitions for an extension of time under 37 C.F.R. 1.136 (fees: 37 C.F.R. 1.17(a)-(d) for the total number of months checked below:)

Extension	Fee
[ ] one month	$110.00
[ ] two months	$420.00
[ ] three months	$950.00
[ ] four months	$1,480.00

Fee $ _____

rev. 6/97 jpw

If an additional extension of time is required, please consider this a petition therefor.

(b) [X] Applicant believes that no extension of term is required. However, this conditional petition is being made to provide for the possibility that applicant has inadvertently overlooked the need for a petition for extension of time.

PAYMENT OF FEES

2. The full fee due in connection with this communication is provided as follows:

[X] The Commissioner is hereby authorized to charge any additional fees associated with this communication or credit any overpayment to Deposit Account No.: 50-4160. A duplicate copy of this authorization is enclosed.

[ ] A check in the amount of $

[ ] Charge any fees required or credit any overpayments associated with this filing to Deposit Account No.: 50-4160.

Please direct all correspondence concerning the above-identified application to the following address:

MURABITO, HAO & BARNES LLP
Two North Market Street, Third Floor
San Jose, California 95113
(408) 938-9060
Customer No: 41066

Respectfully submitted,

Date: October 11, 2007

By: _____
Anthony C. Murabito
Reg. No. 35,295

OIPE IAP1
OCT 15 2007
PATENT & TRADEMARK OFFICE

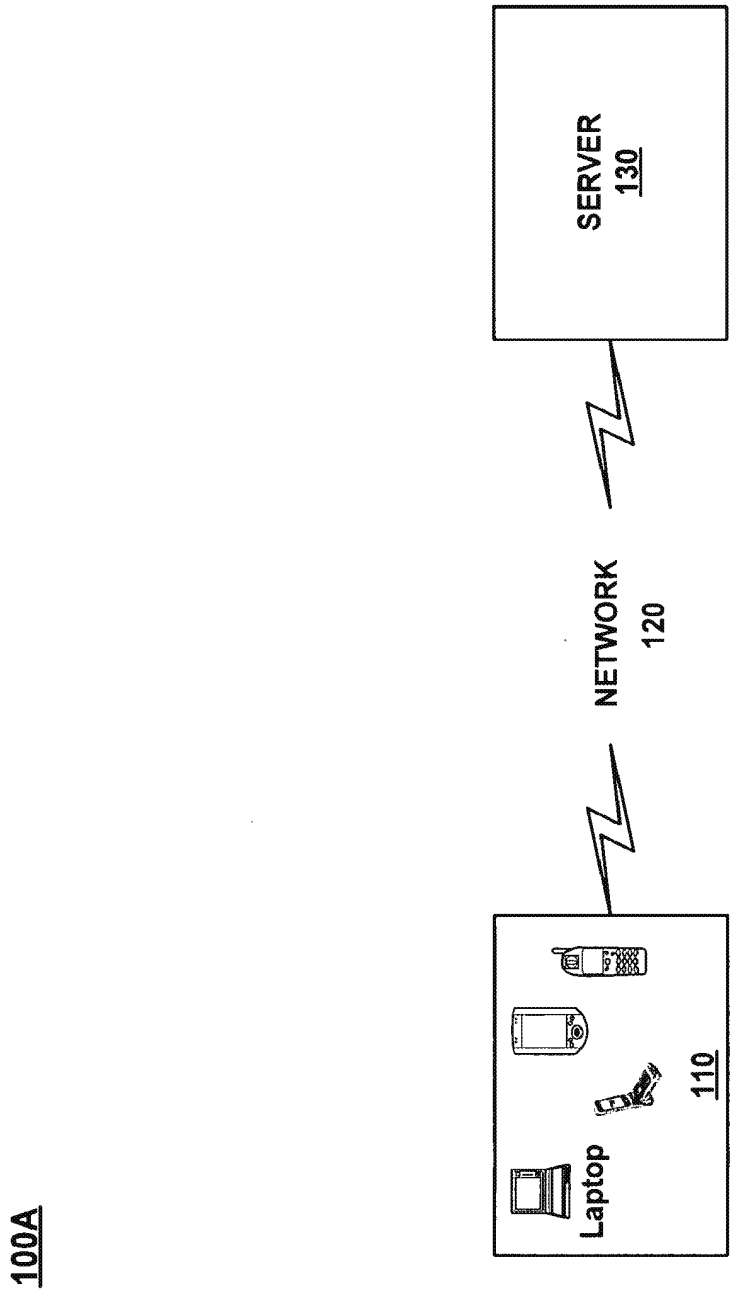


FIGURE 1

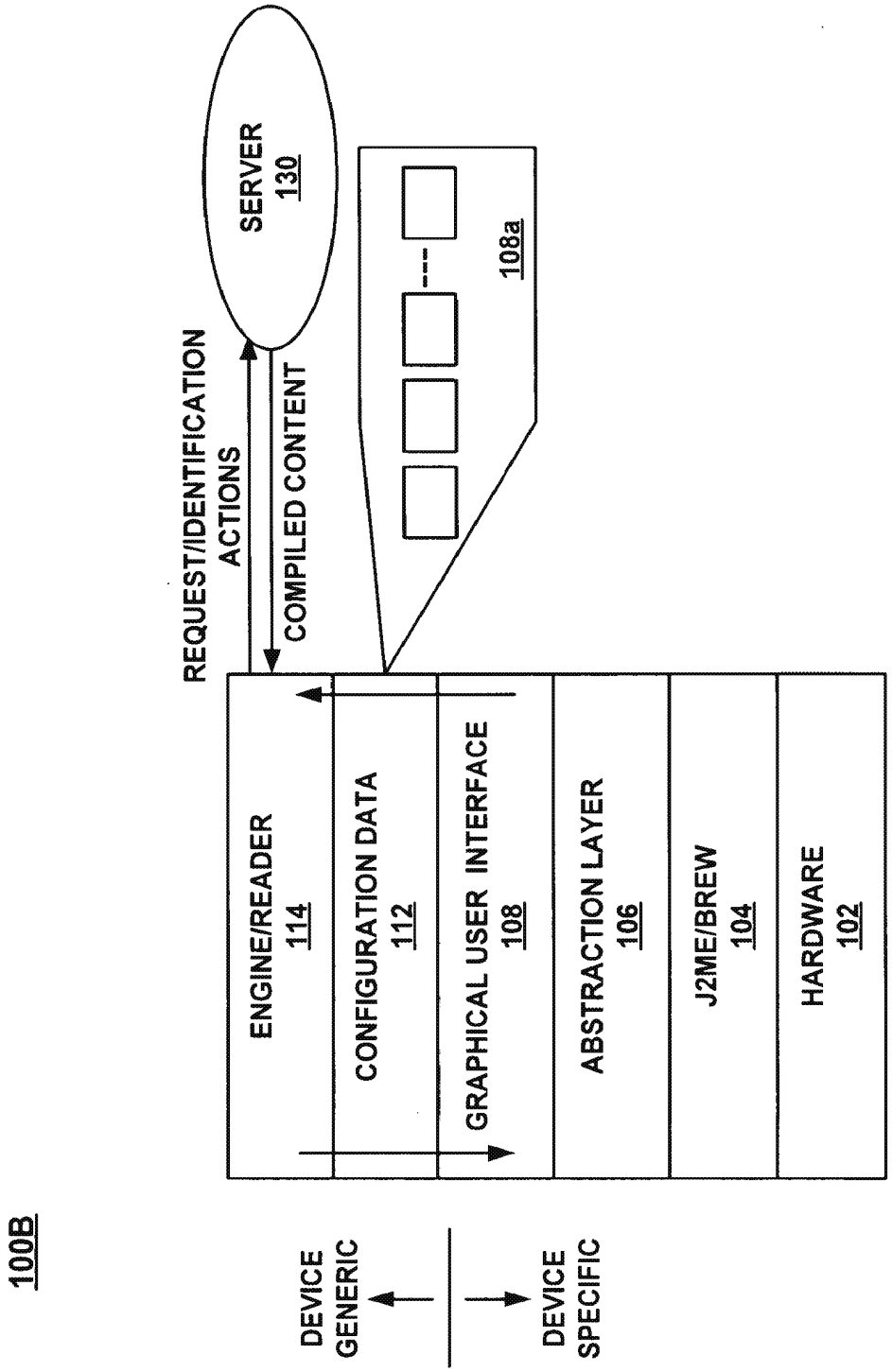

100B
SERVER 130
REQUEST/IDENTIFICATION ACTIONS
COMPILED CONTENT
108a
ENGINE/READER 114
CONFIGURATION DATA 112
GRAPHICAL USER INTERFACE 108
ABSTRACTION LAYER 106
J2ME/BREW 104
HARDWARE 102
DEVICE GENERIC
DEVICE SPECIFIC

FIGURE 1B

200A

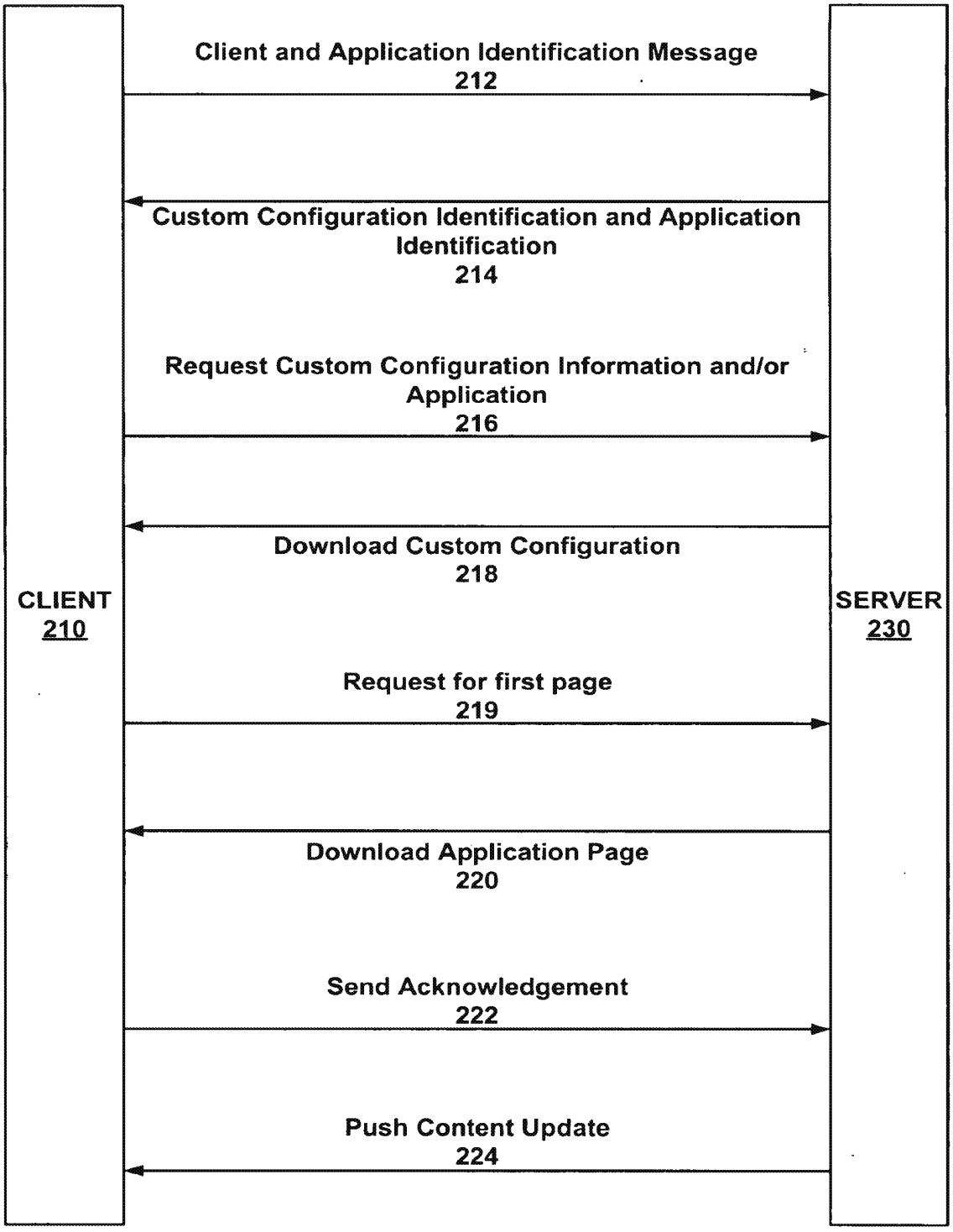


FIGURE 2A

200B

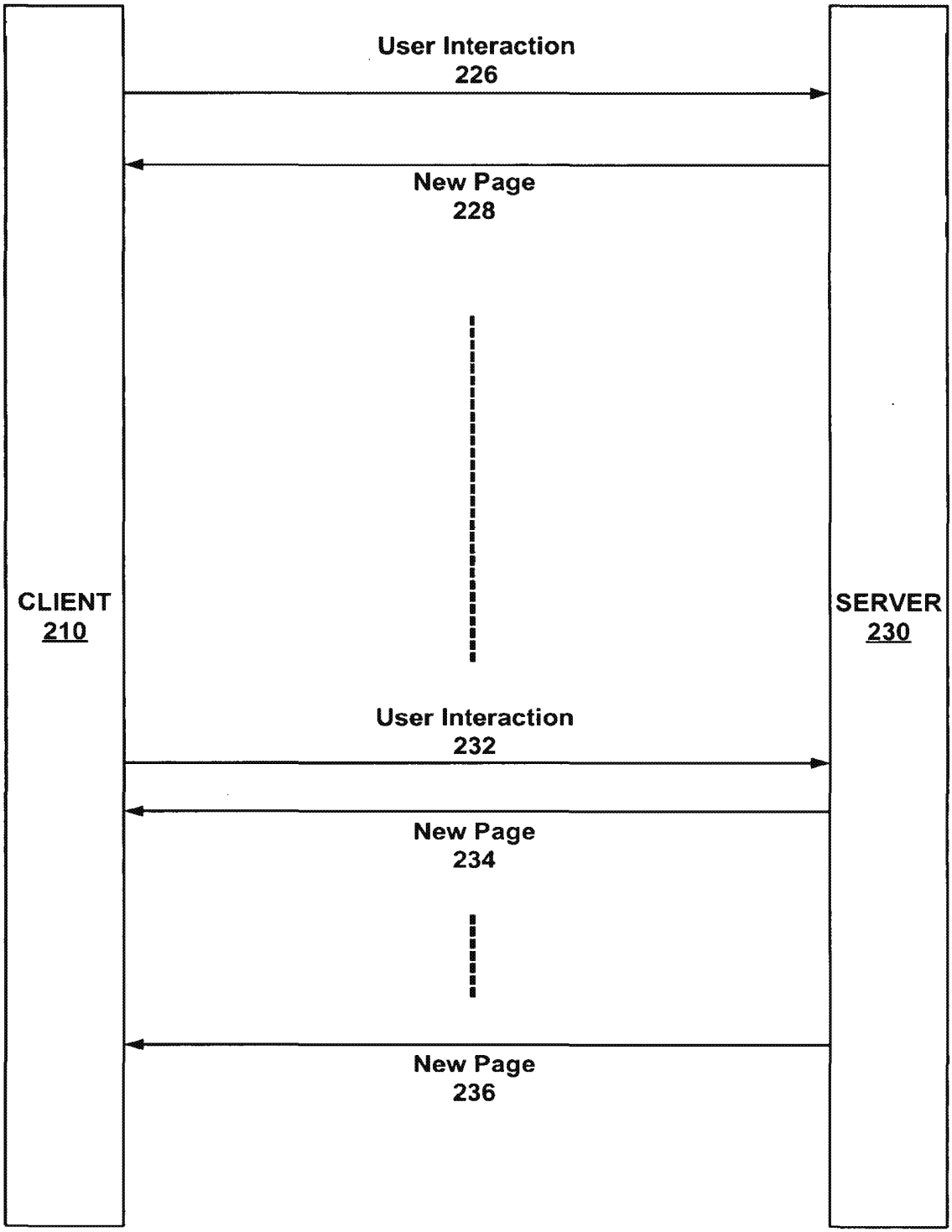


FIGURE 2B

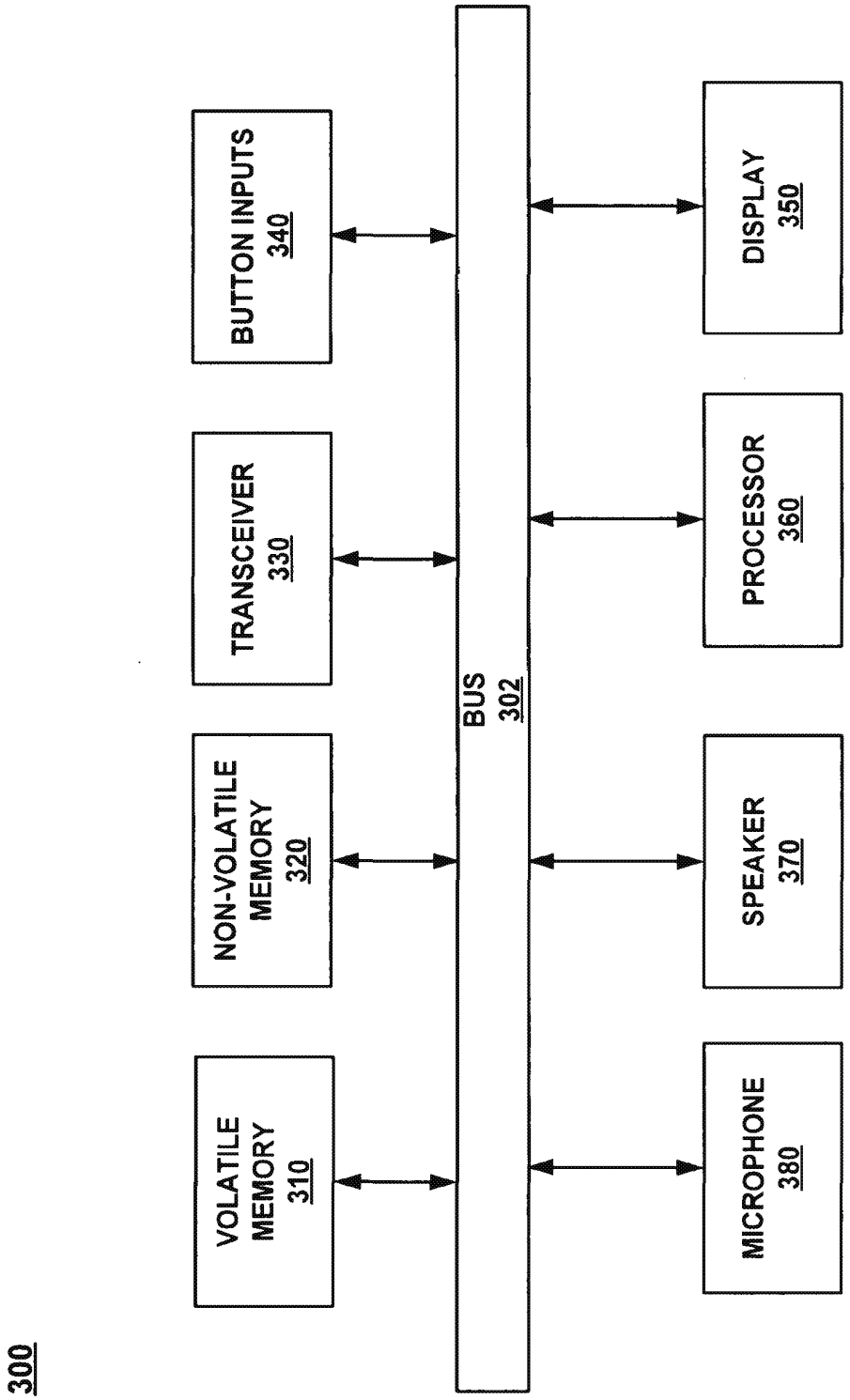

300
VOLATILE MEMORY 310
NON-VOLATILE MEMORY 320
TRANSCEIVER 330
BUTTON INPUTS 340
BUS 302
DISPLAY 350
PROCESSOR 360
SPEAKER 370
MICROPHONE 380

FIGURE 3

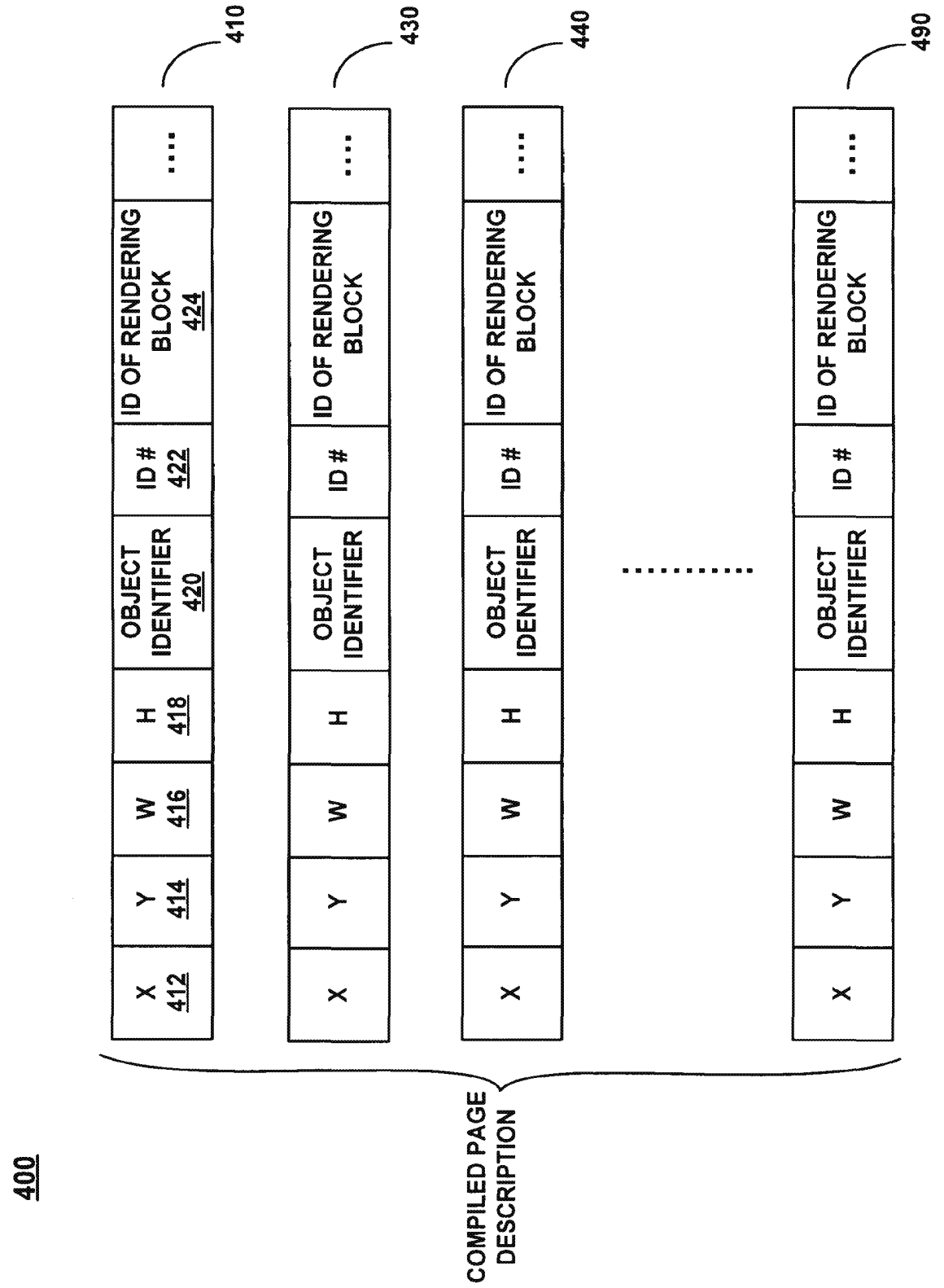

400
COMPILED PAGE DESCRIPTION
410
430
440
490
X 412
Y 414
W 416
H 418
OBJECT IDENTIFIER 420
ID # 422
ID OF RENDERING BLOCK 424
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FIGURE 4

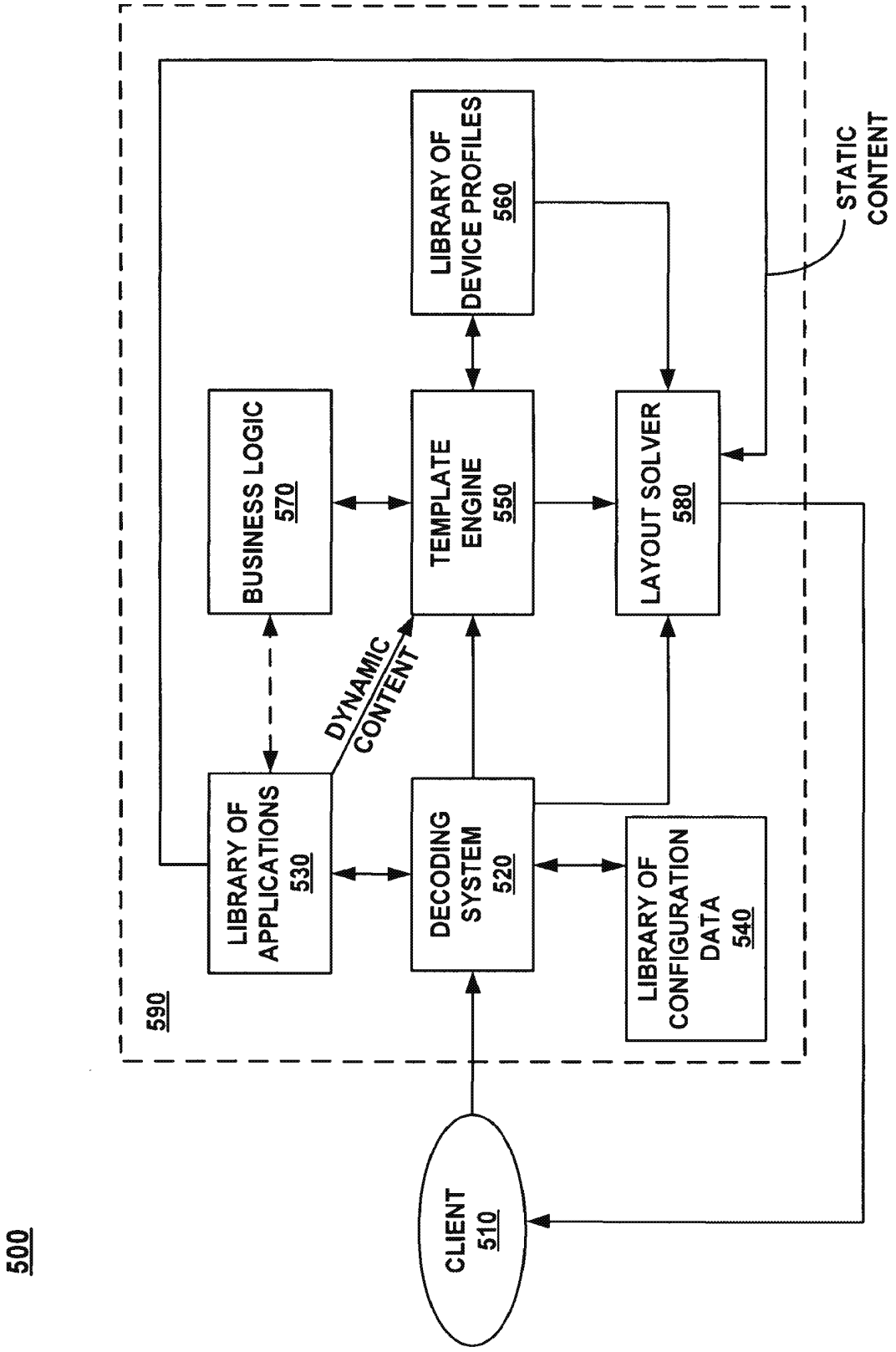

500
590
CLIENT 510
LIBRARY OF APPLICATIONS 530
DECODING SYSTEM 520
LIBRARY OF CONFIGURATION DATA 540
BUSINESS LOGIC 570
TEMPLATE ENGINE 550
LAYOUT SOLVER 580
LIBRARY OF DEVICE PROFILES 560
DYNAMIC CONTENT
STATIC CONTENT

FIGURE 5

600

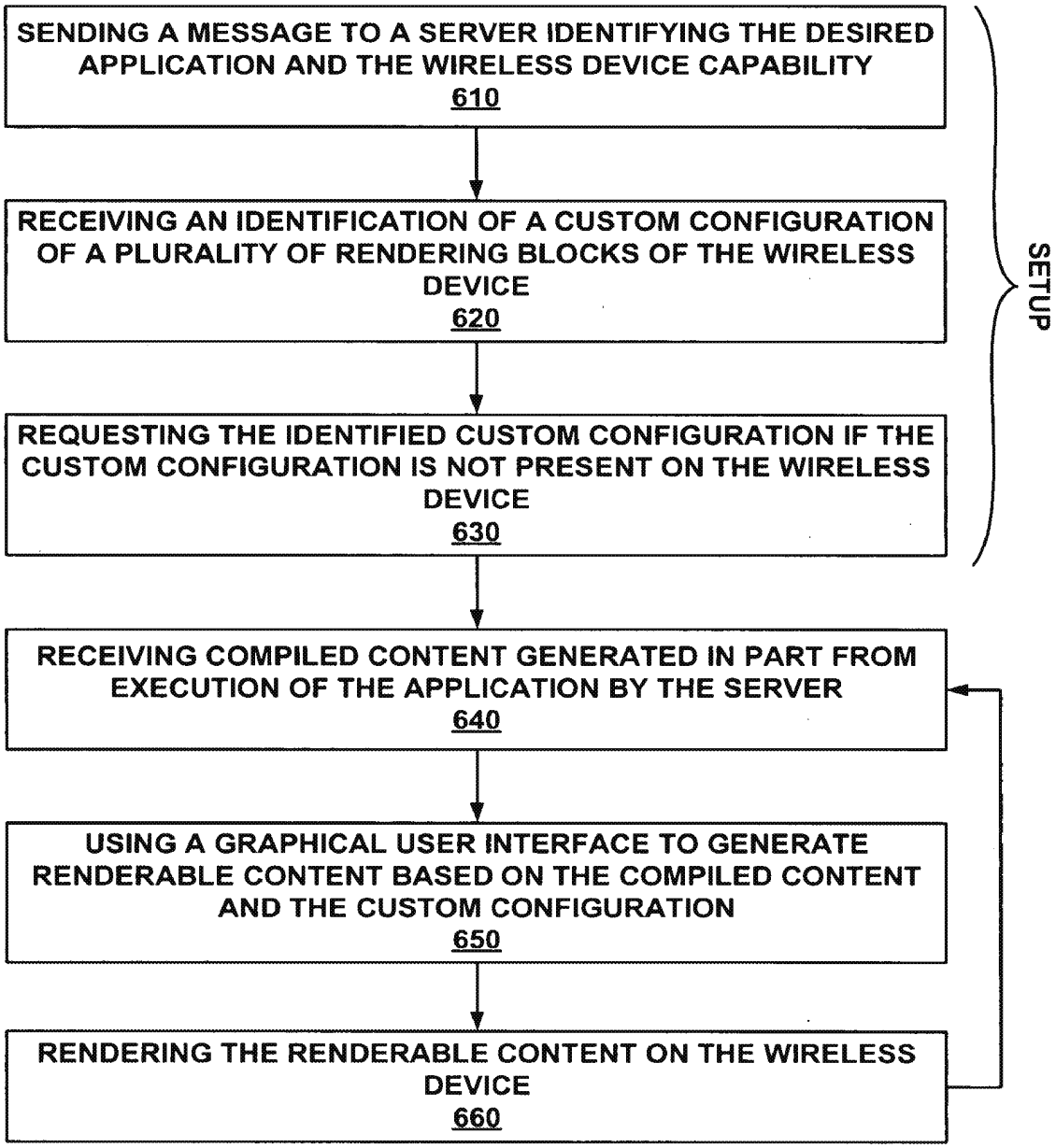

SENDING A MESSAGE TO A SERVER IDENTIFYING THE DESIRED APPLICATION AND THE WIRELESS DEVICE CAPABILITY
610
RECEIVING AN IDENTIFICATION OF A CUSTOM CONFIGURATION OF A PLURALITY OF RENDERING BLOCKS OF THE WIRELESS DEVICE
620
REQUESTING THE IDENTIFIED CUSTOM CONFIGURATION IF THE CUSTOM CONFIGURATION IS NOT PRESENT ON THE WIRELESS DEVICE
630
SETUP
RECEIVING COMPILED CONTENT GENERATED IN PART FROM EXECUTION OF THE APPLICATION BY THE SERVER
640
USING A GRAPHICAL USER INTERFACE TO GENERATE RENDERABLE CONTENT BASED ON THE COMPILED CONTENT AND THE CUSTOM CONFIGURATION
650
RENDERING THE RENDERABLE CONTENT ON THE WIRELESS DEVICE
660

FIGURE 6

700

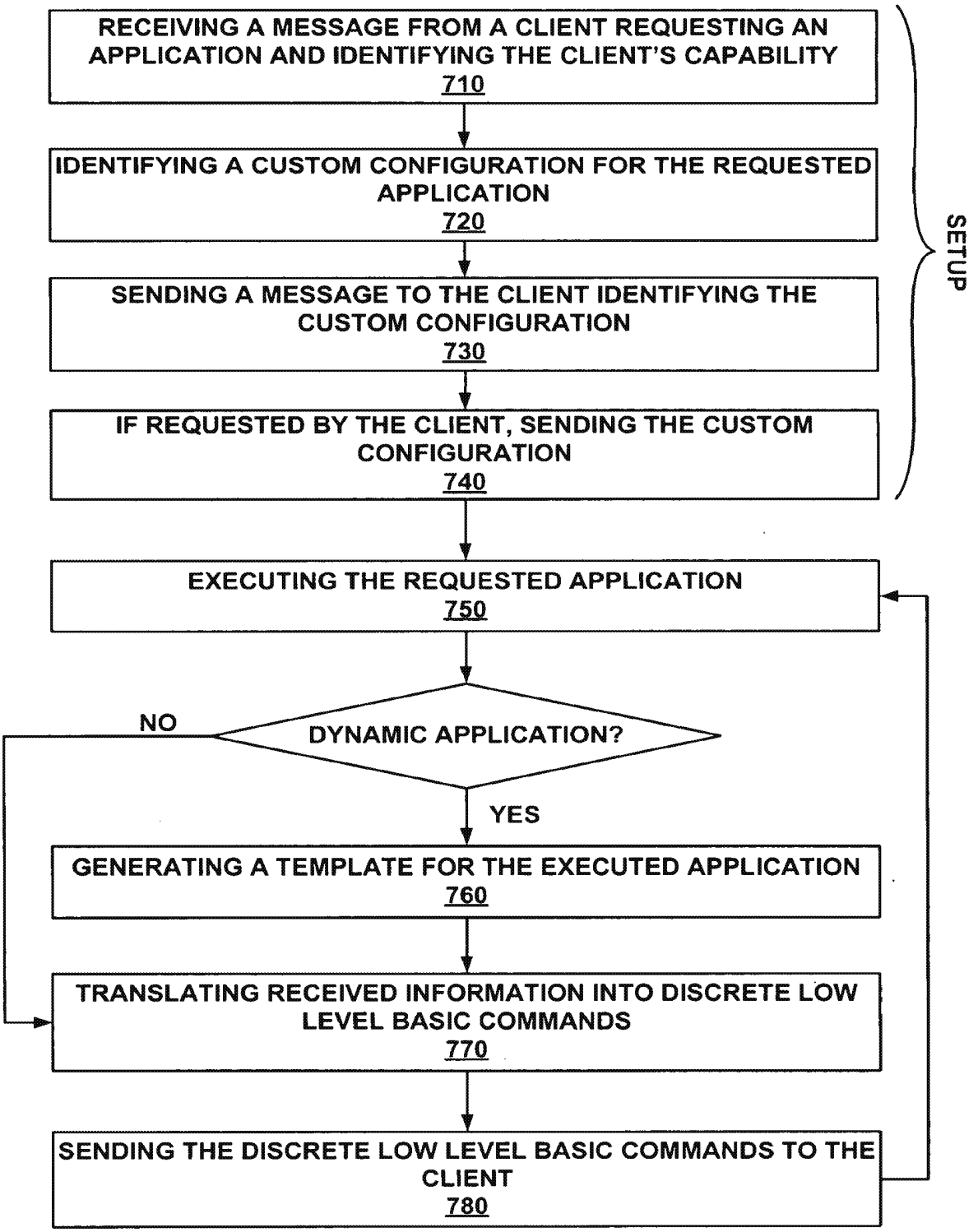

RECEIVING A MESSAGE FROM A CLIENT REQUESTING AN APPLICATION AND IDENTIFYING THE CLIENT'S CAPABILITY
710
IDENTIFYING A CUSTOM CONFIGURATION FOR THE REQUESTED APPLICATION
720
SENDING A MESSAGE TO THE CLIENT IDENTIFYING THE CUSTOM CONFIGURATION
730
IF REQUESTED BY THE CLIENT, SENDING THE CUSTOM CONFIGURATION
740
SETUP
EXECUTING THE REQUESTED APPLICATION
750
DYNAMIC APPLICATION?
NO
YES
GENERATING A TEMPLATE FOR THE EXECUTED APPLICATION
760
TRANSLATING RECEIVED INFORMATION INTO DISCRETE LOW LEVEL BASIC COMMANDS
770
SENDING THE DISCRETE LOW LEVEL BASIC COMMANDS TO THE CLIENT
780

FIGURE 7

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United States Patent and Trademark Office
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Alexandria, Virginia 22313-1450
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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
11/888,799	08/01/2007	2612	2050	HOMI-P004	41	3

CONFIRMATION NO. 5349

UPDATED FILING RECEIPT

MURABITO HAO & BARNES LLP
Third Floor
Two North Market Street
San Jose, CA 95113



Date Mailed: 10/29/2007

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please write to the Office of Initial Patent Examination's Filing Receipt Corrections. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Applicant(s)

Pierre Carion, La Jolla, CA;
Kevin Smith, San Diego, CA;

Power of Attorney: The patent practitioners associated with Customer Number 41066

Domestic Priority data as claimed by applicant

Foreign Applications

If Required, Foreign Filing License Granted: 08/15/2007

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 11/888,799**

Projected Publication Date: Request for Non-Publication Acknowledged

Non-Publication Request: Yes

Early Publication Request: No

GTV00000130

Title

Server method and system for rendering content on a wireless device

Preliminary Class

340

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

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In re Application of: Pierre Carion et al.

Confirmation No.: 5349

Serial No: 11/888,799 Examiner: Unassigned

Filed: August 1, 2007 Art Unit: 2612

For: A SERVER METHOD AND SYSTEM FOR RENDERING CONTENT ON A WIRELESS DEVICE

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Please direct all correspondence concerning the above-identified application to the following address

MURABITO, HAO AND BARNES LLP
Two North Market Street, Third Floor
San Jose, California 95113
(408) 938-9060

Respectfully submitted,

Date: 7-31-2008

By: _____
Amir A. Tabarrok
Reg. No. 57,137

This request must be signed in compliance with 37 CFR 1.33(b).

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
11/888,799	08/01/2007	Pierre Carion	HOMI-P004

CONFIRMATION NO. 5349

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San Jose, CA 95113

NONPUBLICATION RESCISSION LETTER

OC000000031611254

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
11/888,799	08/01/2007	Pierre Carion	HOMI-P004

CONFIRMATION NO. 5349

MURABITO HAO & BARNES LLP
Third Floor
Two North Market Street
San Jose, CA 95113

PUBLICATION NOTICE



Title: Server method and system for rendering content on a wireless device

Publication No.US-2009-0037724-A1
Publication Date:02/05/2009

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(Not for submission under 37 CFR 1.99)

Application Number	11888799
Filing Date	2007-08-01
First Named Inventor	Pierre Carion
Art Unit	
Examiner Name	
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	11888799
	Filing Date	2007-08-01
	First Named Inventor	Pierre Carion
	Art Unit	
	Examiner Name	
	Attorney Docket Number	HOMI-P004

	1	Grundy, John et al; "An Architecture for Building Multi-device Thin-Client Web User Interfaces" Advanced Information Systems Engineering, vol. 2348/2002, 1 January 2002 (2002-01-01), pages 728-732, XP002511217	☐
	2	Mir Farooq Ali et al: "Building Multi-Platform User Interfaces with UIML" Internet Citation, [online] XP002280476 Retrieved from the Internet: URL:http://arxiv.org/ftp/cs/papers/0111/0111024.pdf> [Retrieved on 2004-05-17]	☐
	3	Simon, Rainer et al: "Tool-Supported Single Authority for Device Independence and Multimodality" Proceedings of the 7th International Conference on Human Computer Interaction with Mobile Devices & Services, [Online] 19 September 2005 (2005-09-19), 22 September 2005 (2005-09-22) pages 91-98, XP002511216 Retrieved from the Internet: URL: http//portal.acm.org/citation.cfm?id=1085777.1085793> [Retrieved on 2009-01-19] abstract	☐
	4	Thomas Xiegert et al: "Device Independent Web Applications-The Author Once- Display Everywhere Approach" Web Engineering; [Lecture Notes in Computer Science; LNCS], Springer-Verlag, Berlin/Heidelberg, vol. 3140, 7 July 2004 (2004-07-07), pages 244-255, XP019009054	☐
	5	VanderDonckt, Jean et al: "Synchronised Model-Based Design of Multiple User Interfaces" Internet Article, [online] 10 September 2004 (2004-09-10),pages 1-8, XP002511218 Retrieved from the Internet: URL: http://web.archive.org/ web/20040910043454/http://www.isys.ucl.ca.be/bchi/members/qli/pub/Vanderdonckt-IHM2001.pdf> [retrieved on 2009-01-20]	☐

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Application Number	11888799
Filing Date	2007-08-01
First Named Inventor	Pierre Carion
Art Unit	
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Name/Print	William A. Zarbis	Registration Number	46120

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XP-002511217

An Architecture for Building Multi-device Thin-Client Web User Interfaces

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Abstract. We describe a new approach to providing adaptable thin client interfaces for web-based information systems. Developers specify web-based interfaces using a high-level mark-up language based on the logical structure of the user interface. At run-time this single interface description is used to automatically provide an interface for multiple web devices e.g. desk-top HTML and mobile WML-based systems, as well as highlight, hide or disable interface elements depending on the current user and user task. Our approach allows developers to much more easily construct and maintain adaptable web-based user interfaces than other current approaches.

1 Introduction

Many web-based information systems require degrees of adaptation of the system's user interfaces to different client devices, users and user tasks [11, 8]. Interfaces need to be provided for conventional web browsers as well as wireless PDAs, mobile phones and pagers [8, 7, 12]. Adapting to different user and user tasks is required [4, 6, 11], such as hiding "Update" and "Delete" buttons if the user is a customer or a staff member doing an information retrieval task.

Building such interfaces using current technologies is difficult, time-consuming and systems are hard-to-maintain. Various approaches have been developed to support forms of user interface adaptation. Proxies such as Web Clipping™ and Portal-to-go services automatically convert e.g. HTML content to WML content for wireless devices [8, 7, 11, 9]. Typically these produce poor interfaces as the conversion is difficult for all but simple web interfaces. Some systems take XML-described interface content and transform it into different HTML or WML formats depending on the requesting device information [8, 11]. The degree of adaptation supported is generally limited, and each interface type requires complex scripting. Intelligent, adaptive and component-based user interfaces often support user and task adaptation [6]. Most existing approaches only provide thick-client interfaces (i.e. that run in the client device, not the server), and most provide no device adaptation capabilities. Some recent proposals for multi-device user interfaces [11, 7] use generic, device-

A. Banks Pidduck et al. (Eds.): CAISE 2002, LNCS 2348, pp. 728-732, 2002.
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independent user interface descriptions, but most do not typically support user and task adaptation and many are application-specific.

2 Our Approach

Many organisations want to leverage the increasingly wide-spread access of their staff (and customers) to thin-client user interfaces on desktop, laptop and mobile (PDA, phone, pager etc) devices [1, 8] but without developing versions of every user interface for every possible device, user and user task comnination possible. To support this our user interfaces are specified using a device-independent mark-up language describing screen elements and layout, along with any required dynamic content (currently using embedded Java code, or "scriptlets"). Screen element descriptions may include annotations indicating which user(s) and user task(s) the elements are relevant to. We call this Adaptive User Interface Technology (AUIT). Our systems adopt the four-tier software architecture illustrated in Fig. 1.

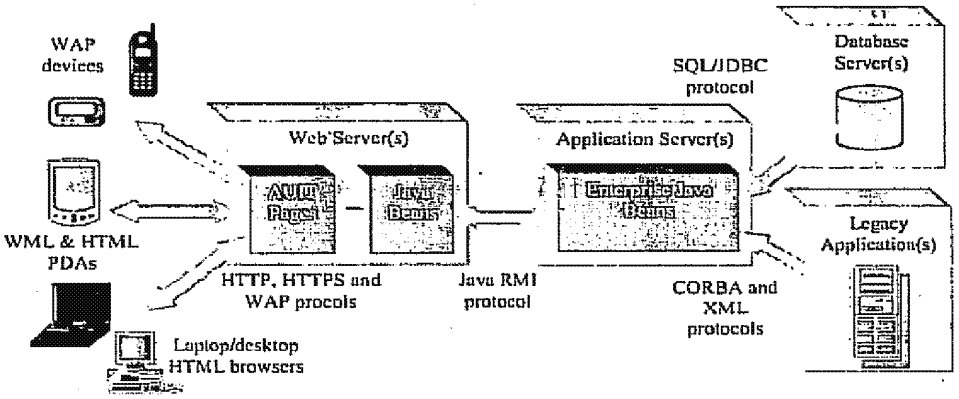


Fig. 1. Our 4-tier web-based information system software architecture

The AUIT pages are implemented by Java Server Pages (JSPs) containing a special mark-up language independent of device-specific rendering languages like HTML and WML but that contain descriptions of screen elements, layout and user/task relevance. Developers implement their thin-client web screens using this mark-up language, specifying in a device, user and task-independent way each screen for their application i.e. only M screens, despite the N combinations of user, user task and display device combinations possible for each screen. At run-time, accessed AUIT pages determine the requesting display device type, current user and current user task. A display mark-up language suitable for the device is generated, taking into account the user and user task. Dynamic page content is via JavaBeans, connected to Enterprise JavaBeans accessing databases and possibly legacy systems.

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3 An Example of AUIT in Use

We illustrate the use of our AUIT system used to build some adaptable, web-based user interfaces for a collaborative job maintenance system. Fig. 2 shows examples of a job listing screen being displayed for the same user in a desktop web browser (1), mobile PDA device (2 and 3) and mobile WAP phone (4-6). The web browser can show all jobs (rows) and job details (columns). It can also use colour to highlight information and hypertext links. The PDA device can not show all job detail columns, and so additional job details are split across a set of screens. The user accesses these additional details by using the hypertext links added to the sides of the screen. This interface splitting is done automatically by our AUIT tag implementation and uses the logical structure of screens to ensure a sensible re-organisation. The WAP phone similarly can't display all columns and rows, and links are added to access these. In addition, the WAP phone doesn't provide the degree of mark-up and scripting the PDA and web browser can, so buttons, links, colour and client-side scripts are not used. The user accesses other pages via a text-based menu listing. If a customer job manager accesses job lists and details, they can change the details whereas another staff member cannot (Update buttons/menus are hidden). Similarly, if a job manager accesses job details when "viewing" a job (versus updating it), these are hidden.

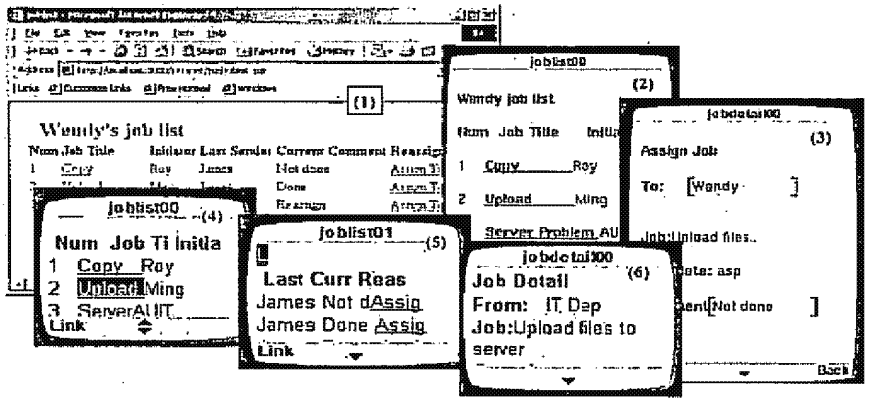


Fig. 2. (a) Examples of job listing screen running on multiple devices

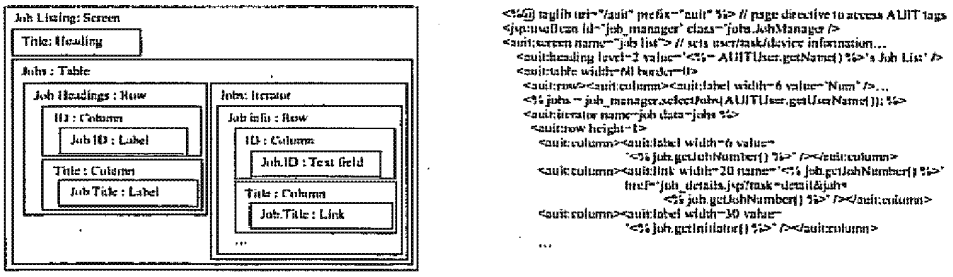


Fig. 3. (a) Logical structure of and (b) example AUIT description parts of the job listing screen

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Fig. 3 (a) shows the logical structure of the job listing screen using our AUIT custom tags. The screen is comprised of a heading and list of jobs. The first table row displays column headings, the subsequent rows are generated by iterating over a list of job objects returned by a Java Bean. Fig. 3 (b) shows part of the AUIT Java Server Page that specifies this interface. These AUIT tags generate HTML or WML mark-up as output, adapting the layout, use of graphics and highlighting, available buttons and menu items, data fields shown and so on to the requesting device, user and user task information supplied when the page is accessed. Use of a logical structure for web-based interfaces is essential to this approach, as in related approaches [3, 11].

We have carried out an empirical evaluation of both the AUIT tag library by experienced web developers and the AUIT-generated user interfaces, comparing them to interfaces from custom-written JSPs. Results have been very encouraging with developers able to build quite sophisticated web-based information systems whose interfaces suitably adapt to a variety of display devices, users and user tasks. We are continuing to refine and extend the custom tags and their properties to allow more complex layout, highlighting and client-side scripting to be adapted.

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Building Multi-Platform User Interfaces with UIML

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Abstract There has been a widespread emergence of computing devices in the past few years that go beyond the capabilities of traditional desktop computers. However, users want to use the same kinds of applications and access the same data and information on these appliances that they can access on their desktop computers. The user interfaces for these platforms go beyond the traditional interaction metaphors. It is a challenge to build User Interfaces (UIs) for these devices of differing capabilities that allow the end users to perform the same kinds of tasks. The User Interface Markup Language (UIML) is an XML-based language that allows the canonical description of UIs for different platforms. We describe the language features of UIML that facilitate the development of multi-platform UIs. We also describe the key aspects of our approach that makes UIML succeed where previous approaches failed, namely the division in the representation of a UI, the use of a generic vocabulary, and an integrated development environment specifically designed for transformation-based UI development. Finally we describe the initial details of a multi-step usability engineering process for building multi-platform UI using UIML.

Keywords: Multi-Platform User Interfaces, Transformations, UIML, Physical Model, Logical Model, Usability Engineering.

1. INTRODUCTION

It is difficult to develop an application for multi-platform deployment without duplicating development effort. Advances in electronics, communications, and the fast growth of the Internet have made the use of a wide variety of computing devices an everyday occurance. Furthermore, users expect to remotely access their data from any of these devices (e.g. desktop computer, laptop, handheld, phone, etc.). Developers now face the daunting task to build user interfaces that must work in multiple devices. To address the need for a uniform language for building multi-platform applications, we have developed the User Interface Markup Language (UIML). In this paper we discuss our research in creating such language, some of the support tools available, and describe our approach towards creating a new user interface design methodology to build multi-platform user interfaces.

UIML is a single language for building user interfaces for any device. UIML emphasizes the separation of concerns of an interactive application in such a way that moving one program from one platform to another (see our definition of platform in the next section) might require only small or no changes at all. Furthermore, because it is based on XML, it is easy to write transformations that take the language from one abstract representation to a more concrete representation. The tools built around UIML extend the language with the use of transformations that afford the developer the creation of user interfaces with a single language that will execute in multiple platforms.

The approach taken with UIML is that of building an application using a generic vocabulary that could then be *rendered* for multiple platforms. Using a generic vocabulary for desktop applications, for example, the developer can write a program in UIML only once and have it be rendered for Java or HTML. And, within HTML, it can be rendered to different versions of HTML and/or browsers. We present some details of the generic vocabulary and the advantages of this approach in this paper.

Based on our experience with UIML, we have learned that the generic vocabulary is not sufficient to build interfaces for widely varying platforms, such as VoiceXML, handhelds (e.g. Palm PDAs) and desktops. In this paper, we describe the preliminary results of a multi-step process of building multi-platform user interfaces. It involves programming in UIML at different levels of abstractions with the support of transformations that move the developer's work from one representation to the next. This paper presents our initial results on this area.

The language design for UIML was done in 1997 by a group of individuals that went on to start the company Harmonia. At the time, the language was deemed too early for commercial adoption, thus the company development plans were put in hiatus for a few years. Meanwhile research in UIML began at the Computer Science Department at Virginia Tech. At the end of 1999, with the expansion of the Internet and the adoption of HTML and other markup languages, it was deemed appropriate to commercialize UIML. Since then, Harmonia has been creating commercial tools to support the deployment of UIML to commercial environments. In parallel, research continues on UIML at Virginia Tech. Support for UIML continues to grow beyond these two organizations. For example there was a conference devoted to UIML in March 2001 held in France. More information on UIML can be found at http://www.uiml.org. Many of the tools described in the paper are available from

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Harmonia at http://www.harmonia.com/.

2. TERMINOLOGY

Some terminology that is used in the paper is defined next. An *application* is defined to be the back end logic behind a UI that implements the interaction supported by the user interface. A *device* is a physical object with which an end-user interacts using a user interface, such as a Personal Computer (PC), a hand-held computer (like Palm), a cell-phone, an ordinary desktop telephone or a pager. A *toolkit* is the library or markup language used by the application program to build its UI. A toolkit typically describes the widgets like menus, buttons and scrolling bars including their behavior. In the context of this paper, toolkit implies both markup languages and more traditional APIs for imperative or object-oriented languages. A *Vocabulary* is the set of names, properties and associated behavior for UI elements available in any toolkit.

A *platform* is a combination of device, operating system and toolkit. An example of a platform is a PC running Windows 2000 on which applications use the Java Swing toolkit. This definition has to be expanded in the case of HTML to include the version of HTML and the particular web browser being used. For example, Internet Explorer 5.5 running on a PC with Windows NT would be a different platform than Netscape Communicator 6.0 running on the same PC with the same OS since they implement different features of HTML differently. A related term that we will use in this paper is *family*, which indicates a group of platforms that have similar layout features. A *Generic Vocabulary* is the vocabulary shared by all platforms of a *family*.

Rendering is the process of converting a UIML document into a form that can be presented (e.g. through sight or sound) to an end-user, and with which the user can interact. Rendering can be accomplished in two forms: by compiling UIML into another language (e.g. WML or VoiceXML), or by interpreting UIML, meaning that a program reads UIML and makes call to an API that displays the user interface and allows interaction.

3. RELATED WORK

3.1 Proliferation of Devices

There has been a widespread proliferation of computing devices in the past few years. These computing devices have different interaction styles, input/output techniques, modalities, characteristics, and contexts of use. Dan Olsen [1], in the broader context of problems existing and emerging due to changes in the basics of interaction techniques, talks about problems in interaction emerging due to the diversity of interactive platforms. He uses the term "chaos" to describe the overall problems. He writes that computers of the future could well be wall-sized, desk-sized, palm-sized or even car-sized. An immediate outcome of these devices of varying capabilities is the corresponding variety of interaction styles. He mentions that while it would be reasonable to expect these varying devices to have different interaction styles, it would not be acceptable to assume that they would operate independently of each other.

Mobile devices introduce an additional complexity. Peter Johnson [12] outlines four concerns regarding the HCI of mobile systems, one of which is accommodating the diversity and integration of devices, network services and applications. Stephen Brewster, *et al.* [6] talk about the problems associated with the small screen size of hand-held devices. In comparison to desktop computers, hand-held devices will always suffer from a lack of screen real estate, so new metaphors of interaction have to be devised for such devices. Some of the other problems that they mention while dealing with small devices were with navigation and presenting information. Two of the problems we encountered in our own work [3] in building UIs for different platforms were the different layout features and screen sizes associated with each platform and device.

3.2 Multi-Platform Development

The area of multi-platform UI development falls under the umbrella of what is being termed as the "variety challenges" [1]. There are new challenges for application and solution developers due to the emergence of a variety of users, a variety of devices and channels, and a variety of roles and functions. We would categorize the problem of multi-platform UI development arising due to the emergence of a variety of devices and channels. This research area is relatively new and there has not been a lot of published literature in this area. There have been some approaches towards solving this problem. Building "plastic interfaces" [7, 23] is one such method in which the UIs are designed to "withstand variations of context of use while preserving usability".

Transcoding [4, 10, 11] is a technique used in the World Wide Web for adaptively converting web-content for the increasingly diverse kinds of devices that are being used these days to access web pages. This process also requires some kind of transformation that occurs on the HTML web page to convert it to the desired format. Transcoding assumes multiple forms. In the simplest form, semantic meaning is inferred from the structure of the web page and the page is transformed using this semantic information. A more sophisticated version of transcoding associates annotations with the structural elements of the web page and the transformation occurs based on these annotations. Another version infers semantics based on a group of web pages.

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Although these approaches work, they are not too extensible since it is not always possible to infer semantic information from the structural elements of web pages.

3.3 Model-Based tools

It is useful to revisit some of the concepts behind model-based UI development tools since we feel that some of these concepts have to be utilized for generating multi-platform UIs. Model-based user interface development tools use different kinds of high-level specification of the tasks that users need to perform, data models that capture the structure and relationships of the information that applications manipulate, specifications of the presentation and dialogue, user models etc, and automatically generate some parts or the complete user interface [14]. One of the central ideas behind model-based tools is to achieve balance between the detailed control of the design of the UI and automation. Many model-based tools have been built in the late 80s and early 90s that include UIDE [19, 20], Interactive UIDE [8], HUMANOID [13, 21], MASTERMIND [22], ITS [25], Mecano [17], and Mobi-D [18].

The central component in a model-based tool is the model that is used to represent the UI in an abstract fashion. Different types of models have been used in different systems including task models, dialogue models, user models, domain models, and application models. All these models represent the UI at a higher level of abstraction than what is possible with a more concrete representation. The UI developer built these models that were transformed either automatically or semi-automatically to generate the final UI. The generation of the interface was often done via an automated tool using very complex processing. Most of these tools included a set of rules for generation of the interface components as well as for specifying interface style. Thus, extending a model-based development for multiple platforms would require adding new rules to the generation tool for each new interface style.

Although model-based tools provide many advantages over other user interface development tools, one of the main drawbacks of these systems was that the automatically generated interfaces were not of very good quality. It was not feasible to produce good quality interfaces for even moderately complex applications from just data and task models. One more limitation of some of the earlier systems was the lack of user control over the process of UI generation. Having more developer-control over the UI development process and having more usable models could rectify some of the deficiencies of the model-based approaches.

A transformation-based approach allows the developer to have more control over intermediate steps than the model-based approach ever allowed. Furthermore, the transformations done in our approach encompass simpler processing, thus making it easier for the developer to understand the generation process, and potentially even extend the transformation process by creating new transformations.

3.4 Markup Languages and the World Wide Web

Since the advent of the World Wide Web in the mid-90s and the emergence of eXtensible Markup Language (XML) as a standard meta-language, a number of different markup languages have emerged for creating UIs for different devices. The foremost among these are HTML [28] for desktop machines, WML [26] for small hand-held devices, and VoiceXML [24] for voice-enabled devices. XML itself is a meta-language that allows the definition of other languages. There have been various other standards developed in conjunction with XML including XSLT that allows XML to be converted to other formats based on some rules.

HTML can be considered a language for multi-platform development, but it only supports platforms that are in the same family i.e., primarily desktop computers. Some efforts have tried to make HTML files available in other devices (e.g. see Transcoding above) but in general HTML has remained tied to desktop computers. The Wireless Markup Language (WML), a part of the Wireless Application Protocol (WAP), is an XML-based language designed primarily for devices with small screen-sizes and limited bandwidth, including cellular phones and pagers. WML uses the metaphor of a deck of cards to represent a UI with a user having to navigate between different cards that are grouped together like a deck. VoiceXML is a markup language for specifying interactive voice response applications. It is designed for creating audio dialogs that feature synthesized speech, digitized audio, recognition of spoken and Dual-Tone Multi Frequency key input, recording of spoken input, telephony, and mixed-initiative conversations. Xforms [27] is the next generation of HTML forms, which intends to greatly enhance the capability of the current forms available in HTML.

While all of these markup languages have almost entirely removed the need to know toolkit, hardware, and operating system specifics for UI development, they have not made a significant contribution towards multi-platform development. The use of these languages for multi-platform development still depends on the client browser implementing the language appropriately. Today, for example, not even basic HTML can be considered multi-platform as the two popular browsers, Microsoft's Internet Explorer and Netscape's Communicator, implement slightly incompatible versions of HTML.

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4. UIML

UIML [1, 15, 16] is a declarative XML-based language that can be used to define user interfaces. One of the original design goals of UIML is to "reduce the time to develop user interfaces for multiple device families" [2]. A related design rationale behind UIML is to "allow a family of interfaces to be created in which the common features are factored out" [1]. One of the primary design goals of UIML is to provide a canonical format for describing interfaces that map to multiple devices. In this section we present some of UIML's language features.

```
<?xml version="1.0" ?>
<!DOCTYPE uiml PUBLIC "-//Harmonia//DTD UIML 2.0 Draft//EN"
   "UIML2_0g.dtd">
<uiml>
  <head>...</head>
  <interface>
     <structure>...</structure>
     <content>...</content>
     <behavior>...</behavior>
     <style>...</style>
  </interface>
  <peers>...</peers>
  <template>...</template>
</uiml>
```

Figure 1: Skeleton of a UIML document with the Interface section highlighted

4.1 Language Overview

Since the language is XML-based, the different components of a user interface are represented through a set of tags. The language itself does not contain any platform-specific or metaphor-dependent tags. For example, there is no tag like <window> that is directly linked to the desktop metaphor of interaction. UIML uses about thirty generic tags instead. Platform-specific renderers have to be built in order to render the interface defined in UIML for that particular platform. Associated with each platform-specific renderer is a vocabulary of the language widget-set or tags that are used to define the interface in the target platform.

A skeleton UIML document is represented in Figure 1. At the highest level, a UIML document comprises of four components: <head>, <interface>, <peers> and <template>. The <interface> is the only component that is relevant for this discussion (it is shown in bold in Figure 1); information on the others can be found elsewhere [15]. The <interface> element is the heart of the UIML document in terms of representing the actual user interface. All the UIML elements that describe the UI are present within this element. There may be multiple <interface> elements. The four main components are the following:

a. <structure>: The physical organization of the interface, including the relationships between the various UI elements within the interface, is represented using this element. Each <structure> is comprised of different <part>s. Each part represents the actual platform-specific UI Element and is associated with a single class of UI elements. The term "class" in UIML represents a particular category of UI elements. Different parts may be nested to represent a hierarchical relationship. There might be more than one structure in a UIML document representing different organizations of the same UI.

b. <style>: The style contains a list of properties and values used to render the interface. The properties are usually associated with individual parts within the UIML document through the part-names. Properties can also be associated with particular classes of parts. Typical properties associated with parts for Graphical User Interfaces (GUIs) could be the background color, foreground color, font, etc. It is also possible to have multiple styles within a single UIML document to be possibly associated with multiple structures or even the same structure. This facilitates the use of different styles for different contexts

c. <content>: This represents the actual content associated with the various parts of the interface. A clean separation of the content from the structure is useful when different content is needed under different contexts. This feature of UIML is very helpful when creating interfaces that might be used in multiple languages. An example of this is a UI in French and English, for which separate content is needed.

d. <behavior>: The behavior of an interface is specified by enumerating a set of conditions and associated actions within rules. UIML permits two types of conditions. The first condition is when an event occurs, while the second is true when an event occurs and the value of some data associated with the event is equal to a certain value. There are four kinds of actions that occur. The first action is to assign a value to a part's property. The second action is to call an external function or method. The third is to fire an event and the fourth action is to restructure the interface.

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A detailed discussion about the language features can be found in the UIML language specification [15], available at http://www.uiml.org. A discussion of the language design issues can be found in Phanouriou's dissertation [16].

Currently, there are platform-specific renderers available for UIML for a number of different platforms. These include Java, HTML, WML, and VoiceXML. Each of these renderers has a platform-specific vocabulary associated with it to describe the UI elements, their behavior and layout. The formal definition of each vocabulary is available at http://www.uiml.org/toolkits. The table below shows some of the vocabularies publicly available at the time of publication.

Table 1. UIML Vocabularies available from http://www.uiml.org/toolkits as of August 2001

Generic Vocabulary Available for Platform
W3C's Cascading Style Sheets (CSS)
W3C's Hypertext Markup Language (HTML) v4.01 with the frameset DTD and CSS Level 1
Java™ 2 SDK (J2SE) v1.3, specifying AWT and Swing toolkits
A single, generic (or multi-platform) vocabulary for creating Java *and* HTML user interfaces
VoiceXML Forum's VoiceXML v1.0
WAP Forum's Wireless Markup Language (WML) v1.3

The mechanism that is currently employed for creating UIs with UIML is that the UI developer uses the platform-specific vocabulary to create a UIML document that is rendered for the target platform. These renderers can be downloaded from http://www.harmonia.com.

The platform-specific vocabulary for Java uses AWT and Swing class names as UIML part names. The platform-specific vocabulary for HTML, WML, and VoiceXML uses HTML, WML, and VoiceXML tags as UIML part names, respectively. This enables the UIML author to create a UI in UIML that is equivalent to a UI that is possible in Java, HTML, WML, and VoiceXML. However, the platform-specific vocabularies are not suitable for a UI author that wants to create UIML documents that map to *multiple* target platforms. For this a *generic* vocabulary is needed. To date, one generic vocabulary has been defined, *GenericJH*, which maps to both Java Swing and HTML 4.0. The next section describes how a generic vocabulary is used with UIML.

5. GENERIC VOCABULARY AND TRANSFORMATIONS

From Section 2 above, we recall that the definition of *family* refers to multiple *platforms* that share common layout capabilities. Different *platforms* within a *family* often differ on the *toolkit* used to build the interface. Consider for example, a Windows OS machine capable of displaying HTML using some browser and capable also of running Java applications. Both of these use different *toolkits*, thus making it impossible to write an application in one and have it execute in the other, even though they both run on the same hardware device using the same operating system. For these particular cases, we have built into UIML support for *generic vocabularies*.

A *generic vocabulary* of UI elements, used in conjunction with UIML, can describe any UI for any *platform* within its *family*. The vocabulary has two objectives: first, to be powerful enough to accommodate a *family* of devices, and second, to be generic enough to be used without having expertise in all the various *platforms* and *toolkits* within the *family*.

We have identified and defined a set of generic UI elements including their properties and events for desktop applications. Ali, *et al.* [3] provides a more detailed description of this *generic vocabulary*. The table below shows some of the part classes in the *generic vocabulary* for the *family* including HTML 4 and Java Swing.

Table 2. Example of a Generic Vocabulary

Generic Part	UIML Class Name	Generic Part	UIML Class Name
Generic top container	G:TopContainer	Generic Label	G:Label
Generic area	G:Area	Generic Button	G:Button
Generic Internal	G:InternalFrame	Generic Icon	G:Icon
Generic Menu Item	G:Menu	Generic Radio Button	G:RadioButton
Generic Menubar	G:MenuBar	Generic File Chooser	G:FileChooser

5.1 Transformations

A *generic vocabulary* is useless without a corresponding set of transformations that convert the user interface from the generic terms to a particular *toolkit*. These transformations are basically a conversion from generic UIML to platform-specific UIML. Both of these representations are be represented as trees since they are XML-based. The platform specific UIML is then *rendered* using an existing UIML *renderer*. There are several types of transformations that are performed:

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- Map a generic class name (e.g., G:TopContainer) to one or more parts in the target platform. For example, a G:TopContainer is mapped to the following sequence of parts in HTML:

```
<html>
  <head>...
    <title>...
    <base>...
    <style>...
    <link>...
    <meta>...
  <body>...
```

  In contrast, G:TopContainer is mapped simply to one part, JFrame, in Java.

- Map properties of the generic part to the proper platform-specific part.
- Map events for the generic part to the proper platform-specific part, and translate rules in the <behavior> element of UIML to use the platform-specific events.

In order to allow a UI designer to fine tune the UI to a particular platform, the generic vocabulary contains platform-specific properties. This are used when one platform has a property that has no equivalent on another platform. In the generic vocabulary, these property names are prefixed by J: or H: for mapping to Java or HTML only. The transform engine automatically identifies which target part to associate the property with, in the event that a generic part (e.g., G:TopContainer) maps to several parts (e.g., 7 parts for HTML). This is also done for events that are specific to one platform. In this way, the generic vocabulary is not a lowest-common-denominator approach. The generic UIML file would then contain three <style> elements. One is for cross-platform style, one for HTML, and one for Java UIs:

```
<uiml>
...
  <style id="allPlatforms">
    <property id="g:title">My User Interface</property>
  </style>
  <style id="onlyHTML" source="allPlatforms">
    <property id="h:link-color">red</property>
  </style>
  <style id="onlyJava" source="allPlatforms">
    <property id="j:resizable">red</property>
  </style>
...
</uiml>
```

In the example above, both a web browser and a Java frame have a title, which is *My User Interface*... However, only web browsers can have the color of their links set, so property h:link-color is used only for HTML UIs. Similarly, only Java UIs can make themselves non-resizable, so the j:resizable property applies only to Java UIs.

When the UI is rendered, the renderer will choose exactly one <style> element. For example, an HTML UI would use *onlyHTML*. This <style> element specifies in its *source* attribute the name of the common, shared *allPlatforms* style, so the *allPlatforms* style is shared by both the HTML and Java style elements.

6. TRANSFORMATION-BASED UI DEVELOPMENT

A transformation-based UI development places the developer in unfamiliar territory. Developers are accustomed to have total control over the language and the specification of the user interface elements. A transformation-based environment asks the developer to provide a high-level description of the interface and to "trust" the result. This is one of the common limitations of code-generators and model-based UI systems. TIDE was developed at Virginia Tech and is freely available at Harmonia's website.

To address this limitation, we have developed a Transformation-based Integrated Development Environment (TIDE) for UIML. In TIDE, the developer writes UIML code and the IDE generates the interface, as expected. However, the relationship between UIML code and its resulting interface component is explicitly shown. This section briefly shows how TIDE works.

The TIDE application was built on the idea that developers creating an interface in an abstract language, such as UIML, which will be translated into one or more specific languages, undergo a process of trial and error. The developer builds what he or she thinks will be appropriate in UIML, renders to the desired language(s), and then makes changes as appropriate. As an environment designed to help support this process, this application shows the developer three things: the original, abstract

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interface (in source code form), the resultant interface after rendering, and the relationship between elements in the two. Figure 2 below shows two pictures of the TIDE environment.

The application uses Harmonia's LiquidUI product suite, version 1.0c. Harmonia's product was not changed in any way, and was used by the application to render from the original UIML to Java. The developer may open and close files, view the original UIML source code as plain text or as a tree, and make changes from the tree view. The developer can also re-render at any time (by pressing the red arrow in the center of the window).

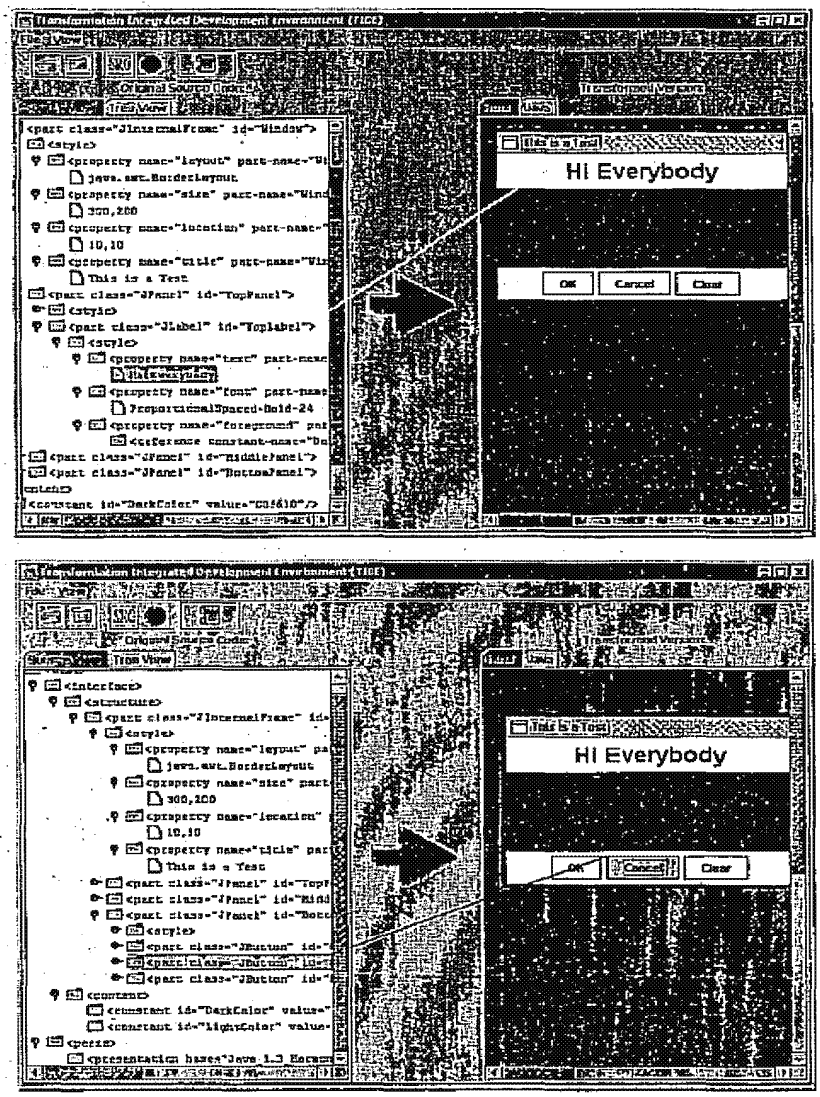


Figure 2. Selection in UIML Code

The relationship between UIML code and the generated interface is made explicit as shown in Figure 2 above. The developer may click on a node in the UIML tree view and the corresponding element on the graphical user interface is highlighted on the right side. The same is true if the developer clicks on a component of the graphical user interface. In the right hand side of Figure 2, the developer has clicked on the cancel button (middle of the three buttons) and the corresponding code is highlighted on the UIML tree-view.

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Figure 3. History Window in TIDE

TIDE makes very easy to explore the different UIML elements and the effect they have on the generation of the interface. A UIML element's property (e.g. the color of a button) can be edited in place within the tree view. TIDE even supports a history window that keeps track of different changes made to the interface. Each line in the history window (see Figure 3 above) shows a small screen image of the interface at that point in the development cycle. This allows the developer to quickly switch between alternative versions of the interface, thus encouraging more exploration of UIML.

7. SAMPLE APPLICATIONS

This section shows two sample UIML applications. The first one is intended to show some of the parts of UIML at work. For economy of space, we have not included the <style> and <behavior> sections of the UIML document. See Ali [3] for other UIML examples.

```
<?xml version="1.0"?>
<!DOCTYPE uiml PUBLIC "-//Harmonia//DTD UIML 2.0 Draft//EN"
  "UIML2_0g.dtd">
<uiml>
 <head>
  <meta name="Purpose" content="Data Collection Form"/>
  <meta name="Author" content="Farooq Ali"/>
</head>
<interface name="DataCollectionForm">
 <structure>
  <part name="RequestWindow" class="G:TopContainer">
    <part name="EBlock1" class="G:Area">
      <part name="TitleLabel" class="G:Label"/>
      <part name="FirstName" class="G:Label"/>
      <part name="FirstNameField" class="G:Text"/>
      <part name="LastName" class="G:Label"/>
      <part name="LastNameField" class="G:Text"/>
      <part name="StreetAddress" class="G:Label"/>
      <part name="StreetAddressField" class="G:Text"/>
      <part name="City" class="G:Label"/>
      <part name="CityField" class="G:Text"/>
      <part name="State" class="G:Label"/>
      <part name="StateChoice" class="G:List"/>
      <part name="Zip" class="G:Label"/>
      <part name="ZipField" class="G:Text"/>

      <part name="OKBtn" class="G:Button"/>
      <part name="CancelBtn" class="G:Button"/>
      <part name="ResetBtn" class="G:Button"/>
     </part>
   </part>
  </structure>
```

We can see from the snippet of code above that the *generic vocabulary* comprises of UI elements with names that are applicable to multiple *platforms* within this *family*. The code shown above represents multiple *platforms* (Java and HTML) for a single *family*.

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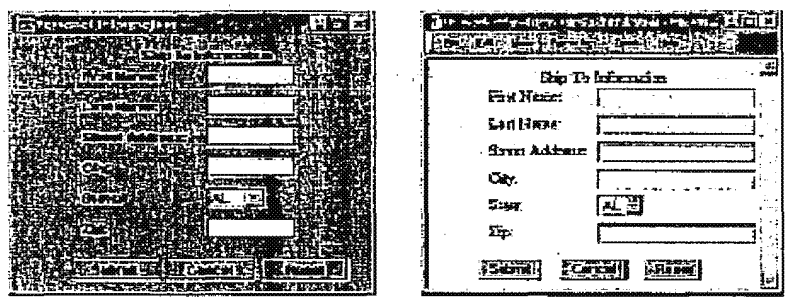


Figure 4: Screen-shots of a sample form in Java Swing (left) and HTML (right).

The second example we show is a more complex UI. For this, we show only the generated interfaces for economy of space. The image at the top is the UIML rendered for Java Swing. The one at the bottom is rendered for Internet Explorer v5.5.

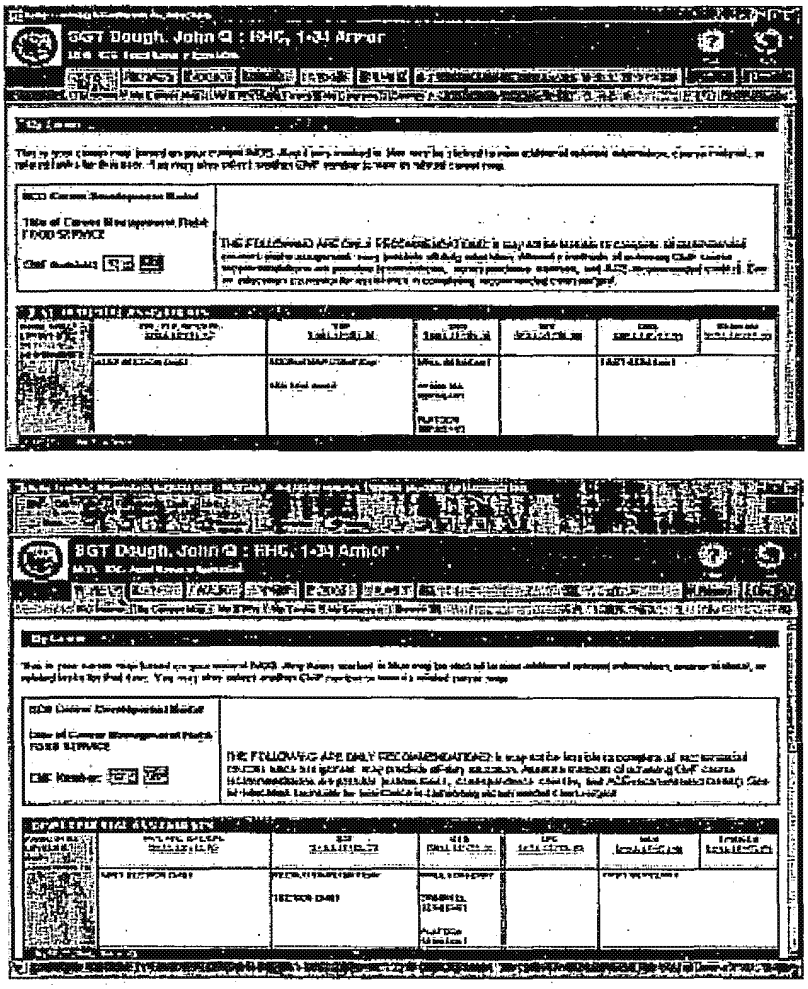


Figure 5: Screen-shots of a complex application for Java and HTML built with UIML

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8. FRAMEWORK FOR MULTI-PLATFORM UI

The UIML language and tools presented above are not sufficient to properly address the problem of interface development for multiple platforms. In some cases, the differences between display layouts were found to be too significant to simply create one UIML file for one particular platform and expect it to be rendered on a different platform. Therefore, we are adding a more abstract layer to support development of interfaces for a wide variety of platforms. This section describes preliminary work on how this higher-abstraction layer would work within UIML. The approach taken is to have a higher level UIML representation with its own (and new) generic vocabulary. We are using the traditional usability engineering process to help us build a new methodology that could be used to build interfaces for multiple-platforms.

The concept of building multi-platform UIs is relatively new. To envision the development process, we followed an existing approach from the usability engineering (UE) literature. One such approach [9] identifies three different phases in the UI development process: interaction design, interaction software design and interaction software implementation. Interaction design is the phase of the usability engineering cycle in which the "look and feel" and behavior of an UI is designed in response to what a user hears, sees or does. In current Usability Engineering practices, this phase is highly platform-specific.



Figure 6: Traditional Usability Engineering Process for one platform

Once the interaction design is done, the interaction software is designed, which involves making decisions about the UI toolkit(s), widgets, positioning of widgets, colors, etc. Once this design is done, the software is implemented Unfortunately, this traditional view of interaction design is highly platform-specific and works well for a single platform. The stage of interaction design has to be further split into two distinct phases for multiple platforms: a platform-independent interaction design and platform-dependent interaction design. This phase will lead to different platform-specific interaction software designs, which in turn lead to platform-specific UIs. This process is illustrated in Figure 7.

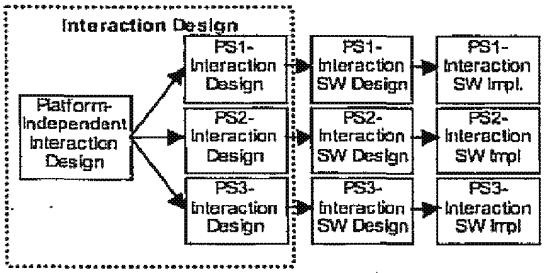


Figure 7: Usability Engineering process for multiple platforms

8.1 UIML-Based Usability Engineering Process

We have developed a framework that is very closely related to the UE process discussed above. The main building blocks within this framework are the *Logical Model, Family Model* and the *Platform-Specific Model*. The *logical model* is the new model that we are creating, and it is briefly described below. The *family* model is a model describing interfaces for a specific *family* using its corresponding *generic vocabulary*. The *Platform-Specific Model* describes a user interfaces using the vocabulary associated with a particular toolkit. There is also a new process of transformations needed that transforms the *logical model* to a particular *family model*. Thus, we have one new level of representation, the *logical model*, and one new process of transformations. The resulting diagram is shown in Figure 8.

The main objective of the *logical model* is to capture the UI description at a higher level of abstraction than is possible by any family-specific model. The logical model is a collection of logical constructs that represent the UI in some abstract fashion. We are considering using a hybrid task/domain model that can be transformed to the physical model. Research on this representation is underway.

The transformation from the *logical model* to a particular *family model* has to be developer-guided and cannot be fully automated. By allowing the UI developer to intervene in the transformation and mapping process, it is possible to ensure usability. One of the main problems of some of the earlier model-based systems was that a large part of the UI generation process

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from the abstract models was fully automated, removing user-control of the process. Another way of describing this problem is the "mapping problem" as described by Puerta [18]. We want to eliminate this problem by having the user guide the mapping process. Once the user had identified the mappings, the system will generate a *family model* based on the target family and the user mappings. Research is underway on these transformation algorithms and the process to specify the mappings. We are integrating the transformation specification within TIDE, thus having a single integrated environment for the developer; our goal is to avoid the feelings of loss of control that plagued earlier model-based approaches.

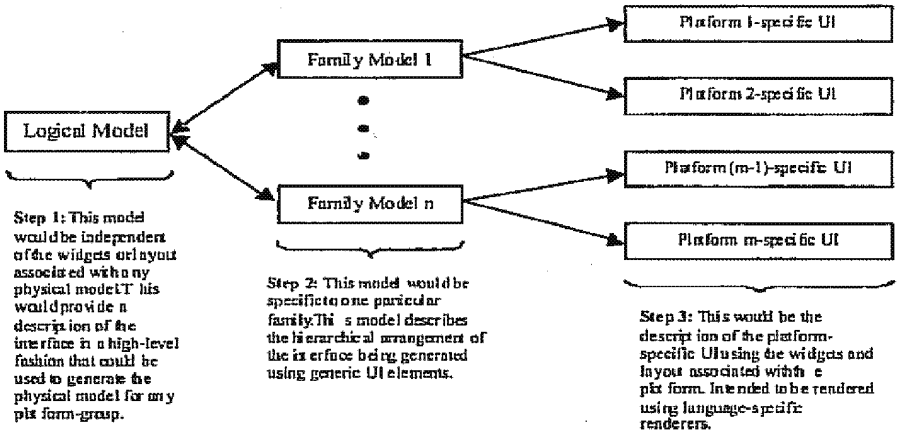


Figure 8: The overall framework for building multi-platform UIs using UIML

9. CONCLUSIONS

In this paper we have shown some of our research in UIML. We have particularly focused on the overall approach we have taken to generate multi-platform user interfaces. We are using a single language, UIML, to provide the multi-platform development support needed. This language is extended via the use of alternate vocabularies and transformation algorithms. Our approach allows the developer to build a single specification for a *family* of devices. UIML and its associated tools transform this single representation to multiple platform-specific representations that can then be rendered in each device. We have presented our current research in extending UIML to allow building of interfaces for very-different platforms, such as VoiceXML, PDAs and desktop computers.

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Tool-Supported Single Authoring for Device Independence and Multimodality

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ABSTRACT

With the growing proliferation of mobile computing devices, the vision of the web anytime, anywhere and on any device is rapidly becoming a reality. Technologies enabling device-independent presentation and new interaction modalities like voice or gesture are moving from research to commercially available products. As a result, developers are faced with the increasing challenge of providing user interfaces that match the capabilities of the different devices available. Within this paper we present our application-oriented research that has investigated single authoring of multimodal interfaces on mobile devices. After an overview of related work that explains the motivation behind our approach, we present a prototype authoring tool for the development of graphical as well as multimodal web-based user interfaces for multiple devices. We conclude by discussing the relation of our work to established web markup standards and point out noteworthy issues related to their application within our work.

Categories and Subject Descriptors

H.5.2 **[Information Interfaces and Presentation (e.g., HCI)]**: User Interfaces – *Graphical user interfaces (GUI), Input devices and strategies (e.g., mouse, touchscreen), Interaction styles (e.g., commands, menus, forms, direct manipulation), Prototyping, Screen design (e.g., text, graphics, color), Standardization, Theory and methods.*

General Terms

Design, Experimentation, Human Factors, Standardization.

Keywords

Web authoring, single authoring, user interfaces, device independence, modality independence, multimodal interaction, mobile device, universal access.

1. INTRODUCTION

Portable computing devices and mobile phones are becoming increasingly powerful. Processing power and memory is beginning to rival that of desktop computers of just a few years ago. Enhanced multimedia features such as high-quality displays, cameras, advanced sound output, even 3D graphics capabilities and new types of communication services such as multimedia messaging or video telephony are turning today's mobile terminals into sophisticated personal information and entertainment devices. With their growing proliferation, the vision of a ubiquitous web that is accessed from anywhere, at any time and with any device is rapidly becoming a reality. Developers who want to stay abreast of these changes are faced with an increasing challenge: Content and applications need to offer suitable front-ends, capable of adapting to devices differing substantially in form factor, screen resolution and aspect ratio as well as in their input and output capabilities.

Meanwhile, multimodal technologies are beginning to mature. Lightweight speech recognition and synthesis for the average desktop PC have made combined graphical and voice interaction feasible. New markup languages like SALT [20] and X+V [30] make development of multimodal web sites and applications almost as effortless as traditional web development.

We believe that many future applications will feature both multimodal interaction and device independence in combination. Mobile multimedia, in-car information and entertainment systems and home automation and control are but a few scenarios where multimodality will beneficially complement device-independent access. Accessibility is another area where the prospect of information access irrespective of device and modality promises a web without barriers for all users. Our work is motivated by the vision that future user interface technologies and authoring tools must therefore enable both device- and modality-independence in a single, integrated solution.

Over the last years, a large variety of new user interface markup languages has emerged [19], [32]. Suggested solutions range from rather conservative extensions to existing markup languages to quite new and innovative approaches. Much effort is being put into the development of new languages, tools and methods: Seemingly, developers and researchers do not yet feel that the requirements imposed by the multi-device, multimodal web paradigm are entirely satisfied by the standards and markup languages that are available today.

Within the MONA (Mobile multimOdal Next-generation Applications [17]) research project, we have investigated multimodal interaction on mobile devices. One objective of the project was to devise a more "developer-friendly" single authoring method for cross-platform user interfaces; i.e. a method that enables a smooth transition from today's work practices, as we will explain

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in section 3. We started our work by designing two example applications – a messaging client and a multiplayer quiz game. Based on our observations of the authoring workflow of our application developers (see section 4), we defined an experimental XML user interface description language. We implemented a *presentation server* that translates this language into device-specific markup and scripting at runtime. The presentation server dynamically adapts graphical user interfaces for different mobile devices (PDAs, Symbian smartphones and low-end WAP phones). Adaptations encompass widget-level as well as layout adaptations and pagination (splitting of a user interface into multiple pages for small-screen devices). Supported target markup languages include HTML, WML and a multimodal combination [12] of HTML and VoiceXML [24]. Based on our experimental language, we implemented a development tool that supports single authoring of graphical as well as voice-enabled graphical web-based user interfaces for multiple mobile devices in a real-time work environment. Furthermore, we developed an early prototype version of our tool which is based on the multimodal X+V standard, rather than on our proprietary language. This demonstrates that the results gained from our work are transferable and can also be applied to existing standards and practices. The remainder of this paper is structured as follows:

- Section 2 discusses related work. It lists possible authoring techniques for developing user interfaces for multiple devices and presents examples for each one.
- Section 3 describes different approaches following the single authoring principle (as described in section 2) and explains the motivation behind the approach we adopted within our project.
- Section 4 introduces our experimental user interface description language.
- Section 5 presents the single authoring tool we developed, based on our proprietary language. It also discusses the evolution of our tool towards a cross-platform authoring environment built around established markup language standards, i.e. X+V and Cascading Stylesheets (CSS [7]).
- Section 6 summarizes the conclusions we have drawn from our work. In particular, it focuses on noteworthy issues related to the application of existing standards within our work.

2. DEVICE INDEPENDENT AUTHORING

Different techniques have been used to develop user interfaces for multiple devices. The World Wide Web Consortium's (W3C) note on authoring techniques for device independence [3] identifies the following three broad classifications of authoring techniques: *multiple authoring*, *single authoring* and *flexible authoring*. This section briefly describes each technique and lists examples for it.

2.1 Multiple Authoring

In the case of multiple authoring, the developer creates a specific user interface for each device or device category. This approach has the obvious drawback of a high production and maintenance effort, as well as a possible danger of inconsistency between different user interface versions. Also, there will not be a suitable user interface available for devices that were not explicitly addressed by the developer. On the other hand, multiple authoring provides the maximum possible detail control over the result, since every user interface is specifically tailored. Many of today's applications that offer access for different devices rely on multiple authoring. Documents with device-specific CSS or XSL stylesheets might also be assigned to this category, since they require a separate stylesheet for each device category.

2.2 Single Authoring

With single authoring, the developer provides a single source code implementation of the user interface that is valid for all devices. An adaptation solution somewhere in the delivery path (including client-side and distributed adaptation solutions) translates this implementation into a suitable format before it is presented to the user. In some single authoring solutions, the developer may be required to provide additional device-specific information in the source code to aid the adaptation process. Current single authoring solutions can usually be attributed to one of the following three categories:

Platform independent vocabularies and toolkits allow the developer to specify interfaces using a set of generic widgets. The widget set is a common subset of widgets available on each target platform. The adaptation solution maps each generic widget to the appropriate platform-specific widget. IBM's Abstract User Interface Markup Language AUIML [4] or generic vocabularies [2], [16] defined for the User Interface Markup Language UIML [1] are examples of this approach. Alternatively, the adaptation solution may be implicitly contained in a client-side runtime environment or browser that performs the mapping. Multiplatform user interface technologies like Java Swing, Mozilla's XML User interface Language XUL [33], Microsoft's eXtensible Application Markup Language XAML [28] and, in fact, all browser-based technologies like HTML and WML can be assigned to this category.

A second approach to single authoring aims to **extend established markup languages** with features enabling enhanced device independence. The W3C note on authoring techniques [3] introduced the notion of *author hints* that add meta-data to the user interface description in the form of additional markup or attributes. These hints enable an (optional) adaptation solution to transform the user interface for a certain device or delivery context, if desired. An example for this approach is the Renderer-Independent Markup Language RIML (developed as part of the Consensus Project [8]). RIML is a custom extension to XHTML 2.0 and XForms 1.0 [29] which adds features such as pagination and device independent layout mechanisms. Other solutions like [13] and [25] (which are available as commercial products) rely, to our knowledge, on similar techniques to make web-based content available for mobile devices.

A third approach to single authoring is **model-based user interface development**. Model-based methods regard the issue of user interface design from a software engineering perspective rather than from a design perspective. Their tradition roots back to work on user interface management systems (UIMS) in the early 1980's [14]. Though they have never really captured the mass market, they have a strong community in research and academia [22]. Model-based systems make use of a layered architecture of models describing the interaction between user and application at different levels of abstraction. Typically, they follow an architecture similar to the one described in [21]: On the highest level of abstraction, a task model describes the tasks the user needs to perform. A domain model describes the data and operations supported by the application. On a lower level of abstraction, an abstract user interface represents the structure and content of the user interface in a platform independent way (comparable to a platform independent widget description). Finally, on the lowest level of abstraction, the concrete user interface

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contains all platform specific details in terms of platform-specific widgets (like buttons, checkboxes and text), layout and style. Model-based systems and tools are able to derive concrete user interfaces for different platforms from the high level abstract models (*"multiplatform generation"*). However, since they automate the process of user interface design, they traditionally suffer from a lack of control over the generated result by the developer [15].

An example for a model based specification language is the eXtensible Interface Markup Language XIML [18], which covers the high-level models as well as the low-level platform-dependent aspects of user interfaces. A language with comparable goals is the User Interface eXtensible Markup Language UsiXML [23], which addresses abstract models, platform-specific aspects and related transformation rules in a single description. A key feature of UsiXML is that the developer is not forced to work strictly top-down in the model, starting from the highest level of abstraction, but can start at any level.

Recent examples of model-based design tools include TERESA [5], a design environment that generates concrete user interfaces for different platforms from a task model in an automatic or designer-guided process, and GrafiXML, a graphical editor for UsiXML. ReversiXML and Vaquita [6] are tools for reverse-engineering existing HTML pages into an abstract representation, based on UsiXML or XIML, respectively. WebRevEnge [26] is a similar tool that automatically reconstructs the task model of a web application from the concrete user interface.

2.3 Flexible Authoring

In the case of flexible authoring, the developer freely combines multiple authoring and single authoring techniques, i.e. creates single versions for subsequent adaptation, as well as detailed versions specifically designed for a particular device or device category.

3. DESIGN VS. MODEL

Within our project, we followed the single authoring principle. Comparing the variety of single authoring approaches that exist, we believe there is one common conclusion that can be drawn: In order to enable device- and modality-independent access, a user interface description needs to contain – or be in some form related to – an abstract presentation model capturing its syntactic as well as its semantic structure.

Platform-independent toolkits do not contain a semantic model of the user interface. They are quite specific to a certain category of target platforms and only allow widget-level adaptations. The possibilities for adaptation towards computing platforms that are distinctively different from the type(s) of platforms the designer has initially considered (e.g. wall-mounted displays vs. mobile devices or user interfaces in different modalities) are limited.

Extensions to established markup languages, on the other hand, can embed the semantic model into standard markup, thus enabling a backward compatible solution. We also argue that backward compatibility – both in terms of markup languages and designers' work methods – is *the* crucial factor for the success or failure of any single authoring approach. In subsection 5.2 we therefore explain in detail how our work is related to existing standards and how we applied them in our project.

Model-based approaches have developed sophisticated mechanisms for formally describing semantic and syntactic user interface aspects. The high level of abstraction contained in those descriptions makes them particularly suited for generating user interfaces distinctively different from those the developer might initially have anticipated – for example interfaces relying entirely on other modalities, such as voice-only or Braille interfaces. As a disadvantage, however, we see a mismatch between the abstract concepts that form the basis of model-based languages and the development methods used by today's web user interface designers: Today's web is essentially a single-platform medium. Designers can center their creative effort on the assumption that what they design and preview on their screens, is – in principle – identical to what users will perceive on theirs. In addition, the authoring philosophy of the web has always been implicitly designer-centric: In essence, a text-editor, knowledge of a few basic HTML tags and a browser for previewing the results are the only tools required to start developing. This predictability and simplicity has created a large community of non-technical, visually-oriented developers. For this community, visual impact, user experience and branded appearance have become key factors in user interface design. (The success of Flash on the web, for example, can be seen as one indication of this phenomenon.)

Obviously, in a multi-platform web, the high degree of predictability to which developers have become accustomed can no longer be guaranteed. As mentioned above, model-based approaches are highly suitable for producing multi-platform user interfaces – however, at the price of sacrificing much of the simplicity and predictability that is the basis of web development today. Choosing a model-based single authoring approach would amount to nothing less than a fundamental change in the authoring paradigm – which is unlikely to be popular with the majority of web developers.

The model-based community has acknowledged and reacted to this problem: Florins et al. [11], for example, have suggested "graceful degradation" as a model-based design method. In this method, the design effort is centered on a concrete "root interface", designed for the less constrained platform. Based on the root interface, a set of transformation rules is applied to produce interfaces for the more constrained platforms. A comparable method is presented by Wong et al. [27], where the developer builds a device-independent presentation model at design time, based on the GUI for the device with the largest screen. The presentation model is then submitted to widget, layout and pagination transformations to produce user interfaces for other platforms.

Within our project, the fundamental assumption was that – despite platform-independence – the traditional workflow of designers should be preserved as much as possible. Like Florins and Wong we suggest centering the design process around a root user interface for a specific device (though we believe that this device need not necessarily be the most powerful one). Based on the root interface, the designer should be able to intuitively build the related abstract presentation model. The abstract presentation model should contain enough semantic information to allow an adaptation towards a sufficiently broad spectrum of potential target devices and modalities. Additionally, the designer should have the option to exercise detailed control over particular device-specific presentations, i.e. should be able to treat some devices differently, if desired.

As mentioned, a persistent problem of any single authoring method is a loss of predictability. Despite designer-centric authoring based on a concrete root interface, the designer can never fully anticipate

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each possible result on all different devices and in all different modalities. Therefore, we see tool support as the second tenet of our authoring approach. We argue that in the case of single authoring, tools represent much more than a mere productivity enhancement:

- Through real-time previews for a selected number of concrete target user interfaces, they can ease the predictability problem and make multi-platform authoring the same creative and iterative process that single-platform authoring is today.
- They can give designers the freedom to work in their preferred way – either top-down, by defining the abstract presentation model first and viewing the results in the real-time previews, or bottom-up, using direct manipulation WYSIWYG editing, while the tool builds a basic abstract presentation model in the background.
- We argue that authoring device-independent and multimodal interfaces is a process not yet well understood by designers. Interactive tools that foster experimentation in a domain that is still new for a large part of the design community can make the concept of single authoring more understandable and accessible. They can also familiarize developers with the new possibilities and standards available and have the potential to leverage both knowledge and use of device-independence and multimodal technologies on the web in general.

In the following section, we present the experimental user interface description language we developed, based on the observations of our application designers' workflow. We describe the concepts of its presentation model and explain how it supports the criteria discussed above.

4. UI DESCRIPTION MODEL

Within our project, we developed two sample applications – a messaging client and a multiplayer quiz game. In the first development stage, the designers on our team started to produce pen-and-paper GUI sketches and a set of functional HTML user interface prototypes for a PDA device. The prototypes were also subjected to a heuristic evaluation and user tests to assess their usability. Following the evaluations, our designers refined their user interfaces and created "degraded" versions for the more constrained platforms – in our case, Symbian smartphones and low-end WAP phones. In parallel, they also designed the voice interaction for the voice-enabled devices.

Based on the requirements we gathered from our designers during the design and re-design phases and from their methods in "down-grading" the user interfaces for the more constrained devices, we defined our UI description language. The language structure is also influenced by related work, in particular platform-independent widget languages and model-based concepts.

We implemented a presentation server – a server-side adaptation component that transforms our language into concrete user interface markup and scripting appropriate for each particular device. The adaptation process is based on device profiles (containing parameters such as device screen size or font-sizes) stored locally at the server and supports a set of HTML (PDA and smartphone models) and WML devices (WAP phones from different manufacturers), as well as voice enabled devices, using a proprietary combination of HTML and VoiceXML[1].

[1] Voice enabled devices rely on 3rd party technology [12].

4.1 Language Structure and Elements

The core of our language is a set of platform independent widgets. The widgets represent the intention of an operation (e.g. the selection of one from multiple possible options) rather than the visual appearance (e.g. a drop-down list box or set of radio buttons). Depending on device capabilities and available screen space, the presentation server maps the widgets to suitable device-specific representations, as shown in Figure 1. This concept is similar to other languages such as AUIML and XForms.

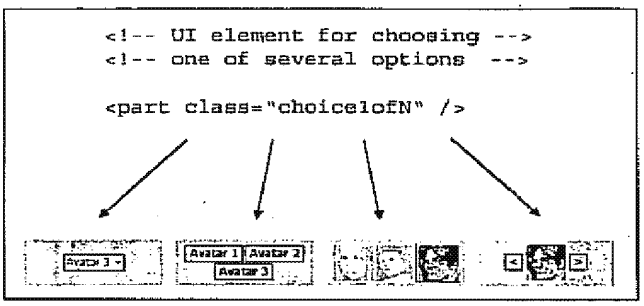


Figure 1. Platform independent widgets.

Each platform-independent widget contains one or more *content sets* that define e.g. labels, list items, help text, etc. A *content set* (in the terminology of our language) is a collection of multiple alternative contents for different modalities. The developer can therefore specify alternative text for visual output, text for speech output or source URLs for images or audio files. This ensures that, while the structure of the user interface remains modality-independent, the developer can still exercise full control over presentation on the content level. In a similar way, *grammars* assigned to widgets allow control over voice input characteristics.

Widgets and content sets are associated with a number of properties that serve as hints to the presentation server on how to display them on different devices and in different modalities. Examples include:

- Basic style hints (e.g. for controlling text color) and a simple pseudo-markup for continuous text styling (e.g. bold or italic characters or forced line breaks).
- Priority hints that indicate the importance of a widget (or group of widgets) and allow the presentation server to omit less important widgets, in case screen real-estate is scarce.
- Widget-specific hints, e.g. in the case of the table widget for controlling the table orientation or for specifying rules for summarizing the table on small screen devices or in voice mode.

Widgets can also be associated with *behaviors* that are triggered by *events*. Traditionally, web-developers use scripting to implement user interface behavior such as alerts or visual changes based on user action. However, mobile devices on the market today differ widely in the level of scripting they support – some may offer extensive ECMAScript [10] support, while others may support no scripting at all. We therefore decided to describe behavior declaratively, within the markup, rather than to allow the designer to use a scripting language. It is left to the presentation server to generate appropriate scripting and/or markup for each particular device dynamically.

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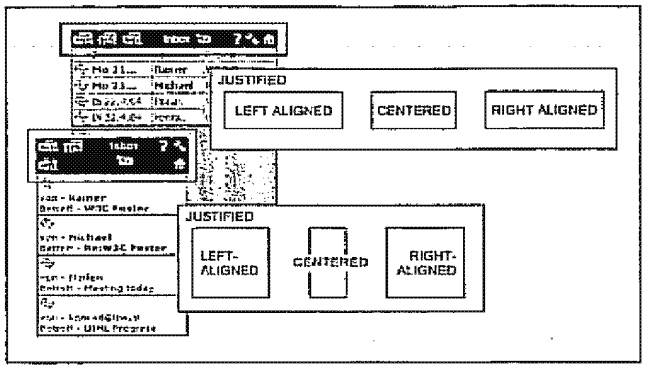


Figure 2. Flow-layout.

The GUI layout is specified through *layout rules* that are assigned to groups of widgets. The layout rules are comparable to those known from word processing (i.e. rules like *left-aligned*, *centered* or *justified*) and produce an adaptive flow-layout rather than a fixed layout (e.g. with a pre-defined number of columns or fixed absolute or relative column widths). By nesting group elements with different layout rules, complex layouts can be achieved. Figure 2 shows an example for a simple nested layout, presented on two screens with different widths.

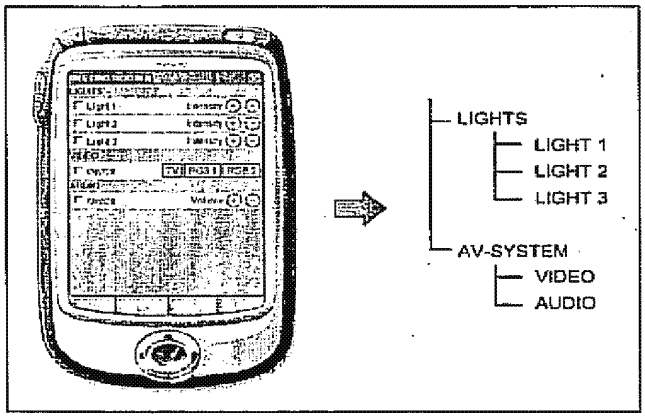


Figure 3. Task unit structure.

In addition to the layout, the developer may define so-called *task units*. The task units define collections of widgets that semantically belong together in the sense that they are all related to performing a particular user task (for example "sending a message" or "viewing all received messages" in a user interface for an e-mail application). During the adaptation process, the presentation server can translate the resulting structure of tasks and sub-tasks into menus and sub-menus. This way, the pagination properties for small-screen devices can be determined. The presentation server may also use information from the task units to map certain widgets or functions to device-specific menus or soft-keys, if reasonable. Figure 3 shows an example of how a developer might define a task unit structure on a particular user interface (a fictional control interface for meeting room equipment). Figure 4 shows how the presentation server can use this information to split the GUI accordingly, in case it is delivered to a small-screen WAP phone.

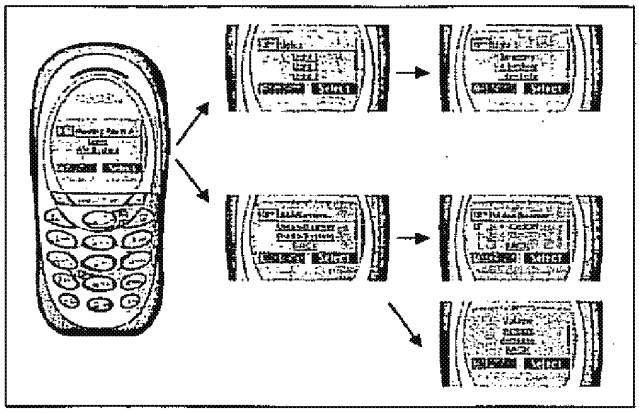


Figure 4. Pagination on low-end WAP phone.

4.2 Authoring Workflow

Using our language, our application designers worked in a bottom-up fashion, starting from their GUI sketches and prototypes. They identified the appropriate platform-independent widgets, their contents, grammars, properties and behaviors. They identified the layout rules to match their root user interface design. Finally, they specified the task unit structure corresponding to the WAP designs they had created earlier.

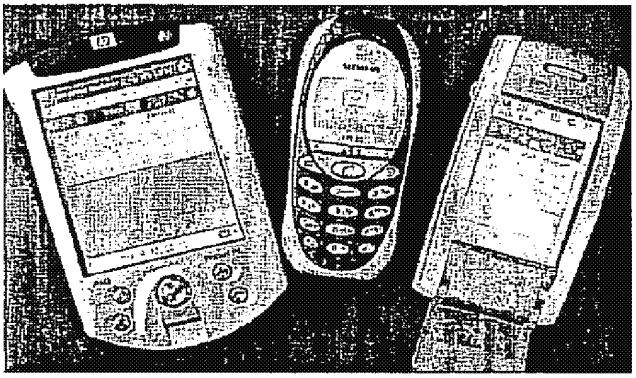


Figure 5. Example GUI on three different mobile devices.

Figure 5 shows an example user interface (the message box screen of our messaging application) on three different devices, as authored in our language and generated by our presentation server implementation.

5. AUTHORING TOOL

Based on our experimental language, we implemented a prototype authoring tool to support the design process described in section 4. The tool features a number of productivity enhancing functions and offers a set of real-time device previews that enable a more intuitive and visual design workflow. The main design goal was to provide a rapid prototyping environment where designers can experiment with multimodal user interfaces for mobile devices and iteratively test and tweak their designs without much effort.

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5.1 Tool Features

The authoring tool was implemented in Java, based on the Eclipse Rich Client Platform [9]. The work area consists of five views:

- **Component tree view.** The component tree view, the main work area of the authoring tool, depicts the hierarchical structure of user interface widgets. Widgets can be added, deleted and moved using a set of toolbar icons or a right-click context menu.
- **Attribute/Behavior table.** In the attribute/behavior table, the developer can view and edit the values of attributes, contents and behaviors associated with the currently selected widget.
- **Task structure tree view.** The task structure tree view shows the hierarchical task unit structure. Similar to the component tree view, the developer can add, delete and move task units via right-click context menu or toolbar icons.
- **Source code view.** The source code view shows the actual XML markup of the user interface description. Syntax highlighting, range indication, XML formatting as well as insertion of code-snippets for adding new widgets via right-click context menu or toolbar icons speed up the development process for those developers who prefer working in the source code rather than in the tree views.
- **Voice dialog graph.** The voice dialog graph depicts the structure of the voice dialog in the form of a flow diagram. Voice output phrases as well as grammars assigned to individual widgets can be reviewed quickly. Direct-manipulation editing of the dialog within this view is not yet supported in this version of the tool.

All work views are synchronized: Selecting a user interface component in the tree view will also highlight and scroll to the corresponding code section in the source code. It will also update the attribute/behavior table accordingly. Vice versa, navigating through the source code will automatically select the corresponding element in the tree view (as well as highlight it in the code itself) and update the attribute/behavior tables. In addition to the work views, the tool offers a set of browser previews that emulate the presentation on different devices. Each preview is updated in real-time, reflecting every change performed by the developer. The tool currently features browser previews for three target device form factors:

- PocketPC PDAs.
- Symbian smartphones (UIQ and Nokia Series 60 form factor).
- Two WAP 1.x (WML) phone models.

The PocketPC PDA browser preview also features voice input and output capability, allowing the designer to instantly test voice functionality of the multimodal user interface. WYSIWYG authoring directly in the previews is not supported. However, the developer can select widgets by clicking on them in the previews. This will also select the widgets in the other views.

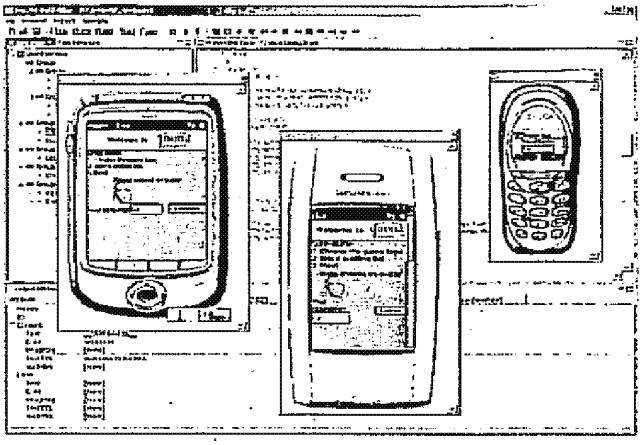


Figure 6. Prototype authoring tool screenshot.

Figure 6 shows a typical screenshot of our authoring tool. It shows the component tree view (upper left), the source code view (upper right) and the attribute table (lower area). In front, three device emulators are active: the voice-enabled PDA, the Symbian UIQ smartphone and a WML WAP phone preview.

5.2 Towards Established Standards

We consider backward compatibility a critical success criterion, as we have noted earlier. New authoring methods must ensure continuity in terms of workflow, but also in terms of markup languages. After designing our proprietary authoring language and tool, the next major development step in our work was therefore the migration of our results to established markup standards. We implemented an early prototype version of our tool based on X+V (a W3C standard that specifies an authoring language for multimodal web content, based on XHTML, VoiceXML and XML Events [31]) and CSS, the established standard for defining the layout and style of web documents.

XForms is a W3C recommendation that specifies a set of platform-independent widgets ("*XForms controls*"), combined with a powerful, declarative processing model. Most of the widgets we defined in our proprietary language are identical or comparable to available XForms controls. (Some of our widgets, such as the list or table widget, are also covered by XHTML.) As future work, we therefore also plan to integrate XForms into our authoring tool as a standardized solution for describing user interface widgets in a device- and modality-independent way.

The migration of our tool towards standard-conformance not only showed that our results are transferable; it also provided valuable insights into some of the strengths and weaknesses of today's standards with regard to the combination of device-independence and multimodality: Though there is need for improvement in some areas, other requirements are actually covered sufficiently already. We consider these insights part of our key results and therefore present them in our conclusions (section 6).

5.3 Standards-Based Authoring Process

For web developers familiar with HTML and CSS, the authoring process in our standards-based prototype tool is straightforward: The document is created in a source code editor. Background

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markup validation with error indication helps the developer to produce standard-conformable code.

Style and layout is defined using a tabular CSS editor: The developer first produces a global CSS stylesheet, valid for all devices, and then fine-tunes CSS parameters for particular devices, if necessary. Different device browser previews (now also including a voice-enabled desktop browser) allow the developer to quickly understand how design decisions influence the presentation on different devices.

The document's voice dialog can also be created in the source code editor or, alternatively, using a simple drag-and-drop voice dialog editor. Currently, this prototype dialog editor only supports simple dialogs without complicated grammars or branching. As future work, we plan to develop it further to support the full richness of the X+V standard.

Content produced with the tool can be deployed on the web in two ways: Either, the developer can deploy the single document and rely on the presentation server to adapt it dynamically for a particular device. Alternatively, the developer may export multiple versions of the document in different formats and deploy each of them separately on a web server (which means that they will generally be available under different URLs). In this respect, we clearly want to support the notion of flexible authoring, as introduced in subsection 2.3.

6. CONCLUSIONS

Within this paper we presented a practically motivated, "developer-centric" approach to single authoring for device- and modality-independence: We expressed our concern that the powerful, but complex concepts of model-based user interface development might not be adopted by the majority of web developers. Based on the requirements we gathered from observing our designers during two example projects, we implemented an experimental tool that mitigates the complexity and predictability problems inherent to device- and modality-independent authoring. With the migration of our proprietary tool towards established web markup standards, we demonstrated that our results are transferable. Also, the migration process revealed some noteworthy parallels and differences between our approach and available standards, which are summarized below:

Platform-independent widgets. We defined our language's widgets, as well as their possible realizations on different devices and in different modalities by observing the development process of two example multimodal mobile applications. Most of the widgets we defined in our language were identical (or comparable) to the set of widgets defined within the XForms standard. We believe that this can be seen as verification that XForms can not only be presented visually on a range of different devices, but that it is also suitable for the voice modality.

Declarative behavior. Within our work, we have found that the varying scripting capabilities of different mobile devices are a serious drawback. We share the XForms view of describing user interface behavior through a declarative processing model rather than through scripting. We argue that a declarative description is better-suited for device- and modality-independence, in particular in the resource-constrained domain of mobile applications.

Equivalence of visual and voice modality. Existing standards for multimodal web-content such as X+V or SALT strictly separate visual from voice content. However, in order to enable true universal access, the initial assumption for our authoring approach was to provide developers with a means to produce content and user interfaces that are, first of all, *modality-independent*. The option to provide *multimodal* content and interfaces would simply be the added benefit arising out of modality-independence. As a consequence, content is initially equivalent for all modalities in our language. Only after defining the equivalent content, designers have the option to tune it for different modalities, through our concept of *content sets*. Creating modality-independent user interfaces in X+V or SALT is possible, but takes an extra effort.

Layout model. The World Wide Web's current layout standard, CSS, is geared towards providing multiple alternative layouts for different device categories. Compared to this approach, our layout concept differs considerably: Our layout is adaptive in the sense that it is based on a flow-layout principle rather than on a fixed layout scheme (e.g. with a fixed number of columns). Thus the developer creates a single layout that adapts to screens with largely different sizes. Our X+V authoring tool is strictly based on CSS, though an inclusion of our adaptive layout principle might be worth considering (e.g. realized as an additional CSS property).

Priority scheme. Our language features a basic priority scheme through which the developer can rate the importance of widgets or groups of widgets. In a small screen scenario, elements can be omitted, starting with the lowest priority. With CSS, the developer can statically specify certain user interface components as either visible or invisible, but a prioritization mechanism is as yet missing.

Pagination. Pagination similar to our approach is not achievable using today's web markup standards. For our authoring tool, we therefore intend to keep the concept of tasks and subtasks which are translated into a menu structure as a proprietary language extension.

Much effort has been put into creating new solutions for device-independence and/or multimodality. Concluding, we remark that in that effort, existing standards might sometimes have been overlooked prematurely. Within our two-stage work of gathering requirements and harmonizing them with standards, we have revealed some concrete problems with existing standards, but we have also shown that with some modifications, a working solution can be built around them.

7. ACKNOWLEDGEMENTS

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Synchronised Model-Based Design of Multiple User Interfaces

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Abstract We propose a set of techniques that will aid UI designers who are working in the domain of mobile computing. These techniques will allow designers to build UIs across several platforms, while respecting the unique constraints posed by each platform. In addition, these techniques will help designers to recognize and accommodate the unique contexts in which mobile computing occurs.

Keywords. Mobile computing, Model-based design, Multiple User Interfaces, UI models.

Workshop on Multiple User Interfaces over the Internet: Engineering and Applications Trends submission category: paper

Introduction and motivation

Our purpose is to analyze, design, and implement a design-time or run-time modulator that attempts to intelligently transform a given user interface from one context to another one, thus giving birth of Multiple User Interfaces (MUIs) simultaneously. The *context* is hereby defined as any set of contextual parameters that may influence the utility and/or the usability of a user interface used by a given user population. This context may include parameters describing the user, the computing platform, the network, the available interaction resources, the information contexts, the ambient environment, the organisation environment, etcWe describe a spectrum of model-based techniques that can be used to support multiple user interfaces, including mobile computing and cross-platform computing. Each technique involves creating mappings between the various model components that we have discussed. These mappings are interpreted to produce a UI that is specially customized for the relevant device and context of use.

Most of the time, existing user interfaces are developed having one context of use in mind. If, for example, a web page should be produced for a 800x600 display, its designed is completely governed by the contraints imposed by the context of use. If this web page should be authored for another context of use, say for a cellular phone, it is likely that it will be completely redesigned and/or redeveloped. Not only because the programming language is different, but also because the constraints have changed.

If this process is to be replicated for N devices, then M pages will raise to the production of M x N possible designs and developments (figure 1). To overcome this replication, it is intended to be replaced by an intelligent modulator that models relevant information items to optimize its usage (e.g. presentation and dialog) given any particular set of constraints (figure 2), thus avoiding the replication.

For this purpose, a software architecture is outlined in figure 3. This architecture solves a progressive constraint satisfaction problem by iterative consideration of different seubsets of constraints to optimize both the dialog and the presentation. This optimization is grounded on a design user interface repository containing design knowledge coming from empirically validated studies regarding utility and usability issues. It explicitly supports design guidelines on demand, depending on the context of use, including the target computing platform. Some model-based techniques used in this modulator are further described in the remainder of this paper.

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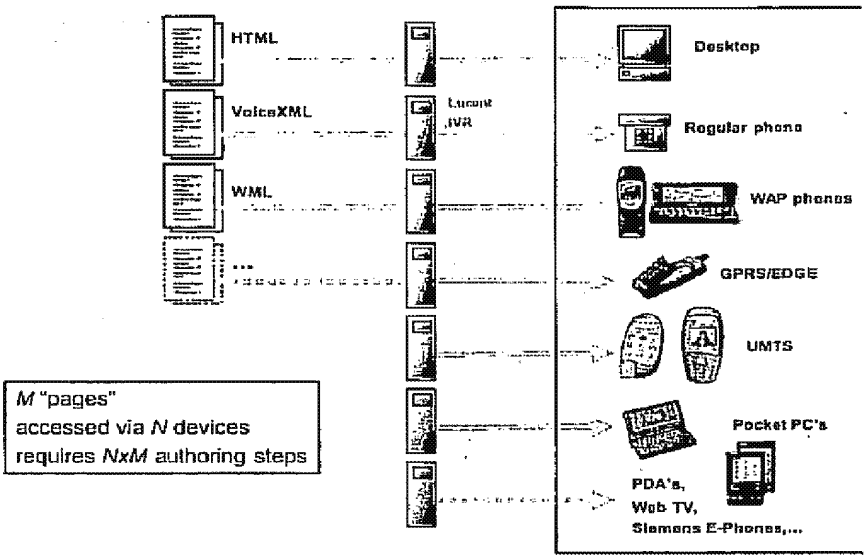


Figure 1. Traditional development

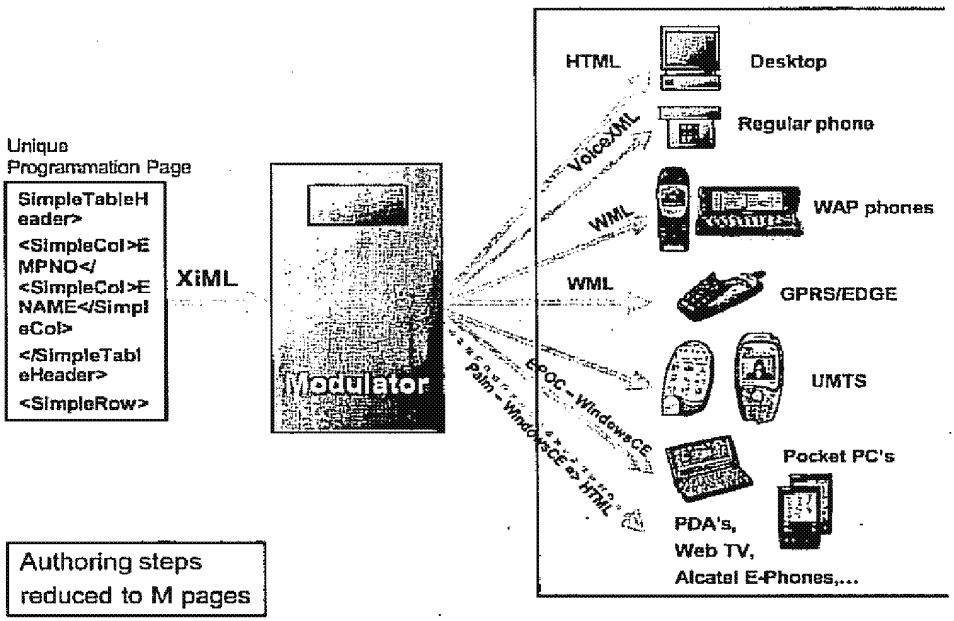


Figure 2. The modulator

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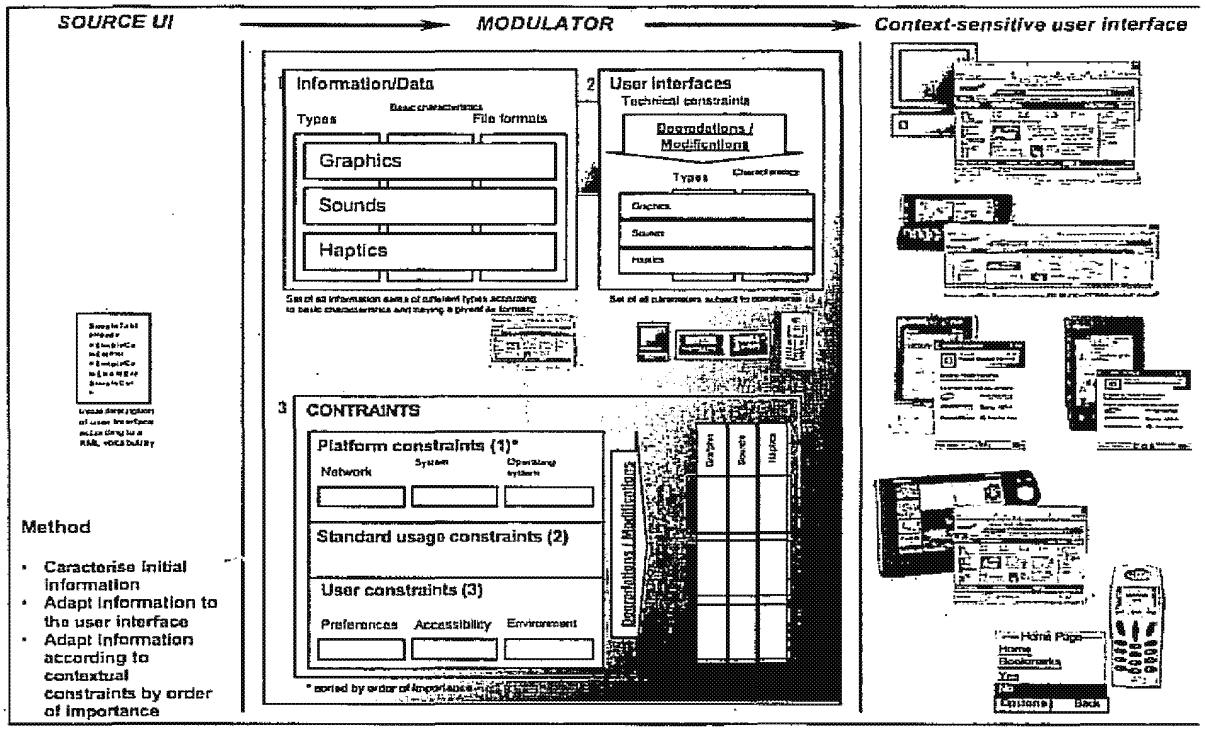


Figure 3. Software architecture of the modulator

Handling Platform Constraints

One obvious constraint that is often posed by mobile computing platforms is the display resolution, which can range from a wall-size flat screen to a cellular phone to a head-mounted immersive environment. We will use this screen resolution constraint as an example case, and describe some methods for dealing with it, while showing how these methods might also be applied to other constraints. The screen resolution constraint was chosen because we feel that in many ways it is the most difficult constraint to deal with; whereas other constraints, such as limited interaction capabilities, can be handled through interactor selection, the screen space constraint often requires a more global solution.

The screen resolution is typically expressed in pixels (e.g., 1024x768). It should not be confused with the screen surface area; two displays having different sized surfaces can share the same resolution. Because of screen resolution differences, an optimal layout for one display may be simply impossible to render on another device. This problem is particularly salient for mobile computing, because so many mobile platforms possess small-size, low-resolution displays. There are three parameters that contribute to the amount of display size required by a user-interface design: size of the individual interactors, layout of interactors within a window, and the allocation of interactors among several windows. There are two possible methods for accommodating screen resolution constraints by adjusting the size of the interactors. The first possibility is simply to shrink the interactors, while observing usability constraints related to the AIO type. For example, the length of an edit box can be reduced to a minimum (e.g., 6 characters visible at the same time with horizontal scrolling) while its height cannot be decreased below the limit of the smallest font size legible (e.g., 8 pixels); usability experiments have determined that the minimum size for an icon is roughly 8 by 6 pixels.

Of course, many interactors simply cannot be shrunk to any significant extent. An alternative to reducing the size dimensions of an interactor is to replace that interactor with a smaller alternative. For example, a Boolean checkbox typically requires less screen space than a pair of radio buttons. The technique of automatically selecting an appropriate interactor while considering screen resolution constraints has already been investigated and shown to be feasible [3,4,7].

These techniques can easily be applied to constraints other than screen resolution. Interactors can be parameterized to reduce bandwidth usage or battery consumption–for example, a video player can reduce the frame rate or the number of colors. This parameterization is similar to reducing the display size of interactors. Likewise, interactor selection can be performed to accommodate reduced interaction capabilities. For example, a

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handwriting-based interactor from a PDA could be replaced with a voice-based interactor on a cellular phone. When there are several criteria that need to be optimized – e.g., screen size, usability, and power consumption – interactor selection can become a multidimensional optimization problem. An algorithm for solving this problem would be beyond the scope of this paper, but we hope to explore it in the future.

Returning to the matter of screen resolution, we see that both techniques for adjusting the size of the interactors in a UI can help us to find an appropriately-sized presentation. However, we believe that in many cases, a more global solution is necessary. A WAP-enabled cellular phone can display only one or two interactors at a time, no matter how small they are. To achieve the amount of flexibility necessary to support all mobile devices, we will have to examine window layout and the allocation of interactors among windows.

The remaining two parameters—layout of interactors within a window, and allocation of interactors between windows—can be grouped together under the mantle of *presentation structure*. We want to select the appropriate presentation structure, given the constraint of the amount of screen-resolution afforded by a platform. To solve this problem, we need a set of alternative presentation structures, which can be generated by the designer or with the help of the system. The simplest solution would then involve creating mappings between each platform and an appropriate presentation structure. However, in this case a more dynamic solution is possible. Recall that the screen resolution of each device is represented declaratively in the platform model. Similarly, it is possible to represent the amount of screen space required by each presentation structure in the presentation model. We can exploit this knowledge by constructing an intelligent *mediator* agent [1,2]. This mediator should determine the maximum usable screen resolution for the relevant device, and evaluate the amount of screen resolution required by each presentation structure alternative. It can then select the presentation structure that consumes an amount of screen resolution that falls just under the maximum (figures 4 and 5).

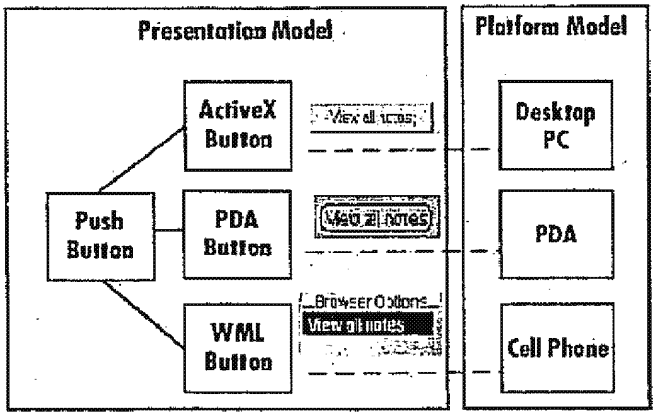


Figure 4. Concrete Interaction Objects are subclassed from an Abstract Interaction Object, and are then mapped on to specific platforms.

This more dynamic solution is preferable because it accounts for the fact that the screen resolution of a device may change while it is in use. Moreover, it eases the integration of new devices into the platform model. Rather than forcing the user to explicitly specify the appropriate presentation structure for a new device, the user needs only to specify the amount of available screen space, and the mediator will find the correct mapping.

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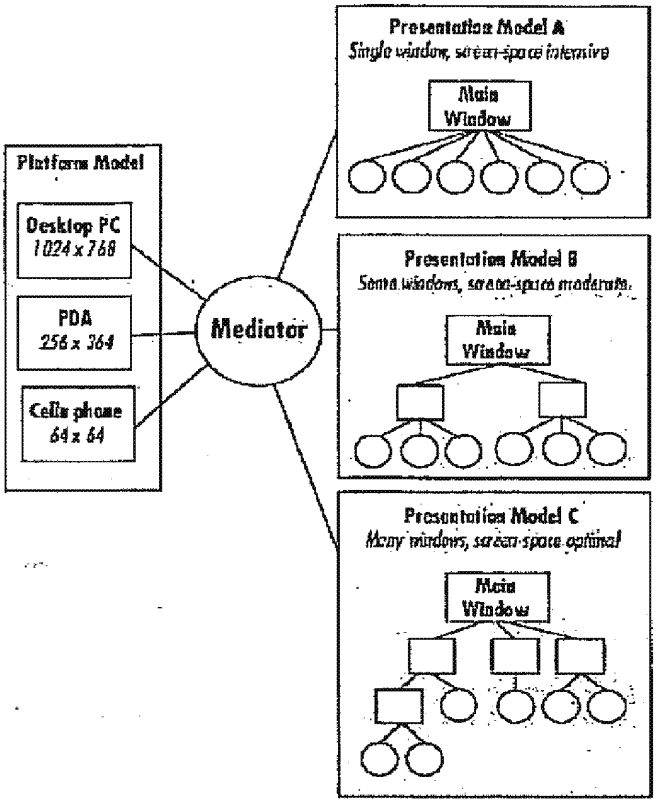


Figure 5: A modulator agent dynamically selects the appropriate presentation model for each device.

Under our proposed architecture, it is still left to the interface designer to specify a set of alternative presentation structures. However, it would be better if the correct presentation structure could be generated by the system, given a set of user-defined constraints [1,4,5,7]. For this purpose, we need to consider additional elements in our presentation model besides AIOs and CIOs. Two new abstractions need to be defined:

1. *Logical Window* (LW): this can be any grouping of AIOs—a physical window, a subwindow area, a dialog box or a panel. Every LW is itself a composite AIO as it is composed of other simple or composite AIOs. All LWs should be physically constrained by the user's screen.
2. *Presentation Unit* (PU): a PU is defined as a complete presentation environment required for carrying out a particular interactive task. Each PU can be decomposed into one or many LWs, which may be displayed on the screen simultaneously, alternatively, or in some combination thereof. Each PU is composed of at least one window called the *main window*, from which navigation to other windows is allowed. For example, a tabbed dialog box can be described as a PU, and it should be decomposed into LWs corresponding to each tab page.

The abstractions can be structured into a hierarchy (figure 6) that serves to expand modeling capabilities of a presentation model. We can use this hierarchy to construct an automated design tool that generates several platform-optimized presentation models from a starting presentation model that is platform independent. This tool could function by employing one of the redesign strategies described below.

Re-modeling LWs within a PU: the contents of initial LWs are redistributed into new LWs within a single PU. Basic operations involve: ungrouping an LW into several smaller LWs; grouping the contents of several LWs into a single, comprehensive LW; and moving AIOs from one LW to another. For example, if ample space is available, then the LWs representing several tab sheets can be grouped into a single LW. Alternatively, if space is at a premium, the contents of a single window can be broken into pages of a tab sheet. Some existing tools apply some of these operations. SEGUIA suggests configurations based on the semantics [7]: minimal (as many logical windows as possible), maximal (one logical window for a PU), input/output (one logical window gathering input while another gathers output for a same function), functional (LWs depending on the functional analysis), and free (as many LWs as the designer wants to).

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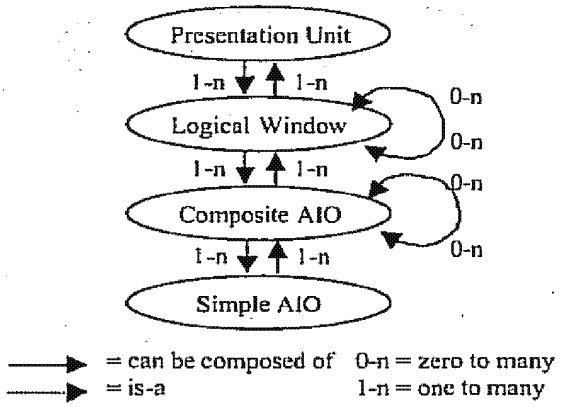


Figure 6. Hierarchy of presentation concepts.

Re-modeling AIOs within a LW: according to existing constraints, the contents of an initial LW are redistributed into new AIOs, composite or simple. For example, AIOs contained in a group box are split into smaller group boxes or individual AIOs. A group box can also be replaced by a push button that displays the AIO contained in this box on demand. This technique remains unexplored today. Moreover, we are aware of no unambiguously successful algorithm for the automatic generation of a presentation structure based on these abstractions that has yet been documented. Obviously, both of these techniques leave out the difficult question of dialog layout.

As we have said, screen resolution is not the only constraint that must be negotiated. Other constraints include bandwidth usage, battery power consumption, number of display colors, and interaction capabilities. However, unlike the screen-space constraint, these problems do not appear to require a global strategy; they can usually be accommodated through AIO selection. Previous research has addressed the problem of dynamic interactor selection at length, and the issue of platform-specific input constraints has been considered [3,4,6]. We realize that additional constraints may present themselves in the future. While the techniques described in this paper cannot be expected to handle any and all platform-based constraints arising from mobile computing, we feel that this work can serve as a starting point for the development of further model-based solutions.

Focusing on Contexts of Use

So far we have assumed that on each device, the user will want to accomplish the same set of tasks. Often this is not the case. A device may be especially suited for a specific subset of the overall task model. For example, in the scenario in Section 2, we know that the cellular phone is especially suited for finding driving directions, because we can assume that if the user were not driving, she would use the PDA. The desktop workstation cannot be brought out into the field, so it is unlikely that it will be used to enter new annotations about a geographical area; rather, it will be used for viewing annotations. Conversely, the highly mobile PDA is the ideal device for entering new annotations.

Through the application of a task model, we can take advantage of this knowledge and optimize the UI for each device. The designer should create mappings between platforms (or classes of platforms) and tasks (or sets of tasks). Additional mappings are then created between task elements and presentation structures that are optimized for a given set of tasks. We can assume these mappings are transitive; as a result, the appropriate presentation model is associated with each platform, based on mappings through the task model. The procedure is depicted in figure 7. In this figure, the task model is shown to be a mere collection of tasks. This is for simplicity's sake; in reality, the task model is likely to be a highly structured graph where tasks are decomposed into subtasks at a much finer level than shown here.

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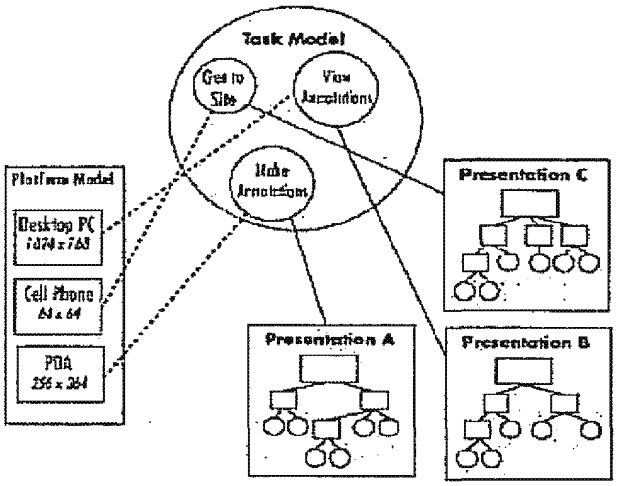


Figure 7. Platform elements are mapped onto high-level task elements that are especially likely to be performed. In turn, the task elements are mapped onto presentation models that are optimized for the performance of a specific task.

There are several ways in which a presentation model can be optimized for the performance of a specific subset of tasks. Tasks that are thought to be particularly important should be represented by AIOs that are easily accessible. For example, on a PDA, clicking on a spot on the map of our MANNA application should allow the user to enter a new note immediately (figure 8). However, on the desktop workstation, clicking on a spot on the map brings up a rich set of geographical and meteorological information describing the selected region, while *showing* previously entered notes. On the cellular phone, driving directions are immediately presented when any location is selected (figure 9). On the other devices, an additional click is required to get the driving directions. The "bottom arrow" button of the cellular phone enables the user to select other options by scrolling between them.

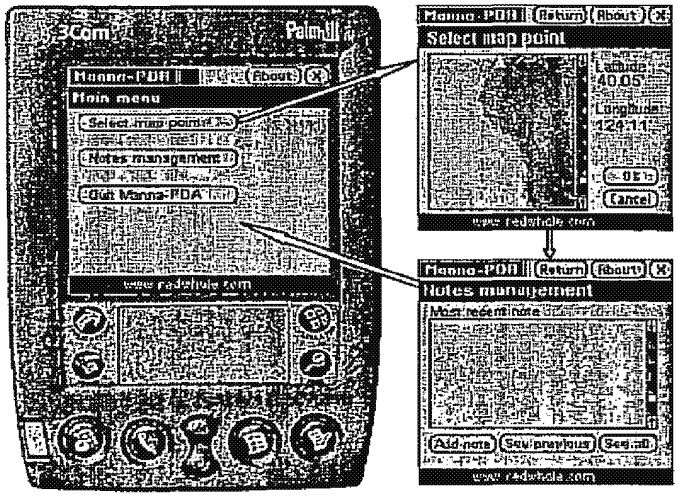


Figure 8. Final presentation for the PDA.

In this way, our treatment of optimizations for the task structure of each device is similar to our treatment of the screen-space constraint: global, structural modifications to the presentation model are often necessary, and adaptive interactor selection alone will not suffice. Here, we propose to solve this problem through the use of several alternative user-generated presentation structures. In many cases, automated generation of these alternative presentation structures would be preferable. We hope to explore the automated generation of task-optimized presentation structures in the future.

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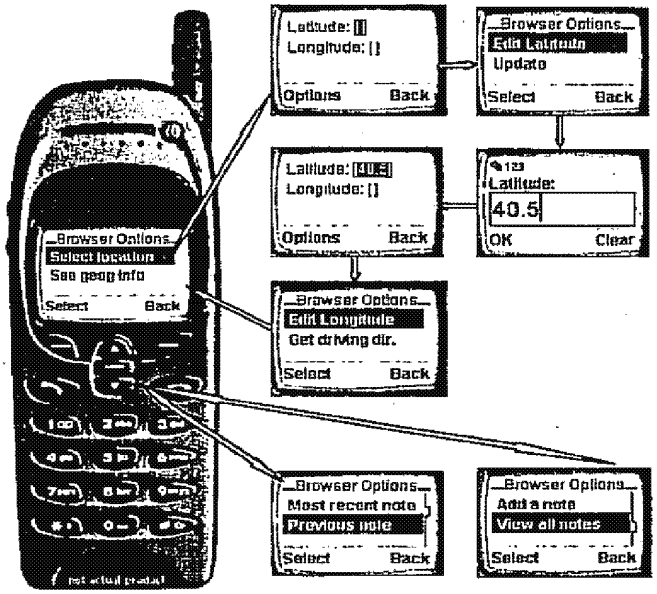


Figure 9. Final presentation for the cellular phone.

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3. J. Eisenstein and A. Puerta, "Adaptation in Automated User-Interface Design", *Proc. of IUI'2000* (New Orleans, 9-12 January 2000), ACM Press, New York, 2000, pp. 74-81.
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Device Independent Web Applications – The Author Once – Display Everywhere Approach

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Abstract. Building web applications for mobile and other non-desktop devices using established methods often requires a tremendous development effort. One of the major challenges is to find sound software engineering approaches enabling the cost efficient application development for multiple devices of varying technical characteristics. A new approach is to single author web content in a device independent markup language, which gets then adapted to meet the special characteristics of the accessing device. This paper describes our approach to single authoring, which was developed in the course a large European research project. The project has developed a device-independent language profile based on XHTML 2.0 and implemented a compliant rendering engine. We focus on layout and pagination capabilities of the RIML (Renderer Independent Markup Language) and show how authors can be assisted by development tools supporting device independent authoring.

1 Introduction

The World Wide Web has established itself as one of the most important sources for information as well as a perfect infrastructure for applications, which need to be accessible from anywhere. Web-enabled devices potentially offer access to globally adopted infrastructure. But why is this offer just potentially? Currently, most web content is optimised for the usage on a PC. This is still true despite the efforts of the Web Accessibility Initiative [1] which set standards for universal accessibility of web content. As more and more non-desktop devices enter the market, a convenient way to access web content and web applications using such devices is required. The industry addressed that requirement for a limited set of applications particularly in the B2E (Business-to-Employee) domain by developing device specific versions of such applications. This application-specific approach tends to be too costly and not manageable if scaled to a large number of diverse devices and applications. Therefore,

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more generic ways to prepare web content in a device-independent way are necessary.

Various approaches have been proposed to address the challenge of high quality applications at minimal costs. Some approaches (e.g. [2, 3]) automatically compile web content to fit on a target device. These approaches are based on HTML and use heuristics in addition to tag information to extract structure information, due to the fact that HTML is lacking the necessary semantics which is needed to perform the conversion to other markup languages. Therefore, some approaches replace HTML by another markup language which is semantically rich enough to serve as a basis for conversion [4, 5, 6]. However, none of these proposals is standards-based and they were therefore not widely adopted in the marketplace. To open the path for a widely adopted device-independent markup language for authoring web content, two considerable efforts have been launched recently: a) The W3C chartered the Device Independence Group to establish specifications supporting single authoring, b) a consortium of six European companies, named CONSENSUS[1] [7], has built a prototype which implements authoring and conversion tools for a Renderer-Independent Markup Language (RIML), which was also developed by this consortium. Both efforts cooperate intensively. The ultimate vision of device independence as stated in the charter of the W3C Device Independence working group [8] is to provide "Access to a Unified Web from Any Device in Any Context by Anyone". In this paper we focus on layout and pagination capabilities of the RIML (Renderer Independent Markup Language) and show how authors can be assisted by development tools supporting device independent authoring.

2 Requirements for Device Independency

In this section we briefly cover the most important requirements for a device independent markup language and explain how the Consensus project has dealt with those in the RIML. Following the author once, display everywhere approach, an application is written once and gets then adapted to a particular device, which is accessing it.

A perfect solution according to [9] should offer:

- a device independent markup language preserving the intent of the author,
- an adaptation system transforming it into a device specific form,
- means to retain the authors control over the final result/presentation.

Concentrating on the developer's part item 1 and 3 are the most important ones. To keep the intent of the author the markup language should offer semantically rich

[1] IST-Programme / KA4 / AL: IST-2001-4.3.2. The project CONSENSUS is supported by the European Community. This document does not represent the opinion of the European Community. It is also the sole responsibility of the author and not the responsibility of the European Community using any data that might appear therein.

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markup elements. While XHTML 2.0 [10] provides certain means for device independent markup some necessary ingredients are missing. The RIML defines a language profile which is based on XHTML 2.0 and includes new elements for functionality, which was missing in current standards or proposals. In the reminder of this section we give a brief overview of these.

Due to the fact that devices widely vary in the amount of content their screens can accommodate there is a need for providing hints for content splitting and navigation between split up pieces of content. RIML therefore uses the `section` element of XHTML 2.0 as implicit hint for splitting and introduces new elements for combining layout with pagination and controlling the generation of navigation links between pages of split documents.

To provide means for the development of interactive web applications (business applications usually belong into this group) there is furthermore a need for elements dealing with form interaction. The XForms 1.0 [11] specification perfectly fulfills this requirement. The RIML language profile includes XForms 1.0, which strictly separates data from its presentation and keeps user interface elements device independent[2].

Apart from the fact that a device independent language allows for the generic description of a user interface for web applications, there should be means allowing for the inclusion of optional and alternative content. Even if this is somehow contradicting the author once approach, cause it allows for special versions of content for different devices, it enables the author to retain the control over the result of the adaptation process and allows him to consider the specialities of particular device classes (e. g. the support for certain audio or video formats). The RIML language profile therefore includes SMIL [12] Basic content control plus some extensions. Content control furthermore allows for the selection of device (class) specific style sheets. Style attributes like font sizes and weights tend to be very device specific, therefore RIML authors should provide different style sheets for different target markup languages and use the RIML content control mechanisms to select between them.

An optimal layout of a page or presentation unit on a certain device (class) heavily depends on the special characteristics of it. A generic layout specification, which then is adapted to the device accessing the content, is hardly to achieve. The layout should facilitate the usability of the particular application and therefore utilize the special characteristics of the device, e. g. the available screen size. Therefore RIML supports the authoring of different layouts for different device classes in a RIML document. Using content control the author is able to define when to use which layout.

[2] The latest draft of the XHTML 2.0 specification now also includes an XForms 1.0 module.

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In this paper we focus on layout and pagination capabilities of the RIML (Renderer Independent Markup Language) and show how authors can be assisted by development tools supporting this novel features.

3 Layout and Pagination

Layout refers to the arranging pieces of content on a presentation unit PU[3]. The way layout is specified is a crucial problem when developing device-independent applications. Usually authors accomplish the layout by using frames and/or abusing tables for this purpose. Especially the latter is in conflict with the initial meaning of tables to serve as a structuring element, assembling multiple data records, each of which takes up exactly one row of the table. A generic layout specification, which then is adapted to the device accessing the content, is hardly to achieve. Automated layout generation, as described in [13, 14] might help for certain use cases, like assembling the layout of a remote control UI on several devices, but removes the author's control over the final result to a wide extent.

The layout should facilitate the usability of the particular application and therefore utilize the special characteristics of the device, e.g. the available screen size. Considering the limitation of the available screen size on certain devices another challenge of device independent authoring becomes apparent. Adapting to small screens requires the pagination (decomposition) of content, which in turn has to be taken into account, when specifying means for the layout of an authoring unit[4]. Usually some layout regions should be visible on all pages, e.g. menus and status bars; others include content, which should get split into a sequence of presentation units the pagination process generates.

Automated pagination support was a main design goal for RIML. Other approaches assume selectors that explicitly define device dependent breaks (like [15, 16]), in effect, falling back to device related authoring. In contrast, a RIML author requires a minimal knowledge of how a desired layout will be paginated by the RIML adaptation system. In this respect, RIML is related to other approaches [17, 18]. It differs from these in that it supports generic HTML like (row, column) constructs for adaptation, respectively applies adaptation to arbitrarily nested row and column structures.

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[3] A presentation (PU) unit is this result of splitting the resource into a number of smaller units (PUs), which are presented to the user in a manner that is appropriate to the device (see DIWG2002]).

[4] An authoring unit is a piece of content the author is working with, but which is less than a document (see DIWG2002]).

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Layout in RIML

Because of the reasons discussed in the last section RIML supports the specification of device (class) dependent layouts. Using Content Control the author is able to define when to use which layout. The overall layout of a RIML document is defined by using elements specified in the RIML layout module. The layout module defines a set of container types: rows, columns, grids, as well as frames. Whereas containers define the overall structure of a layout definition, frames are used to fill the several regions of the layout with content. Using different layouts and Content Control for layout selection allows content to be organized differently, depending on the target device and its unique properties. If a frame cannot simultaneously accommodate all of the content assigned to it in the target language, the content needs to be paginated. Pagination, the division of a RIML document into multiple pages, and navigation, the hyper linking among pages generated from a single authoring unit, are carried out automatically by the adaptation system.

RIML defines the following layout containers:

`grid`: A grid is a layout container allowing for the arrangement of container items in a grid layout. Container items can be (nested) other layout containers as well as frames. The parameter set of the grid element supports the specification of the maximum permissible number of columns in a grid and the direction into which grid items will be led out (either horizontally or vertically).

`column`: The column container is a special case of the grid container limiting the number of columns to one by definition.

`row`: The row container is a special case of the grid container forcing all contained items to be laid out in a single row.

`frame`: A frame is the only layout element content is assigned to, therefore a frame cannot contain any other layout elements. Each layout definition includes one or several frames. The assignment of content to a frame is done using the `riml:frameId` element.

Multiple frames can be used for the same presentation unit. Arranging frames differently in containers produces different layouts. RIML's Content Control gives the author a possibility for defining rules when to use which layout. While layout containers arrange the layout of frames in different ways, the actual content is assigned to frames only. All content in the body part of the document must be included into sections. Each section is assigned to a frame. The content of the section will be rendered within that frame (see Fig. 1). The content of a section will be ignored, whenever a section is not assigned to a frame or the frame does not exist. A RIML document should therefore define at least one frame in the document header. The overall layout of a document is defined by grouping multiple frames inside containers. RIML offers

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different container types with differing layout and paginating behavior. All frames must be placed inside a container. The nesting of containers is allowed, i.e. a container can include other containers, whereas the innermost container must always include a frame. Therefore, a frame is the only type of container, which can be associated with content.

```
<head>
  <riml:layout eccdc:deviceClassOneOf="DeviceClass2">
    <riml:column riml:id="root-col">
      <riml:frame riml:id="head" />
      <riml:frame riml:id="nav-menu " />
      <riml:frame riml:id="home" />
    </riml:column>
</riml:layout>
</head>
<body>
    <section id="head-sec" riml:frameId="head">
      ...
    </section>
    <section id="menu-lsec" riml:frameId="nav-menu">
      ...
    </section>
      ...
</body>
```

Fig. 1. Assigning content to Frames

Pagination in RIML

XHTML 2.0 defines the block level element `section` as a means for structuring content. Apart from this a section defines an implicit page break, which is more "natural" than explicit page break markers. Therefore we decided to use sections as semantic hints for the adaptation system, when applying pagination. The author is therefore required to put all content, which should go onto the same screen (e. g. an input field and its label or a whole address form) into a section. Sections might be nested[5], whereas the innermost sections never get split. As every section moves into a certain frame defined by the layout in the head part of the RIML document, it is often the case, that certain regions of the layout should not get distributed over several pages, because they contain information, which should appear on every page, even if the document gets split. Taking Fig. 2 as an example, the LogoFrame as well as FrameB are defined as non-paginating frames (see also Fig. 3). For FrameA pagination was allowed (`paginate` is set to true).

[5] The current reference implementation does not support nested sections.

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Fig. 2. Pagination and Layout Example

Therefore the content assigned to the LogoFrame and FrameB remains over the sequence of pages produced during adaptation. For FrameA the content gets distributed across all the pages the adaptation process produces. Fig. 3 shows a snippet of the markup, which was used to produce the results shown in Fig. 2. Section s10 contains special markup for guiding the automated generation of links between split pages. According to the definition used here, navigation elements should be generated for every page, showing a link to the previous and next page respectively. Navigation links are generated if and only if pagination occurs. The `navigation-links` element offers attributes allowing the author to define the type of link to be produced and to which Frame it is related. In Fig. 3 the scope attribute refers to FrameA, therefore navigation links are generated referring to pages containing sections from FrameA.

The size of a frame is determined by the adaptation system in order to accomplish pagination. However, the author should be able to provide the system with meta-information regarding the intended width of a frame. The pagination process considers the width of the virtual area on which the content gets finally rendered only (rendering surface), because this value can be reasonably defined. In case the browser supports no scrolling this value typically equals the physical screen width. Using the aforementioned frame elements the rendering surface can be divided into multiple parts. A frame serves as a bounding box in which the content will be laid out that it is assigned to. Using the following frame attributes the author is able to control the adaptation:

`minWidth` - the minimum width in pixels - the frame should never be smaller than this specified width.

`preferredWidth` - the recommended width of a frame is usually specified as a percentage in relation to the actual width of the rendering surface of the device. Absolute pixel values for preferredWidth are also supported.

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```
<head>
  <title>Pagination and Layout</title>
  <riml:layout>
    <riml:column riml:id="col1">
      <riml:frame riml:id="LogoFrame" riml:paginate="false"
                  riml:minWidth="200"
riml:preferredWidth="400"/>
      <riml:frame riml:id="FrameA" riml:paginate="true"
                  riml:minWidth="200"
riml:preferredWidth="400"/>
      <riml:frame riml:id="FrameB" riml:paginate="false"
                  riml:minWidth="200"
riml:preferredWidth="400"/>
    </riml:column>
  </riml:layout>
</head>
<body>
  <section id="s1" riml:frameId="FrameA">
    ...
  </section>
  <section id="s2" riml:frameId="FrameA">
    ...
  </section>
  <section id="s10" riml:frameId="FrameB">
    <riml:navigation>
      <riml:navigation-links riml:scope="FrameA"
        riml:links="previous" riml:linksValue="relative-order"/>
      <riml:navigation-links riml:scope="FrameA"
        riml:links="next" riml:linksValue="relative-order"/>
    </riml:navigation>
  </section>
  <section id="s11" riml:frameId="LogoFrame">
    <strong>This is the sticky logo frame</strong>
  </section>
</body>
```

Fig. 3. Example Markup for Layout and Pagination

The `preferredWidth` attribute of a frame provides a hint to the adaptation process to determine the actual width of a frame. The author has to ensure that minWidth attributes in a RIML document layout can be obeyed for all devices. Therefore, the author should consider the device offering the smallest width of all targeted devices or better specify multiple layout definitions for different devices respectively device classes using Content Control.

Given those hints, a pagination algorithm has enough knowledge to paginate without exceeding the screen surface width. A similar approach cannot be applied with re-

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spect to container height, due to mentioned undetectable user preferences. The determination of optimal height is based on two observations.
First, we expect that most browsers support vertical scrolling. Vertical scrolling was shown to be acceptable from a usability point of view [19], in contrast to two-dimensional panning. Vertical scrolling was shown to be disturbing, if certain limits are exceeded [20]. To avoid the latter, we enable the user to reduce (resp. increase) the size limit which is applied during pagination. In support of this, the adaptation system is to insert corresponding control hyperlinks. In effect, the user exploits the visible outcome of pagination to avoid undue vertical scrolling depths.

Besides Frames, the RIML furthermore defines other types of paginating elements, which are: paginatingGrid, paginatingRow and PaginatingColumn. With respect to pagination all of these container types operate on their child nodes, which might be either other containers or frames and which might be either paginating or not. To preserve a useable result, the pagination of nested layout elements is allowed for one branch only. Assuming that the hierarchy of layout elements forms a tree, this means that two paginating elements must not have a common ancestor.

For non-interactive content i.e. printed pages, the content will be split when the page is full and page numbers are inserted to provide a basic means of navigation. Specifications such as XML Print [17], CSS3 Paged Media [13], and XSL-FO [12] address that.

4 Tool Support

One major issue with new language proposals like RIML addressing Device Independence is the learning curve they require. The necessary authoring environment is often neglected in similar projects. Therefore, we decided to put considerable effort into the development of an authoring environment containing innovative tools, enabling the application developer to easily author in a device-independent way. Based on the Eclipse [21] open source platform, this authoring environment has been developed as a plugin, gathering a set of views and editors, synchronised around a common document model. The Consensus authoring environment provides a whole set of tools.

Besides an XML Editor consisting of a source text editor, code completion based on the RIML schemas, RIML language validation, and an XML tree editor, the toolset also provides tools, helping the developer to cope with the new concepts RIML introduce in a visual way. A Frames Layout View allows the author to get a first impression how the document looks like, based oh the abstract layout he defined in the document. The concept of this view is to show an early version of the frames layout of the current RIML document. Depending on the device class one chooses, the view will show the frames layout, including in each frame the names (or ids) of the section that belong to this frame. The XML text in the text editor is highlighted depending on

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how the author places the focus in the Frames Layout View. Fig. 4 and 5 show the Frames Layout View for a PC and a smart phone, respectively.

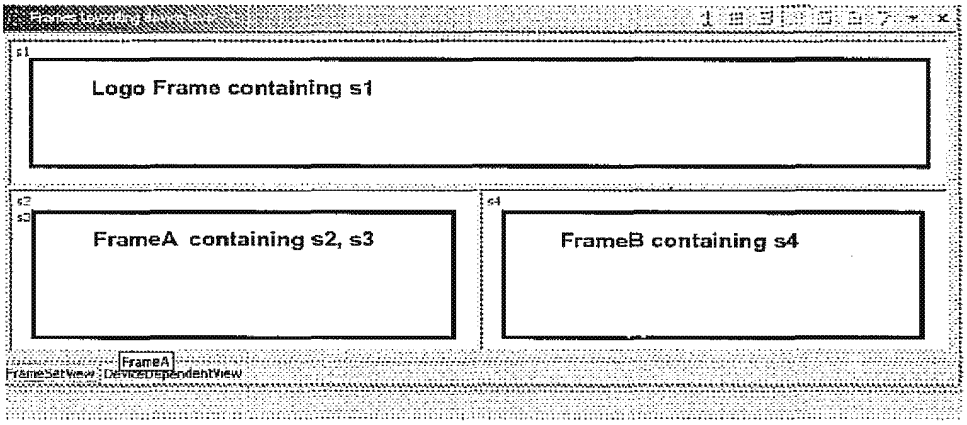


Fig. 4. Frames Layout View for Device Class 4

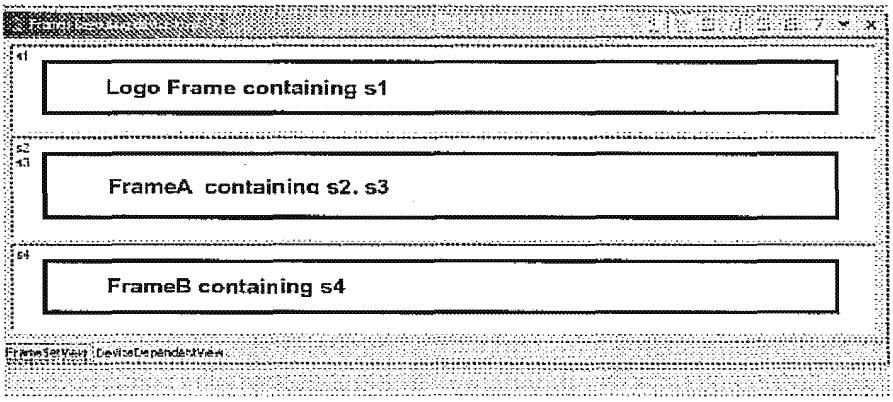


Fig. 5. Frames Layout View for Device Class 2

RIML authors often need to know how the developed document will be paginated depending on a device class. Therefore, the RIML Device Dependent View provides an overview of how the document is paginated, how many pages are created, and what they contain. The view was implemented similar to an XML tree view, presenting the split pages as a set of nodes. Fig. 6 shows an example of the device dependent view.

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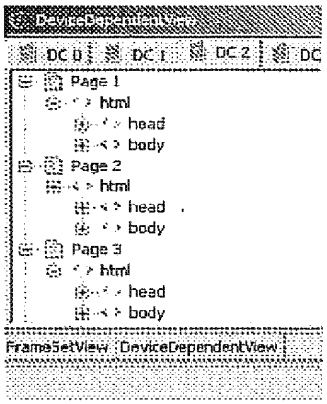


Fig. 6. Device Dependent View for Device Class 1

Apart from these rather abstract views, we have also integrated a set of available device emulators, allowing the author to see the actual result of the adaptation process on a particular device.

5 Conclusions

The paper has discussed the two particular aspects layout and pagination of content authoring for non-desktop devices and respective solutions developed in the Consensus research project. Rather than just specifying technology and markup to support single authoring, the Consensus project undertook the effort to implement a reference implementation and a set of tools supporting the author in applying these new concepts. Our experience with the Consensus prototype proved the feasibility of the concepts developed by the project. Test applications are now being built and will undergo a field test under close supervision of usability experts, ensuring that the developed concepts and technology are not just feasible, but also meet usability requirements. In parallel to that, the project works in close cooperation with the W3C to standardize key concepts explored in the project.

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SYSTEM AND METHOD FOR PROVIDING FEATURE-BASED DEVICE DESCRIPTION AND CONTENT ANNOTATION

Abstract:

Abstract of WO 02103963

(A1) A system (10) and method for providing authored content (41) to any of a plurality of requesting user network terminal devices (13), the method including specifying a feature-value set (49) for the network terminal devices (13), the feature-value set (49) having a set of selected device features (151), each feature (151) with one or more discrete feature values (153). The method further includes annotating the authored content (41) with markup information to provide a device-independent content (43), associating one or more of the device feature values with the requesting user network terminal device (19), and converting the device-independent content (43) into a device-specific content (29) adapted to the requesting user network terminal device (19).; The system (10) includes a network terminal device detector (21) for receiving the network terminal device request (27), an origin server (51) for providing device-independent content (43) corresponding to the request (27), and a transformer (25) for associating one or more device feature values (153) with the requesting user network terminal device (19) in the conversion of the device-independent content (43).

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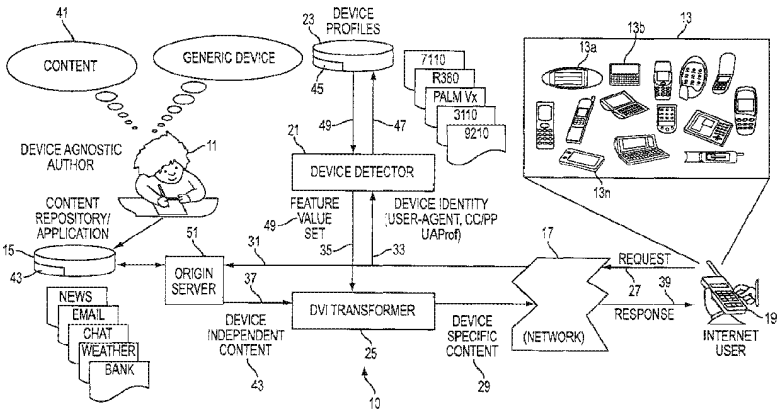
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(54) Title: SYSTEM AND METHOD FOR PROVIDING FEATURE-BASED DEVICE DESCRIPTION AND CONTENT ANNOTATION



(57) Abstract: A system (10) and method for providing authored content (41) to any of a plurality of requesting user network terminal devices (13), the method including specifying a feature-value set (49) for the network terminal devices (13), the feature-value set (49) having a set of selected device features (151), each feature (151) with one or more discrete feature values (153). The method further includes annotating the authored content (41) with markup information to provide a device-independent content (43), associating one or more of the device feature values with the requesting user network terminal device (19), and converting the device-independent content (43) into a device-specific content (29) adapted to the requesting user network terminal device (19). The system (10) includes a network terminal device detector (21) for receiving the network terminal device request (27), an origin server (51) for providing device-independent content (43) corresponding to the request (27), and a transformer (25) for associating one or more device feature values (153) with the requesting user network terminal device (19) in the conversion of the device-independent content (43).

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SYSTEM AND METHOD FOR PROVIDING FEATURE-BASED DEVICE DESCRIPTION AND CONTENT ANNOTATION

FIELD OF THE INVENTION

This invention relates to network communication and, in particular, to a system and method for providing authored content to user network terminal devices.

BACKGROUND OF THE INVENTION

As the Internet began to evolve, personal computers (PCs) and desktop terminals were typical terminal devices used to access the Internet. Because the configurations of PCs and desktop terminals were relatively mature, their capabilities and attributes did not vary widely from device to device. For example, these network terminal devices could be considered as having the same form factor without any loss of effectiveness of content delivery. Accordingly, content authors, or web developers, could generate content for the PCs and terminals without needing to consider different form factors. The most common display device, a PC monitor, already had an essentially standard form-factor in place before the advent of the Internet.

Thus, although the sizes and shapes of PC monitors did vary from device to device, it was not necessary for the content author to customize the content to the physical aspects of the display. When it became necessary or desirable to modify the content to accommodate a particular PC display, the modification was usually simple enough so as not to require the intervention of the content author. Such simple modifications were typically incorporated by a browser lay-out manager, or by some automatic mechanism on the user network terminal device itself.

On the Internet, content is usually requested by user for display on or delivery to a terminal device. Until recently, the terminal device most commonly used would be either a desktop Personal Computer (PC) or a Network Terminal or Workstation. More recently, with the development of wireless internet and handheld display

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devices, the concept of 'terminal device' has been extended to a much wider array of delivery devices, including for example, cellular telephones (having communication and display methods such as WAP, Imode, and HDML), PDAs (such as Palm Pilot, Psion, and Revo) with wireless or wired access to the network, and combinations of PDAs and cellular telephones. In general, 'terminal device' will be understood to mean any device which has a capability for making a request for Internet content, and has a capability of delivering the Internet content to the terminal device user. It should be pointed out that a terminal device may not necessarily include a display, as in the devices intended for use in an automobile, or for use by vision-impaired persons.

In the present state of the art, the Internet can also be accessed by other types of user network terminal devices, such as wireless data transceivers or mobile stations. While this has created new and expanding information service possibilities for the users, the content author has been presented with the challenge of providing content for new network terminal devices having diverse form factors.

With the increased use of cell phones, Personal Data Assistants (PDAs), and other types of wireless terminal devices, the content author can no longer consider the network terminal device displays to be essentially equivalent to one another. The capabilities, features, and variations in form factor among such devices are not insignificant, and ignoring these differences usually results in a decrease in the fidelity of content delivery. Moreover, the development of newer wireless terminal devices continues, with the availability of new features and applications as well as additional changes in the basic form factor.

Software developers and content authors incorporate new features or a change to an existing feature so as to fully realize the capabilities of more sophisticated user network terminal devices without overwhelming simpler terminal devices. However, as the number of different types of network terminal devices continues to grow, it

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becomes increasingly difficult for a content author to generate code to automatically convert the content to fit the user network terminal device, for example, as both created content and terminal devices become more numerous.

There are at least three options available to address this situation. In the first option, the content author creates content for the simplest type of network terminal device and provides this basic content to all types of terminal devices, from simplest to the most sophisticated (i.e., content is created for the lowest common denominator). The first option requires minimal input from the content author, but it precludes utilizing the capabilities available in the more sophisticated devices.

In the second option, the content author can precisely identify the capabilities of all types of network terminal devices and then generate respective content versions for each type. The second option provides the most effective utilization of the capabilities of the various user network terminal devices but requires a greater effort on part of the content author.

The second option is not practical for several reasons. For example, there are no standard methods for identifying or describing the capabilities of network terminal devices. Accordingly, a design solution developed without reference to a standard method will therefore be a custom or an individual solution which cannot be readily shared by other content developers, or even reused by the original content developer. As another example, maintaining a list of user network terminal device characteristics becomes impractical as new designs and features appear as a continuation of the ongoing development of terminal devices. Moreover, the task of generating content to precisely match the capabilities of particular user network terminal devices, known in the relevant art as 'fine-grain matching,' becomes very daunting.

In most instances, an automated process, devoid of any knowledge of the meaning of the content, is inadequate for adapting authored content to a particular

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user network terminal device. For example, if an authored page contains a picture, but is loaded into an 'audio-only' device, the picture cannot be 'read' and will usually be ignored. In some conventional systems, replacement 'text' may be substituted in place of the picture.

However, if the content author knew that the content might be directed to audio-only devices, he might have included in the authored content an audio file that assisted in visualizing the picture. Other examples could be provided of circumstances in which the author may have had a 'better' idea of how to modify his content, where the particular modification depends on the device type. Autonomous systems, on the other hand, will ignore such intent resulting in a system having a lower fidelity. As used in the present specification, the term 'author intent' will refer to the inclusion of the intent of the content author as a meta-data (viz., not as part of the main data but as auxiliary information).

In the third option, there is provided an autonomous system having adequate intelligence to make correct decisions in transforming the content for a particular user network terminal device. The autonomous system, when invoked, would transform 'device-independent' content into 'device-specific' content. In way of example, the automatic system may utilize the process of 'web-clipping,' where applicable software makes use of an intelligent scheme in determining how to modify content formatted for a conventional terminal device (e.g., a personal computer) into a format suitable for a wireless terminal device (e.g., a Palm PDA).

In general, there are similar situations in which the intent of the author is required when modifying the content. It is usually not possible for a system to automatically make appropriate decisions without first having knowledge of the author intent. A practical system would thus require automation as well as author's knowledge of the different devices in which the content may be displayed. The

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capabilities of such a system can range from a substantially automatic system to a system primarily controlled by the author or developer.

The content typically contains no author information to assist in such a modification process. Furthermore, in situations where it becomes necessary to generate supplemental content, that is, to 'fill' a larger network terminal device display with content not initially provided, the 'fill process' requires the authored content to include all the information necessary to enable an otherwise automatic system to carry out the content specialization in an effective manner. In other words, a system which takes 'hints' from the author is more practical than a fully-automatic system which utilizes no such inputs.

In the present state of the art, the content developer does not have standardized tools by which to conduct independent authoring. The content developer may make use of technologies such as Resource Description Format (RDF), to describe user preferences and wireless terminal device capabilities. RDF, an XML syntax for describing resources, is not used alone but can be used in conjunction with a Composite Capability/Preference Profile (CC/PP) or with a User Agent Profile (UAProf) to describe the features of a wireless terminal device, for example.

CC/PP uses RDF to describe device capabilities by setting up a detailed framework for such purposes. However, describing the device is accomplished in a 'developer-unfriendly' manner. For example, CC/PP documentation provides the following 'print and display' vocabularies:

charWidth:
charHeight:
charset:
pix-x:
pix-y:
color: (e.g., 'binary,' 'grey,' 'limited,' 'mapped,' 'full')

While, in theory, this information is enough to allow a content author to 'tailor' content for the network terminal device, the process is not straightforward.

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Absolute pixel values and character sizes are too fine-grained in comparison to the process by which content is differentiated between network terminal devices. For example, such fine-grained information may be useful in the task of calculating line breaks or page widths, but is not suitable for expressing author intent.

UAProf, developed by the WAP Forum, is similar to CC/PP by using RDF to describe the network terminal device. However, use of UAProf poses problems similar to CC/PP, as discussed above, in that the defined variables, listed below, are not appropriate for developer usage.

Model	
BitsPerPixel	
OutputCharSet	
PointingResolution	
PixelAspectRatio	
NumberOfSoftKeys	
ScreenSize	(e.g., 160×160, 640×480)
ScreenSizeChar	(e.g., 12×4, 16×8)

Such information is not useful precisely because it is presented in too great a detail.

As an alternative, Extensible Hypertext Markup Language (XHTML) @media tags allow specific stylesheets to be loaded depending on the type of media (e.g., desktop, handheld, phone, printer). The job of writing the appropriate stylesheets is still left to the developer, and this is not a trivial task by any means. Moreover, XHTML @media tags is designed more for formatting than for content differentiation based on author intent and is not typically considered for displaying author intent.

It can be appreciated by one skilled in the relevant art that, although it is possible for a developer to adapt his content to the network terminal device using either CC/PP or UAProf attributes, this method still presents a challenge to the content author. Moreover, by distinguishing between network terminal devices on the basis of features such as character size or number of soft keys, the adaptation process may become more detailed and complex than is desirable. Thus, the task has been made more difficult by requiring the content author to address features in general

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instead of being selective in first establishing which features are really necessary to properly display content. In short, the description of a device feature in either UAProf or CC/PP is not 'developer-friendly.'

As should be understood, these conventional methods using CC/PP and UAProf have not attained acceptance in the relevant art because of the mismatch between minimizing author effort and maximizing utilization of devices for that level of effort. It can be shown that the conventional methods are, essentially, an all-or-nothing solution, and using a conventional method requires the content author to determine how different content-types should be annotated for a given feature.

What is needed is a system and method that predictably reflect the intent of the content author when content is displayed in a network communication terminal device, even if the content requires transformation for compatibility with the network communication terminal device.

SUMMARY OF THE INVENTION

The present invention results from the observation that an abstract, generic terminal device can be defined in terms of a set of discrete values of a plurality of selected terminal device features to provide an approximate representation of any user network terminal device, and that, if a content author creates content for the generic terminal device, the created content is adaptable to any of the user network terminal devices. The disclosed method includes specifying a feature-value set for the network terminal devices, the feature-value set having a set of selected device features, each feature with one or more discrete feature values, annotating the authored content with markup information to provide a device-independent content, associating one or more of the device feature values with the requesting user network terminal device, and converting the device-independent content into a device-specific content adapted to the requesting user network terminal device. The system includes a network terminal

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device detector for receiving the network terminal device request, an origin server for providing device-independent content corresponding to the request, and a transformer for associating one or more device feature values with the requesting user network terminal device in the conversion of the device-independent content to device-specific content formatted for the user network terminal device.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention description below refers to the accompanying drawings, of which:

Fig. 1 is a diagrammatical representation of a network communication system in which the intent of a content author is accurately displayed on a user terminal device;

Fig. 2 is a flow diagram illustrating operation of the network communication system of Fig. 1;

Fig. 3 is a flow diagram illustrating the process followed by the content author in producing the device-independent content of Fig. 1;

Fig. 4 is an example of meta-data introduced into an HTML markup providing a news story;

Fig. 5 is a flow diagram illustrating the identification of a requesting user terminal device;

Fig. 6 is an example of meta-data introduced into a WML markup providing a news story;

Fig. 7 is a table listing various features of a user terminal device display along with corresponding feature values;

Fig. 8 is an illustration of a display comprised of a number of horizontal pixels and a number of vertical pixels;

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Fig. 9 illustrates how a device feature display size can be represented by the number of available pixels along the x- and y-axes of the device display;

Fig. 10 illustrates a mathematical mapping of display size in pixels to variations in content display;

Fig. 11 shows a profile illustrating a user terminal device assigned values for its features;

Figs. 12A and 12B illustrate the display produced by the code of Fig. 4 on a device with brief content and a small image and on a device with a detailed content and a large image;

Fig. 13 an example of meta-data introduced into an HTML markup providing a weather forecast;

Figs. 14A and 14B illustrate the display produced by the code of Fig. 13 on a device with a portrait table and scrolling and on a device with a landscape table using a screen;

Fig. 15 is an illustration of the concept of `feature;'

Fig. 16 is an illustration of features having a plurality of values;

Fig. 17 is an illustration of a feature value set;

Fig. 18 is an illustration of the relationship of entire device space to available instances;

Fig. 19 is an illustration of the method by which feature evolution is accommodated;

Fig. 20 is an illustration of the convergence of a feature to a constant value; and,

Fig. 21 is an illustration of the growth of the feature value set when feature evolution is accommodated.

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DETAILED DESCRIPTION OF AN ILLUSTRATIVE EMBODIMENT

There is shown in Fig. 1 a network communication system 10 in which the intent of a content author 11, or software developer, is accurately realized when authored content 41 is displayed on a user network terminal device 19 as intended by the content author 11. The user terminal device can be any of a plurality of network terminal devices available to a user of the network communication system 10, here represented as network terminal devices 13a, 13b,...,13n. A content repository 15 includes device-independent content 43 available for display in any of the network terminal devices 13a, 13b,...,13n. The device-independent content 43 may include, for example, news, e-mail, weather information, and stock quotes. The device-independent content 43, which is derived from the authored content created by the content author 11, can be adapted for optimal viewing in any of the network terminal devices 13a, 13b,...,13n, as described in greater detail below.

As used herein, content refers to graphic and textual content, as well as author-provided software for generating content, destined for display on the terminal device accessing the Internet, including wireless and wired internets. For clarity of illustration, wireless devices are shown in the Figures but it should be understood that the disclosed method is applicable to wired devices as well. Internet content is typically configured in the form of Hypertext Markup Language (HTML), Extensible Hypertext Markup Language (XHTML), Wireless Markup Language (WML), or some other markup language. As used herein, 'content' comprises both static content and content generated by a dynamic content generation mechanism, such as Common Gateway Interface (CGI) scripts, JAVA Servlets, Active Server Pages (ASP), Java Server Pages (JSP), or other means available in Internet servers.

The disclosed method utilizes the concept of an abstract, generic terminal device 13. The generic terminal device 13 includes a set of device features selected

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from the display features of the network terminal devices 13a, 13b,...,13n. Each display feature selected for inclusion in the generic terminal device 13 is assigned one or more discrete values, and these discrete values are also included in the generic terminal device 13 to form a feature-value set of discrete feature values. As explained in greater detail below, if the display of the authored content 41 in the user network network terminal device 19 is dependent on the feature value of a particular user terminal device display feature, that particular display feature has preferably been included in the generic terminal device 13 as a selected feature. If the display of authored content does not depend on the value of the particular user terminal device display feature, that display feature is not included.

Because discrete values are used in the generic terminal device 13, most devices can be adequately described by using the generic device concept and selecting one of the discrete feature values from the possible feature values that most closely approximates the actual feature value. For example, graphics capability is considered to be a feature having two possible values – true, and false. Preferably, features and feature values are selected so as to facilitate their use by a content author when generating content. In other words, the generic terminal device 13 is utilized as a tool in establishing which of the network terminal device display features need to be taken into account by the content author 11 in the process of generating content for the variety of network terminal device displays. Accordingly, the content author 11 creates device-independent content in view of the display features and discrete feature values included (i.e., taken into account) in the generic terminal device 13. The task of the content author 11 is thus simplified as he does not need to take into account terminal device display features not included in the generic terminal device 13.

When creating device-independent content intended for display on any of the plurality of network terminal devices 13a, 13b,...,13n, the content author 11 adds intent markup information, preferably in device-independent markup language

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(DVIML), overlaid on previously-authored content, as explained in greater detail below. The previously-authored content may also include conventional markup information, such as can be provided using wireless markup language (WML). In contrast to WML, which is used to provide conventional markup information, DVIML is used to express author intent as to how the content should be particularly transformed, where the particular transformation is a function of the characteristics of the user terminal device.

With the ongoing evolution of user network terminal devices, there are a multitude of form-factors, modes and network characteristics present where any particular network terminal device can include any combination of these variables. In order to optimally utilize the attributes of these different types of network terminal devices, it is necessary for content to be transformed (e.g. truncated, filtered or modified in some manner). The content is transformed so that the user network terminal device is not over-whelmed (which may lead to web clipping as a solution) and not under-utilized (which would leave un-utilized space or other resources).

Depending on the type of authored content 41 or its meaning to the human reader, it is possible in many cases for an automated system to carry out this transformation autonomously, based upon the characteristics of the network terminal device only, without loss of fidelity. However, there are also many examples of authored content where such an autonomous transformation is prone to destroy content fidelity because the autonomous system is unaware of the 'meaning' of the content. In such cases, author intent is required as an input so that the transformation system may defer decision-making to the author via author intent as embedded in the authored content.

DVIML is a markup language that can be utilized, in conjunction with the DVI transformer 25, to take into account both the characteristics of the identified user network terminal device 19 as well as the author intent to transform the authored

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content 41 into a device-specific form which utilizes the features of a device optimally. Incorporation of author intent, expressed via DVIML, assures a greater fidelity to the original intentions of the content author 11. DVIML is defined by using the XML (Extensible Markup Language) authorized by the W3C (World Wide Web Consortium). Since the contents of DVIML data are marked up by tags (e.g., <title>, <shape>, <area>), a user of the DVIML markup can understand the data easily, and a computer can process and search the data quickly, making DVIML both human-readable and machine-parsable.

The disclosed method can be best explained with reference to the flowchart of Fig. 2 in which the user network terminal device 19 makes a request 27 for the authored content 41, at step 101. The request 27 is transmitted along a path 31 to an origin server 51 and, contemporaneously, along a path 33 to a terminal device detector 21, at step 103. Preferably, the selected features of the user network terminal device 19 have been previously included in the generic terminal device 13, and a user device terminal features profile 45, corresponding to the user network terminal device 19, is resident in a device profiles repository 23, as explained in greater detail below.

Accordingly, when the request 27 is received at the terminal device detector 21, the terminal device detector 21 ascertains the identity of the user network terminal device 19 from the header, or network terminal device information, contained in the request 27 and provides an identification 47 to the device profiles repository 23, at step 105. The device profiles repository 23 responds by using the identification 47 to select the user terminal device features profile 45 and to provide a user display feature-values set 49 that presents the closest match to the identified user network terminal device 19. The process of determining features and feature values from the feature-value set are described in greater detail below. The user display feature-values set 49 is then provided to a device-independent (DVI) transformer 25 along a path 35, at step 107.

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The device-independent content 43 produced by the content author from the authored content 41 is retrieved from the content repository 15 by the origin server 51. The origin server 51 provides the device-independent content 43 to the DVI transformer 25 along a path 37, at step 109. At this stage, the device-independent content 43 comprises annotated authored content that includes DVIML markup information and may also include other markup information, such as WML markup information.

The DVI transformer 25 utilizes the user display feature-values set 49 obtained from the device profiles repository 23 along with the DVIML 'author-intent' markup to transform the device-independent authored content 43 into device-specific authored content 29 adapted for the requesting user network terminal device 19, at step 111. The device-specific authored content 29 may retain WML or other markup information found in the device-independent authored content 43. However, the DVIML markup is not needed once the user network terminal device 19 has been identified and the related feature values have been determined. Accordingly, the DVI transformer 25 removes the DVIML markup from the annotated authored content. The device-specific authored content 29 is provided to the user network terminal device 19 along a path 39, at step 113.

Feature-Value Set

The disclosed method includes the process of first describing a particular network terminal device in terms of selected device features. As used in the present disclosure, the term 'selected device feature' refers to a network terminal device attribute which affects the way in which the delivery of authored content or of user interaction is presented, and which provides information for a specific purpose. Device features meeting one or both of these preestablished criteria are then included in the generic terminal device 13. For example, while the color of a network terminal device is a feature, the device color is not relevant to the display of the authored

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content and is not, therefore, selected to be included in the generic terminal device 13. Thus, selected features are those features which require little or no additional processing by the content developer when the selected features are used to generate the device-independent content.

Examples of selected device features are the display size, aspect ratio, the display line count, and the color capability of the network terminal device. Each of the selected device features is assigned one or more discrete values. The display aspect ratio, for example, may have discrete values of 'square,' 'portrait,' or 'landscape.' The display line count may have discrete values of 5, 10, or 20. The color capability of the terminal device may have discrete values of 'monochrome,' 'color,' or 'grayscale.'

Supplemental device features may be also be selected, such as the graphics capability, variable size text capability, different font capability, and the input capability of the network terminal device, and the network bandwidth may be taken into consideration. The values assigned to such supplemental device features typically include 'yes,' 'no,' and 'default.' The set of supplemental features along with corresponding discrete values are also included in the feature-value set.

Author Intent

No single process for adapting content to a device is applicable in all cases. By way of example, consider the case of text layout when the display screen size varies with network terminal devices. In some applications, the server or browser can perform an automatic transformation, such as when text layout on a display screen requires line breaks to be inserted at appropriate places so that the screen is filled up without any cropping or overflows. Such transformations are referred to in the relevant art as 'autonomous transformations' and do not require author participation. This process depends on computations, and does not depend on the 'meaning' of the

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content. The 'meaning of the content' is a concept understood by the content author 11 but not by a computing device.

On the other hand, there are some types of adaptation which require hints or instructions from the content author 11, or from someone who understands the meaning of the content. For example, a news article containing hundreds of words of text must be edited if it is to fit into the small display and memory of a wireless phone or PDA. Such editing cannot be done automatically because the software is not sophisticated enough to understand the content and to decide what text should be kept and which text should be discarded. It is left to a person to make this decision by reading and understanding the content to determine the author intent.

Obviously, the person most qualified to state author intent is the content author 11. For example, the content author 11 may wish to specify which parts of the news article should be retained for a small display, for a medium display, and for a large display. The content author 11 accomplishes this by using some form of meta-data in the associated mark-up language, preferably using DVIML as described in greater detail below.

Author intent, expressed as a form of markup in the content, thus provides instructional 'hints' whereby processing software can adapt the authored content 41 depending upon the device features of a particular user terminal device. This is accomplished in two steps. In the first step, a particular device feature is selected from all the device features of a network terminal device as a feature of interest, and the variation of this feature is determined. For example, the physical dimensions of the display screen (i.e., width and height) could be selected as features. If these device feature values are simply measured and tallied, the results will be a continuous range of values, since these values are a function of the range of manufacturers' screen designs. In the disclosed method, the process of selecting device display features and assigning discrete values to the features is intended to facilitate the

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objective of maximum capability utilization in the network terminal device with minimum effort expended by the content author.

Some device display features can be considered to have constant value. An example is the brightness of the display. When the brightness does vary, it does not require adaptation of the authored content to utilize this variation. Thus, in the generic terminal device 13, the brightness feature is considered to have a constant value, and is therefore not a selected feature. By carefully selecting features to be included in the generic device, an entire device space may be defined, where the term 'space' is used as in mathematical set theory. Each possible combination of values of the mutually exclusive features thus represents a member of a set. Further, these features are specified to vary in discrete quantities, thus resulting in a few discrete values rather than producing a continuous range of values, as described above. The generic terminal device 13, with its discrete feature values, becomes the target device for content authors.

Method of Embedding Meta-Data

The disclosed method utilizes meta-data embedded into the authored content 41 when the content is developed. The meta-data thus embedded matches the generic terminal device and conveys the intent of the content author 11. Moreover, there is accommodation for evolution of the network terminal devices 13a, 13b,...,13n.

The process followed by the content author 11 in producing the device-independent content 43 is shown in the flow diagram of Fig. 3. The content author 11 first ascertains, or obtains, the value set of the generic terminal device 13, in step 121. The value set includes the features of the generic terminal device 13 and the various discrete values that can be assigned to a particular feature. Accordingly, the content author 11 does not need to consider the features of all possible network terminal devices 13a, 13b,...,13n commercially available, but needs to consider only the

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features-value set 49 of the generic terminal device 13. As can be appreciated by one skilled in the relevant art, the features included in the feature-value set 49 are mutually exclusive, in that the features have no dependence on each other, and interactions between features do not have to be considered in the process of embedding meta-data. A graphics capability feature, for example, is mutually exclusive from a display size feature.

Authored content 41 which may require author intervention when being transformed by the DVI transformer 25 is identified, in step 123. By identifying and addressing only that authored content 41 which requires author annotation, the content author 11 saves the expenditure of unnecessary effort for which there would be no significant benefit realized in the process. By way of example, if the authored content 41 is of sufficiently small extent that it can be displayed in all the network terminal devices 13a, 13b,...,13n in unmodified form, author intervention would not be required. Or, if the authored content 41 can be modified automatically, with the addition of line breaks or scroll bars when the browser shape is changed, for example, author intervention is also not needed.

For authored content 41 in which the content author 11 needs to provide information for the modification of content, DVIML is used to embed meta-data in the authored content 41, in step 125, where the meta-data is based on the feature value set. For example, in an application in which the browser shape is changed, the content author 11 may wish to change to a different graphics file so as to display an image which is more closely formatted to the geometry of the browser. In such a case, embedding DVIML markup in two or more graphics files will direct the DVI transformer 25 in accordance with the preferences of the content author 11.

After the meta-data has been embedded, DVIML markup is added to produce the device-independent content 43, at step 127. The markup may be added by using a text editor, or a specialized editor such as word-processor software. Because DVIML

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is based on XML, an XML editor tool can also be used for adding markup. If the authored content 41 was provided in a plain text format, then a 'stand-alone' mode of DVIML can be used. In the stand-alone mode, a full overhead of XML prologue and a root element is added, in accordance with the common practices for a conventional XML document.

For authored content 41 provided in a conventional markup format, such as WML or XHTML, for example, DVIML is used in an 'import' mode. In the import mode, the original document-type definition (DTD) is augmented to import the DVIML element declarations, if validation of the authored content 41 is required. The authored content 41 itself will then have DVIML overlaid on the existing underlying markup. Additionally, a DVIML namespace '*nda*' is declared to assure that there is no conflict between the overlaid DVIML and the element and attribute names in the underlying markup (e.g., WML, XHTML). Each DVIML element name is prefixed with a namespace qualifier. As appreciated by one skilled in the relevant art, the use of namespace qualifiers and importing elements are both standardized concepts in XML.

Operation of DVI Transformer

An example of meta-data embedded in HTML markup code is provided in Fig. 4. The meta-data is shown in bold text, such as in lines 9, 10, 12, and 13, for example. As this markup and code is passed through the DVI transformer 25, the meta-data in lines 9, 10, 12, and 13 is removed without intervention by the content author 11. This process includes 'defaults' if a new or an unrecognizable network terminal device 13a, 13b,...,13n requests the authored content 41. The origin server 51 or the content-author 11 can also invoke 'default device' values, and thereby override actual network terminal device features values by using special activation headers. The special activation headers provide a method of 'graceful degradation' functionality if problems arise during operation of the DVI transformer 25.

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Operation of the DVI transformer 25 is initiated with receipt at the terminal device detector 21 of the request 27 from the user network terminal device 19, in Fig. 1. As noted above, the request 27 may be provided over a wired or wireless network connection. The terminal device detector 21 responds by identifying the user network terminal device 19 from which the request 27 originated, and providing the corresponding identification 47 to the device profiles repository 23. This is preferably accomplished using the conventional UserAgent header if the request 27 is an HTML request, at step 131, in Fig. 5. Alternatively, other mechanisms such as UAProf or CC/PP can be used if the request 27 is provided using another protocol. For example, Fig. 6 shows the above meta-data as can be embedded in WML markup code. The terminal device detector 21 includes and maintains a list of known network terminal devices 13a, 13b,...,13n to provide the identification capability.

Additionally, the terminal device detector 21 includes a mapping algorithm which attempts a 'best-effort' match of the requesting user network terminal device 19 to one of the known network terminal devices 13a, 13b,...,13n. As used herein, 'best-effort matching' means that if the exact device is not found in the list of known devices in the device profiles repository 23, then an alternate device present in the list will be chosen instead. For example, if the actual device sought, a Nokia 7190, is not in the list, then a best-effort match may be a Nokia 7110, which is similar to the Nokia 7190. If the identification effort is completely unsuccessful, at decision block 133, a 'default' device is provided as the identification 47, at step 137, and operation proceeds to step 139. The feature values for the default device are 'default' feature values, where the default feature values are 'lowest common denominator' values, selected such that content adapted to the default device in accordance with the default feature values can be displayed on the user network terminal device 19 without loss of content. Otherwise, the nearest values of the features for a matched device are retrieved from the device profiles repository 23 as the user terminal device features

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profile 45 and provided to the DVI transformer 25, at step 135. The request 27 is also received at the origin server 51 which responds by providing the device independent content 43, obtained from the content repository 15, to the DVI transformer 25. The device-independent content 43 is placed in a response object, defined in HTML, and transmitted to the DVI transformer 25 by the origin server 51.

The DVI transformer 25 also receives the user device feature-values set 49 from the device profiles repository 23 via the device detector 21 for this particular response. The device-independent content 43 is then transformed into the device-specific content 29 using both the user device feature-values set 49 and the embedded DVIML meta-data, if any, at step 139. Finally, the DVI transformer also removes all DVIML markup, at step 141. If the requesting user network terminal device 19 has not been identified, a default feature-values set is used, but the device-specific content 29 is still rendered DVIML-free. If the original content is in some extended form of XML, then DVIML can be used to mark-up such content. If the original content is not XML (such as, a plain text file), then DVIML can still be used to mark-up such content as long as it contains only textual data or URL to non-text data.

Preferably, the file extension suffix of DVIML files comprises *.dviml* or *.dvm*. These suffixes are used to indicate whether the respective file is a DVIML file. DVIML can be used in conjunction with WML, or XHTML, or some other extension of XML. In such cases, the file extension *.dviml* or *.dvm* is appended to the existing extension. Thus, when a WML file, *test.wml*, is overlaid with DVIML markup, the file extension becomes *test.wml.dviml*. MIME (Multipurpose Internet Mail Extensions) Media Type of DVIML files is *application/x-dviml*. For combined data types, the form is preferably either *application/x-dviwml* or *application/x-wml.dviml*.

Document Type Declaration

According to one variation of the invention, the XML declaration of DVIML data is as follows:

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```
<?xml version="1.0" encoding="xxx"?>
<!DOCTYPE dviml SYSTEM "http://nda.nokia.com/001/dviml.dtd">
```

The value of the attribute 'encoding' (i.e., *xxx* in the above description) is subject to the XML specification. Possible encoding types depend on each DVIML system.

The DVIML can be defined by using XML. Disclosed herein is a DVIML-specific specification. The element, the outline, basic and simple examples, the attribute, and the content are explained below. In order to prescribe the values of each attribute and content, the Extended Backus-Naur Form is utilized. As can be appreciated by one skilled in the art, the notation 'DVIML' represents the language specification, and the notation 'dviml' represents the root element of the DVIML when DVIML is used as in a standalone manner, without any underlying markup. When DVIML is overlaid on existing markup, then the root element of that markup remains, and no 'dviml' root element is introduced. In addition, the data described subject to the DVIML specification is denoted as 'DVIML data', and the file containing DVIML data is denoted as a 'DVIML file.'

DVIML Elements

The dviml element is the root element of the DVIML and can be described. The dviml element shows that the data is a DVIML data. For example,

```
<dviml version="0.10">
   <area>
      <segment> ... </segment>
</dviml>
```

The dviml element has an attribute of *version*.. The *version* attribute specifies the DVIML version and can take values [0-9], for example. The default value for *version* is the latest version of the DVIML.

When DVIML is used as an overlay on another mark-up, the root element *<dviml>* is absent. In the disclosed method, a name-space attribute, *nda* is defined

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via a URL. In this case, the URL is used to indicate the version of DVIML in use. The dviml element has the following child elements:

<rigid>, *<shape>*, *<list>*, *<columns>*, and *<area>*,

as defined below, and which are preferably described in the order shown above. The *<area>* and *<list>* elements do not need to be described, or can be described once. The *<rigid>* element contains content which is 'rigid' and not ordinarily modifiable by browsers. The content may not be actual content but can be the resource pointed to by a URL. Thus an image URL can be contained in a *<rigid>* element.

As discussed above, any user terminal device can be described by providing a list of the device attributes. For example, most terminal devices have size, weight, color, an input mechanism, and a scroll mechanism. From the perspective of a content author or a user, only some attributes are germane to the development task and attributes such as weight, case, or color are irrelevant.

In general, a feature is an attribute of a terminal device that is, preferably, mutually exclusive from other features of the device, with respect to content delivery and rendition by that device. It should be understood that non-mutually exclusive features, that is, features sharing some characteristics with other features, can also be included in the set of selected device features. A device features set having only mutually-exclusive features will comprise a set of minimum size. Not all attributes of a device are considered as a feature. Features can be single attributes, such as the display size of the device, or combinations of physical attributes. Such a combination is exemplified by an 'input-mechanism,' for example, which may comprise software for character recognition, a touch-sensitive screen, and a stylus.

To qualify as a feature, the attribute should serve a unit function in either the acquisition and delivery of content or interaction with the user. In addition, features should be mutually exclusive with respect to content delivery or user interaction and

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possible values. For example, the color capability and size of a terminal device are mutually exclusive with respect to how content rendition is affected, and these values can change independently. Physical or practical constraints may limit possible combinations of values. An attribute qualifies as a feature if its values can be independently changed. Examples of features include the display-size of the terminal device, color capability, network bandwidth, and input mechanism. Each feature of the generic device 13 can take on various values resulting in a representation of a terminal device which is an approximation of various physical user terminal devices.

Feature Display Size and DVIML

Table 150 in Fig. 7 lists various features 151 of the display of the user network terminal device 19 along with corresponding values 153. The most significant feature of the network terminal device 19 is typically display size 155. Display size is most conveniently represented as an array (X, Y) of pixels, shown in Fig. 8, where X is the number of horizontal pixels in a display 181 and Y is the number of vertical pixels. As can be appreciated by one skilled in the relevant art, a hardware-oriented feature of a device, such as the number of its horizontal pixels (X), can be directly translated to the author-oriented measure of columns and, likewise, the number of vertical pixels (Y) can be translatable to rows. The use of a default font and font size is assumed, and presumed to be the same for all user terminal devices. This is an approximation and is justified to maintain simplicity of the system. As the content author 11 expresses intent in rows and columns, the present device and method transforms these intentions to pixels for display on the device.

A feature-value set which included all display sizes of all available physical terminal display devices would include a relatively large number of values. As a consequence, the task facing the content author 11 coding for such a value set would be tedious and overwhelming. Instead, the feature-based device description method

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of the present invention specifies a greatly-reduced number of discrete display sizes for which the content author 11 would be required to create content.

Table 160 in Fig. 7 lists five content-specific characteristics 161 that determine how the authored content 41 can be displayed, along with corresponding DVIML elements 163 and content examples 165. Certain content is not capable of manipulation, exemplified by a WBMP image 171. As can be appreciated by one skilled in the relevant art, the WBMP image 171 either will, or will not, fit into a particular device display. The most accommodating format is that of a stream of text characters, exemplified by free-form text 179, which can be easily 'wrapped' in the display by the browser software with little or no loss of information. In between these feature forms are content such as tables 173, columns 175, and lists 177 whose characteristics are amenable to intelligent manipulation.

Fig. 8 illustrates how the size a device display 181 is universally represented by the number of available pixels along the *x*- and *y*-axes of the device display. In portrait displays, such as exemplified in terminal devices 183 and 185, in Fig. 9, the value of *X* is smaller than the value of *Y*. Similarly, in landscape displays, such as exemplified by terminal devices 187 and 189, the value of *X* is larger than the value of *Y*.

Table 191, in Fig. 10, shows the mathematical mapping of display size in pixels to the variations in content display based on the substitution of the content characteristics (DVIML elements described below) in the *X-Y* representation of the display. The possible values of features can be discretized from the actual variation possible for that feature. This discretization reduces the degree of variation that the content author 11 has to deal with, but at the same time renders the matching process as approximate rather than as exact. This approximation is justifiable for the resulting simplicity presented to the content author 11. Table 193, in Fig. 11, shows a profile illustrating how a user terminal device is assigned 'values' for its 'features.' A

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plurality of such profiles is used, one profile for each type of user terminal device recognized by the network communication system 10.

Rigid Content and DVIML Element <rigid>

Graphic images have a fixed-form content characteristic. That is, graphic images cannot be manipulated without risk of losing meaning or coherence. The content-specific characteristics 161 (in Fig. 7) indicate that graphic image content is usually represented in the fixed form (*X, Y*), that is in pixel format. The DVIML elements 163 indicates that the content author 11 can mark up graphic image content using the *<rigid>* element. Three differently-sized images, small, medium, and large, are shown in the content examples 165. The content author 11 specifies a <pick> element for each image, and the corresponding element takes a value specifying the actual pixel count of the image along the *x* and *y* axes. The disclosed method, knowing the number of pixels available on each device display, selects the appropriately-sized image for each user network terminal device 19. For example, if one *<pick>* element specifies attributes of (*200, 200*), while another *<pick>* element specifies (*300, 300*), then the network communication system 10 chooses an image having no more than a 300×300 pixel size for devices whose display uses at least 200×200 pixels but less than 300×300, and an image having an image of at least 300×300 pixels for devices which can display more than 300×300 pixels. Otherwise, the image is suppressed.

Generated Content and DVIML Element <shape>

Tables and vector graphics have a generated-fixed-form content characteristic. That is, tables and vector graphics can be manipulated by the network terminal device 19 browser to a limited extent, but can be better manipulated at the point of generation by a server before being sent to the user network terminal device 19. The content-specific characteristics 161 indicates table and vector graphic content as being

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represented in the form of an aspect ratio. That is, an aspect ratio of *X/Y*, or the number of *x*-axis pixels divided by the number of *y*-axis pixels. The DVIML elements 163 shows that the content author 11 marks up table and vector graphics content using the <*shape*> element. The content examples 165 shows a single table generated in two different formats. One format is suitable for a landscape-shaped display, and the other format is suitable for a portrait-shaped display.

The content author 11 can generate different copies of the content, where each is destined for a user terminal device having a particular aspect-ratio value. The content author 11 then marks up this content using the <*shape*> element, within which one or more <*pick*> elements are specified. Each <*pick*> element accepts an aspect ratio attribute whose value can either be square, portrait, or landscape. The network communication system 10 then sends content marked with the square attribute to devices whose displays are defined as square in the device configuration file. Similarly, the network communication system 10 sends content tagged as 'portrait' to portrait-shaped display devices; and content tagged as 'landscape' to terminal devices having a landscape-shaped display.

List Type Content and DVIML Element <list>

Content that fits all displays along one axis and hence is not of concern along that axis has the uni-axis free form content characteristic. For lists, content along the *x*-axis is typically not of concern. To be more specific, although a browser may modify content along the *x*-axis, such modification is deemed unnecessary since it is assumed that content along the *x*-axis never exceeds display capability of the user network terminal device 19. By way of example, a uni-axis free form content, free along the *x*-axis, is a list of names taken from a telephone address book. As the DVIML elements 163 shows, the content author 11 may use the <*list*> element in order to specify alternatives to provide for devices which are vertically restricted. To

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do this, the content author 11 specifies a <*list*> element, and within it one or more <*segment*> elements, each specifying a value which is the number of supported rows, that is, the number of rows concatenated to produce a display. In processing such marked-up content, the system will pick the particular <*segment*> most suited for the requesting user device. As with <*columns*>, below, concatenation of segments is supported. The semantics for <*segment*> is slightly different from that for <*pick*>, as it is possible to specify the concatenation of <*segment*>. This eliminates the need to repeat in the second segment, for example, information already specified in the first segment (assuming that the first segment is more restricted than the second segment).

Columnar Content and DVIML Element <columns>

Content that fits all displays along one axis and hence is not of concern along that axis has the uni-axis free form content characteristic. For columns, content along the *y*-axis is not of concern. Although a browser may modify content along the *y*-axis, such modification is deemed unnecessary since it is assumed that content along the *y*-axis does not exceed the display capability of the user network terminal device 19. An example of uni-axis free form content, free along the *y*-axis, is a line of text that cannot be broken, or a horizontal table with only one row. In each case, the columnar content will fit all displays vertically, but is cropped horizontally. As indicated in the DVIML elements 165, the content author 11 may use the <*columns*> element in order to specify alternatives to provide for devices which are horizontally restricted. To do this, within each <*columns*> element, the content author 11 may specify one or more <*segment*> elements, each specifying a value which is the number of supported, or concatenated, columns. In processing such marked-up content, the system will pick the particular <*segment*> most suited for the requesting user device.

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Free-Form Textual Content and DVIML Element <area>

Content such as text is said to have the characteristic bi-axially free form because it can be displayed equally effectively on devices having an equally sized display area, even though the shape of the display area may differ from device to device. For example, a paragraph of text that fits into a display having an area of 100 units will fit equally well whether the display is square (e.g., 10×10) or rectangular (e.g., 25×4). However, if user terminal devices differ in display size area, the number of characters sent to the particular terminal device is limited based on available area. As the DVIML elements 163 indicates, the content author 11 may use the *<area>* element in order to specify alternatives to provide for devices which differ in display area. Within the *<area>* element, the content author 11 can specify one or more ** elements, each specifying a character count. The network communication system 10 will then select the segment whose character count accords with the display size of the requesting user device. Here again, as with rows and columns, the content author 11 may use concatenation of segments in order to avoid repeating the same content in different segments. It can be seen that specifying a high character count has the effect of setting a low priority for that segment of text in that it will not be displayed on user terminal devices having smaller display areas.

Authored Content Display

Fig. 12 shows a user network terminal device 201, such as a mobile telephone, having a portrait display screen. When the content request 27 is made by the user network terminal device 201, the terminal device detector 21 receives the request 27 and identifies the user network terminal device 201 as a Nokia 6210, for example. The corresponding device feature values for a Nokia 6210 are obtained from the device profiles repository 23 and provided to the DVI transformer 25. The content repository 15 provides the device-independent content 43 to the origin server 51, such as the content exemplified by the code of Fig. 4 above, for example. The DVI

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transformer 25 converts the device-independent content 43 into device-specific content 29 for a Nokia 6210. In the resulting display, the device-specific content 29 is formatted into a first screen 203a showing an initial portion of text, a second screen 205a showing a subsequent portion of text, and a third screen 207a showing a small graphic image, for example, where individual screens are accessed by scrolling.

In comparison, when the content request 27 is made by a user network terminal device 211, such as a mobile hand-held computing device with a relatively large screen, the resulting display will differ from that provided by the user network terminal device 201. The terminal device detector 21 receives the request 27 and identifies the user network terminal device 211 as a Palm Vx, for example. The corresponding device feature values for a Palm Vx are obtained from the device profiles repository 23 and provided to the DVI transformer 25. The content repository 15 provides the code of Fig. 4 above, and the DVI transformer 25 converts the device-independent content 43 into device-specific content 29 for a Palm Vx. In the resulting display, the device-specific content 29 is formatted into a detailed screen 213 and can display a larger image 215 in comparison to the screens 203-207 of the user network terminal device 201.

In another example, authored content for a weather report, exemplified by the markup code of Fig. 13, is provided to the DVI transformer 25 as the device independent content 43 for the user network terminal device 201, shown in Fig. 14. In the resulting display, the device-specific content 29 is formatted into a first screen 203b showing the forecast for the initial part of the week, a second screen 205b showing the forecast for the middle of the week, and a third screen 207b showing the forecast for the latter part of the week, for example, where individual screens are accessed by scrolling.

In comparison, when the content request 27 is made by a user network terminal device 221, such as a mobile telephone having a landscape display screen,

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the resulting display will differ from that provided by the user network terminal device 201. In the example provided, the device detector 21 identifies the user network terminal device 221 as an Ericsson R380, for example. In the resulting display, the device-specific content 29 is formatted into a detailed landscape screen 223 which can display the entire week's weather forecast.

Generic Terminal Device

The concept of the generic terminal device 13 is described in greater detail with reference to Fig. 15 in which are shown a series of Greek letters α, β, χ and δ representing variables, or features. The generic terminal device 13 can be defined in terms of device features having one or more values, much as a mathematical function term can be a function of variables with discrete values. In this example, the English equivalent letter *a* is written in different fonts to represent the different possible values for the feature α, the English equivalent letter *b* is written in different fonts to represent values for the feature β, and so on, in Fig. 16.

The space of all possible instances is described by the feature set {P} along with the corresponding values of the features, where all possible combinations of values exist, as represented in Fig. 17. Fig. 18 illustrates the relationship between the entire device space, represented by the feature set {P}, and the range of available devices, represented by a currently-available set {C}, where {C} is a subset of {P}. When a new feature is introduced, or evolves, represented by ϵ in Fig. 19, the feature set {P} is increased accordingly. Because old features are not deleted from the feature set {P}, the disclosed method is backwardly compatible with earlier systems.

In Fig. 20, even though an old feature, represented by *d*, has stopped evolving and has acquired a constant value of *D*, the feature is not deleted from the feature set {P}. Thus, old content and processors remain valid, even they now have limited functionality in comparison to the new content and processor. As new features are

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added to the original feature set {P}, the set expands to include the region indicated by *E* in Fig. 21.

A judicious identification of the evolving feature ϵ can determine whether to include ϵ as a new feature. The process of feature evolution may occur when the features take on new values, when different combinations of different feature-values are instantiated, when new features are introduced, or when old feature values converge to a constant value. By a judicious identification of features, evolving changes can be covered without the need for their introduction as new features. This in turn, means that the content author will not need to modify his production methods to support new products of the evolving process. When new features are introduced, the feature set {P} will need to be augmented, but will remain fully backwardly compatible.

The generic terminal device is a device which itself morphs or changes. For example, the generic terminal device can have a color capability feature which can take values of black and white, or color. The display screen size of the generic terminal device can be a small size, a medium size, or a large size. As the generic terminal device has values for features, and the values can change, the generic terminal device can represent all and more real terminal devices and is a superset of all possible terminal devices.

All features whose values change on the communication device may not be included in the feature set {P}. If no developer participation is required to modify content to utilize a feature or to maintain fidelity, then that feature is not included in the feature set {P}. In other words, features which can be accommodated in an automatic manner are ignored in the published feature set {P}, simplifying the set that the content author has to address.

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While the invention has been described with reference to particular embodiments, it will be understood that the present invention is by no means limited to the particular constructions and methods herein disclosed and/or shown in the drawings, but also comprises any modifications or equivalents within the scope of the claims.

What is claimed is:

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CLAIMS

1. A method for providing authored content (41), from device-independent content (43) generated by a content author (11), to any of a plurality of requesting user network terminal devices (13), each requesting user network terminal device (13) having means for delivering at least a portion of the authored content (41) received, the presentation of authored content (41) so delivered being dependent on feature values (153) of the requesting network terminal device (19), characterized in that said method comprises the steps of:

associating one or more of the device feature values (153) with a requesting user network terminal device (19) in response to said requesting user network terminal device (19) transmitting a request (27) for the authored content (41); and

converting the device-independent content (43) into a device-specific content (29) adapted to said requesting user network terminal device (19),

such that said device-specific content (29) provides for a display on said requesting user network terminal (19) device in a format as intended by the content author (11).

2. The method of claim 1 further comprising the step of specifying a feature-value set (49) for the plurality of user network terminal devices (13), said feature-value set (49) including a set of selected device features with one or more discrete feature values assigned to each said selected device feature, each said selected device feature selected from the features of the plurality of user network terminal devices (13) in accordance with a pre-established criterion.

3. The method of claim 2 wherein said set of selected device features comprises a member of the group consisting of display size, aspect ratio, display line count,

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color capability, graphics capability, variable size text capability, different font capability, input capability, and input bandwidth.

4. The method of claim 2 wherein said pre-established criterion includes a determination that a particular said selected device feature affects the manner in which the authored content is presented.

5. The method of claim 2 wherein said feature value set comprises discrete values assigned to selected features of a generic network terminal device.

6. The method of claim 5 wherein said generic network terminal device comprises a set of device features selected from the display features of the plurality of user network terminal devices.

7. The method of claim 1 further comprising the step of annotating the authored content with markup information to provide the device-independent content, said markup information specifying intent of the content author for one or more corresponding device feature values;.

8. The method of claim 7 wherein said step of converting the device-independent content comprises the step of invoking said markup information corresponding to the device feature values associated with said requesting user network terminal device.

9. The method of claim 7 wherein said step of converting the device-independent content comprises the step of removing said markup information from said device-independent content.

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10. The method of claim 7 wherein said step of annotating the authored content comprises the steps of:

identifying that content in said authored content which requires author annotation; and

embedding meta-data into said content requiring author annotation, said meta-data based on the feature values.

11. The method of claim 1 wherein said requesting user network terminal device comprises a member of the group consisting of a wireless telephone and a personal digital assistant.

12. The method of claim 1 further comprising the step of identifying said requesting user network terminal device prior to said step of associating one or more of the device feature display values.

13. The method of claim 12 wherein said step of identifying said requesting user network terminal device comprises the step of reading network terminal device information contained in said request.

14. The method of claim 1 wherein said step of converting the device independent content comprises the steps of:

determining the array of display pixels available in said requesting user network terminal device from the feature values;

comparing said array of display pixels with an array of image pixels corresponding to an authored content image;

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selecting said authored content image for display in said requesting user network terminal device if said array of image pixels does not exceed said array of display pixels; and

suppressing said authored content image from display if said array of image pixels does exceed said array of display pixels.

15. The method of claim 1 wherein said step of converting the device independent content comprises the steps of:

determining an aspect ratio for said requesting user network terminal device from the feature values;

sending authored content marked with an attribute of square to said requesting user network terminal device if said aspect ratio is square;

sending authored content marked with an attribute of portrait to said requesting user network terminal device if said aspect ratio is portrait; and

sending authored content marked with an attribute of landscape to said requesting user network terminal device if said aspect ratio is landscape.

16. The method of claim 1 wherein said step of converting the device independent content comprises the steps of:

determining that said authored content is marked as having a uni-axis free form characteristic;

identifying the number of segments supported by the display in said requesting user network terminal device;

concatenating a number of rows for sending to said requesting user network terminal device if said uni-axis free form characteristic includes a list

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characteristic, wherein said number of rows corresponds to said number of segments supported; and

concatenating a number of columns for sending to said requesting user network terminal device if said uni-axis free form characteristic includes a column characteristic, wherein said number of columns corresponds to said number of segments supported.

17. The method of claim 1 wherein said step of converting the device independent content comprises the steps of:

determining that said authored content is marked as having a bi-axially free form characteristic;

identifying the character count supported by a display in said requesting user network terminal device;

sending to said requesting user network terminal device a segment of authored content, wherein the character count in said segment corresponds to said character count supported by said display.

18. A communication system (10) for providing authored content (41) to any of a plurality of requesting user network terminal devices (13), each requesting user network terminal device (13) having means for delivering at least a portion of the authored content (41) received, the presentation of authored content (41) so delivered being dependent on features of the requesting user network terminal device (19), characterized in that said communication system (10) comprises:

a network terminal device detector (21) for receiving a display request (27) from the requesting user network terminal device (19) and

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providing therefrom identification (47) of the requesting user network terminal device (19);

an origin server (51) for receiving said display request (27) and, in response thereto, providing device-independent content (43) corresponding to said display request (27);

a transformer (25) for associating one or more user network terminal device feature values (49) with said requesting user network terminal device (19) in response to receiving said user network terminal device identification (47) from said terminal device detector (21), for receiving said device-independent content (43) from said origin server (51), and for transforming said device-independent content (43) into device-specific content (29) formatted for the requesting user network terminal device (19).

19. The communication system of claim 18 wherein said device-independent content comprises markup information providing information for displaying said authored content in compliance with author intent.

20. The communication system of claim 18 further comprising a device profile repository accessible by said network terminal device detector, said device profile repository including a feature-value set for the requesting user network terminal device, said feature-value set including a set of selected user network terminal device features with one or more discrete device feature values assigned to each said selected user network terminal device feature.

21. The communication system of claim 18 further comprising a content repository accessible by said origin server, said content repository for storing

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annotated authored content generated by the content author whereby said origin server provides device-independent content from said annotated authored content.

22. The communication system of claim 18 wherein each said selected user network terminal device feature is selected from the features of the plurality of requesting user network terminal devices in accordance with a pre-established criterion.

23. The communication system of claim 18 wherein said set of selected device features comprises a member of the group consisting of display size, aspect ratio, display line count, color capability, graphics capability, variable size text capability, different font capability, and input capability.

24. The communication system of claim 18 wherein said requesting user network terminal device comprises a member of the group consisting of a wireless telephone and a personal digital assistant.

25. A method of presenting content to a terminal device (19) having particular display characteristics, said method comprising the step of receiving a request (27) for content (41) from the terminal device (19); characterized in that said method further comprises the steps of:

based on said request (27), identifying display characteristics (45) associated with the terminal device (19);

converting the content (41) into a device-dependent format (29) compatible with said identified display characteristics (45); and

transmitting said device-dependent formatted content (29) to the terminal device (19).

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26. The method of claim 25 wherein said step of converting comprises the step of converting the content by interpreting metatags embedded in the content.

27. The method of claim 25 wherein said step of converting comprises the step of converting the content into a landscape-formatted display format if the terminal device has a landscape-formatted display, and converting the content into a portrait-formatted display format if the terminal device has a portrait-formatted display.

28. The method of claim 25 wherein said step of converting comprises the step of converting the content into a first aspect ratio if the terminal device has said first aspect ratio, and converting the content into a second aspect ratio of the terminal device has said second aspect ratio.

29. The method of claim 25 wherein said step of converting comprises the step of converting the content into a small-sized image if the terminal device accommodates only small-sized images, and converting the content into a large-sized image if the terminal device accommodates large-sized images.

30. The method of claim 25 further comprising the step of annotating the content with meta-data to indicate the manner in which portions of the content should be represented on a plurality of different terminal devices, the terminal devices having mutually incompatible display characteristics.

31. The method of claim 25 wherein said step of converting comprises the step of performing a best-fit match between said display characteristics and one of a plurality of display formats.

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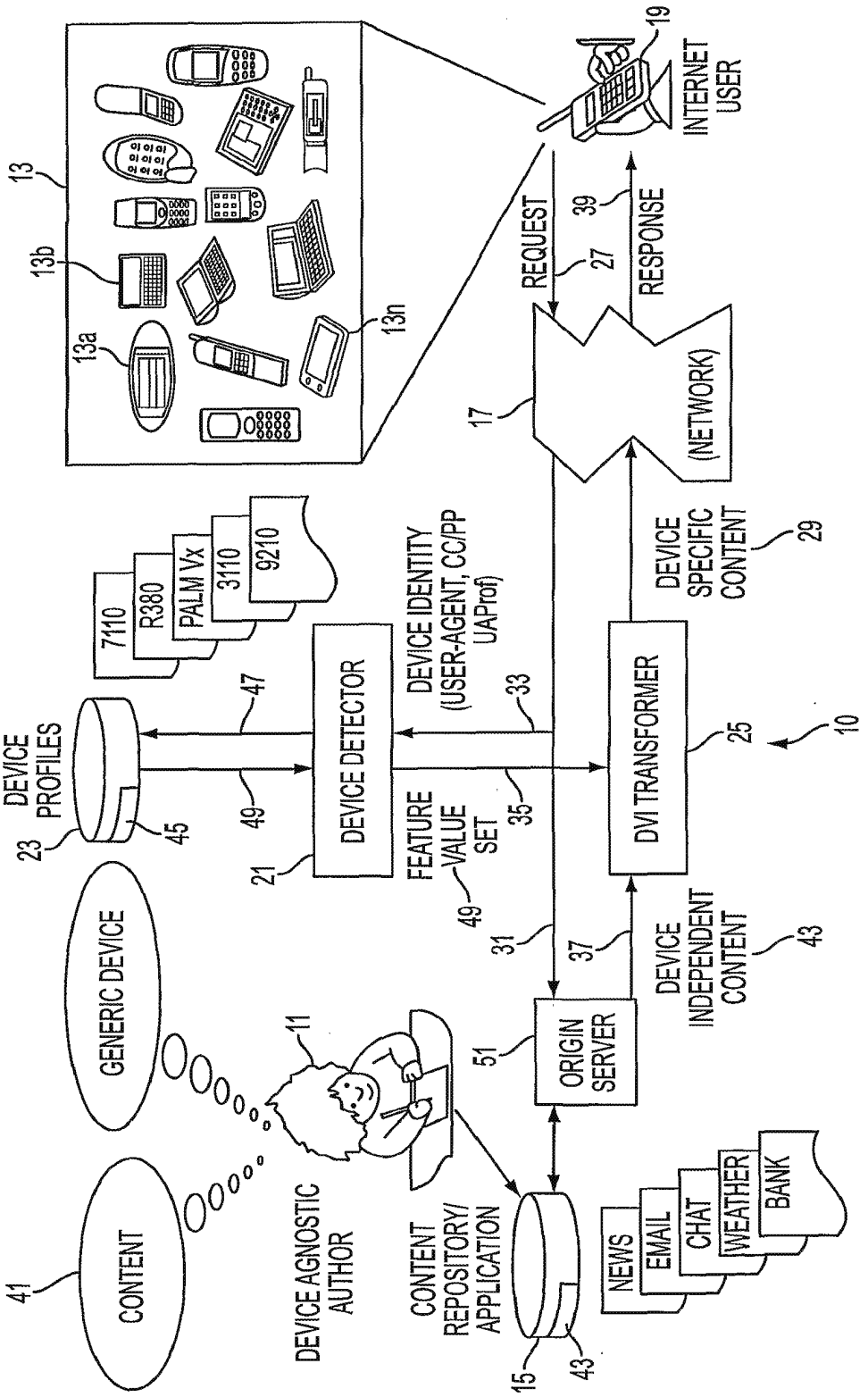


FIG. 1

GTV00000230

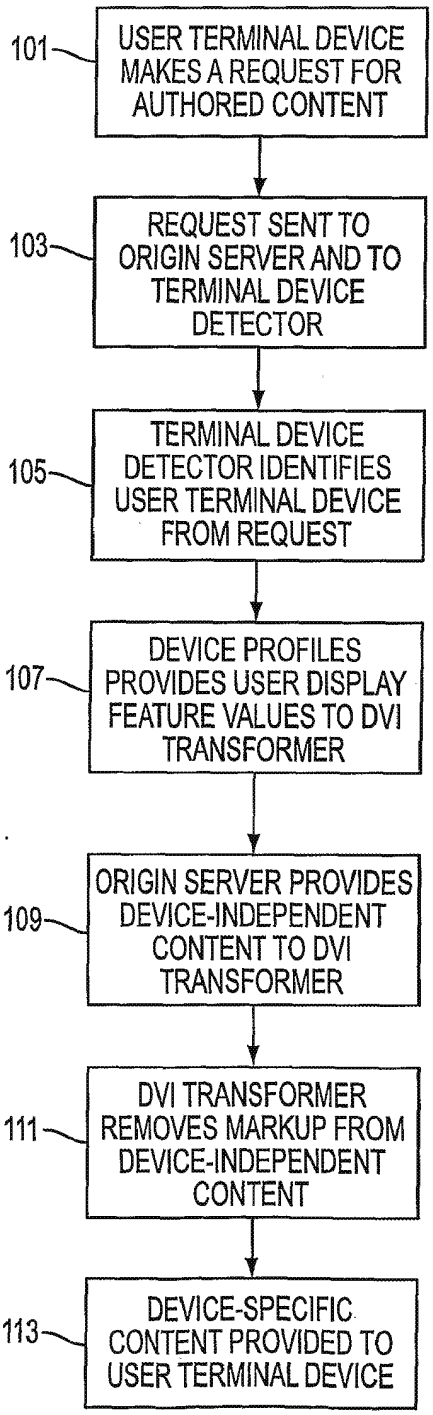


FIG. 2

GTV00000231

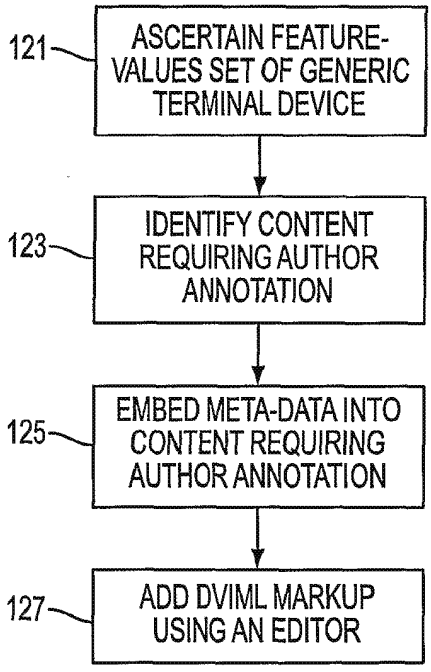


FIG. 3

GTV00000232

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE dviml PUBLIC "-//DVIML//DTD DVIML 0.1//EN"
"http://nda.nokia.com/DTD/dviml0.1xml">
<dviml version="0.10">
    Giant Deep-Sea Creature
    <area concat="true">
        <segment char="200">
        Amazes Spanish Scientists
      </segment>
      <segment char="200">
        Friday November 3 4:35 PM ET MADRID (Reuters) <br/>
      <segment>
      <segment char="50">
        Fishermen off northern Spain have captured a giant
        specimen of a strange, light-emitting, deep sea
        cephalopod, scientists said Friday.
      </segment>
      <segment char="100">
        The octopus-like creature, a taningia danae, weighs in
        at 275 pounds, measures seven feet and is easily the
        biggest of its type discovered. Disappointingly for big
        eaters near the Asturian port of Ribadesella it will not
        end up on their plates, but will be preserved and
        displayed in a marine center whose most impressive
        cephalopod to date was a mere 140 pound example.
      </segment>
    </area>
    <area concat="false">
        <segment char="50">
        picture50
      </segment>
      <segment char="200">
      picture200
      </segment>
    </area>
</dviml>
```

FIG. 4

GTV00000233

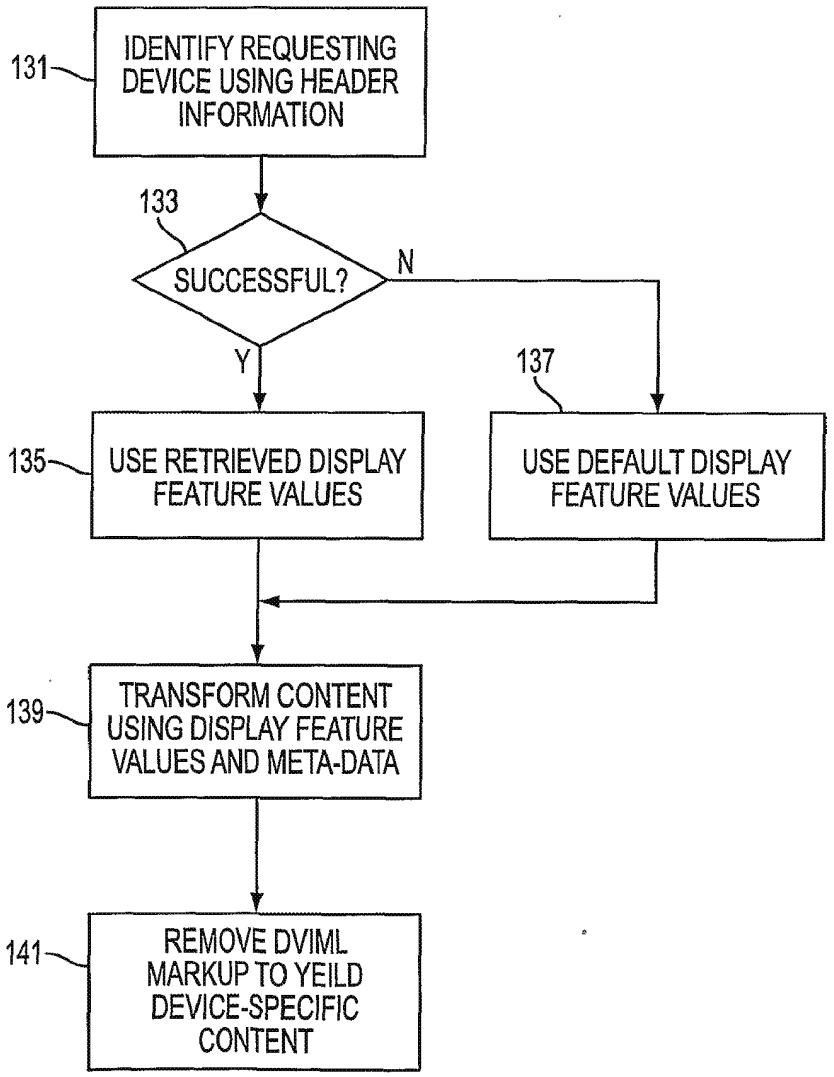

131
IDENTIFY REQUESTING DEVICE USING HEADER INFORMATION
133
SUCCESSFUL?
N
Y
137
135
USE RETRIEVED DISPLAY FEATURE VALUES
USE DEFAULT DISPLAY FEATURE VALUES
139
TRANSFORM CONTENT USING DISPLAY FEATURE VALUES AND META-DATA
141
REMOVE DVIML MARKUP TO YEILD DEVICE-SPECIFIC CONTENT

FIG. 5

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE wml PUBLIC "-//WAPFORUM//DTD WML 1.1//EN"
"http://www.wapforum.org/DTD/wml_1.2.xml">
<wml xmlns:nda="http://nda.nokia.com/deviceAdapter">
  <card>
   <p>
     Giant Deep-Sea Creature
     <nda:area nda:concat="true">
          <nda:segment nda:char="200">
          Amazes Spanish Scientists
        </nda:segment>
     </nda:area>
   </p>
   <p>
     <nda:area nda:concat="true">
       <nda:segment nda:char="200">
           Friday November 3 4:35 PM ET
       MADRID (Reuters) <br/>
       </nda:segment>
       <nda:segment nda:char="50">
            Fishermen off northern Spain have captured a giant
            specimen of a strange, light-emitting, deep sea
            cephalopod, scientists said Friday.
       </nda:segment>
       <nda:segment nda:char="100">
           The octopus-like creature, a taningia danae, weighs in
           at 275 pounds, measures seven feet and is easily the
           biggest of its type discovered. Disappointingly for big
           eaters near the Asturian port of Ribadesella it will not
           end up on their plates, but will be preserved and
           displayed in a marine center whose most impressive
           cephalopod to date was a mere 140 pound example.
       </nda:segment>
     </nda:area>

     <nda:area nda:concat="false">
       <nda:segment nda:char="50">
         <a href="picture50"> Picture </a>
       </nda:segment>
       <nda:segment nda:char="200">
         <a href="picture200"> Picture </a>
       </nda:segment>
     </nda:area>
   </p>
  </card>

</wml>
```

FIG. 6

GTV00000235

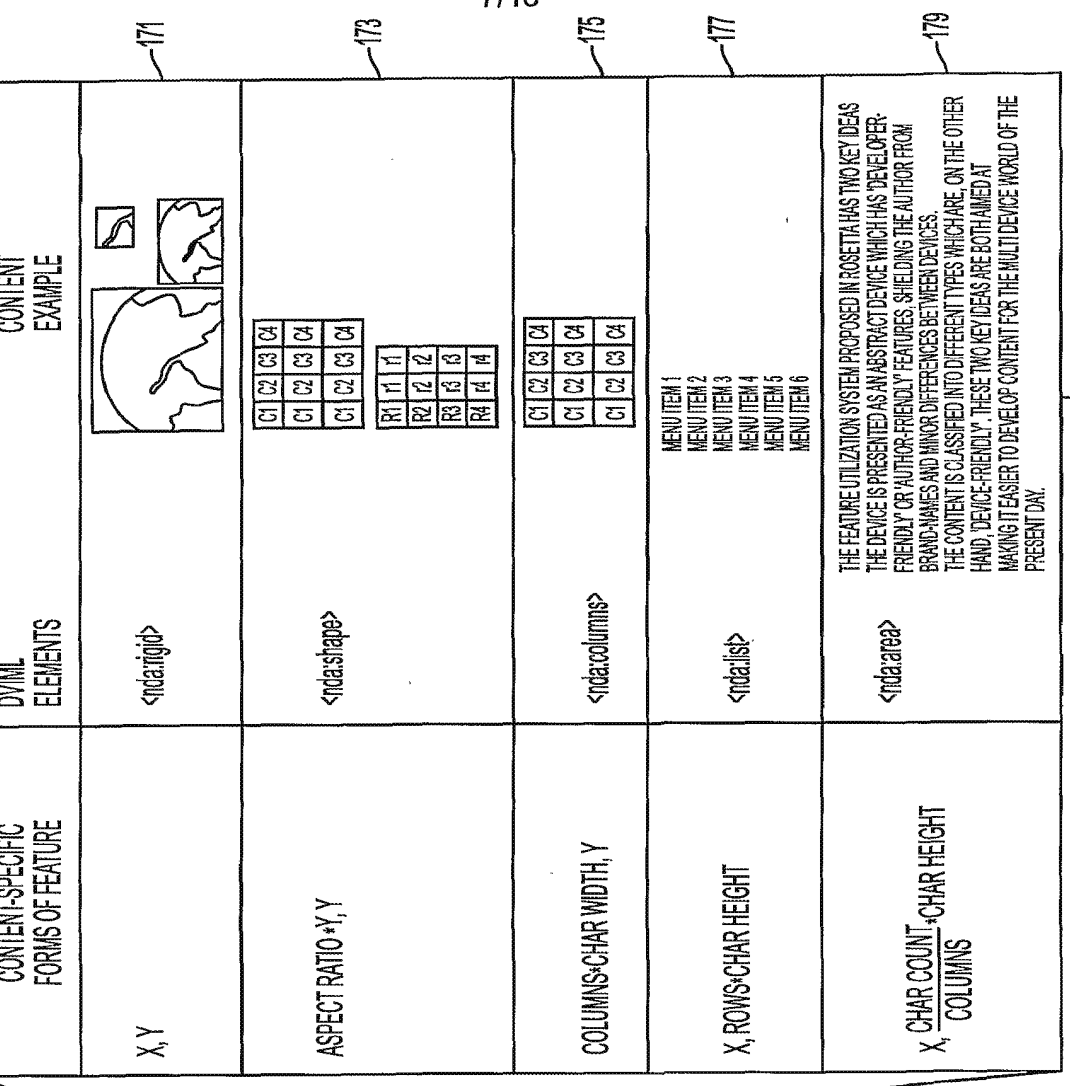


FIG. 7

GTV00000236

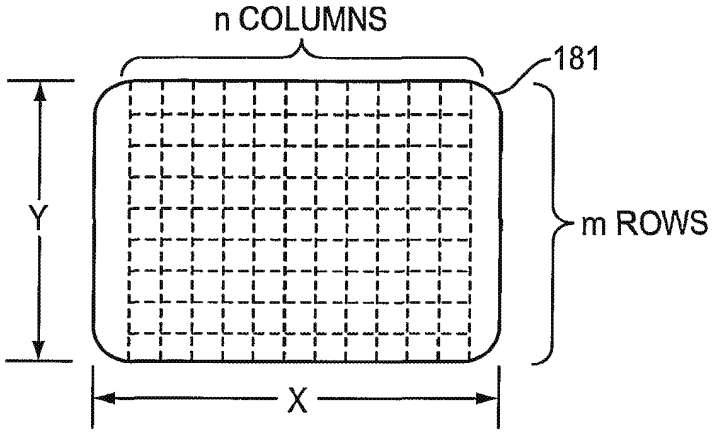


FIG. 8

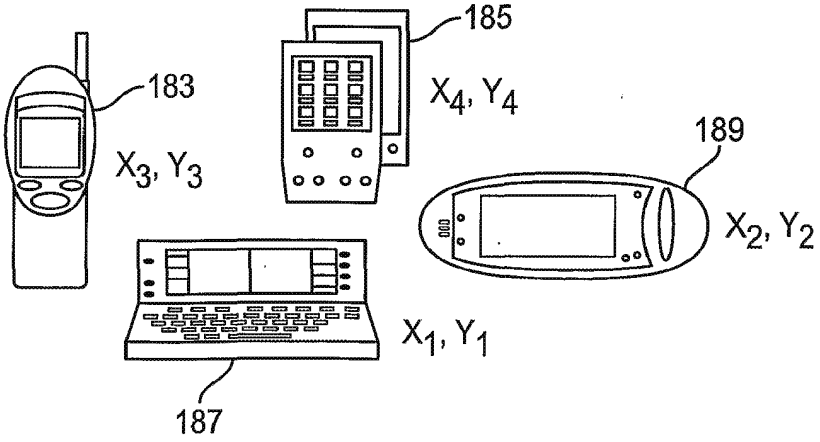


FIG. 9

GTV00000237

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DISPLAY SIZE DVIML ELEMENTS AND VALUES

CONTENT CHARACTERISTIC	RELEVANT DEVICE DISPLAY ATTRIBUTE	DVIML ELEMENT	VALUE FOR ACTUAL DEVICE	VALUE FOR GENERIC DEVICE
IMAGES (FIXED FORM)	X, Y	<RIGID>	ZERO TO INFINITY AND ALL INTEGERS IN BETWEEN (0 TO ∞)	SAME AS FOR THE ACTUAL DEVICE.
TABLES AND VECTOR GRAPHICS (GENERATED FIXED FORM)	ASPECT RATIO	<SHAPE>	ZERO TO INFINITY AND ALL NUMBERS IN BETWEEN (0 TO ∞)	SQUARE PORTRAIT LANDSCAPE
COLUMNS (Y-AXIS FREE FORM)	COLUMNS	<COLUMS>	ZERO TO INFINITY AND ALL INTEGERS IN BETWEEN (0 TO ∞)	5 10 20+
LISTS OR ROWS (X-AXIS FREE FORM)	ROWS	<LIST>	ZERO TO INFINITY AND ALL INTEGERS IN BETWEEN (0 TO ∞)	5 10 20+
TEXT (BI-AXIALLY FREE FORM)	CHAR COUNT	<AREA>	ZERO TO INFINITY AND ALL INTEGERS IN BETWEEN (0 TO ∞)	50 100 200+

FIG. 10

DEVICE PROFILE FOR PALM Vx (ILLUSTRATIVE ONLY) 193

FEATURE	POLYMORPH	VALUE
DISPLAY SIZE	X, Y	160, 160
	ASPECT RATIO	SQUARE
	COLUMNS	20
	ROWS	20
	CHAR COUNT	200+
GRAPHICS		YES
COLOR		NO
KEYBOARD INPUT		NO
SCREEN INPUT		YES

FIG. 11

GTV00000239

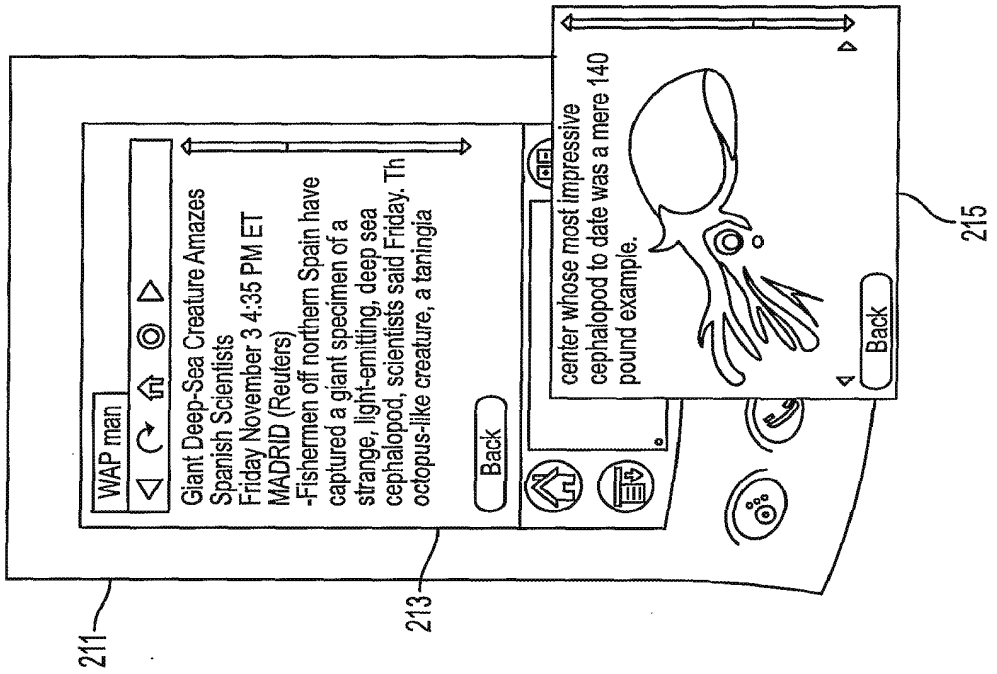


FIG. 12B

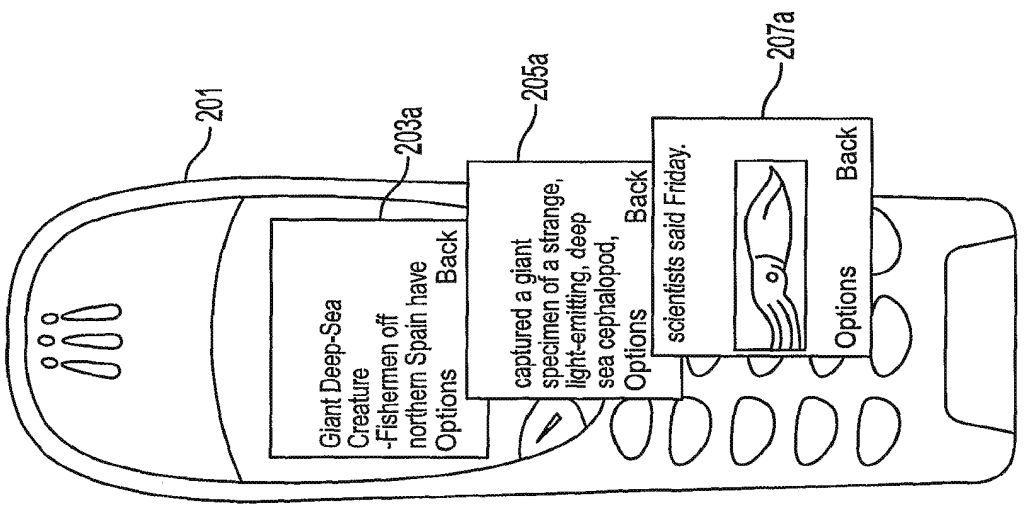


FIG. 12A

GTV00000240

```
<?xml version="1.0"?>
<!DOCTYPE wml PUBLIC "-//WAPFORUM//DTD WML 1.1//EN"
"http://www.wapforum.org/DTD/wml_1.2.xml">
<wml xmlns:nda="http://nda.nokia.com/deviceAdapter">
 <card id="Forecast" newcontext="true" title="Forecast">
  <p align="center">
   <nda:shape>
    <nda:pick nda:aspect_ratio="landscape">
     <table align="CCCCC" columns="5">
      <tr>
       <td>M</td>
       <td>T</td>
       <td>W</td>
       <td>Th</td>
       <td>S</td>
      </tr>
      <tr>
       <td><img alt="clouds"
src="../images/weather/clouds.wbmp"></img></td>
       <td><img alt="mixed"
src="../images/weather/mixed.wbmp"></img></td>
       <td><img alt="ptcloudy"
src="../images/weather/ptcloudy.wbmp"></img></td>
       <td><img alt="rain"
src="../images/weather/rain.wbmp"></img></td>
       <td><img alt="sun"
src="../images/weather/sun.wbmp"></img></td>
      </tr>
      <tr>
       <td>78 F</td>
       <td>89 F</td>
       <td>95 F</td>
       <td>88 F</td>
       <td>79 F</td>
      </tr>
      <tr>
       <td>68 F</td>
       <td>69 F</td>
       <td>75 F</td>
       <td>68 F</td>
       <td>65 F</td>
      </tr>
     </table>
```

FIG. 13A

```
            </nda:pick>
            <nda:pick nda:aspect_ratio="portrait">
              <table align="LCR" columns="3">
                <tr>
                  <td>M M</td>
                  <td><img alt="clouds"
src="../images/weather/clouds.wbmp"></img></td>
                  <td>Hi  78 F<br></br>Lo  68 F</td>
                </tr>
                <tr>
                  <td>T</td>
                  <td><img alt="mixed"
src="../images/weather/mixed.wbmp"></img></td>
                  <td>Hi  89 F<br></br>Lo  69 F</td>
                </tr>
                <tr>
                  <td>W</td>
                  <td><img alt="ptcloudy"
src="../images/weather/ptcloudy.wbmp"></img></td>
                  <td>Hi  95 F<br></br>Lo  75 F</td>
                </tr>
                <tr>
                  <td>Th</td>
                  <td><img alt="rain"
src="../images/weather/rain.wbmp"></img></td>
                  <td>Hi  88 F<br></br>Lo  68 F</td>
                </tr>
                <tr>
                  <td>S</td>
                  <td><img alt="sun"
src="../images/weather/sun.wbmp"></img></td>
                  <td>Hi  79 F<br></br>Lo  65 F</td>
                </tr>
              </table>
              </nda:pick>
            </nda:shape>
          </p>
        </card>
      </wml>
```

FIG. 13B

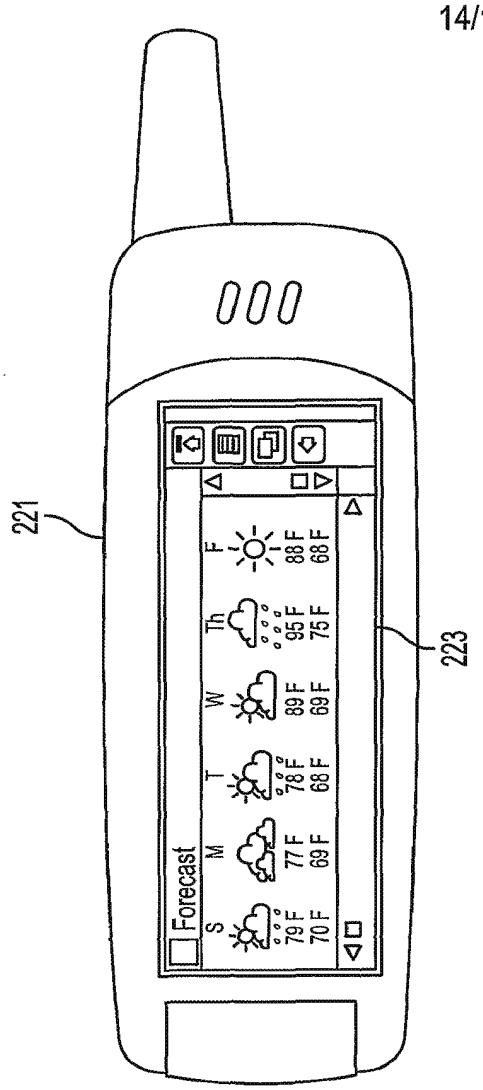


FIG. 14B

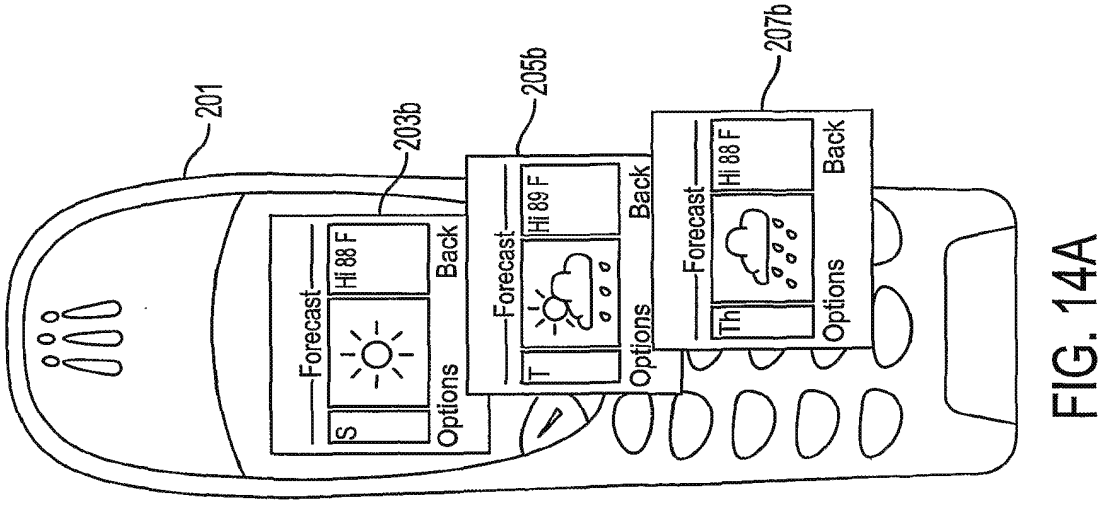


FIG. 14A

GTV00000243

CONSIDER AN OBJECT WHICH HAS FOUR FEATURES.

FEATURES = α β χ δ

FIG. 15

EACH FEATURE MAY TAKE DIFFERENT VALUES, DENOTED BY A DIFFERENT 'FONT' HERE.

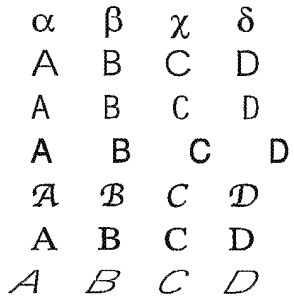


FIG. 16

GTV00000244

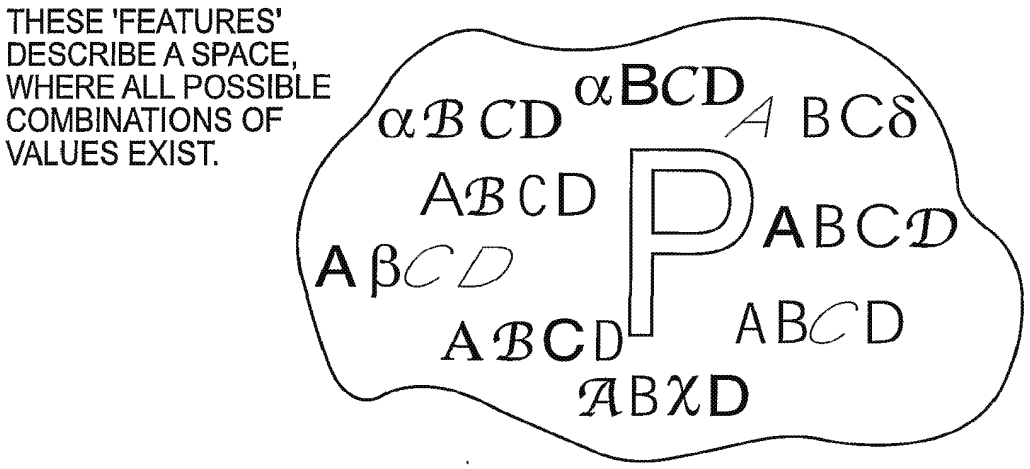


FIG. 17

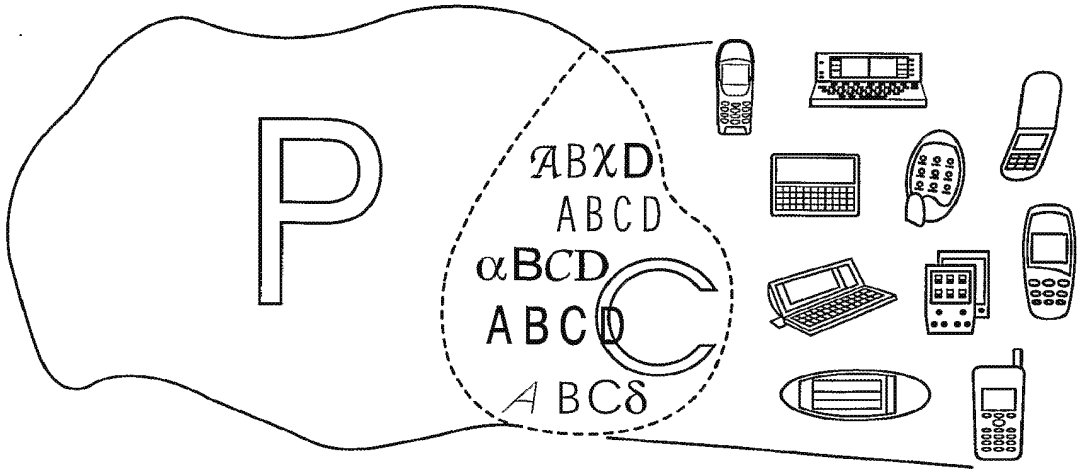


FIG. 18

GTV00000245

NEW FEATURE, E

NEW FEATURES EXTEND THE 'SPACE'. UNTIL WE EXTEND OUR 'ALPHABET' WE DO NOT RECOGNIZE THIS SPACE.

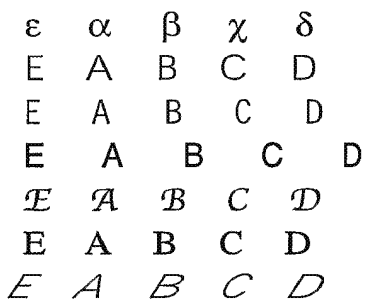


FIG. 19

CONVERGED FEATURE, D

OLD FEATURES MAY CONVERGE TO A SINGLE VALUE, AND HENCE NO LONGER BE OF INTEREST.

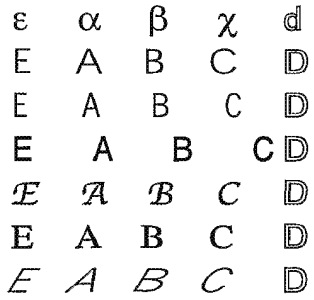


FIG. 20

GTV00000246

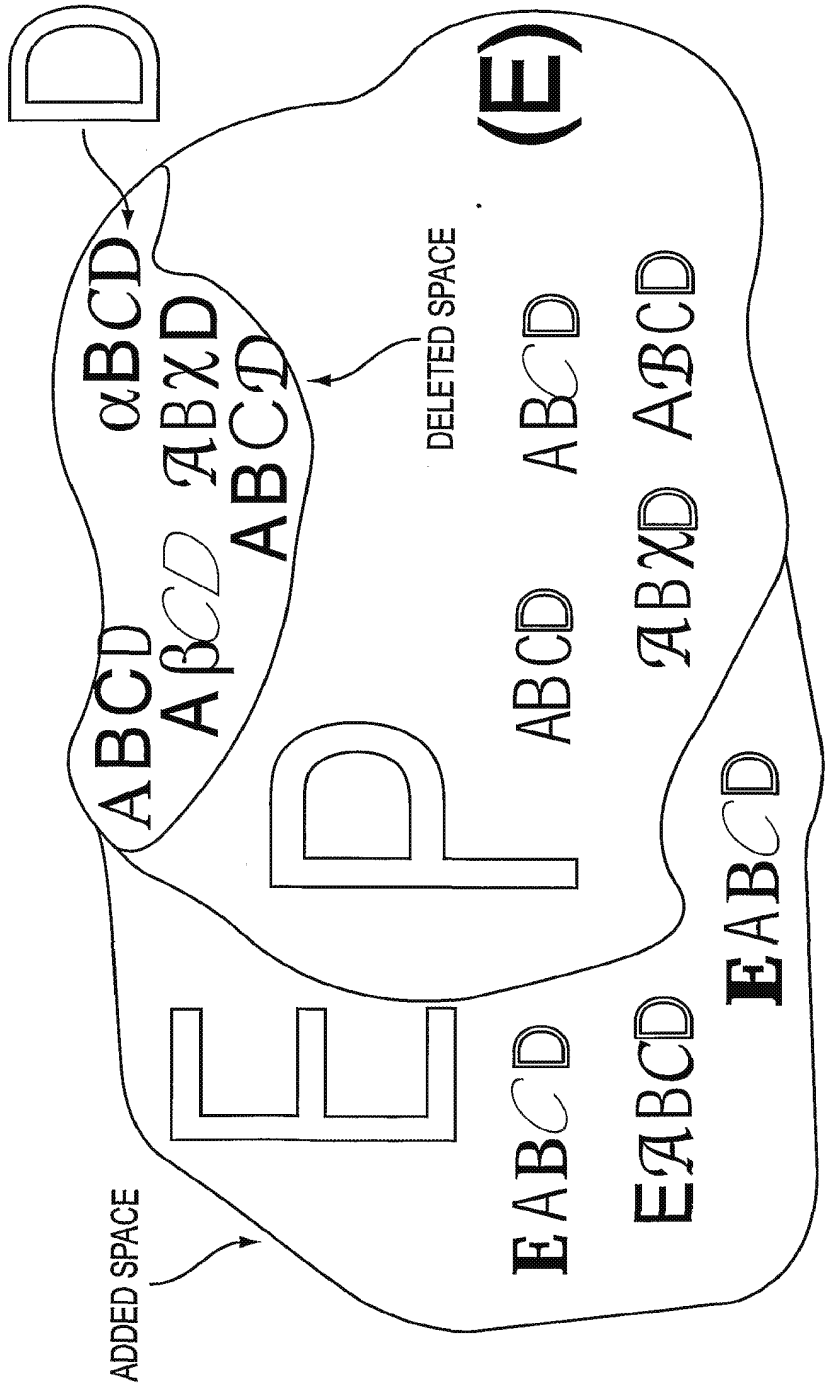


FIG. 21

GTV00000247

INTERNATIONAL SEARCH REPORT

International application No.
PCT/IB02/02098

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) :H04L 12/46

US CL : 709/203, 220, 224, 227, 232; 370/85.13, 94.3, 60

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)

U.S. : 709/203, 220, 224, 227, 232; 370/85.13, 94.3, 60

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

Microsoft Computer Dictionary

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

WEST, IEEE, EAST

search terms: network, content, mobile converting, terminal, web page, display characteristics, markup information, internet

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5,572,528 A (SHUEN) 05 November 1996, abstract, figs.1-3, col.11 line 33 to col.13 line 42, col.15 lines 7-63 and col.17 line 13 to col.18 line 65.	1-31
Y, E	US 6,412,000 B1 (RIDDLE et al) 25 June 2002, fig.2B, abstract, col.8 line 48 to col.11 line 46, col.13 line 30 to col.14 line 66.	1-31

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

*	Special categories of cited documents:	"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
"A"	document defining the general state of the art which is not considered to be of particular relevance	"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
"E"	earlier document published on or after the international filing date	"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
"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)	"&"	document member of the same patent family
"O"	document referring to an oral disclosure, use, exhibition or other means		
"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

12 NOVEMBER 2002

Date of mailing of the international search report

03 DEC 2002

Name and mailing address of the ISA/US
Commissioner of Patents and Trademarks
Box PCT
Washington, D.C. 20231

Facsimile No. (703) 305-3230

Authorized officer

Peggy Harrod

AYAZ R. SHEIKH

Telephone No. (703) 305-9648

Form PCT/ISA/210 (second sheet) (July 1998)★

Electronic Acknowledgement Receipt

EFS ID:	5437939
Application Number:	11888799
International Application Number:	
Confirmation Number:	5349
Title of Invention:	Server method and system for rendering content on a wireless device
First Named Inventor/Applicant Name:	Pierre Carion
Correspondence Address:	MURABITO HAO & BARNES LLP Third Floor Two North Market Street - San Jose CA 95113 US 4089389060 -
Filer:	Glenn D. Barnes/Missy Isaac
Filer Authorized By:	Glenn D. Barnes
Attorney Docket Number:	HOMI-P004
Receipt Date:	02-JUN-2009
Filing Date:	01-AUG-2007
Time Stamp:	15:35:55
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Information Disclosure Statement (IDS) Filed (SB/08)	HOMI-P004_IDStransmittal_06-02-09.pdf	609550 c6443f3b90e3d0823f56ce7541cbebfdae90425bb	no	4
Warnings:					
Information:					
2	NPL Documents	GRUNDY.pdf	153487 66f5c4ac1ed3b20e314cc5c362da7a8a402d3f5d	no	6
Warnings:					
Information:					
3	NPL Documents	MULTIPLATFORM_UIML.pdf	611923 70f4ef4f2032ae3b7981181 7866aea325a840d06	no	12
Warnings:					
Information:					
4	NPL Documents	RAINIER.pdf	525450 bab127a1b4537ab2c6b4800db449d25f7db3020c	no	8
Warnings:					
Information:					
5	NPL Documents	VANDERDONCKT.pdf	326550 a3080851e701dc721252f3f876d6f4eb5c5b0320	no	8
Warnings:					
Information:					
6	NPL Documents	ZIEGERT.pdf	401363 b71b8383533e46e357395abd4a0abf2f1292847b	no	12
Warnings:					
Information:					
7	Foreign Reference	WO02103963.pdf	2531266 6838618b7941e3b925087dad37510bdbd029e563	no	63
Warnings:					
Information:					
		Total Files Size (in bytes):	5159589		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/888,799	08/01/2007	Pierre Carion	HOMI-P004	5349

7590 06/25/2010

MURABITO HAO & BARNES LLP
Third Floor
Two North Market Street
San Jose, CA 95113

EXAMINER	
SURYAWANSHI, SURESH	
ART UNIT	PAPER NUMBER
2115	

MAIL DATE	DELIVERY MODE
06/25/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	11/888,799	CARION ET AL.	
	Examiner	Art Unit	
	SURESH K. SURYAWANSHI	2115	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 August 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-41* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-41* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *01 August 2007* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *8/27/07, 6/2/09*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-41 are presented for examination.

Claim Rejections - 35 USC § 112

2. Claim 28 recites the limitation "said bus" in line 2. There is insufficient antecedent basis for this limitation in the claim.

3. Claim 28 recites the limitation "said wireless device" in lines 3-4. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-41 are rejected under 35 U.S.C. 102(e) as being anticipated by Ho (US Patent 7,636,792).

6. As per claim 1, Ho discloses a server implemented method for processing data for a wireless device, said method comprising:

executing an application program which generates content operable to be rendered on said wireless device and wherein said content is wireless device generic [Fig. 3; col. 1, lines 8-14; col. 3, lines 1-4; col. 3, lines 12-49; col. 5, lines 1-59; col. 6, lines 13-16; col. 6, lines 28-66; col. 7, lines 39-45; the proxy server generates content operable to be rendered on said wireless device and wherein the content is wireless device generic];

generating a first screen description based on said content and based on a device profile of said wireless device wherein said device profile describes a rendering capability of said wireless device [Fig. 3; col. 1, lines 8-14; col. 3, lines 1-4; col. 3, lines 12-49; col. 5, lines 1-59; col. 6, lines 13-16; col. 6, lines 28-66; col. 7, lines 39-45; generating a base file or the address of the requested content together with information identifying the type of the requesting mobile device];

translating said first screen description into a second screen description comprising discrete low level rendering commands that are within said rendering capability of said wireless device but that are of a syntax that is wireless device generic [Fig. 3; col. 1, lines 8-14; col. 3, lines 1-4; col. 3, lines 12-49; col. 5, lines 1-59; col. 6, lines 13-16; col. 6, lines 28-66; col. 7, lines 39-45; after having received the content, the proxy server may then automatically convert the

fetched content from the reference format to format suitable for rendering capability of the mobile device]; and

providing said second screen description for transmission to said wireless device [Fig. 3; col. 1, lines 8-14; col. 3, lines 1-4; col. 3, lines 12-49; col. 5, lines 1-59; col. 6, lines 13-16; col. 6, lines 28-66; col. 7, lines 39-45; the proxy server transmits the converted fetched content to the mobile device].

7. As per claim 14, Ho discloses a server system comprising a processor coupled to a bus and a memory coupled to said bus wherein said memory comprises instructions that when executed cause said processor to implement a method for processing data for a wireless device, said method comprising:

executing an application program which generates content operable to be rendered on said wireless device and wherein said content is wireless device generic [Fig. 3; col. 1, lines 8-14; col. 3, lines 1-4; col. 3, lines 12-49; col. 5, lines 1-59; col. 6, lines 13-16; col. 6, lines 28-66; col. 7, lines 39-45; the proxy server generates content operable to be rendered on said wireless device and wherein the content is wireless device generic];

generating a first screen description based on said content and based on a device profile of said wireless device wherein said device profile describes a rendering capability of said

wireless device [Fig. 3; col. 1, lines 8-14; col. 3, lines 1-4; col. 3, lines 12-49; col. 5, lines 1-59; col. 6, lines 13-16; col. 6, lines 28-66; col. 7, lines 39-45; generating a base file or the address of the requested content together with information identifying the type of the requesting mobile device];

translating said first screen description into a second screen description comprising discrete low level rendering commands that are within said rendering capability of said wireless device but that are of a syntax that is wireless device generic [Fig. 3; col. 1, lines 8-14; col. 3, lines 1-4; col. 3, lines 12-49; col. 5, lines 1-59; col. 6, lines 13-16; col. 6, lines 28-66; col. 7, lines 39-45; after having received the content, the proxy server may then automatically convert the fetched content from the reference format to format suitable for rendering capability of the mobile device]; and

providing said second screen description for transmission to said wireless device [Fig. 3; col. 1, lines 8-14; col. 3, lines 1-4; col. 3, lines 12-49; col. 5, lines 1-59; col. 6, lines 13-16; col. 6, lines 28-66; col. 7, lines 39-45; the proxy server transmits the converted fetched content to the mobile device].

8. As per claim 28, Ho discloses A server system comprising:

a memory coupled to said bus [Fig. 5];

a transceiver coupled to said bus operable to communicate with said wireless device [Fig. 2 and 5]; and

a processor coupled to a bus and operable to execute an application program which generates content for rendering on a wireless device and wherein said content is wireless device generic [Fig. 2, 3 and 5] and wherein further said processor is operable to implement:

a device profile library operable to store a device profile describing the rendering capability of said wireless device [Fig. 4];

a screen layout generator operable to generate a first screen description based on said content and based on said device profile of said wireless device [Fig. 3; col. 1, lines 8-14; col. 3, lines 1-4; col. 3, lines 12-49; col. 5, lines 1-59; col. 6, lines 13-16; col. 6, lines 28-66; col. 7, lines 39-45; generating a base file or the address of the requested content together with information identifying the type of the requesting mobile device]; and

a screen layout translator operable to translate said first screen description into a second screen description comprising discrete low level rendering commands that are within said rendering capability of said wireless device but that are of a syntax that is wireless device generic [Fig. 3; col. 1, lines 8-14; col. 3, lines 1-4; col. 3, lines 12-49; col. 5, lines 1-59; col. 6, lines 13-16; col. 6, lines 28-66; col. 7, lines 39-45; after having received the content, the proxy server

may then automatically convert the fetched content from the reference format to format suitable for rendering capability of the mobile device].

9. As per claims 2, 15 and 29, Ho discloses that said first screen description is of a syntax that is wireless device generic and wherein further said first screen description is within the rendering capability of said wireless device [Fig. 3; col. 1, lines 8-14; col. 3, lines 1-4; col. 3, lines 12-49; col. 5, lines 1-59; col. 6, lines 13-16; col. 6, lines 28-66; col. 7, lines 39-45; after having received the content, the proxy server may then automatically convert the fetched content from the reference format to format suitable for rendering capability of the mobile device].

10. As per claims 3, 16 and 30, Ho discloses that said first screen description contains relative screen location and display object size information and is independent of screen dimensions [Fig. 3; col. 1, lines 8-14; col. 3, lines 1-4; col. 3, lines 12-49; col. 5, lines 1-59; col. 6, lines 13-16; col. 6, lines 28-66; col. 7, lines 39-45; re-sizing].

11. As per claims 4, 17 and 31, Ho discloses that said first screen description is substantially compliant with extensible markup language (XML) syntax [Fig. 3; col. 1, lines 8-14; col. 3, lines 1-4; col. 3, lines 12-49; col. 5, lines 1-59; col. 6, lines 13-16; col. 6, lines 28-66; col. 7, lines 39-45; col. 7, lines 64-65; eXtensible Markup Language (XML)].

12. As per claims 5, 18 and 32, Ho discloses that said low level rendering commands of said second screen description are operable to be executed by a plurality of rendering blocks of a graphical user interface of said wireless device [Fig. 3; col. 1, lines 8-14; col. 3, lines 1-4; col. 3, lines 12-49; col. 5, lines 1-59; col. 6, lines 13-16; col. 6, lines 28-66; col. 7, lines 39-45; rendering].

13. As per claims 6, 19 and 33, Ho discloses that said low level rendering commands comprise physical screen positions of display elements [Fig. 3; col. 1, lines 8-14; col. 3, lines 1-4; col. 3, lines 12-49; col. 5, lines 1-59; col. 6, lines 13-16; col. 6, lines 28-66; col. 7, lines 39-45; rendering according to screen size].

14. As per claims 7, 20 and 34, Ho discloses that a low level rendering command comprises: specifications of a location and a size of a screen area [Fig. 3; col. 1, lines 8-14; col. 3, lines 1-4; col. 3, lines 12-49; col. 5, lines 1-59; col. 6, lines 13-16; col. 6, lines 28-66; col. 7, lines 39-45; rendering according to screen size]; and an identification of a particular rendering block of said plurality of rendering blocks of said graphical user interface to operate within said screen area [Fig. 3; col. 1, lines 8-14; col. 3, lines 1-4; col. 3, lines 12-49; col. 5, lines 1-59; col. 6, lines 13-16; col. 6, lines 28-66; col. 7, lines 39-45; rendering according to screen size].

15. As per claims 8, 21 and 35, Ho discloses that said low level rendering command further comprises parameters associated with said particular rendering block [Fig. 3; col. 1, lines 8-14; col. 3, lines 1-4; col. 3, lines 12-49; col. 5, lines 1-59; col. 6, lines 13-16; col. 6, lines 28-66; col. 7, lines 39-45; rendering].

16. As per claims 9, 22 and 36, Ho discloses transmitting said second screen description to said wireless device [Fig. 3; col. 1, lines 8-14; col. 3, lines 1-4; col. 3, lines 12-49; col. 5, lines 1-59; col. 6, lines 13-16; col. 6, lines 28-66; col. 7, lines 39-45; the proxy server transmits the converted fetched content to the mobile device].

17. As per claims 10, 23 and 37, Ho discloses that said second screen description comprises display and audio rendering commands [Fig. 3; col. 1, lines 8-14; col. 3, lines 1-4; col. 3, lines 12-49; col. 5, lines 1-59; col. 6, lines 13-16; col. 6, lines 28-66; col. 7, lines 39-45; rendering].

18. As per claims 11, 24 and 38, Ho discloses that said application program is wireless device generic and wherein further said content generated by said application comprises a screen description template that is wireless device generic [Fig. 3; col. 1, lines 8-14; col. 3, lines 1-4; col. 3, lines 12-49; col. 5, lines 1-59; col. 6, lines 13-16; col. 6, lines 28-66; col. 7, lines 39-45; the proxy server that is a software module is wireless device generic].

19. As per claims 12, 25 and 39, Ho discloses that in response to a request for executing said application program, causing to be transmitted a custom configuration to said wireless device wherein said custom configuration is specific for said application program and is operable to configure a plurality of rendering blocks of a graphical user interface of said wireless device [Fig. 3; col. 1, lines 8-14; col. 3, lines 1-4; col. 3, lines 12-49; col. 5, lines 1-59; col. 6, lines 13-16; col. 6, lines 28-66; col. 7, lines 39-45].

20. As per claims 13 and 26, Ho discloses that said server comprises a plurality of device profiles and further comprising: receiving an identification of a type of said wireless device [Fig. 3 and 4; col. 1, lines 8-14; col. 3, lines 1-4; col. 3, lines 12-49; col. 5, lines 1-59; col. 6, lines 13-16; col. 6, lines 28-66; col. 7, lines 39-45; type of mobile device and configuration table]; and identifying said device profile based on said type of said wireless device [Fig. 3 and 4; col. 1, lines 8-14; col. 3, lines 1-4; col. 3, lines 12-49; col. 5, lines 1-59; col. 6, lines 13-16; col. 6, lines 28-66; col. 7, lines 39-45; type of mobile device and configuration table].

21. As per claims 27 and 40, Ho discloses that said memory comprises a plurality of custom configurations and wherein said method further comprises: receiving an identification of a type of said wireless device [Fig. 3; col. 1, lines 8-14; col. 3, lines 1-4; col. 3, lines 12-49; col. 5, lines 1-59; col. 6, lines 13-16; col. 6, lines 28-66; col. 7, lines 39-45; type of mobile device]; receiving an identification of said application program from said wireless device [Fig. 3; col. 1, lines 8-14; col. 3, lines 1-4; col. 3, lines 12-49; col. 5, lines 1-59; col. 6, lines 13-16; col. 6, lines 28-66; col. 7, lines 39-45; type of mobile device]; and identifying said custom configuration of said plurality

of custom configurations based on said type of said wireless device and based on said identification of said application program [Fig. 3 and 4; col. 1, lines 8-14; col. 3, lines 1-4; col. 3, lines 12-49; col. 5, lines 1-59; col. 6, lines 13-16; col. 6, lines 28-66; col. 7, lines 39-45; type of mobile device and configuration table].

22. As per claim 41, Ho discloses that said memory comprises a plurality of device profiles and wherein said transceiver is operable to receive an identification of a type of said wireless device wherein said processor is operable to identify said device profile of said plurality of device profiles based on said type of said wireless device [Fig. 3 and 4; col. 1, lines 8-14; col. 3, lines 1-4; col. 3, lines 12-49; col. 5, lines 1-59; col. 6, lines 13-16; col. 6, lines 28-66; col. 7, lines 39-45; type of mobile device and configuration table].

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SURESH K. SURYAWANSHI whose telephone number is (571)272-3668. The examiner can normally be reached on 9:00am - 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas C. Lee can be reached on 571-272-3667. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Suresh K Suryawanshi/
Primary Examiner, Art Unit 2115

Notice of References Cited	Application/Control No. 11/888,799	Applicant(s)/Patent Under Reexamination CARION ET AL.	
	Examiner SURESH K. SURYAWANSHI	Art Unit 2115	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-7,636,792	12-2009	Ho, Alexander Channing	709/246
*	B	US-7,506,070	03-2009	Tran et al.	709/246
*	C	US-2002/0103881	08-2002	Granade et al.	709/218
*	D	US-2002/0131404	09-2002	Mehta et al.	370/352
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	11888799	CARION ET AL.
	Examiner	Art Unit
	SURESH K SURYAWANSHI	2115

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	06/22/2010								
	1	✓								
	2	✓								
	3	✓								
	4	✓								
	5	✓								
	6	✓								
	7	✓								
	8	✓								
	9	✓								
	10	✓								
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	32	✓								
	33	✓								
	34	✓								
	35	✓								
	36	✓								

GTV00000266

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	11888799	CARION ET AL.
	Examiner	Art Unit
	SURESH K SURYAWANSHI	2115

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	06/22/2010								
	37	✓								
	38	✓								
	39	✓								
	40	✓								
	41	✓								

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	11888799	CARION ET AL.
	Examiner	Art Unit
	SURESH K SURYAWANSHI	2115

SEARCHED			
Class	Subclass	Date	Examiner
713	100	6/21/10, 6/22/10	SKS

SEARCH NOTES		
Search Notes	Date	Examiner
EAST; USPAT; US-PGPUB; EPO; JPO; IBM_TDB; NPL	6/21/10, 6/22/10	SKS

INTERFERENCE SEARCH			
Class	Subclass	Date	Examiner
713	1	6/21/10, 6/22/10	SKS
709	246, 203	6/21/10, 6/22/10	SKS

UNITED STATES PATENT AND TRADEMARK OFFICE

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BIB DATA SHEET

CONFIRMATION NO. 5349

SERIAL NUMBER	FILING or 371(c) DATE RULE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
11/888,799	08/01/2007	340	2115	HOMI-P004

APPLICANTS
Pierre Carion, La Jolla, CA;
Kevin Smith, San Diego, CA;

**** CONTINUING DATA ***************************
None /SKS/

**** FOREIGN APPLICATIONS ***************************
None /SKS/

**** IF REQUIRED, FOREIGN FILING LICENSE GRANTED ****
08/15/2007

Foreign Priority claimed ☐ Yes ☑ No 35 USC 119(a-d) conditions met ☐ Yes ☐ No Verified and Acknowledged /SURESH SURYAWANSHI/ Examiner's Signature	☐ Met after Allowance Initials	STATE OR COUNTRY	SHEETS DRAWINGS	TOTAL CLAIMS	INDEPENDENT CLAIMS
		CA	9	41	3

ADDRESS

MURABITO HAO & BARNES LLP
Third Floor
Two North Market Street
San Jose, CA 95113
UNITED STATES

TITLE

Server method and system for rendering content on a wireless device

FILING FEE RECEIVED		
2050	FEES: Authority has been given in Paper No._____ to charge/credit DEPOSIT ACCOUNT No._____ for following:	☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time) ☐ 1.18 Fees (Issue) ☐ Other _____ ☐ Credit

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	1	profile with render$3 with wireless adj1 device	USPAT	OR	OFF	2010/06/21 14:39
S2	8	profile with render$3 with wireless adj1 device	US-PGPUB	OR	OFF	2010/06/21 14:44
S3	0	profile with render$3 with wireless adj1 device	EPO; JPO; IBM_TDB	OR	OFF	2010/06/21 15:28
S4	0	("7630721").URPN.	USPAT	OR	OFF	2010/06/21 15:30
S5	31	("20010018663" | "20010047441" | "20020156708" | "20030011805" | "20030036350" | "5793630" | "5880732" | "6000864" | "6021433" | "6026119" | "6055229" | "6058106" | "6058422" | "6069896" | "6073013" | "6075812" | "6075987" | "6076099" | "6076167" | "6285889" | "6286029" | "6360101" | "6363254" | "6379059" | "6457078" | "6493104" | "6515988" | "6574266" | "6591297" | "6625580" | "6738841").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2010/06/21 15:43

GTV00000270

S6	24	content with render$3 with wireless adj1 device	USPAT	OR	OFF	2010/06/21 16:27
S7	62	content with render$3 with wireless adj1 device	US-PGPUB	OR	OFF	2010/06/21 16:51
S8	0	content with render$3 with wireless adj1 device	EPO; JPO; IBM_TDB	OR	OFF	2010/06/21 17:31
S9	0	("7636792").URPN.	USPAT	OR	OFF	2010/06/22 13:59
S10	21	("20020103881" | "20020156833" | "20020173907" | "20040170155" | "5706507" | "6073168" | "6233618" | "6343318" | "6397259" | "6407680" | "6590588" | "6601098" | "6615212" | "6622157" | "6658463" | "6745229" | "6922721" | "6930987" | "6950881" | "7024464" | "7028102").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2010/06/22 13:59
S11	1	"6345279".pn.	USPAT	OR	OFF	2010/06/22 14:10
S12	0	"2002109718"	US-PGPUB	OR	OFF	2010/06/22 14:12
S13	1	"20020109718"	US-PGPUB	OR	OFF	2010/06/22 14:12
S14	5	"6884172"	USPAT	OR	OFF	2010/06/22 14:14
S15	2	("5572528" "6412000").pn.	USPAT	OR	OFF	2010/06/22 15:11

6/22/2010 5:44:54 PM
C:\Documents and Settings\ssuryawanshi\My Documents\EAST\Workspaces\11888799RenderingContentWirelessDevice.wsp

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (03-09)
Approved for use through 04/30/2009. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	11888799
Filing Date	2007-08-01
First Named Inventor	Pierre Carion
Art Unit	
Examiner Name	
Attorney Docket Number	HOMI-P004

U.S.PATENTS Remove

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	6345279		2002-02-05	Li , et al.	

If you wish to add additional U.S. Patent citation information please click the Add button. Add

U.S.PATENT APPLICATION PUBLICATIONS Remove

Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	20020109718		2002-08-15	Mansour, Peter M. ; et al.	

If you wish to add additional U.S. Published Application citation information please click the Add button. Add

FOREIGN PATENT DOCUMENTS Remove

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] ¡	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
	1	02103963	WO		2002-12-27	NOKIA CORPORATION		☐

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NON-PATENT LITERATURE DOCUMENTS Remove

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /SKS./

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	11888799
	Filing Date	2007-08-01
	First Named Inventor	Pierre Carion
	Art Unit	
	Examiner Name	
	Attorney Docket Number	HOMI-P004

	1	Grundy, John et al; "An Architecture for Building Multi-device Thin-Client Web User Interfaces" Advanced Information Systems Engineering, vol. 2348/2002, 1 January 2002 (2002-01-01), pages 728-732, XP002511217	☐
	2	Mir Farooq Ali et al: "Building Multi-Platform User Interfaces with UIML" Internet Citation, [online] XP002280476 Retrieved from the Internet: URL:http://arxiv.org/ftp/cs/papers/0111/0111024.pdf> [Retrieved on 2004-05-17]	☐
	3	Simon, Rainer et al: "Tool-Supported Single Authority for Device Independence and Multimodality" Proceedings of the 7th International Conference on Human Computer Interaction with Mobile Devices & Services, [Online] 19 September 2005 (2005-09-19), 22 September 2005 (2005-09-22) pages 91-98, XP002511216 Retrieved from the Internet: URL: http//portal.acm.org/citation.cfm?id=1085777.1085793> [Retrieved on 2009-01-19] abstract	☐
	4	Thomas Xiegert et al: "Device Independent Web Applications-The Author Once- Display Everywhere Approach" Web Engineering; [Lecture Notes in Computer Science; LNCS], Springer-Verlag, Berlin/Heidelberg, vol. 3140, 7 July 2004 (2004-07-07), pages 244-255, XP019009054	☐
	5	VanderDonckt, Jean et al: "Synchronised Model-Based Design of Multiple User Interfaces" Internet Article, [online] 10 September 2004 (2004-09-10),pages 1-8, XP002511218 Retrieved from the Internet: URL: http://web.archive.org/web/20040910043454/http://www.isys.ucl.ca.be/bchi/members/qli/pub/Vanderdonckt-IHM2001.pdf> [retrieved on 2009-01-20]	☐

If you wish to add additional non-patent literature document citation information please click the Add button Add

EXAMINER SIGNATURE

Examiner Signature	/Suresh Suryawanshi/	Date Considered	06/22/2010

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /SKS./

OIPE IAP6 AUG 27 2007 PATENT & TRADEMARK OFFICE

Attorney Docket No.: HOMI-P004

I hereby certify that this transmittal of the below described document is being deposited with the United States Postal Service in an envelope bearing First Class Postage and addressed to the Commissioner of Patents and Trademarks, P.O. Box 1450, Alexandria, VA 22313-1450, on the below date of deposit.					
Date of Deposit:	8/22/07	Name of Person Making the Deposit:	Mina Oliveri	Signature of the Person Making the Deposit:	Mina Oliveri

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application of:	Carion, et al.	Confirmation No.:	Not yet assigned.
Serial No.:	11/888,799	Art Unit:	Not yet assigned.
Filed:	8/01/07	Examiner:	Not yet assigned.
For:	A SERVER METHOD AND SYSTEM FOR RENDERING CONTENT ON A WIRELESS DEVICE		

INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In accordance with the duty of disclosure provisions of 37 C.F.R. §1.56, there is hereby provided certain information which the Examiner may consider material to the examination of the subject U.S. patent application. It is requested that the Examiner make this information of record if it is deemed material to the examination of the application.

1. ☒ Enclosures accompanying this Information Disclosure Statement are:

1a. ☒ A list of all patents, publications, applications, or other information submitted for consideration by the office.

1b. ☐ A legible copy of :

☐ Each foreign patent;

☐ Each publication or that portion which caused it to be listed on the PTO-1449;

☐ For each cited pending U.S. application, the application specification including the claims, and any drawing of the application, or portion of the application which caused it to be listed on the PTO-1449 including any claims directed to that portion;

☐ all other information or portion which caused it to be listed on the PTO-1449.

1c. ☐ An English language copy of search report(s) from a counterpart foreign application or PCT International Search Report.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /SKS./

1d. ☐ Explanations of relevancy (ATTACHMENT 1(d), hereto) or English language abstracts of the non-English language publications.

2. ☒ This Information Disclosure Statement is filed under 37 C.F.R. §1.97(b):

2a. ☐ Within three months of the filing date of a national application other than a continued prosecution application under §1.53(d);

2b. ☐ Within three months of the date of entry of the national stage as set forth in §1.491 in an international application;

2c. ☒ Before the mailing of the first Office action on the merits;

2d. ☐ Before the mailing of a first Office action after the filing of a request for continued examination under §1.114.

3. ☐ This Information Disclosure Statement is filed under 37 C.F.R. §1.97(c) after the period specified in 37 C.F.R §1.97(b), but before the mailing date of any of a final action under 37 C.F.R. §1.113, a notice of allowance under 37 C.F.R. §1.311 or an action that otherwise closes prosecution in the application.

(Check either Item 3a or 3b)

3a. ☐ The Certification Statement in Item 5 below is applicable. Accordingly, no fee is required.

3b. ☐ The $180.00 fee set forth in 37 C.F.R. §1.17(p) in accordance with 37 C.F.R. §1.97(c) is:

☐ enclosed
☐ to be charged to Murabito, Hao & Barnes Deposit Account No. 50-4160 (order no.).

(Item 3b to be checked if any reference known for more than 3 months)

4. ☐ This Information Disclosure Statement is filed under 37 C.F.R. §1.97(d) after the period specified in 37 C.F.R. §1.97(c), but on or before the date of payment of the issue fee.

(Check either Item 4a or 4b)

4a. ☐ The Certification Statement in Item 5 below is applicable.

4.b ☐ The $180.00 fee set forth in 37 C.F.R. §1.17(p) is: enclosed.to be charged to Murabito, Hao & Barnes Deposit Account No. 50-4160 (order no.).

5. ☐ Certification Statement (applicable if Item 3a or Item 4a is checked)

(Check either Item 5a, 5b or 5c)

5a. ☐ In accordance with 37 C.F.R. §1.97(e)(1), it is certified that each item of information contained in this Information Disclosure Statement was first cited

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in a communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this Information Disclosure Statement.

5b. ☐ Each item of information contained in this information disclosure statement was cited in a communication from a foreign patent office in a counterpart application, and the communication was not **received** by any individual designated in 37 C.F.R. §1.56(c) more than thirty days prior to the filing of this information disclosure statement.

5c. ☐ Pursuant to 37 C.F.R. §1.704(d), each item of information contained in this information disclosure statement was cited in a communication from a foreign patent office in a counterpart application, and the communication was not **received** by any individual designated in 37 C.F.R. §1.56(c) more than thirty days prior to the filing of this information disclosure statement.

6. ☐ Copies of each cited U.S. patent and each U.S. patent application publication are not enclosed pursuant to the USPTO OG Notice dated 05 August 2003 waiving the requirement under 37 C.F.R. 1.98(a)(2)(i) for U.S. patent applications filed after June 30, 2003.

7. ☐ This application is a continuation application under 37 C.F.R. §1.53(b) or (d).

(Check appropriate Items 7a, 7b and/or 7c)

7a. ☐ A Petition to Withdraw from issue under 37 C.F.R. §1.313(b)(5) is concurrently filed herewith.

7b. ☐ Copies of publications listed on Form PTO-1449 from prior application Serial No. **XXXX**, filed on **XXXX** , of which this application claims priority under 35 U.S.C. §120, are not being submitted pursuant to 37 C.F.R. §1.98(d).

7c. ☐ Copies of the publications listed on Form PTO-1449 were not previously cited in prior application Serial No. , filed on , and are provided herewith.

8. ☐ This is a Supplemental Information Disclosure Statement. (Check Item 8a)

8a. ☐ This Supplemental Information Disclosure Statement under 37 C.F.R. §1.97(f) supplements the Information Disclosure Statement filed on ******. A bona fide attempt was made to comply with 37 C.F.R. §1.98, but inadvertent omissions were made. These omissions have been corrected herein. Accordingly, additional time is requested so that this Supplemental Information Disclosure Statement can be considered as if properly filed on **********.

9. ☐ In accordance with 37 C.F.R. §1.98, a concise explanation of what is presently understood to be the relevance of each non-English language publication is:

(Check Item 9a, 9b, or 9c)

9a. ☐ satisfied because all non-English language publications were cited on the

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enclosed English language copy of the PCT International Search Report or the search report from a counterpart foreign application indicating the degree of relevance found by the foreign office.

9b. ☐ set forth in the application.

9c. ☐ enclosed as an attachment hereto.

10. ☒ The Commissioner is authorized to charge any additional fee required or credit any overpayment for this Information Disclosure Statement and/or Petition to Murabito, Hao & Barnes Deposit Account No. 50-4160.

11. ☒ No admission is made that the information cited in this Statement is, or is considered to be, material to patentability nor a representation that a search has been made (other than a search report of a foreign counterpart application or PCT International Search Report if submitted herewith). 37 C.F.R. §§1.97(g) and (h).

Respectfully submitted,

Date: August 22, 2007



57,137

Amir A. Tabarrok (Reg. No.)
MURABITO, HAO & BARNES
Two North Mark Street, Third Floor
San Jose, CA 95113
(408) 938-9060

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /SKS./

OIPE IAP6 AUG 27 2007 PATENT & TRADEMARK OFFICE

Attorney Docket No.: HOMI-P004

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Patent Application

Inventor(s): Carion, et al.

Group Art Unit: Not yet assigned.

Filed: 08/01/2007

Examiner: Not yet assigned.

Application No.: 11/888,799

Title: A SERVER METHOD AND SYSTEM FOR RENDERING CONTENT ON A WIRELESS DEVICE

Form 1449

U.S. Patent Documents

Examiner Initial	No.	Patent No.	Date	Patentee	Class	Sub-class	Filing Date
	A	6,884,172	04/26/2005	Lloyd, et al.	463	42	10/25/2001
	B						
	C						

Other Documents

Examiner Initial	No.	Author, Title, Date, Place (e.g. Journal) of Publication
	D	
	E	
	F	

Examiner	/Suresh Suryawanshi/	Date Considered	06/22/2010

Examiner: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /SKS./

REVOCATION AND NEW POWER BY ASSIGNEE AND STATEMENT UNDER 37 C.F.R. §3.73(b)

The Assignee, GoTV Networks, Inc., of the entire right, title, and interest in the applications listed in the attached Appendix A, and as evidenced by the assignments previously recorded at the reel and frame numbers listed in Appendix A, hereby revokes all previously granted powers and grants the registered practitioners of Cooley LLP included in the Customer Number provided below power to act, prosecute, and transact all business in the U.S. Patent and Trademark Office in connection with the applications listed in Appendix A, any applications claiming priority to the applications listed in Appendix A, and any patents issuing therefrom.

Please direct all telephone calls and correspondence to:

CUSTOMER NUMBER: **58249**

COOLEY LLP
ATTN: Patent Group
777 6th Street NW, Suite 1100
Washington, DC 20001
Tel: (703) 456-8000
Fax: (202) 842-7899

The undersigned (whose title is supplied below) is empowered to sign this statement on behalf of the assignee.

Date: 8-9-10

Signature: [signature]
Name: KEN LEVINSON
Title: VP. FINANCE
Company: GoTV Networks, Inc.

448550 v1/RE

APPENDIX A
REVOCATION AND NEW POWER BY ASSIGNEE GoTV NETWORKS, INC.
AND STATEMENT UNDER 37 C.F.R. §3.73(b)

Application No.	Filing Date	Confirm. No.	First Named Inventor	Title	New Attorney Docket No.	Old Attorney Docket No.	Assignment Reel/Frame
12/098,595	04/07/2008	2705	Philippe Clavel	METHOD AND SYSTEM FOR EXECUTING APPLICATIONS ON A WIRELESS DEVICE	GOTV-009/00US 310663-2002	HOMI-P009	020765/0169 024306/0841
12/098,670	04/07/2008	2849	Philippe Clavel	SERVER METHOD AND SYSTEM FOR EXECUTING APPLICATIONS ON A WIRELESS DEVICE	GOTV-010/00US 310663-2003	HOMI-P010	020765/0550 024306/0841
11/888,799	08/01/2007	5349	Pierre Carion	SERVER METHOD AND SYSTEM FOR RENDERING CONTENT ON A WIRELESS DEVICE	GOTV-001/00US 310663-2005	HOMI-P004	019695/0102 024306/0841
11/888,803	08/01/2007	5085	Pierre Carion	METHOD AND SYSTEM FOR RENDERING CONTENT ON A WIRELESS DEVICE	GOTV-002/00US 310663-2006	HOMI-P003	019707/0233 024306/0841
12/018,141	01/22/2008	7623	Philippe Clavel	METHOD AND SYSTEM FOR CUSTOMIZING CONTENT ON A SERVER FOR RENDERING ON A WIRELESS DEVICE	GOTV-003/01US 310663-2007	HOMI-P006	020553/0458 024306/0841

GTV00000280

APPENDIX A
REVOCATION AND NEW POWER BY ASSIGNEE GoTV NETWORKS, INC.
AND STATEMENT UNDER 37 C.F.R. §3.73(b)

Application No.	Filing Date	Confirm. No.	First Named Inventor	Title	New Attorney Docket No.	Old Attorney Docket No.	Assignment Reel/Frame
11/977,186	10/23/2007	2215	Pierre Carion	METHOD AND SYSTEM FOR ACCESSING WIRELESS ACCOUNT INFORMATION	GOTV-005/00US 310663-2008	HOMI-P007	020066/0030 024306/0841
11/977,212	10/23/2007	1784	Philippe Clavel	CLIENT-SIDE WIRELESS COMMUNICATIONS LINK SUPPORT FOR MOBILE HANDHELD DEVICES	GOTV-006/00US 310663-2009	HOMI-P001	020439/0898 024306/0841
11/977,229	10/23/2007	1885	Pierre Carion	METHOD AND SYSTEM FOR COLLECTION AND USE OF WIRELESS APPLICATION ACTIVITY INFORMATION	GOTV-007/00US 310663-2010	HOMI-P008	020374/0361 024306/0841
11/977,319	10/23/2007	2210	Philippe Clavel	SERVER-SIDE WIRELESS COMMUNICATIONS LINK SUPPORT FOR MOBILE HANDHELD DEVICES	GOTV-008/00US 310663-2011	HOMI-P002	020421/0563 024306/0841

GTV00000281

Electronic Acknowledgement Receipt

EFS ID:	8196023
Application Number:	11888799
International Application Number:	
Confirmation Number:	5349
Title of Invention:	Server method and system for rendering content on a wireless device
First Named Inventor/Applicant Name:	Pierre Carion
Correspondence Address:	MURABITO HAO & BARNES LLP Third Floor Two North Market Street - San Jose CA 95113 US 4089389060 -
Filer:	C. Scott Talbot/Karen Hodgson
Filer Authorized By:	C. Scott Talbot
Attorney Docket Number:	HOMI-P004
Receipt Date:	11-AUG-2010
Filing Date:	01-AUG-2007
Time Stamp:	17:53:56
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Power of Attorney	Power.pdf	126100 32699d13148bb309cf3003a30e41ff36ee1889c3	no	3
Warnings:					
Information:					
		Total Files Size (in bytes):	126100		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

UNITED STATES PATENT AND TRADEMARK OFFICE

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
11/888,799	08/01/2007	Pierre Carion	GOTV-001/00US 310663-2005

CONFIRMATION NO. 5349

58249
COOLEY LLP
ATTN: Patent Group
Suite 1100
777 - 6th Street, NW
WASHINGTON, DC 20001

POA ACCEPTANCE LETTER

OC000000043105090

Date Mailed: 08/23/2010

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 08/11/2010.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

/mteklemichael/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
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Alexandria, Virginia 22313-1450
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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
11/888,799	08/01/2007	Pierre Carion	HOMI-P004

CONFIRMATION NO. 5349

MURABITO HAO & BARNES LLP
Third Floor
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San Jose, CA 95113

POWER OF ATTORNEY NOTICE

OC000000043105072

Date Mailed: 08/23/2010

NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 08/11/2010.

- The Power of Attorney to you in this application has been revoked by the assignee who has intervened as provided by 37 CFR 3.71. Future correspondence will be mailed to the new address of record(37 CFR 1.33).

/mteklemichael/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

GTV00000285

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application of:	CARION, Pierre, et al.	Confirmation No.:	5349
Serial No.:	11/888,799	Group Art Unit:	2115
Filed:	August 1, 2007	Examiner:	Suresh Suryawanshi

FOR: **SERVER METHOD AND SYSTEM FOR RENDERING CONTENT ON A WIRELESS DEVICE**

VIA EFS
Randolph Building
401 Dulany Street
Alexandria, VA 22313

REPLY AND AMENDMENT UNDER 37 C.F.R. § 1.111

In response to the Office Action dated June 25, 2010, the deadline to respond to which being December 27, 2010 with a three month extension of time (December 25, 2010 being a Saturday), the Applicants submit the following Amendments and Remarks. The Applicants respectfully request reconsideration of the Application in view of the Amendments and Remarks below.

If extensions of time are necessary to prevent abandonment of this application, then such extensions of time are hereby petitioned under 37 C.F.R. § 1.136(a), and any fees required therefore (including fees for net addition of claims) are hereby authorized to be charged to our Deposit Account No. 50-1283.

Amendments to the Claims are reflected on the listing of the claims which begins on page 2 of this paper.

Remarks/Arguments begin on page 12 of this paper.

AMENDMENTS

In the Claims:

The below listing of the claims replaces all previous versions. The status of each claim is indicated. Currently amended claims are shown with additions underlined and deletions in strikethrough. No new matter is added by these amendments.

1. (Currently Amended) A server implemented method for processing data for a wireless device, ~~said method~~ comprising:

receiving from the wireless device a request for an application program, said request including an indication of a type of the wireless device;

executing, in response to receiving said request, said ~~an~~ application program to ~~which~~ generate a ~~content operable to be rendered on said wireless device and wherein said content is~~ wireless device generic template including a plurality of content items;

sending a custom configuration to the wireless device, said custom configuration being specific to said application program;

generating a ~~first screen description based on said content and based on a device profile of said wireless device wherein said device profile describes a rendering capability of said wireless device~~;

~~translating said first screen description into a second~~ screen description based on said wireless device generic template and a capability of the wireless device, said screen description having at least one ~~comprising~~ discrete low level rendering command ~~commands~~ that is ~~are~~ within said rendering capability of said wireless device but that is ~~are~~ of a syntax that is wireless device generic; and

sending said ~~providing said second~~ screen description ~~for transmission~~ to ~~said~~ the wireless device such that the wireless device is capable of presenting at least one content item from said plurality of content items using both said screen description and said custom configuration.

2. (Canceled)

3. (Currently Amended) The ~~A~~ method of ~~as described in~~ claim 1, ~~2~~ wherein said wireless device generic template includes ~~first screen description contains~~ relative screen location and display object size information and is independent of screen dimensions of the wireless device.

4. (Currently Amended) The ~~A~~ method of ~~as described in~~ claim 1, wherein said wireless device generic template ~~first screen description~~ is substantially compliant with extensible markup language (XML) syntax.

5. (Currently Amended) The ~~A~~ method of ~~as described in~~ claim 1, wherein said at least one discrete low level rendering command ~~commands~~ of said ~~second~~ screen description is ~~are~~ operable to be executed by a plurality of rendering blocks of a graphical user interface of ~~said~~ the wireless device.

6. (Currently Amended) The ~~A~~ method of ~~as described in~~ claim 5, wherein said at least one discrete low level rendering command includes a ~~commands comprise~~ physical screen position ~~positions~~ of a display element of said at least one content item ~~elements~~.

7. (Currently Amended) The ~~A~~ method of ~~as described in~~ claim 5, wherein said at least one discrete ~~a~~ low level rendering command includes ~~comprises~~:

a specification ~~specifications~~ of a location and a size of a screen area; and

an identification of a ~~particular~~ rendering block from said ~~of said~~ plurality of rendering blocks of said graphical user interface to operate within said screen area.

8. (Currently Amended) The ~~A~~ method of ~~as described in~~ claim 7, wherein said at least one discrete low level rendering command includes ~~command further comprises~~ parameters associated with said ~~particular~~ rendering block from said plurality of rendering blocks.

9. (Canceled)

10. (Currently Amended) The ~~A~~ method of ~~as described in~~ claim 1, wherein said ~~second~~ screen description includes at least one ~~comprises~~ display rendering command and at least one audio rendering command ~~commands~~.

11. (Currently Amended) The ~~A~~ method of ~~as described in~~ claim 1, wherein said application program is wireless device generic and said wireless device generic ~~wherein further said content generated by said application comprises a screen description~~ template ~~that~~ is a wireless device generic screen description template.

12. (Currently Amended) The ~~A~~ method of ~~as described in~~ claim 1, ~~further comprising, in response to a request for executing said application program, causing to be transmitted a custom configuration to said wireless device~~ wherein ~~said~~ the wireless device ~~custom configuration is specific for said application program and~~ is operable to configure a plurality of rendering blocks of a graphical user interface based on said custom configuration ~~of said wireless device~~.

13. (Currently Amended) The ~~A~~ method of ~~as described in~~ claim 1, wherein said server stores ~~comprises~~ a plurality of device profiles, said method ~~and~~ further comprises ~~comprising~~:

~~receiving an identification of a type of said wireless device; and~~

identifying a ~~said~~ device profile from said plurality of device profiles associated with the wireless device based on said type of said wireless device.

14. (Currently Amended) A non-transitory processor-readable medium storing code representing instructions to cause a processor to: ~~server system comprising a processor coupled to a bus and a memory coupled to said bus wherein said memory comprises instructions that when executed cause said processor to implement a method for processing data for a wireless device, said method comprising:~~

receive a request for an application program from a wireless device, said request including an indication of a type of the wireless device;

execute said ~~executing an~~ application program to generate a ~~which generates content operable to be rendered on said wireless device and wherein said content is~~ wireless device generic template including a plurality of content items;

request, using said indication of said type of the wireless device, a device profile from a library of device profiles, said device profile providing an indication of a rendering capability of the wireless device;

remove, using said device profile, at least one content item from said plurality of content items from said wireless device generic template to define a device specific template associated with the wireless device, said at least one content item being unsupported by the wireless device;

~~generating a first screen description based on said content and based on a device profile of said wireless device wherein said device profile describes a rendering capability of said wireless device;~~

translate said device specific template ~~translating said first screen description~~ into a ~~second~~ screen description having at least one ~~comprising~~ discrete low level rendering command ~~commands~~ that is ~~are~~ within said rendering capability of ~~said~~ the wireless device but that is ~~are~~ of a syntax that is wireless device generic; and

send ~~providing~~ said ~~second~~ screen description ~~for transmission~~ to ~~said~~ the wireless device.

15. (Canceled)

16. (Currently Amended) The non-transitory processor-readable medium of ~~A server system as described in~~ claim 14, ~~15~~ wherein said wireless device generic template ~~said first screen description~~ contains relative screen location and display object size information ~~and is~~ independent of screen dimensions of the wireless device.

17. (Currently Amended) The non-transitory processor-readable medium of ~~A server system as described in~~ claim 14, wherein said wireless device generic template ~~first screen description~~ is substantially compliant with extensible markup language (XML) syntax.

18. (Currently Amended) The non-transitory processor-readable medium of ~~A server system as described in~~ claim 14, wherein said at least one discrete low level rendering command ~~commands~~ of said ~~second~~ screen description is ~~are~~ operable to be executed by a plurality of rendering blocks of a graphical user interface of ~~said~~ the wireless device.

19. (Currently Amended) The non-transitory processor-readable medium of ~~A server system as described in~~ claim 18, wherein said at least one discrete low level rendering command includes a ~~commands comprise~~ physical screen position ~~positions~~ of a display element of a content item from the plurality of content items ~~elements~~.

20. (Currently Amended) The non-transitory processor-readable medium of ~~A server system as described in~~ claim 18, wherein said at least one discrete ~~a~~ low level rendering command includes ~~comprises~~:

a specification ~~specifications~~ of a location and a size of a screen area; and

an identification of a ~~particular~~ rendering block from ~~of~~ said plurality of rendering blocks of said graphical user interface.

21. (Currently Amended) The non-transitory processor-readable medium of ~~A server system as described in~~ claim 20, wherein said at least one discrete low level rendering command includes at least one parameter ~~further comprises parameters~~ associated with said ~~particular~~ rendering block from said plurality of rendering blocks.

22. (Canceled)

23. (Currently Amended) The non-transitory processor-readable medium of ~~A server system as described in~~ claim 14, wherein said ~~second~~ screen description includes at least one ~~comprises~~ display rendering command and at least one audio rendering command ~~commands~~.

24. (Canceled)

25. (Currently Amended) The non-transitory processor-readable medium of ~~A server system as described in~~ claim 14, further comprising code representing instructions to cause said processor to: ~~wherein said method further comprises,~~ send, in response to said ~~a~~ request, ~~for executing said application program, causing to be transmitted~~ a custom configuration to said wireless device, ~~wherein said~~ the wireless device ~~custom configuration is specific for said application program and~~ is operable to configure a plurality of rendering blocks of a graphical user interface based on said custom configuration ~~of said wireless device~~.

26.-27. (Canceled)

28. (Currently Amended) A server system, comprising:

a memory ~~coupled to said bus~~; and

~~a transceiver coupled to said bus operable to communicate with said wireless device; and~~

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a processor ~~coupled to a bus and~~ operable to execute an application program that ~~which~~ generates content for rendering on a wireless device, ~~and wherein~~ said content being ~~is~~ wireless device generic, ~~and wherein further~~ said processor being ~~is~~ operable to implement:

a device profile library operable to store a device profile describing a ~~the~~ rendering capability of the ~~said~~ wireless device;

a decoding system operable to send to the wireless device a custom configuration associated with said application program in response to receiving an indication from the wireless device that said custom configuration is not stored on the wireless device;

a template engine ~~screen layout generator~~ operable to generate a template ~~first screen description~~ based on said content and based on said device profile of ~~said~~ the wireless device; and

a screen layout translator operable to translate said template ~~first screen description~~ into a ~~second~~ screen description having at least one ~~comprising~~ discrete low level rendering command ~~commands~~ that is ~~are~~ within said rendering capability of ~~said~~ the wireless device but that is ~~are~~ of a syntax that is wireless device generic, said screen layout translator operable to send said screen description and said custom configuration to the wireless device such that the wireless device is capable of presenting said content using both said screen description and said custom configuration.

29. (Canceled)

30. (Currently Amended) The ~~A~~ server system of ~~as described in~~ claim 29, wherein said template includes ~~first screen description contains~~ relative screen location and display object size information and is independent of screen dimensions of the wireless device.

31. (Currently Amended) The ~~A~~ server system of ~~as described in~~ claim 28, wherein said template ~~first screen description~~ is substantially compliant with extensible markup language (XML) syntax.

32. (Currently Amended) The ~~A~~ server system of ~~as described in~~ claim 28, wherein said at least one discrete low level rendering command ~~commands~~ of said ~~second~~ screen description is ~~are~~ operable to be executed by a plurality of rendering blocks of a graphical user interface of the ~~said~~ wireless device.

33. (Currently Amended) The ~~A~~ server system of ~~as described in~~ claim 32, wherein said at least one discrete low level rendering command includes a ~~commands comprise~~ physical screen position ~~positions~~ of a display element of said content ~~elements~~.

34. (Currently Amended) The ~~A~~ server system of ~~as described in~~ claim 32, wherein said at least one discrete ~~a~~ low level rendering command includes ~~comprises~~:

a specification ~~specifications~~ of a location and a size of a screen area; and

an identification of a ~~particular~~ rendering block from ~~of~~ said plurality of rendering blocks of said graphical user interface.

35. (Currently Amended) The ~~A~~ server system of ~~as described in~~ claim 34, wherein said at least one discrete low level rendering command includes at least one parameter ~~further comprises parameters~~ associated with said ~~particular~~ rendering block from said plurality of rendering blocks.

36. (Canceled)

37. (Currently Amended) The ~~A~~ server system of ~~as described in~~ claim 28, wherein said ~~second~~ screen description includes at least one ~~comprises~~ display rendering command and at least one audio rendering command ~~commands~~.

38. (Canceled)

39. (Currently Amended) The ~~A~~ server system of ~~as described in~~ claim 28, wherein ~~said processor in response to a request for executing said application program, is operable to cause to be transmitted a custom configuration to said wireless device wherein~~ said custom configuration ~~is specific for said application program and~~ is operable to configure a plurality of rendering blocks of a graphical user interface of ~~said~~ the wireless device.

40. (Canceled)

41. (Currently Amended) The ~~A~~ server system of ~~as described in~~ claim 28 wherein said memory includes ~~comprises~~ a plurality of device profiles, ~~and wherein~~ said processor ~~transceiver~~ is operable to receive an identification of a type of ~~said~~ the wireless device and ~~wherein said processor~~ is operable to identify said device profile from ~~of~~ said plurality of device profiles based on said type of ~~said~~ the wireless device.

42. (New) The method of claim 1, wherein the sending the custom configuration to the wireless device is in response to receiving an indication from the wireless device that the custom configuration is not stored at the wireless device.

43. (New) The method of claim 1, wherein the generating said screen description includes generating said screen description such that said screen description does not include a content item from said plurality of content items, said content item being unsupported by the wireless device.

44. (New) The method of claim 1, wherein said plurality of content items is a first plurality of content items, said screen description being a first screen description, the method further comprising:

receiving an indication that said custom configuration is stored on the wireless device; and

sending a second screen description associated with a second plurality of content items to the wireless device such that the wireless device is capable of is configured to presenting said second plurality of content items using said second screen description and said custom configuration.

45. (New) The non-transitory processor-readable medium of claim 14, further comprising code representing instructions to cause the processor to:

send a custom configuration to the wireless device, said custom configuration being specific to said application program, the wireless device operable to present a content item from said plurality of content items using said screen description and said custom configuration.

REMARKS

The Applicants respectfully request reconsideration of the application in view of the remarks below. Claims 1, 3-8, 10-14, 16-21, 23, 25, 28, 30-35, 37, 39, and 41-45 are currently pending, of which claims 1, 14 and 28 are independent claims. Claims 2, 9, 15, 22, 24, 26, 27, 29, 36, 38 and 40 have been canceled without prejudice to or disclaimer of the subject matter therein. Claims 42-45 have been added. No new matter has been added.

Rejections Under 35 U.S.C. § 112

Claim 28 was rejected under 35 U.S.C. § 112. Claim 28 has been amended to remove any purported deficiency under 35 U.S.C. § 112. Accordingly, the Applicants respectfully request the Examiner to withdraw the rejection of claim 28 under 35 U.S.C. § 112.

Claims 1, 3-8, 10-14, 16-21, 23, 25, 28, 30-35, 37, 39, and 41-45 are Patentable over the Cited Art

Claims 1-41 were rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 7,636,792 to Ho (*Ho*).

Independent Claim 1 and its Dependent Claims are Patentable

Ho fails to disclose or suggest "sending a custom configuration to [a] wireless device, said custom configuration being specific to [an] application program; . . . and sending [a] screen description to the wireless device such that the wireless device is capable of presenting at least one content item from [a] plurality of content items using both said screen description and said custom configuration," as recited by independent claim 1. At most, *Ho* discloses "fetching the requested content in the reference format . . . and converting the fetched content from the reference format to a format suitable to the mobile device." (*Ho* col. 3, lines 20-22). Nowhere, however, does *Ho* disclose or suggest sending both a custom configuration and a screen description to a wireless device such that the wireless device is capable of presenting a content item using both the custom configuration and the screen description. Accordingly, the

Applicants respectfully submit that independent claim 1, and its dependent claims, are patentable over *Ho*.

Independent Claim 14 and its Dependent Claims are Patentable

Ho fails to disclose or suggest "[a] non-transitory processor-readable medium storing code representing instructions to cause a processor to: . . . remove, using [a] device profile, at least one content item from [a] plurality of content items from [a] wireless device generic template to define a device specific template associated with [a] wireless device, said at least one content item being unsupported by the wireless device," as recited by independent claim 14. At most, *Ho* discloses "converting the fetched content from the reference format to a format suitable to the mobile device." (*Ho* col. 3, lines 21-22). Nowhere, however, does *Ho* disclose or suggest code representing instructions to cause a processor to remove a content item from a wireless device generic template using a device profile to define a device specific template. Accordingly, the Applicants respectfully submit that independent claim 14, and its dependent claims, are patentable over *Ho*.

Independent Claim 28 and its Dependent Claims are Patentable

Ho fails to disclose or suggest "a decoding system operable to send to [a] wireless device a custom configuration associated with [an] application program in response to receiving an indication from the wireless device that said custom configuration is not stored on the wireless device," as recited by independent claim 28. Nowhere does *Ho* disclose or suggest sending a custom configuration in response to receiving such an indication from a wireless device.

Additionally, *Ho* fails to disclose or suggest a "screen layout translator operable to send [a] screen description and [a] custom configuration to [a] wireless device such that the wireless device is capable of presenting [] content using both said screen description and said custom configuration," as recited by independent claim 28. As discussed above with respect to independent claim 1, at most, *Ho* discloses "fetching the requested content in the reference format . . . and converting the fetched content from the reference format to a format suitable to the mobile device." (*Ho* col. 3, lines 20-22). Nowhere, however, does *Ho* disclose or suggest

sending both a custom configuration and a screen description to a wireless device such that the wireless device can present content using both the custom configuration and the screen description. Accordingly, the Applicants respectfully submit that independent claim 28, and its dependent claims, are patentable over *Ho*.

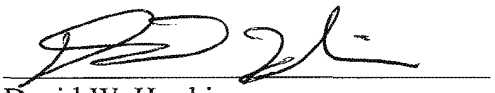
CONCLUSION

In view of the foregoing, Applicants respectfully submit that no further impediments exist to the allowance of this application and, therefore, requests an indication of allowability. However, the Examiner is requested to call the undersigned if any questions or comments arise.

The Director is hereby authorized to charge any appropriate fees under 37 C.F.R. §§1.16, 1.17, and 1.21 that may be required by this paper, and to credit any overpayment, to Deposit Account No. 50-1283.

Dated:

Respectfully submitted,
COOLEY LLP

By: 

David W. Hopkins
Reg. No. 59,307

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Attorney Docket No. GOTV-001/00US 310663-2005 **PATENT**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application of:	CARION, Pierre, et al.	Confirmation No.:	5349
Serial No.:	11/888,799	Group Art Unit:	2115
Filed:	August 1, 2007	Examiner:	Suresh Suryawanshi

FOR: **SERVER METHOD AND SYSTEM FOR RENDERING CONTENT ON A WIRELESS DEVICE**

VIA EFS
Randolph Building
401 Dulany Street
Alexandria, VA 22313

INFORMATION DISCLOSURE STATEMENT UNDER 37 C.F.R. §1.97(c)

In accordance with the duty of disclosure set forth in 37 C.F.R. §1.56, Applicant(s) hereby submits the following information in conformance with 37 C.F.R. §§1.97 and 1.98.

☒ Pursuant to 37 C.F.R. §1.98, a copy of each non-US patent document cited in the attached Form PTO/SB/08 is enclosed.

☐ No copies of the publications listed on the attached Form PTO/SB/08 are being provided pursuant to 37 C.F.R. §1.98(d) because the publications were previously cited by or submitted to the Office in prior Application Serial No. _____ to which the above-identified application claims priority under 35 U.S.C. §120.

☒ No copies of any U.S. patents or U.S. patent application publications listed on the attached Form PTO/SB/08 are being provided pursuant to 37 C.F.R. §1.98.

☐ Publication(s) _____ listed on the attached Form PTO/SB/08 were cited in a foreign search or examination report corresponding to _____ application serial no. _____ and mailed on _____.

☐ Enclosed is a copy of a non-English publication(s) _____. Pursuant to §609 of the M.P.E.P., Applicant submits the attached foreign search or examination report, which cites such non-English language publication(s).

☐ Enclosed is a copy of a non-English publication(s) _____ English language publication _____ (copy enclosed) claims priority from this non-English publication.

☐ Enclosed is an explanation of non-English publication(s) _____ for which an English translation is not available.

☐ Enclosed is an English translation of non-English publication(s) _____ cited in the attached Form PTO/SB/08.

☐ Enclosed is a copy of pending patent Application Serial No. _____

This Information Disclosure Statement is filed after the period specified in 37 C.F.R. § 1.97(b), but before the mailing of any of the following:

☒ a final action under 37 C.F.R. §1.113;

☒ a notice of allowance under 37 C.F.R. §1.311; or

☒ an action that otherwise closes prosecution in this application.

In accordance with 37 C.F.R. §1.97(c) also enclosed is:

☒ Fee under 37 C.F.R. §1.17(p) in the amount of $180.00; or

☐ Statement as specified in 37 C.F.R. §1.97(e):

☐ Each item of information contained in the Information Disclosure Statement cited herein was first cited in a communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing date of the Information Disclosure Statement; or

☐ No item of information contained in the Information Disclosure Statement submitted herewith was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the undersigned, having made a reasonable inquiry, no item of information contained in the Information Disclosure Statement was known to any individual designated in 37 C.F.R. §1.56(c) more than three months prior to the filing date of the Information Disclosure Statement.

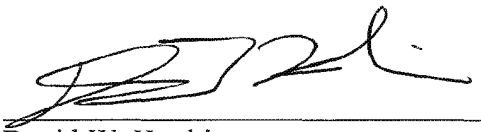
It is respectfully requested that the Examiner consider the above-noted information and return an initialed copy of the attached Form PTO/SB/08 to the undersigned.

Dated: December 20, 2010

Respectfully submitted,
COOLEY LLP

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By: 

David W. Hopkins
Reg. No. 59,307

463905 v1/RE

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PTO/SB/08A (07-05)
Approved for use through 07/31/2006. OMB 0651-0031

Substitute for form 1449A/PTO		*Complete if Known*	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT		Application Number	11/888,799
		Filing Date	August 1, 2007
		First Named Inventor	Pierre CARION
(use as many sheets as necessary)		Group Art Unit	2115
		Examiner Name	Suresh K. Suryawanshi
Sheet	1 of 2	Attorney Docket Number	GOTV-001/00US 310663-2005

U.S. PATENT DOCUMENTS					
Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] (*if known*)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
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Examiner Signature		Date Considered	

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This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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PTO/SB/08A (07-05)
Approved for use through 07/31/2006. OMB 0651-0031

Substitute for form 1449A/PTO		*Complete if Known*	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT		Application Number	11/888,799
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		Group Art Unit	2115
(*use as many sheets as necessary*)		Examiner Name	Suresh K. Suryawanshi
Sheet	2 of 2	Attorney Docket Number	GOTV-001/00US 310663-2005

FOREIGN PATENT DOCUMENTS						
Examiner Initials*	Cite No.[1]	Foreign Patent Document Country Code[3] Number[4] Kind Code[5] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T[2]
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		KR1020070003418 (w/English Abstract(	05-01-2007	Ktfreetel, Co., Ltd.		

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Examiner Initials*	Cite No.[1]	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T[2]
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		Written Opinion mailed February 1, 2010 for International PCT Aplication No. PCT/US2008/009302, 8 pgs.	
Examiner Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. [1]Unique citation designation number (optional). [2]See attached Kinds of U.S. Patent Documents. [3]Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). [4]For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [5]Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [6]Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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KOREAN PATENT ABSTRACTS

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(22)Date of filing: 07.09.2006
(30)Priority: --

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G06F 3/00
G06F 15/00

(71)Applicant: ELECTRONICS AND TELECOMMUNICATIONS RESEARCH INSTITUTE
(72)Inventor: YUN, MIN HONG
KIM, WOO SIK
LEE, JAE HO
KIM, SUN JA

(54) DYNAMICAL UI FRAMEWORK FOR ENABLING A TERMINAL TO DOWNLOAD/SELECT A DESIRED UI DYNAMICALLY, AND A UI IMPLEMENTING METHOD BASED ON THE SAME

(57) Abstract:

PURPOSE: A dynamical UI(User Interface) framework and a UI implementing method based on the same are provided to enable a user to download/select a UI of a mobile terminal dynamically by using the dynamic UI framework supporting network connection. CONSTITUTION: A UI manager(131) downloads UI objects(101) including UI information through the mobile network, and determines a UI engine(132) for processing the UI object by analyzing feature of the UI object when a user selects the UI object. The UI engines enable an output device of a mobile terminal to output the UI object by analyzing the selected UI object. The UI object defines a screen display mode, a sound output mode, or a vibration output mode according to user input, is formed by using one of XML(eXtensible Markup Language), text, a binary code and a library, and includes

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metadata. The UI manager makes the user select one of the installed UI objects and transfers the selected UI object to the UI engine corresponding to the selected UI object.

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Legal Status

Date of request for an examination (20060907)

Notification date of refusal decision (00000000)

Final disposal of an application (rejection)

Date of final disposal of an application (20080331)

Patent registration number ( )

Date of registration (00000000)

Number of opposition against the grant of a patent ( )

Date of opposition against the grant of a patent (00000000)

Number of trial against decision to refuse ( )

Date of requesting trial against decision to refuse ( )

Date of extinction of right ( )

View Details

Title of invention

동적 U I 프레임워크 및 이를 기반으로 하는 사용자인터페이스 구현 방법
(Dynamical UI framework and method for appling UserInterface based on the same)

Int. Cl	*G06F 3/048* (2006.01) *G06F 3/00* (2006.01) *G06F 15/16* (2006.01) *G06F 15/00* (2006.01)
Application No.(Date)	10-2006-0086211 (2006.09.07)
Unex. Pub. No.(Date)	10-2008-0022697 (2008.03.12)
Publication No.(Date)	
Registration No.(Date)	
Kind/Right of Org. Application	/ 신규출원
Right of Org. Application No.(Date)	
Family No.	
Final disposal of an application	Rejected
Registration Status	
Int'l Application No.(Date)	
Int'l Unex. Pub. No.(Date)	
Request for an examination(Date)	있음(Y)(2006.09.07)
Number of claims	9

Drawing Hide details

Abstract

본 발명은 단말기에서 동적으로 사용자 인터페이스를 다운로드해 선택할 수 있는 기능을 제공하는 UI 프레임워크(UI framework)를 기반으로 하는 사용자 인터페이스 구현 방법에 관한 것으로, 네트워크를 통해 사용자 입력에 따른 화면

디스플레이 방식, 사운드 출력 방식, 또는 진동 출력 방식이 정의되어 있는 UI 오브젝트를 다운로드하여 설치하고, 사용자로부터 UI 오브젝트가 선택되면, 선택된 UI 오브젝트를 처리할 수 있는 UI 엔진을 통해 UI 오브젝트를 해석하여 해당 UI 오브젝트에 따른 출력이 이루어지도록 함으로써, 사용자가 원하는 방식의 UI 구현이 가능한 것을 특징으로 한다.

본 발명에 따르면, 네트워크 연결을 지원하는 UI 프레임워크를 활용하여 UI를 동적으로 다운로드하여 적용할 수 있으므로, 사용자에게 보다 유연하고 동적인 사용자 인터페이스를 제공할 수 있으며, 이로 인해 사용자는 자신의 취향 및 편의에 따라 휴대폰, PDA, PMP 등의 개인 정보기기의 UI를 동적으로 변경할 수 있는 효과가 있다.

Hide details

Claim(Representative)

No.	Content
1	네트워크를 통해 UI(USER INTERFACE) 정보를 담고 있는 UI 오브젝트(UI OBJECT)를 다운로드하며, 사용자로부터 UI 오브젝트가 선택되면 상기 선택된 UI 오브젝트의 특징을 분석하여 해당 UI 오브젝트를 처리할 수 있는 UI 엔진(UI ENGINE)을 결정하는 UI 매니저; 및상기 선택된 UI 오브젝트를 해석하여 사용자 단말의 출력장치를 통해 해당 UI 오브젝트에 따른 출력이 이루어지도록 하는 적어도 하나 이상의 UI 엔진을 포함하는 것을 특징으로 하는 동적 UI 프레임워크.

View All Claims

No.	Claim
1	네트워크를 통해 UI(USER INTERFACE) 정보를 담고 있는 UI 오브젝트(UI OBJECT)를 다운로드하며, 사용자로부터 UI 오브젝트가 선택되면 상기 선택된 UI 오브젝트의 특징을 분석하여 해당 UI 오브젝트를 처리할 수 있는 UI 엔진(UI ENGINE)을 결정하는 UI 매니저; 및상기 선택된 UI 오브젝트를 해석하여 사용자 단말의 출력장치를 통해 해당 UI 오브젝트에 따른 출력이 이루어지도록 하는 적어도 하나 이상의 UI 엔진을 포함하는 것을 특징으로 하는 동적 UI 프레임워크.

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제 1항에 있어서, 상기 UI 오브젝트에는,사용자 입력에 따른 화면 디스플레이 방식,
2 사운드 출력 방식, 또는 진동 출력 방식이 정의되어 있는 것을 특징으로 하는 동적 UI 프레임워크.

제 1항에 있어서, 상기 UI 오브젝트는,XML, 텍스트, 이진 코드, 라이브러리 중 어느
3 하나의 형식으로 구성되며, 메타 데이터(META DATA) 정보를 포함하는 것을 특징으로 하는 동적 UI 프레임워크.

제 1항에 있어서, 상기 UI 매니저는,사용자로부터 UI 변경이 요청되면 설치된 UI
4 오브젝트 중 어느 하나를 선택하도록 하며, 사용자로부터 UI 오브젝트가 선택되어 선택된 UI 오브젝트를 처리할 수 있는 UI 엔진이 결정되면 상기 선택된 UI 오브젝트를 해당 UI 엔진으로 전달하는 것을 특징으로 하는 동적 UI 프레임워크.

제 1항에 있어서, 상기 UI 매니저는,네트워크를 통해 업데이트 정보를
5 다운로드하여 사용자 단말에 디스플레이하는 것을 특징으로 하는 동적 UI 프레임워크.

(A) UI(USER INTERFACE) 정보를 담고 있는 UI 오브젝트(UI OBJECT)의 다운로드가 필요한 경우 네트워크를 통해 UI 오브젝트를 다운로드하여 설치하는 단계;(B) 사용자로부터 UI 오브젝트가 선택되면 상기 선택된 UI 오브젝트의 특징을 분석하여 해당 UI 오브젝트를 처리할 수 있는 UI 엔진(UI ENGINE)을
6 결정하는 단계; 및(C) 상기 결정된 UI 엔진에서 상기 선택된 UI 오브젝트를 해석하여 사용자 단말의 출력장치를 통해 해당 UI 오브젝트에 따른 출력이 이루어지도록 하는 단계를 포함하는 것을 특징으로 하는 동적 UI 프레임워크를 기반으로 하는 사용자 인터페이스 구현 방법.

제 6항에 있어서, 상기 (A) 단계는,사용자 입력에 따라 UI 변경이 요청되면, UI
7 변경에 필요한 UI 오브젝트가 사용자 단말에 존재하는지를 확인하는 단계를 더 포함하는 것을 특징으로 하는 동적 UI 프레임워크를 기반으로 하는 사용자 인터페이스 구현 방법.

제 6항에 있어서, 상기 (B) 단계는,상기 선택된 UI 오브젝트의 메타 데이터 정보를
8 기반으로 상기 선택된 UI 오브젝트의 특징을 분석하는 단계를 더 포함하는 것을 특징으로 하는 동적 UI 프레임워크를 기반으로 하는 사용자 인터페이스 구현 방법.

9 제 6항에 있어서, 상기 (C) 단계는, 상기 선택된 UI 오브젝트에 따른 화면

디스플레이, 사운드 출력, 진동 출력 중 적어도 어느 하나를 수행하는 단계를 포함하는 것을 특징으로 하는 동적 UI 프레임워크를 기반으로 하는 사용자 인터페이스 구현 방법.

제 6항에 있어서, (D) 네트워크를 통해 업데이트 정보를 다운로드하여 사용자 단말에 디스플레이하는 단계를 더 포함하는 것을 특징으로 하는 동적 UI 프레임워크를 기반으로 하는 사용자 인터페이스 구현 방법.

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Priority info. (Country/No./Date)

Country	No.	Date

Designated States

Kind	Country

Prior Art Document(s)

KR20050082209 A*

(* the document(s) cited by patent examiners)

Legal Status

No.	Receipt/Delivery No.	Receipt/Delivery Date	Document Title(Eng.)	Status
1	1-1-2006-0647300-44	2006.09.07	특허출원서 (Application of Patent)	Received
2	9-1-9999-9999999-89	2007.05.01	선행기술조사의뢰서(내부) (Request for Prior ArtSearch)	Received
3	9-6-2007-0033550-11	2007.06.28	선행기술조사보고서 (Report of Prior Art Search)	Delivery Completed
4	9-5-2007-0621385-97	2007.11.22	의견제출통지서	Delivery Completed

			(Notice of Submission of Opinion)	
5	1-1-2008-0026727-51	2008.01.14	[거절이유 등 통지에 따른 의견]의견(답변, 소명)서 (Submission of opinion)	Received
6	1-1-2008-0026728-07	2008.01.14	[명세서등 보정]보정서 (Amendment including Specification etc.)	Received
7	9-5-2008-0182473-10	2008.03.31	거절결정서 (Notice of Final Rejection)	Delivery Completed
8	4-1-2009-5150899-36	2009.08.04	출원인정보변경(경정)신고서 (Notification of change of applicant's information)	Received

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(19) Europäisches Patentamt
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Office européen des brevets

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(12) EUROPEAN PATENT APPLICATION

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(54) System and method for building wireless applications with intelligent mapping between user interface and data components

(57) A system and method is described for effective management of a User Interface (UI) of a wireless device by implementing direct mapping between the application data domain and UI screens and controls. The device has an intelligent wireless device runtime environment (Device Runtime) that provides a set of basic services to manage the wireless application, including a series of linked screen and data component definitions, and their interactions can simplify the development effort and reduce resource allocation. The data domain for this category of applications is defined using the atomic data component definitions. The communication between a device user interface and data components is defined using atomic screen component definitions. Both screen and data component definitions are described in metadata using a structured definition language such as XML. The relationships between the screen and data component definitions are embedded in the XML definitions in the form of screen/data mappings. Typically, rendered screens for display are derived from some underlying data component and screens controls affected by user events impact the current state (or data representation) of the application Changes to the application domain data are automatically synchronized with the user interface, and user-entered data is automatically reflected in the application domain data. The primary mechanism behind this synchronization is the mapping of screens and data. This mechanism enables creation of dynamic and interactive screens. All changes to the data component can be immediately reflected on the screen and vice versa. This model allows building effective wireless applications based on server-to-device notifications. The data updates asynchronously pushed from the server are instantaneously reflected at the UI screen.

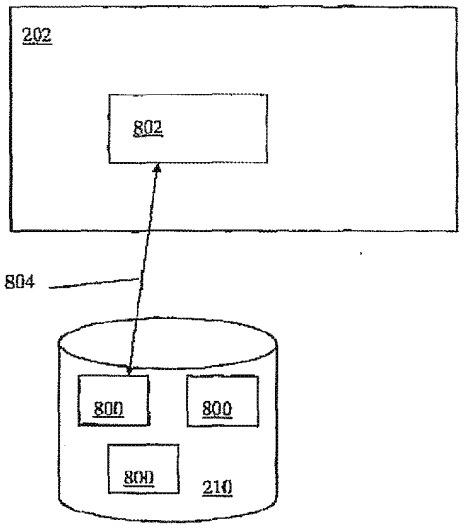


Figure 8

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Description

BACKGROUND OF THE INVENTION

[0001] This application relates generally to the display of wireless applications on a user interface of a wireless device.

[0002] There is a continually increasing number of wireless devices in use today, such as mobile telephones, PDAs with wireless communication capabilities, and two-way pagers. Software applications which run on these devices increase their utility. For example, a mobile phone may include an application which retrieves the weather for a range of cities, or a PDA may include an application that allows a user to shop for groceries. These software applications take advantage of the connectivity to a network in order to provide timely and useful services to users. However, due to the restricted resources of some devices, and the complexity of delivering large amounts of data to the devices, developing software applications for a variety of devices remains a difficult and time-consuming task.

[0003] Currently, devices are configured to communicate with Web Services or any other schema based back-end. Internet based Browsers and/or native applications. Browsers have the advantage of being adaptable to operate on a cross-platform basis for a variety of different devices, but have a disadvantage of requesting pages (screen definitions in HTML) from the Web Service, which hinders the persistence of data contained in the screens. Native applications have the advantage of being developed specifically for the type of device platform, thereby providing a relatively optimized application program for each runtime environment. However, native applications have disadvantages of not being platform independent, thereby necessitating the development multiple versions of the same application, as well as being relatively large in size, thereby taxing the memory resources of the device. Further, application developers need experience with programming languages such as Java and C++ to construct these hard coded native applications, including hard coded static interactions of screen elements with data elements. There is a need for application programs that can be run on client devices having a wide variety of runtime environments using dynamic interactions between data and screen elements, as well as having a reduced consumption of device resources.

[0004] The systems and methods disclosed herein provide a linked screen and data component definitions environment to obviate or mitigate at least some of the above presented disadvantages.

SUMMARY OF THE INVENTION

[0005] It is desirable to drive down the complexity involved in developing the wireless application by reducing the need to do any explicit coding, as well as reducing device resources utilized by the application when provisioned. A system and method is described for effective management of a User Interface (UI) of a wireless device by implementing direct mapping between the application data domain and UI screens and controls. The device has an intelligent wireless device runtime environment (Device Runtime) that provides a set of basic services to manage the wireless application, including a series of linked screen and data component definitions, and their interactions can simplify the development effort and reduce resource allocation. The data domain for this category of applications is defined using the atomic data component definitions. The communication between a device user interface and data components is defined using atomic screen component definitions. Both screen and data component definitions are described in metadata using a structured definition language such as XML. The relationships between the screen and data component definitions are embedded in the XML definitions in the form of screen/data mappings. Typically, rendered screens for display are derived from some underlying data component and screens controls affected by user events impact the current state (or data representation) of the application Changes to the application domain data are automatically synchronized with the user interface, and user-entered data is automatically reflected in the application domain data. The primary mechanism behind this synchronization is the mapping of screens and data. This mechanism enables creation of dynamic and interactive screens. All changes to the data component can be immediately reflected on the screen and vice versa. This model allows building effective wireless applications based on server-to-device notifications. The data updates asynchronously pushed from the server are instantaneously reflected at the UI screen.

[0006] According to the present invention there is provided a method for generating a screen element of a wireless application based on a data object displayed on a user interface of a wireless device, the application including a data component having at least one data field definition and a screen component having at least one screen element definition, the component definitions expressed in a structured definition language, the method comprising the steps of: selecting the screen component corresponding to the screen element selected for display; identifying at least one mapping present in the screen component, the mapping for specifying a relationship between the screen component and the data component as defined by an identifier representing the mapping; selecting the data component mapped by the mapping according to the mapping identifier; obtaining a data object field value corresponding to the data field definition of the mapped data component; generating a screen element from the screen element definition to include the data object field value according to the format of the data field definition as defined in the mapped data component.

[0007] According to a further aspect of the present invention there is provided a system for generating a screen

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element of a wireless application based on a data object displayed on a user interface of a wireless device, the application including a data component having at least one data field definition and a screen component having at least one screen element definition, the component definitions expressed in a structured definition language, the method comprising the steps of: a mapping manager for selecting the screen component corresponding to the screen element and identifying at least one mapping present in the screen component, the mapping for specifying a relationship between the screen component and the data component as defined by an identifier representing the mapping, the mapping manager for selecting the data component mapped by the mapping according to the mapping identifier; a data manager for obtaining a data object field value corresponding to the data field definition of the mapped data component; and a screen manager for generating a screen element from the screen element definition to include the data object field value according to the format of the data field definition as defined in the mapped data component.

[0008] According to a still further aspect of the present invention there is provided a method for generating a data object of a wireless application based on a change in a screen element displayed on a user interface of a wireless device, the application including a data component having at least one data field definition and a screen component having at least one screen element definition, the component definitions expressed in a structured definition language, the method comprising the steps of: selecting the screen component corresponding to the screen element; identifying at least one mapping present in the screen component, the mapping for specifying a relationship between the screen component and the data component; selecting the data component mapped by the mapping; obtaining a changed value from the screen element corresponding to the mapped data component; assigning the changed value to a data field value of the data object according to the format of the data field definition as defined in the mapped data component.

[0009] According to a still further aspect of the present invention there is provided a device for generating a screen element of a wireless application based on a data object displayed on a user interface of a wireless device, the application including a data component having at least one data field definition and a screen component having at least one screen element definition, the component definitions expressed in a structured definition language, the method comprising the steps of: means for selecting the screen component corresponding to the screen element selected for display; means for identifying at least one mapping present in the screen component, the mapping for specifying a relationship between the screen component and the data component; means for selecting the data component mapped by the mapping; means for obtaining a data object field value corresponding to the data field definition of the mapped data component; means for generating a screen element from the screen element definition to include the data object field value according to the format of the data field definition as defined in the mapped data component.

[0010] According to a still further aspect of the present invention there is provided a computer program product for generating a screen element of a wireless application based on a data object displayed on a user interface of a wireless device, the application including a data component having at least one data field definition and a screen component having at least one screen element definition, the component definitions expressed in a structured definition language, the computer program product comprising: a computer readable medium; a mapping module stored on the computer readable medium for selecting the screen component corresponding to the screen element and identifying at least one mapping present in the screen component, the mapping for specifying a relationship between the screen component and the data component as defined by an identifier representing the mapping, the mapping module for selecting the data component mapped by the mapping according to the mapping identifier; a data module stored on the computer readable medium for obtaining a data object field value corresponding to the data field definition of the mapped data component; and a screen module stored on the computer readable medium for generating a screen element from the screen element definition to include the data object field value according to the format of the data field definition as defined in the mapped data component.

BRIEF DESCRIPTION OF THE DRAWINGS

[0011] These and other features will become more apparent in the following detailed description in which reference is made to the appended drawings by way of example only, wherein:

Figure 1 is a block diagram of a network system;
Figure 2 is a block diagram of a wireless device of Figure 1;
Figure 3 is a block diagram of an intelligent framework of the device of Figure 2;
Figure 4 is a block diagram of a component application program of Figure 2;
Figure 5 shows a representative application packaging and hosting model for an example component application of Figure 4;
Figure 6 shows an example method of implementing the component application program of Figure 5;
Figure 7 shows a further example method of implementing the component application program of Figure 5;
Figures 8 shows a mapping between data and screen components for the application of Figure 2;
Figures 9 shows an operation of initial screen display for the mapping of Figure 8;

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Figures 10 shows an update of a data object according to user events for the mapping of Figure 8; and
Figure 11 shows an update of a data object according to an asynchronous message for the mapping of Figure 8;

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Network System

[0012] Referring to Figure 1, a network system 10 comprises a plurality of wireless devices 100 for interacting with one or more generic services 106, via a coupled Wide Area Network (WAN) 104 such as but not limited to the Internet. These devices 100 can be such as but not limited to, PDAs, pagers, cellular phones and the like. The generic services provided by the service 106 can be Web Services and/or other services such as but not limited to SQL Databases, IDL-based CORBA and RMI/IIOP systems, Legacy Databases, J2EE, SAP RFCs, and COM/DCOM components. Further, the system 10 can also have a wireless network 102 for connecting the wireless devices 100 to the WAN 104. It is recognized that other devices (not shown) could be connected to the web service 106 via the WAN 104 and associated networks other than as shown in Figure 1. Web services 106 defined according to a schema are selected for the following description of the system 10, for the sake of simplicity. However, it is recognized that other services could be substituted for the web services 106, if desired. Further, the networks 102, 104 of the system 10 will hereafter be referred to as the network 104, for the sake of simplicity.

[0013] Referring again to Figure 1, the devices 100 transmit and receive requests/response messages 105, respectively, when in communication with the web services 106. The devices 100 can operate as web clients of the web services 106 by using the requests/response messages 105 in the form of message header information and associated data content, for example requesting and receiving product pricing and availability from an on-line merchant. The web service 106 is an example of a system with which client application programs 302 (see Figure 2) on the communication devices 100 interact via the network 104 in order to provide utility to users of the communication devices 100.

[0014] For satisfying the appropriate requests/response messages 105, the web service 106 can communicate with an application server 110 through various protocols (such as but not limited to HTTP and component API) for exposing relevant business logic (methods) to client application programs 302 (see Figure 2) once provisioned on the devices 100. The application server 110 can also contain the web service 106 software, such that the web service 106 can be considered a subset of the application server 110. The application programs 302 of the device 100 can use the business logic of the application server 110 similarly to calling a method on an object (or a function). It is recognized that the client application program 302 can be downloaded/uploaded in relation to the application server 110, through the messages 105 via the network 104, directly to the devices 100. It is further recognized that the devices 100 can communicate with one or more web services 106 and associated application servers 110 via the networks 104.

Server Environment

[0015] Referring to Figure 1, the web service 106 provides the information messages 105 which are used by the client application programs 302 (see Figure 2) on the devices 100 (either synchronously or asynchronously. Alternatively, or in addition, the web service 106 may receive and use the information messages 105 provided by the client application programs 302 executed on the devices 100, or perform tasks on behalf of client application programs 302 executed on the devices 100. The web service 106 can be defined as a software service, which can implement an interface such as expressed using Web Services Description Language (WSDL) registered in Universal Discovery Description and Integration (UDDI) in a web services registry, and can communicate through messages 105 with client devices 100 by being exposed over the network 104 through an appropriate protocol such as the Simple Object Access Protocol (SOAP). In some implementations, SOAP is a specification that defines the XML format for the messages 105, including a well-formed XML fragment enclosed in SOAP elements. SOAP also supports document style applications where the SOAP message 105 is a wrapper around an XML document. A further optional part of SOAP defines the HTTP binding (i.e. header), whereas some SOAP implementations support MSMQ, MQ Series, SMTP, or TCP/IP transport protocols. Alternatively, the web service 106 may use other known communication protocols, message 105 formats, and the interface may be expressed in other web services languages than described above.

Client Environment

[0016] Referring to Figure 2, the component applications 302 are transmitted via the network 104 and loaded into a memory module 210 of a device infrastructure 204 of the device 100. Alternatively, the component applications 302 may be loaded via a serial connection, a USB connections, or a short-range wireless communication system such as IR, 802.11(x) Bluetooth™ (not shown). Once loaded onto the device 100, the component applications 302 can be executed by an intelligent runtime framework 206 on the device 100, which can convert the component applications

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302 into native code, which is executed by a processor 208 in the device infrastructure 204. Alternatively, the applications 302 may be interpreted by another software module or operating system on the device 100. In any event, the component applications 302 are run in the terminal runtime environment provided by the device 100, such that the runtime environment is an intelligent software framework 206 that provides a set of basic services to manage and execute typical application 302 behaviour (e.g. persistence, messaging, screen navigation and display).

[0017] Referring again to Figure 1, the client runtime environment provided by the devices 100 can be configured to make the devices 100 operate as web clients of the web services 106. It is recognized that the client runtime environment can also make the devices 100 clients of any other generic schema-defined services over the network 104. The client runtime environment of the devices 100 is preferably capable of generating, hosting and executing the client application programs 302 (which include data 400 and screen 402 component definitions - see Figure 4 and description herein below) on the device 100. Further, specific functions of the client runtime environment can include such as but not limited to support for language, coordinating memory allocation, networking, management of data during I/O operations, coordinating graphics on an output device of the devices 100 and providing access to core object oriented classes and supporting files/libraries. Examples of the runtime environments implemented by the devices 100 can include such as but not limited to Common Language Runtime (CLR) by Microsoft and Java Runtime Environment (JRE) by Sun Microsystems.

[0018] The terminal runtime environment of the devices 100 preferably supports the following basic functions for the resident executable versions of the client application programs 302 (see Figure 2), such as but not limited to:

provide a communications capability to send messages 105 to the Web Services 106 or messages 105 to any other generic schema defined services connected via the network 104 to the devices 100;

provide data input capabilities by the user on an input device of the devices 100 to supply data parts for Web Services' 106 outgoing messages 105 (messages to the service);

provide data presentation or output capabilities for Web Services' 106 response messages 105 (incoming messages) or uncorrelated notifications on the output device;

provide data storage services to maintain local client data in the memory module 210 (see Figure 2) of the device 100; and

provide an execution environment for a scripting language for coordinating operation of the components 400, 402 (see Figure 4) of the client application programs 302.

[0019] Referring to Figures 2, 4 and 5, the client runtime (for example provided by the component framework 206) loads metadata contained in the component 400, 402 definitions and also builds the executable version of the application program 302 on the device 100, via for example an execution environment 300. There are, such as but not limited to, two operational models for client runtime: template-based native execution and metadata-based execution. In the case of a fully defined component based application 302 (having data 400, screen 402, message 404 , and workflow 406 components - see figure 4), the framework 206 can implement a template-based native execution model for hosting data, message, and screen templates 500 pre-built on the device 100 using the native code. When the application program 302 definition is loaded, the client environment provided by the framework 206 fills the templates 500 with metadata-defined parameters from the components 400, 402, 404 and builds the executable client application program 302 in the native format. The workflow script (for example ECMAScript) of the workflow component 406 could be either converted to native code or executed using an appropriate script interpreter 502 (e.g., ECMAScript interpreter) to a native code redirector 504, where the redirector 504 interprets calls to the scripting language into operations on native components through a native runtime engine 506. With the metadata-based execution, the runtime environment of the framework 206 either keeps component 400, 402, 404, 406 definitions in XML (for example), which are parsed during execution time or uses native representation of XML (for example) nodes. During execution, the native runtime engine 506 operates on definitions of the components 400, 402, 404, 406 rather than on native component entities. It is recognized that another type of execution model would include the application having component definitions 400, 402 for the data and screens while having a more hard-coded 405 approach for the remaining message and workflow elements of the application 302.

[0020] Therefore, the native client runtime environment provides an interface for the client application programs 302 to the device 100 functionality of the processor 208 and associated operating system of the device infrastructure 204. The runtime environment preferably supplies a controlled, secure and stable environment on the device 100, in which the component application programs 302 execute. The runtime environment provisions the definitions of the components 400, 402, (and definitions 404, 406 if used) to create the actual web client specific for each respective device infrastructure 204 of the device 100. It is recognized for the sake of simplicity that the following description hereafter will refer to the client runtime environment being provided by the framework 206, as an example only.

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Communication Device

[0021] Referring to again to Figure 2, the devices 100 are devices such as but not limited to mobile telephones, PDAs, two-way pagers or dual-mode communication devices. The devices 100 include a network connection interface 200, such as a wireless transceiver, coupled via connection 218 to a device infrastructure 204. The connection interface 200 is connectable during operation of the devices 100 to the network 104, such as to the wireless network 102 by wireless links (e.g., RF, IR, etc.), which enables the devices 100 to communicate with each other and with external systems (such as the web service 106) via the network 104 and to coordinate the requests/response messages 105 between the client application programs 302 and the service 106 (see Figure 1). The network 104 supports the transmission of data in the requests/response messages 105 between devices and external systems, which are connected to the network 104. The network 104 may also support voice communication for telephone calls between the devices 100 and devices which are external to the network 104. A wireless data transmission protocol can be used by the wireless network 102, such as but not limited to DataTAC, GPRS or CDMA.

[0022] Referring again to Figure 2, the devices 100 also have a user interface 202, coupled to the device infrastructure 204 by connection 222, to interact with a user (not shown). The user interface 202 includes one or more user input devices such as but not limited to a QWERTY keyboard, a keypad, a trackwheel, a stylus, a mouse, a microphone and the user output device such as an LCD screen display and/or a speaker. If the screen is touch sensitive, then the display can also be used as the user input device as controlled by the device infrastructure 204. The user interface 202 is employed by the user of the device 100 to coordinate the requests/response message messages 105 over the system 10 (see Figure 1) as employed by client application programs 302 of a framework 206, further described below.

[0023] Referring again to Figure 2, operation of the device 100 is enabled by the device infrastructure 204. The device infrastructure 204 includes the computer processor 208 and the associated memory module 210. The computer processor 208 manipulates the operation of the network interface 200, the user interface 202 and the framework 206 of the communication device 100 by executing related instructions, which are provided by an operating system and client application programs 302 located in the memory module 210. Further, it is recognized that the device infrastructure 204 can include a computer readable storage medium 212 coupled to the processor 208 for providing instructions to the processor and/or to load/update client application programs 302 in the memory module 210. The computer readable medium 212 can include hardware and/or software such as, by way of example only, magnetic disks, magnetic tape, optically readable medium such as CD/DVD ROMS, and memory cards. In each case, the computer readable medium 212 may take the form of a small disk, floppy diskette, cassette, hard disk drive, solid state memory card, or RAM provided in the memory module 210. It should be noted that the above listed example computer readable mediums 212 can be used either alone or in combination.

Mapping relationships between components

[0024] In practice, typically the expression of the components 400, 402 by the developer can have overlapping content, while the behaviour of each of the components 400, 402 of the application 302 is distinct. Therefore, by recognizing the fact that user interface 202 (see Figure 1) content is often generated from some underlying data element, and in light of the similarities between expression of these components 400, 402, it is convenient to introduce certain mappings 804 (see Figure 8) to the expression of screen components 402, as further described below. Referring to Figures 4 and 8, these mappings 804 are essentially shortcuts to the expression of the screen elements 802 (screen element definitions) associated with the screen component 402, and how the screen component 402 behaves at runtime during execution of the application 302. The mapping 804 is a stated relationship between the screen element definitions of the screen component 402 and the data component 400 definition. In relation to expression of the screen component 402, using the mapping 804 can reduce the amount of metadata required to describe the component 402. Thus use of the mapping 804 can have a direct effect on the amount of "code" required to describe the application 302. In relation to how the component 402 behaves at runtime, the mapping 804 specifies how linked data elements (described by the data component 400) are resolved and affected by screen element 802 state. In this regard, specifying the mapping 804 can reduce the need for the developer to provide additional specific screen handling code in the application 302.

[0025] Referring to Figure 8, screen representations of the screen components 402 (see Figure 4) consist of screen elements 802, such as but not limited to UI controls, that are displayed on the user interface 202 and are associated with data field instances of the corresponding data objects 800. Therefore, each of the screen elements 802 is bound or mapped 804 to the fields of a respective data object 800. The user of the application 302 can select screen elements 802 on the user interface 202 (see Figure 1) and edit the controls within them, i.e. by user events. Any modifications of the screen elements 802 are propagated to the data object 800 mapped to the screen element 802. Similarly, all modifications (driven by the application 302 logic or incoming server messages 105) to the data objects 800 are reflected in the screen elements 802 mapped to these data objects 800. Tracking of the user events and any direct modifications to the data objects 800 is monitored via a mapping manager 312, as described below. The mapping 804 provides for

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identification and modification of the data object 800 affected by the mapping 804. The mapping 804 isolates the data object 800 of the data component 400 to which the screen element 802 of the corresponding screen component 404 is linked.

[0026] It is recognised that either the screen component 402 or data component 400 definitions contain the mapping 800, which defines the relationship between the data object 800 and screen element 802 or the relationship between an individual data field (or group of data fields) of the data object 800 with screen element 802. It is recognised that the data object 800 may be passed to the user interface 202 as a parameter. In this case the data field values of the data object 800 mapped to the screen element 804 would be extracted from the passed parameter. For example, an edit control (screen element 802) defined in a screen field definition of the screen component 402 could be mapped into a data field definition of the linked data component 400 (i.e. a one to one mapping 804) or a choice control (screen element 802) defined in a screen field definition of the screen component 402 could be mapped into a particular data field definition of a collection of data components 400 (i.e. a one to many mapping 804).

[0027] Referring to Figures 4 and 8, screen component metadata can describe mapping to the data field definition of the linked data component 400 in addition to its other attributes. For example, a single screen element 802 may map to:

- one of the data field definitions of the data component 400 or
- all data field definitions of the data component 400 by a primary key (or mapping identifier) - in this case, the mapping 804 resolves to the primary key field.

[0028] A choice/list screen element 802 may map to:

- a collection of all instances of the data components 400 or
- one of the data field definitions of the data component 400 that is a collection

[0029] Please refer to the example component application 302 below for an example of an edit screen element 802 'ebName' mapped to a 'name' field of a specific data object 800 of a 'User' data component 400, and an example of a choice screen element 804 'cbNames' mapped to a 'name' field of all data objects 800 of the 'User' data component 400.

Framework of Device

[0030] Referring again to Figure 2, the framework 206 of the device 100 is coupled to the device infrastructure 204 by the connection 220. The client runtime environment the device 100 is provided by the framework 206, and is preferably capable of generating, hosting and executing the client application programs 302 (which include component definitions - see below) from meta-data definitions. The device runtime can be thought of as the intelligent software framework 206 that provides a set of basic services 304 to manage and execute typical application 302 behaviour, such as but not limited to persistence, provisioning, messaging, screen navigation and user interface/screen services. Therefore, the framework 206 provides the native client runtime environment for the client application programs 302 and is an interface to the device 100 functionality of the processor 208 and associated operating system of the device infrastructure 204. The framework 206 provides the runtime environment by preferably supplying a controlled, secure and stable environment on the device 100, in which the component application programs 302 execute in the application container or execution environment 300, for example.

[0031] Referring to Figure 3, the framework 206 can be used to execute the client application programs 302 (such as Web Service client applications) within the terminal runtime environment and can support access to the Web Service 106 and associated application servers 110 (see Figure 1), via the request/response messages 105 over the network 104. The component application programs 302 comprise software applications which are executed by the framework 206. The framework 206 creates the execution environment 300 for each component 400, 402 (and definitions 404, 406 if used - see Figure 4) of the application program 302, each time that the application program 302 is executed. The execution environment 300 loads the components 400, 402 (definitions 404, 406 if used) of the application program 302 and can create native code which is executed by the processor 208 in the device infrastructure 204. The framework 206 therefore provides the host execution environments 300 for provisioning the definitions of the components 400, 402 (definitions 404, 406 if used) to create the actual web client specific for each respective device infrastructure 204 of the communication devices 100. The execution environment 300 can provision the application 302 as per the template-based native execution and metadata-based execution models as described above, by way of example only. The execution environment 300 can be referred to as a smart host container for the client application program 302, and can be responsible for analyzing screen values (of the screen elements 802 see Figure 8) and for updating the representation of the values(data objects 800) in the memory module 210.

[0032] Referring again to Figure 3, the framework 206 also provides framework services 304 (a standard set of

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generic services) to the client application programs 302, in the event certain services are not included as part of the components 400, 402 (definitions 404, 406 if used - see Figure 4) or received as separate components (not shown) as part of the component application program 302. The application program 302 has communications 214 with the execution environment 300, which can coordinate communications 216 with the framework services 304, as needed. The framework services 304 of the framework 206 coordinate communications via the connection 220 with the device infrastructure 204. Accordingly, access to the device infrastructure 204, user interface 202 and network interface 200 is provided to the client application programs 302 by the framework 206 and associated services 304. It is recognized that a portion of the operating system of the device infrastructure 204 (see Figure 2) can represent the execution environment 300 and selected services/managers of the framework services 304.

[0033] Referring to Figures 3 and 8, the framework services 304 includes such as but not limited to a communication manager 306, a presentation manager 308, a data manager 310, and can include an access service, a provisioning service and a utility service. The access service (not shown) provides the application programs 302 access to other software applications which are present on the communication device 100. The provisioning service (not shown) manages the provisioning of software applications 302 on the communication device 100. Application provisioning can include requesting and receiving new and updated application programs 302, configuring application programs 302 for access to services which are accessible via the network 104, modifying the configuration of application programs 302 and services, and removing application programs 302 and services. The utility service (not shown) is used to accomplish a variety of common tasks, such as performing data manipulation in the conversion of strings to different formats.

[0034] Referring to Figures 3, 8 and 9, a communication manager 306 manages connectivity between the application programs 302 and the external system 10, such as the messages 105 and associated data sent/received in respect to the web service 106 (by the communication manager 306) on behalf of the applications 302. As further described below the communication manager 306 can be used to implement a series of mappings 804. The presentation manager 308 manages the representation of the application programs 302 as they are output on the output device of the user interface 202 (see Figure 2). The data manager 310 allows the component application programs 302 to store data in the memory module 210 of the device infrastructure 204 (see Figure 2). It is recognised the data manager 310 can be used to coordinate the modification/creation of data instances of the data components 400 linked to the screen components 402 via the mappings 804. The framework 206 also has a mapping manager 312 that keeps track of the individual relations (mappings) 804 between the respective data objects 800 and the screen elements 802. The mappings are stored in a mapping table 309 coupled to the mapping manager 312. Once the screen elements 802 are initialized on the user interface 202, the presentation manager 308 uses the mapping manager 312 to maintain dynamic integrity between the screen elements 802 and the corresponding data objects 800 displayed. When one of the screen elements 802 is modified by the user via the user interface 202, the mapping manager 312 is responsible for propagating the change to the right data object 800 in the memory 210, through the data manager 310. When one of the data objects 800 in the memory 210 is modified, the mapping manager 312 checks to see if that object 800 is currently displayed on the User interface 202, and if so is then responsible for updating the corresponding screen elements 802 through the presentation manager 308, to reflect the change in the data object 800, by referring to the corresponding mapping 804 entry in the table 409. It is recognized that the framework services 304 of the communication device 100 provide functionality to the component application programs 302, which includes the managers described above.

[0035] Accordingly, the framework 206 allows for display of the interactive applications 302 on the user interface 202, which typically presents information from the application 302 domain and allow the user to enter and modify the related data objects 800 and screen elements 802. The framework 206 provides a system for effective management of the User interface 202 by implementing the direct mappings 800 between the application data domain (data objects 800) and the UI screen elements 802 (e.g. UI controls). Changes to the application domain data objects 800 are automatically synchronized with the user interface 202, and user-entered data is automatically reflected in the application domain data objects 800. The primary mechanism behind this synchronization is the mapping 804 between paired screen element 802 and data object 800. The mapping system relates to wireless applications 302 defined using metadata expressed in a structured language such as XML. The mapping 804 mechanism enables creation of dynamic and interactive screens on the user interface 202. All changes to the data object 800 can be synchronously reflected on the user interface and vice versa. The implementation of mappings 804 facilitates building the wireless applications 302 based on server-to-device notifications. The data object 800 updates asynchronously pushed from the server (web service 106) are synchronously reflected by the linked UI screen element 802 on the user interface 202. These mappings 800 can be applicable for a variety of wireless applications 302 such as stock trading, news updates, alerts, weather updates.

Application components

[0036] Referring to Figure 2, the client application programs 302 are executed within the terminal runtime environment

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of the framework 206 and support access to Web Service operations provided by the service 106 (see Figure 1). WSDL and SOAP protocol definitions clearly imply a messages/data pattern. In a WSDL Web Service definition, the operations are defined using the notion of messages and data parts, which can be used to define the Web Service client application programs 302 as a set of the related data 400 and the message 404 components (see Figure 4).

[0037] Referring to Figure 4, a block diagram of the component application program 302 comprises the data components 400, the presentation components 402. The remaining message/workflow part 405 of the application 302 can be provided by the message components 404, which are coordinated by workflow components 406 through communications 214 with the execution environment 300, or can be provided as hard-coded elements 405 of the application 302 (as defined by the application developer). The structured definition language can be used to construct the components 400, 402 (and 404 if used) as a series of metadata records, which consist of a number of pre-defined elements representing specific attributes of a resource such that each element can have one or more values. Each metadata schema typically has defined characteristics such as but not limited to; a limited number of elements, a name of each element, and a meaning for each element. Example metadata schemas include such as but not limited to Dublin Core (DC), Anglo-American Cataloging Rules (AACR2), Government Information Locator Service (GILS), Encoded Archives Description (EAD), IMS Global Learning Consortium (IMS), and Australian Government Locator Service (AGLS). Encoding syntax allows the metadata of the components 400, 402, (and 404 if used) to be processed by the device infrastructure 204 (see Figure 2), and encoding schemes include such as but not limited to XML, HTML, XHTML, XSML, RDF, Machine Readable Cataloging (MARC), and Multipurpose Internet Mail Extensions (MIME).

[0038] Referring again to Figures 4 and 8, the data components 400 define data objects 800 which are used by the component application program 302, including application data represented in for example native code or XML. Examples of data objects 800 which data components 400 may describe are orders, users, and financial transactions. Data components 400 define what information is required to describe the data objects 800, and in what format the information is expressed. For example, the data component 400 may define such as but not limited to an order which is comprised of a unique identifier for the order which is formatted as a number, a list of items which are formatted as strings, the time the order was created which has a date-time format, the status of the order which is formatted as a string, and a user who placed the order which is formatted according to the definition of another one of the data components 400. Since data parts (elements) are usually transferred from message 105 to message 105 according to Web Services' 106 choreography rules, preferably there is persistence of data objects 800. Data objects 800 may be dynamically generated according to Web Services' 106 choreography definitions (if available) or defined by the application designer based on complex type definitions and/or message correlation information. It is recognised that the screen components 402 can be linked via the mappings 804 to the data components 400 (see Figure 9), as further described below.

[0039] Further, the data components 400 can consist of a series of data field definitions written in such as but not limited to HTML, XHTML, XML and other structured definition languages, wherein the data objects 800 (see Figure 9) are data instances according to the data field definitions. It is noted that data object definitions provide definitions of the structure of data fields and their corresponding data types, such that data objects 800 are instances of a particular data object definition. Data Fields comprise the data object definitions and every data field has an associated data type. Further, Complex Data Fields contain a structure of sub-data fields. The definitions of the data objects 800 are included in the data component 400 schema of the application 302. These data definitions provide a data model for defining the data objects 800 as used by the application 302. Accordingly, the Data Component 400 is a set of one or more data field definitions grouped together to define the format of corresponding data field values when instantiated as the data object 800. The data component 400 definitions can have a primary or a composite key or optionally be defined without a key. The keys can be used with the mappings 804 to provide a unique link between a pair of the mapped data 400 and screen 402 components.

[0040] Referring again to Figure 4, the presentation/screen components 402 define the appearance and behavior of the application program 302 as it displayed by the user interface 202. The presentation components 402 can specify GUI screens and controls, and actions to be executed when the user interacts with the component application 302 using the user interface 202. For example, the presentation components 402 may define screens, labels, edit boxes, buttons and menus, and actions to be taken when the user types in an edit box or pushes a button. The majority of Web Service consumers use a visual presentation of Web Service operation results, and therefore provide the runtime environment on their devices 100 capable of displaying user interface screens.

[0041] An example application 302 of a passing a parameter to the screen component 402 as well as for the screen component 402 that accepts the passed parameter is illustrated below.

Consider an application with:

- data component 400 'User'
- screen component 402 'scrAllUsers' listing a choice box of all user names, with button/menu item to display a details of selected user

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- screen component 402 'scrUserInfo' displaying details for a user passed as a parameter

example XML data components 400

[0042] Data Component 400 'User' with primary key field 'name' can be defined using the following metadata:

```
<cData name="User" pkey="name" >        <dfield name="name" type="String"
/>
        <dfield name="street" type="String" />
        <dfield name="city" type="String" />
        <dfield name="postal" type="String" />
        <dfield name="phone" type="String" />
    </cData>
```

example XML presentation components 402

[0043] The 'scrAllUsers' screen can define a choice control 'cbNames' mapped to a 'name' field of all instances of the 'User' data component 400. The screen metadata definition contains a button or menu item with an action to display screen 'scrUserInfo' with parameter 'User' selected, passed as a parameter to the user interface 202.

```
<cScr name="scrAllUsers" >
    ...
    <choice name="cbNames" mapping="User[].name" />
    ...
    <action screen="scrUserInfo" param="cbNames.selected"/>
    ...
</cScr>
```

[0044] A screen 'scrUserInfo' defines an edit control 'ebName' mapped to a 'name' field of a specific instance of 'User' data component 400 passed as a parameter:

```
<cScr name="scrUserInfo" param="User">
    ...
    <edit name="ebName" mapping="User.name" />
    ...
</cScr>
```

[0045] Referring again to Figure 4, the remaining message and other workflow parts 105 of the application 302 can be provided by hard-coded application 302 elements and/or can be provided as further components 404, 406 described in the structured definition language and code/script respectively. In the case of using atomic message components 404, these define the format of messages 105 used by the component application program 302 to communicate with external systems such as the web service 106, and include message data represented in for example native code or XML. For example, one of the message components 404 may describe such as but not limited to a message for placing an order which includes the unique identifier for the order, the status of the order, and notes associated with the order. Message component 404 definitions written in the structured definition language can uniquely represent (and map to) WSDL messages, and can be generated dynamically at runtime. Web Service messages 105 are defined within the context of operation and there is defined correlations between the message components 404 in the component application program 302 definition. This correlation could be done using predefined message parameters and/or through separate workflow components 406, as further defined below.

[0046] Referring again to Figure 4, in the case of using the atomic workflow components 406 of the component

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application program 302, these define processing that occurs when an action is to be performed, such as an action specified by a presentation component 402 as described above, or an action to be performed when messages 105 (see Figure 1) arrive from the system 10. Presentation workflow and message 105 processing can be defined by the workflow components 406. The workflow components 406 are written as a series of instructions in a programming language or a scripting language, such as but not limited to ECMAScript, and can be compiled into native code and executed by the execution environment 300, as described above. An example of the workflow components 406 may be to assign values to data, manipulate screens, or send the message 105. The workflow component 406 supports a correlation between the messages 105 and defines application flow as a set of rules for operations on the other components 400, 402, 404. Multiple workflow components can be defined with respect to a given application program 302.

[0047] Example components 404, 406 for component based applications 302 could be:

example XML message components 404

[0048]

```
<msg name="ordConfirmation" type="response" action="mhConfirmation">
        <part name="orderId" type="String" />
        <part name="status" type="String" />
</msg>
...
```

example ECMAScript workflow components 406

[0049]

```
<actions>
    <function name="mhConfirmation">
        key = ordConfirmation.orderId;
        order = Order.get(key);
        order.orderStatus = ordConfirmation.status;
        scrConfirmation.display(order);
    </function>
    ...
</actions>
```

[0050] Expressing the data 400, message 404, and presentation 402 components using XML or its derivatives, and the workflow component 406 using the ECMAScript language or its subset, can allow an application developer to abstract the Web Service client from any specific platform or environment and implement in principle "develop once run everywhere" applications. The following example shows how a Web Services client application program 302 could be expressed using a structured definition language, such as but not limited to XML, and a platform neutral scripting/programming language, such as but not limited to ECMAScript, defined components.

[0051] Further, referring to Figure 4, as given above, it can be seen that the message components 404 can relay the required data for the input and output of the messages 105. The corresponding data components 400 coordinate the storage of the data in the memory module 210 (see Figure 2) of the device 100 for subsequent presentation on the user interface 202 (see Figure 2) by the presentation components 402. The workflow components 406 can coordinate the transfer of data between the data 400, presentation 402, and message 404 components. The client runtime is capable of storing and updating atomic data objects 800 directly.

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Example Basic Operation of a Component Based Application Model

[0052] It should be noted that the operation detailing processing mappings 804 is described with reference to Figures 9, 10, and 11 below.

[0053] Referring to Figures 1, 3 and 6, for example, operation 600 shows when the device 100 receives 602 the response message 105 containing message data, the appropriate workflow component 406 interprets 604 the data content of the message 105 according to the appropriate message component 404. The workflow component 406 then processes 606 the data content and inserts 910 the data into the corresponding data component 400 for subsequent storage 612 in the memory module 210 (see Figure 2). Further, if needed, the workflow component 406 also inserts 608 the data into the appropriate presentation component 402 for subsequent display 614 on the user interface 202 (see Figure 2).

[0054] Referring to Figures 1, 3 and 7 operation 700 shows data input 702 for an action, such as pushing a button or selecting a menu item, which the user performed 703 on a user-interface element through the user interface 202 (see Figure 2). The relevant workflow component 406 interprets 704 the input data according to the appropriate presentation component 404 and creates 706 data entities which are defined by the appropriate data components 400. The workflow component 406 then populates 710 the data components 400 with the input data provided by the user for subsequent storage 712 in the memory module 210 (see Figure 2). Further, the workflow component 406 also inserts 708 the input data into the appropriate message component 404 for subsequent sending 714 of the input data as data entities to the web service in the message 105, as defined by the message component 404.

[0055] In the above described operation, it is recognized that operation of the workflow 406 and message 404 components would be correspondingly otherwise if included as a hard-coded part 405 of the application 302.

Predefined and dynamic screen generation

[0056] The wireless applications 302 can have predefined sets of screen elements 802 and data objects 800, with the relationship (mapping 800) between these sets being identified at application design phase in the field definitions of the data components 400 and the screen components 404. This model can be referred to as a predefined screen and data relationship model, such that the mapping 804 between the screen elements 802 presented to the user and data objects 800 can be expressed in metadata in the component field definitions using structured language such as XML.

[0057] The screen of the user interface 202 can also be dynamically generated based on the structure of the data object 800 associated to the screen elements 802. In some situations the format of a data stream received as input from the server (web service 106), via the message 105 (see Figure 1), cannot be anticipated in advance (e.g. Web Service 106 operation returning arbitrary XML). In the case where received data stream is presented in a structured format (e.g. XML), the device 100 can make an intelligent prediction, by the framework 206 using defined translation rules, on the screen format (e.g. UI controls, layout, etc.) in order to present the data objects 800 represented by the data stream. This can be done by operating on the XML (for example) nodes in the data stream to build the corresponding data components 400 which are then interpreted by the mapping manager 312 (see Figure 6) to assign the corresponding screen elements 802 via mapped screen components 402 best determined by the framework 206 to handle the data content of the transformed data stream. The schema for the XML content would be predefined during development of the wireless application 302 and rules to translate the data stream based on the schema into the component definition format that is well understood by the mapping manager 312 and the developer of the translation rules. The translation rules would be part of the mapping manager 312 and designed to translate most commonly encountered XML (for example) structured data stream content. Moreover the user can have the opportunity to update the UI fields and modify the data before it has been stored to the device 100 or sent back to the server.

The following example shows an arbitrary XML data stream fragment of the XML schema:

```
<dataNode1 attr1='val1' attr2='val2'>
```


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```
        <subDataNode1>abcdefg</subDataNode1>
        <subDataNode2>222</subDataNode2>
        <subDataNode3>333</subDataNode3>
</dataNode1>
<dataNode1 attr1='val1' attr2='val2'>
        <subDataNode1>hijklmnop</subDataNode1>
        <subDataNode2>555</subDataNode2>
        <subDataNode3>666</subDataNode3>
</dataNode1>
```

The mapping manager 312 uses the schema definition provided by the application developer containing the data field definitions

```
<dataEntity name='dataNode1'>
        <dfield name='subDataNode1' type='String' />
        <dfield name='subDataNode2' type='int' />
        <dfield name='subDataNode3' type='int' />
</dataEntity>
```

and dynamically applies translation rules to convert the XML data stream into application acceptable format (as per provided schema) and generate well formed XML data objects 400:

```
<dataEntity  name='dataNode1' key='0' >
        <dfield name='subDataNode1' >abcdefg</>
        <dfield name='subDataNode2' >222</>
</dataEntity>
<dataEntity  name='dataNode1' key='1' >
        <dfield name='subDataNode1' > hijklmnop </>
        <dfield name='subDataNode2' type='int' >555</>
</dataEntity>
```

Presentation of Data Object on the User Interface

[0058] When the screen of the user interface 202 is drawn, the data object 800 displayed for the mapped screen element 802 needs to be resolved. The different options for resolving the specific data object 800 to be used for initial values are as follows:

Screen parameter based initialization

[0059] Typically, the data object 800 of the data component 400 with values for the mapped screen elements 802 is passed to the screen of the user interface 202 as a parameter. In the Example screen component 404 given above, the screen '**scrUserInfo**' received the data object 800 of a user as the parameter. The screen elements 802 on this screen mapped to the data field definition of the User data component 400 would display a data value from this parameter.

Unresolved initial value

[0060] If the mapping 804 is defined for the screen, but no initial data object 800 of the related data component 400 has been resolved, then no initial data value would be displayed for the mapped screen elements 802. An example of this would be a screen defined to enter data values for a new user. The initial User data component 400 would not be

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relevant. After the user enters new values into the data fields of the screen element 802, mapping definitions are used to create a new data object 800 of this data component 400, as described below regarding User Data Updates.

List of all data objects

[0061] For a choice control / list type of the screen element 802, mapping 804 can specify that all created data objects 800 are to be used, as shown in Example screen component 404 given above.

Screen Presentation

[0062] Referring to Figures 3, 8, and 9, this scenario 850 describes steps executed for a screen element 802 when a new screen is drawn on the user interface 202. Step 852 the Mapping Manager 312 detects the screen element 802 mapped to the data component 400 field. Step 854, the Mapping Manager 312 checks if this type of data object 800 is attached to the screen - i.e. passed as a parameter. If yes, the Mapping Manager retrieves at step 858 the data field value of the data object 800 and passes it to the presentation manager 308 to display it on the screen. If no, a default value for the field type is displayed at step 856 (e.g. blank for screen, 0 for number, etc.) on the screen 202.

Control to Data Updates

[0063] Referring to Figures 3 and 8, based on mapping 804 metadata the values the user enters are reflected in the field values of the relevant data object 800 in the memory 210. The process can involve the following functionality:

- input validation
- data creation
- data update

Input validation

[0064] Validation of user entered data could be automatically based on the data component (ex. phone number).

Data Creation

[0065] Based on entered values, if a new data key value is encountered, a new data object 800 can be created. In the example data component 400 given above, if a previously undefined name is entered a new User data object 800 is created.

Data Update

[0066] Field values of the data object 800 for an existing data component 400 can be updated as a result of user entry on the user interface 202.

Update operation

[0067] A two way update model could work in two modes:

- Automatic commit
  Data is committed when the user leaves the screen.
- Managed transaction mode
  A specific menu action (screen element 802) is mapped to process data. For example for a multiple order screen, 'submit' menu item on the last screen would update/create the resultant data object 800. Another menu item (e.g. 'cancel') would result in discarding the entered data.

[0068] Referring to Figures 3, 8 and 10, the following scenario 870 describes the flow of mapping user entered data (user events) on the user interface 202 into data object(s) 800. At step 872, as user enters / updates data on the screen element 802, the UI manager 308 passes the value to the Mapping Manager 312. At step 874, if this is a mapped screen element 802, the Mapping Manager 312 resolves the appropriate data component 400 and requests the data object(s) 800 from the Data Manager 310. At step 876, the Data Manager 312 validates that the value entered for the screen element 802 matched to the data component 400 field type this screen element 802 is mapped to. At step 878,

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the Data Manager 310 keeps the modified data values in a temporary store, as not committed - 'dirty' data. The Data Manager 310 also resolves if this was an update of existing data object(s) 800 or a create of new data object(s) 800. At step 880, the user event is determined as committed (option A) or aborted (option B). For a committed determination: OPTION A: commit,

1) User selects a button or a menu item (screen element 802) mapped to the commit action;
2) The UI Manager 308 notifies the Mapping Manager 312 about the action;
3) The Mapping Manager 312 requests the Data Manager310 to commit changes;
4) The Data Manager 310 commits the changes and stores the data object(s) 800 in the memory 210.

For an aborted determination: OPTION B rollback,

1) User chooses to leave the screen by selecting a button or a menu item (screen element 802) that is not mapped to a commit action;
2) The UI Manager 308 notifies the Mapping Manager 312 about the action;
3) The Mapping Manager 312 requests the Data Manager 310 to rollback the changes;
4) The Data Manager 312discards the changes - this could mean discarding just the changes to individual fields or removing the whole data object(s) 800 if new ones were created as a result of the screen component 402 to data component 400 mapping 804.

Data to Control Updates

[0069] If the device 100 can asynchronously receive data updates from external sources (e.g. web service 106), changes to data values associated with the screen elements 802 would result in a screen refresh with the new information. Referring to Figures 3, 8, and 11, on receiving 952 the message 105 from the server 106, the Message Manager 312 determines 954 if this message 105 is mapped to the data component 400 of the currently executing application (s) 302 in the framework 206. If this is the case, then the following further steps are conducted: step 956, the Device framework 206 receives notification from the server 106 about a data change; step 958 the Message Manager 306 notifies the Data Manager 310 to perform any relevant data updates to the data object(s) 800; step 960, the Message Manager 306 also notifies the Mapping Manager 312 of the data changes; step 962, using the mapping 804 metadata the Mapping Manager 312 verifies whether the data changes are relevant to the current screen; step 964, if changes are related to the currently displayed information the Mapping Manager 312 requests UI Manager 308 to refresh the screen; and step 966 the screen is refreshed to display the updated data objects 800. Otherwise, step 968 the message 105 does not affect current values of the screen elements 802 displayed on the user interface 202. Accordingly, in view of the above, the message manager 306 receives the message 105, which causes the corresponding data object 800 (s) to be updated/created. Changes to the data objects 800 are then reflected in the screen elements 802 using the linked data component and corresponding data object(s) 800. This linked update/creation procedure between messages 105 and screen elements 802 (through the linked data components 400 and associated data object(s) 800) results in automatic refresh of the screen by the UI manager 308. (i.e. the user would see updated data in the screen elements 802).

[0070] Although the disclosure herein has been drawn to one or more exemplary systems and methods, many variations will be apparent to those knowledgeable in the field, and such variations are within the scope of the application. For example, although XML and a subset of ECMAScript are used in the examples provided, other languages and language variants may be used to define the component applications 302. Further, it is recognised as an alternative to the above described mapping 804, the definition of the data fields could be contained in the screen component 402 (see Figure 4). Therefore, the generation of the screen elements 802 would be based on data field definitions included in the screen component 402 definitions, and the data component 400 would be mapped 804 to the corresponding screen component 402 having included data field definitions. Accordingly, generation of the data objects 800 would rely upon data field definitions contained in the mapped screen component 402.

Claims

1. A method for generating a screen element of a wireless application based on a data object displayed on a user interface of a wireless device, the application including a data component having at least one data field definition and a screen component having at least one screen element definition, the component definitions expressed in a structured definition language, the method comprising the steps of:

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selecting the screen component corresponding to the screen element selected for display;
identifying at least one mapping present in the screen component, the mapping for specifying a relationship between the screen component and the data component as defined by an identifier representing the mapping;
selecting the data component mapped by the mapping according to the mapping identifier;
obtaining a data object field value corresponding to the data field definition of the mapped data component;
generating a screen element from the screen element definition to include the data object field value according to the format of the data field definition as defined in the mapped data component.

2. The method as claimed in claim 1, wherein a plurality of the data field definitions of the data component is shared between the screen component and the data component as represented by the mapping.

3. The method as claimed in claim 2 further comprising the step of linking the plurality of data field definitions to corresponding ones of the screen element definitions of the screen component as represented by the identifier.

4. The method as claimed in any one of claims 1 to 3 further comprising the step of detecting a user event of the user interface related to the screen element.

5. The method as claimed in claim 4 further comprising the step of identifying the mapping in the screen component corresponding to the linked data component of the affected screen element.

6. The method as claimed in any one of claims 1 to 5 further comprising the step of updating the data object in a memory using the data field definition of the linked data component.

7. The method as claimed in any one of claims 1 to 6 further comprising the step of creating a new one of the data object in a memory using the data field definition of the linked data component.

8. The method as claimed in any one of claims 1 to 7, wherein the data object is passed to the user interface as a screen parameter.

9. The method as claimed in any one of claims 1 to 8, wherein a first screen element definition is mapped by a first one of the identifiers to a first one of the data components and a second screen element definition is mapped by a second one of the identifiers to a second one of the data components different from the first data component.

10. The method as claimed in claim 9, wherein the first screen element definition and the second screen element definition are mapped to the same data component using the first identifier.

11. The method as claimed in any one of claims 1 to 10, wherein the structured definition language is Extensible Markup Language (XML) based.

12. The method as claimed in any one of claims 1 to 11, wherein the identifier is a simple primary key.

13. The method as claimed in any one of claims 1 to 11, wherein the identifier is a composite key.

14. The method as claimed in any one of claims 1 to 13 further comprising the step of receiving an asynchronous communication message by the device via a network coupled to the device, the message including a message data object.

15. The method as claimed in any one of claims 1 to 14 further comprising the step of checking the message for the mapping corresponding to the data component of the application provisioned on the device.

16. The method as claimed in claim 15 further comprising the step of updating the message data object corresponding to the message in a memory using the data field definition of the linked data component and then reflecting that data change in the screen element linked to the data object.

17. The method as claimed in claim 15 or claim 16 further comprising the step of creating the data object corresponding to the message in a memory using the data field definition of the linked data component.

18. A method for generating a data object of a wireless application based on a change in a screen element displayed

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on a user interface of a wireless device, the application including a data component having at least one data field definition and a screen component having at least one screen element definition, the component definitions expressed in a structured definition language, the method comprising the steps of:

selecting the screen component corresponding to the screen element;
identifying at least one mapping present in the screen component, the mapping for specifying a relationship between the screen component and the data component;
selecting the data component mapped by the mapping;
obtaining a changed value from the screen element corresponding to the mapped data component;
assigning the changed value to a data field value of the data object according to the format of the data field definition as defined in the mapped data component.

19. A system for generating a screen element of a wireless application based on a data object displayed on a user interface of a wireless device, the application including a data component having at least one data field definition and a screen component having at least one screen element definition, the component definitions expressed in a structured definition languege, the method comprising the steps of:

a mapping manager for selecting the screen component corresponding to the screen element and identifying at least one mapping present in the screen component, the mapping for specifying a relationship between the screen component and the data component as defined by an identifier representing the mapping, the mapping manager for selecting the data component mapped by the mapping according to the mapping identifier;
a data manager for obtaining a data object field value corresponding to the data field definition of the mapped data component; and
a screen manager for generating a screen element from the screen element definition to include the data object field value according to the format of the data field definition as defined in the mapped data component.

20. The system as claimed in claim 19, wherein a plurality of the data field definitions of the data component is shared between the screen component and the data component as represented by the mapping.

21. The system as claimed in claim 20, wherein the plurality of data field definitions are linked to corresponding ones of the screen element definitions of the screen component as represented by the identifier.

22. The system as claimed in claim 20 or claim 21 further comprising the presentation manager configured for detecting a user event of the user interface related to the screen element.

23. The system as claimed in claim 22 further comprising the mapping manager configured for identifying the mapping in the screen component corresponding to the linked data component of the affected screen element.

24. The system as claimed in claim 23 further comprising the data manager configured for updating the data object in a memory using the data field definition of the linked data component.

25. The system as claimed in claim 24 further comprising the data manager configured for creating a new one of the data object in a memory using the data field definition of the linked data component.

26. The system as claimed in any one of claims 19 to 25, wherein the data object is passed to the user interface as a screen parameter.

27. The system as claimed in any one of claims 19 to 26, wherein a first screen element definition is mapped by a first one of the identifiers to a first one of the data components and a second screen element definition is mapped by a second one of the identifiers to a second one of the data components different from the first data component.

28. The system as claimed in claim 27, wherein the first screen element definition and the second screen element definition are mapped to the same data component using the first identifier.

29. The system as claimed in any one of claims 19 to 28, wherein the structured definition language is Extensible Markup Language (XML) based.

30. The system as claimed in any one of claims 19 to 29, wherein the identifier is a simple primary key.

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31. The system as claimed in any one of claims 19 to 30, wherein the identifier is a composite key.

32. The system as claimed in any one of claims 19 to 31 further comprising a communication manager for receiving an asynchronous communication message by the device via a network coupled to the device, the message including a message data object.

33. The system as claimed in any one of claims 19 to 32 further comprising the mapping manager configured for checking the message for the mapping corresponding to the data component of the application provisioned on the device.

34. The system as claimed in claim 33 further comprising the data manager configured for updating the message data object in a memory using the data field definition of the linked data component.

35. The system as claimed in claim 33 further comprising the data manager configured for creating the message data object in a memory using the data field definition of the linked data component.

36. A device for generating a screen element of a wireless application based on a data object displayed on a user interface of a wireless device, the application including a data component having at least one data field definition and a screen component having at least one screen element definition, the component definitions expressed in a structured definition language, the method comprising the steps of:

means for selecting the screen component corresponding to the screen element selected for display;
means for identifying at least one mapping present in the screen component, the mapping for specifying a relationship between the screen component and the data component;
means for selecting the data component mapped by the mapping;
means for obtaining a data object field value corresponding to the data field definition of the mapped data component;
means for generating a screen element from the screen element definition to include the data object field value according to the format of the data field definition as defined in the mapped data component.

37. A computer program product for generating a screen element of a wireless application based on a data object displayed on a user interface of a wireless device, the application including a data component having at least one data field definition and a screen component having at least one screen element definition, the component definitions expressed in a structured definition language, the computer program product comprising:

a computer readable medium;
a mapping module stored on the computer readable medium for selecting the screen component corresponding to the screen element and identifying at least one mapping present in the screen component, the mapping for specifying a relationship between the screen component and the data component as defined by an identifier representing the mapping, the mapping module for selecting the data component mapped by the mapping according to the mapping identifier;
a data module stored on the computer readable medium for obtaining a data object field value corresponding to the data field definition of the mapped data component; and
a screen module stored on the computer readable medium for generating a screen element from the screen element definition to include the data object field value according to the format of the data field definition as defined in the mapped data component.

38. A machine readable medium comprising program code executable on a device as claimed in claim 36 for implementing the method as claimed in any of claims 1 to 18.

39. A machine readable medium as claimed in claim 38, wherein said machine readable medium comprises a part of the device.

GTV00000329

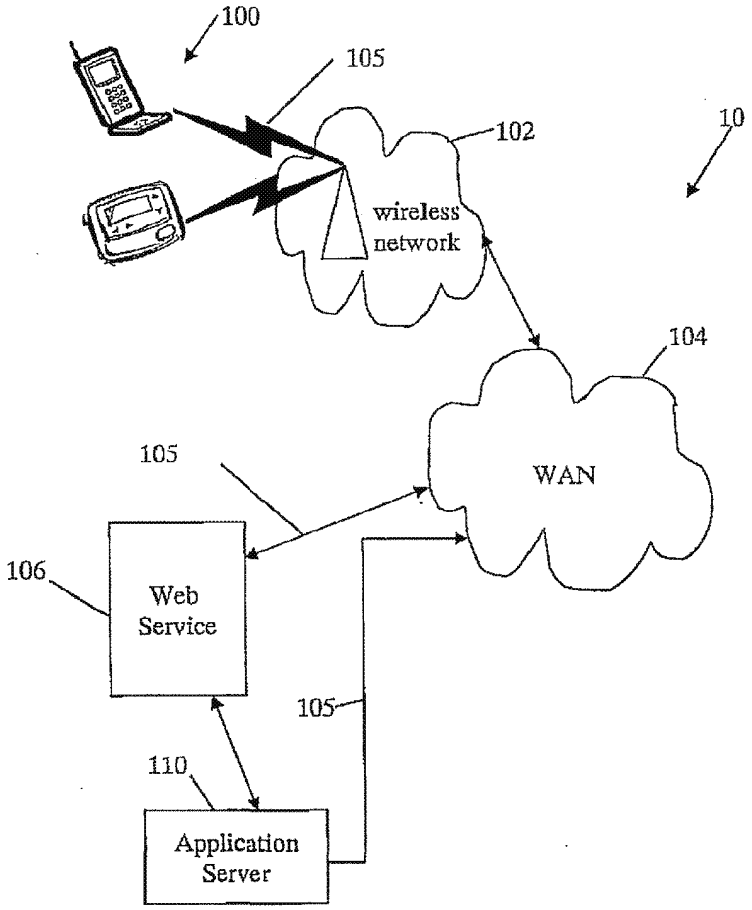


Figure 1

GTV00000330

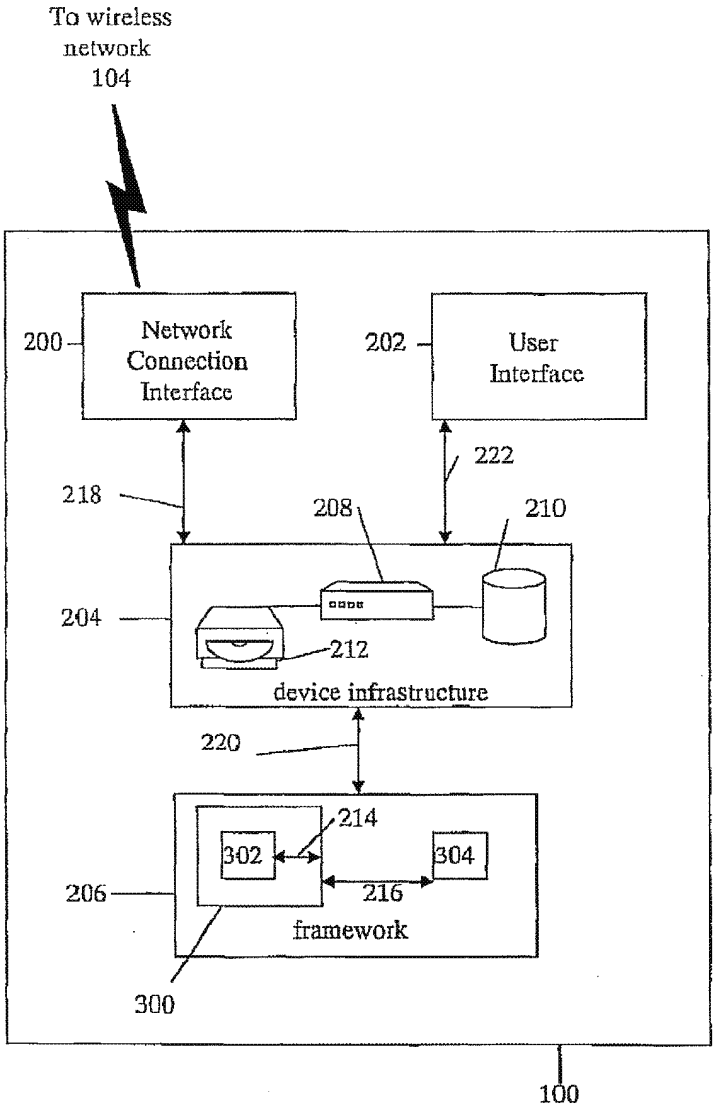


Figure 2

GTV00000331

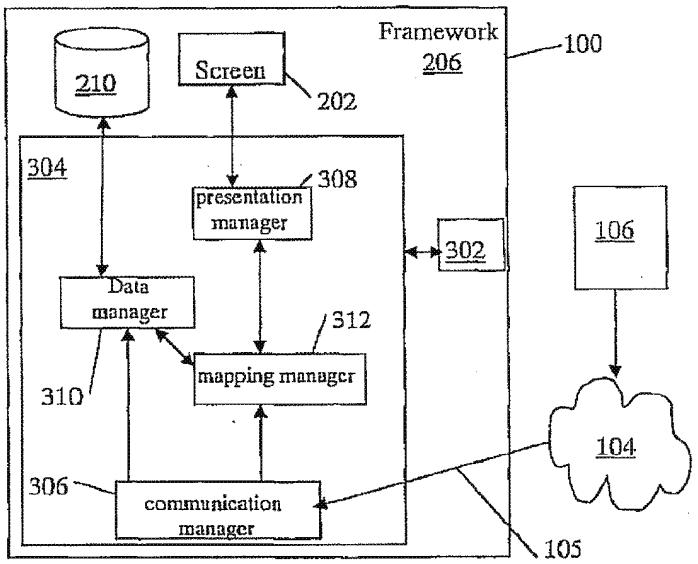


Figure 3

GTV00000332

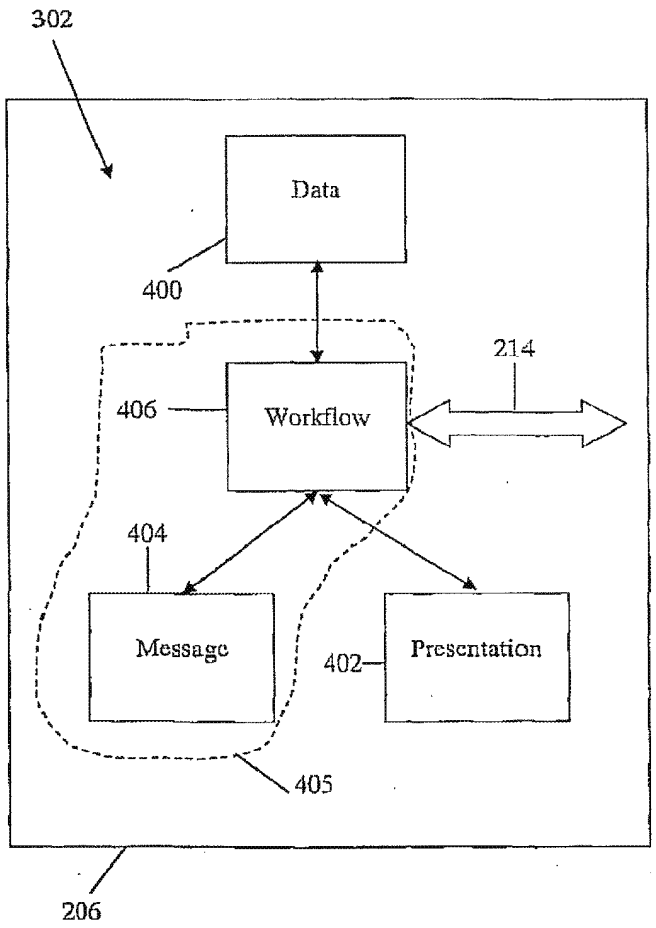


Figure 4

GTV00000333

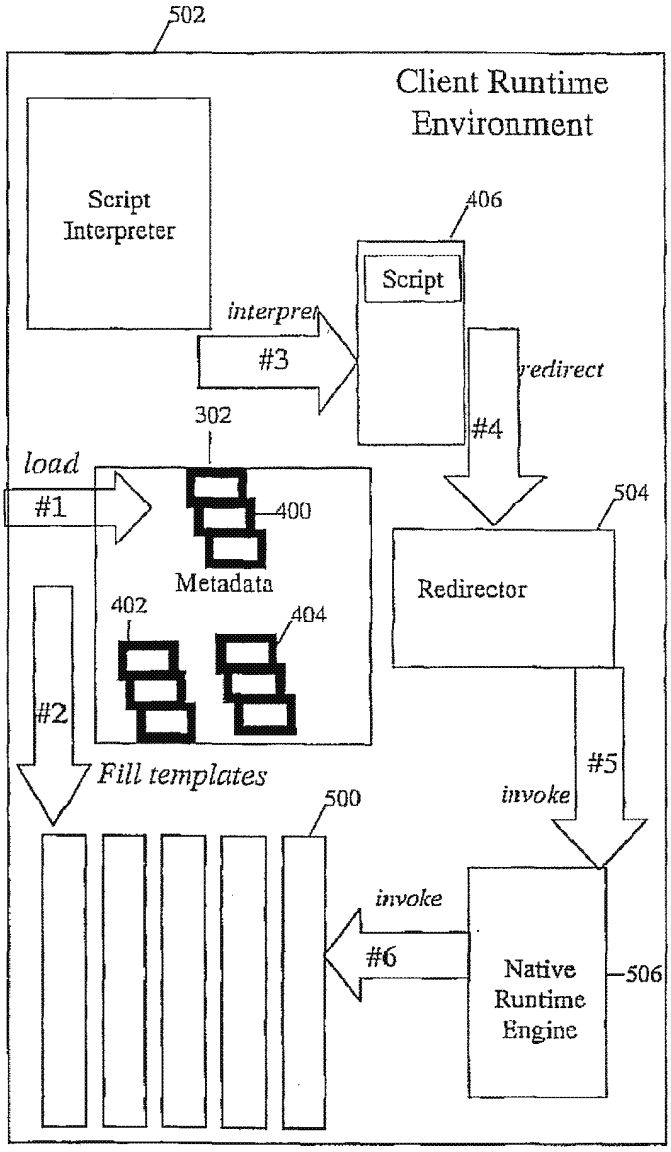


Figure 5

GTV00000334

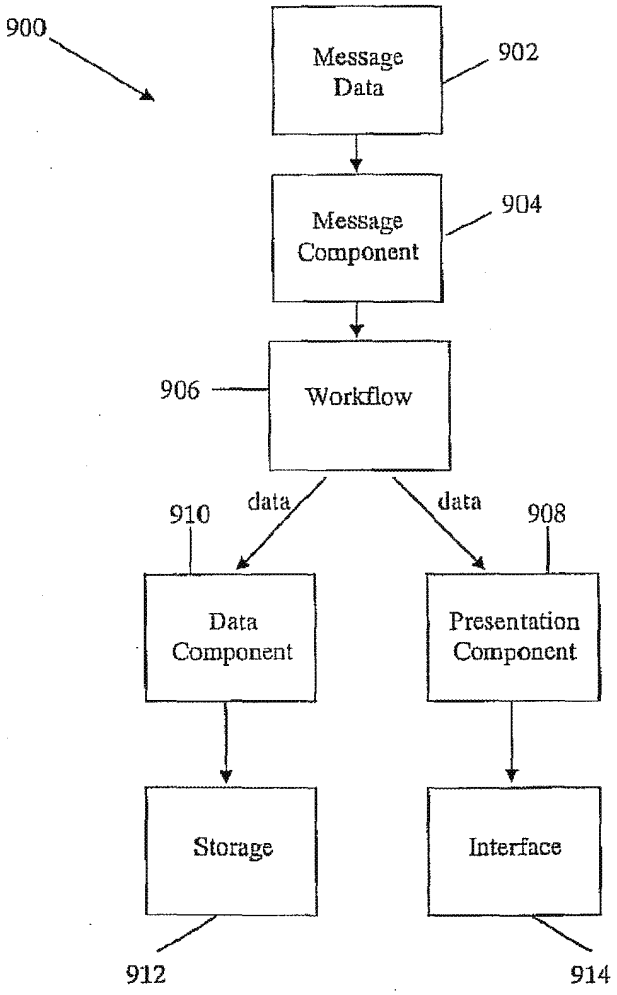


Figure 6

GTV00000335

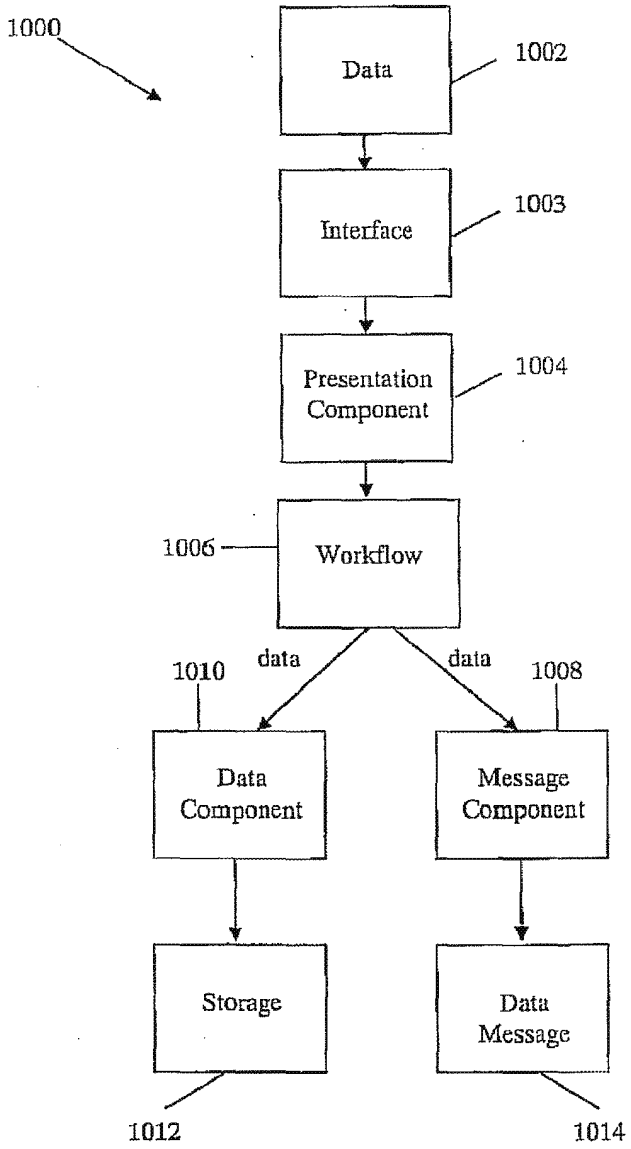


Figure 7

GTV00000336

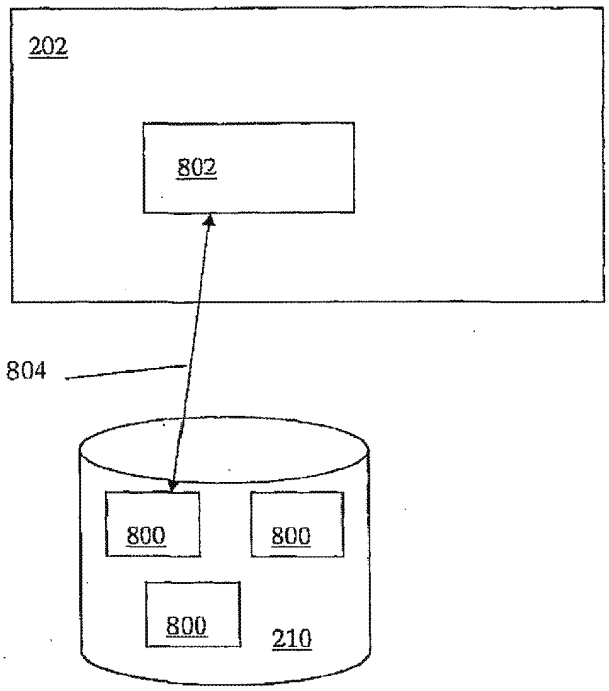


Figure 8

GTV00000337

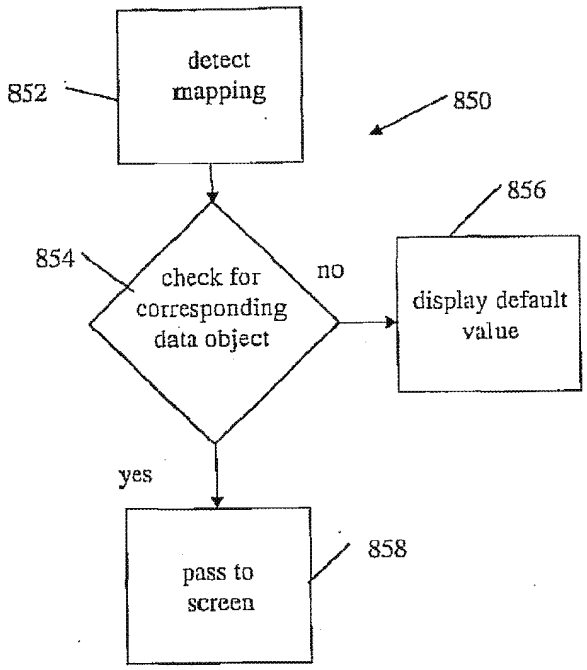


Figure 9

GTV00000338

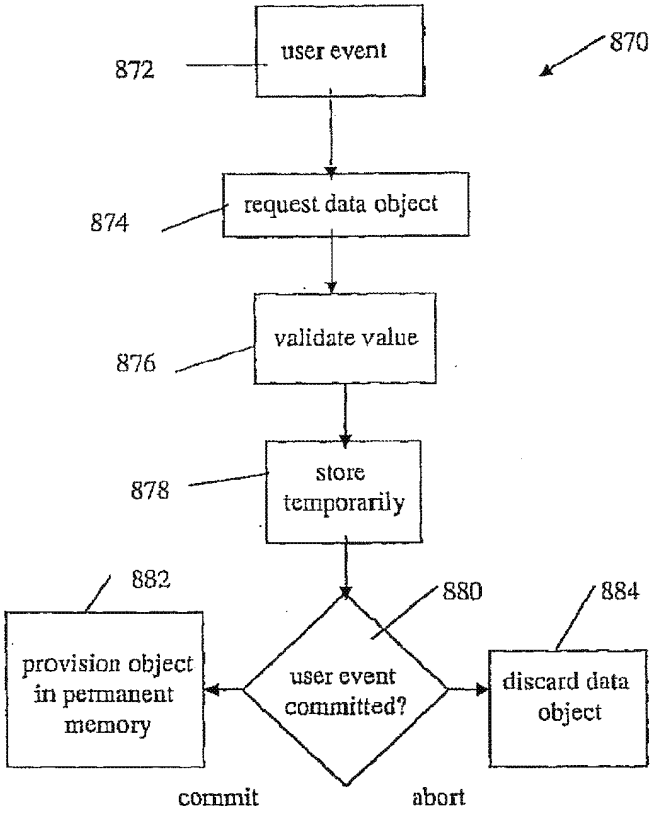


Figure 10

GTV00000339

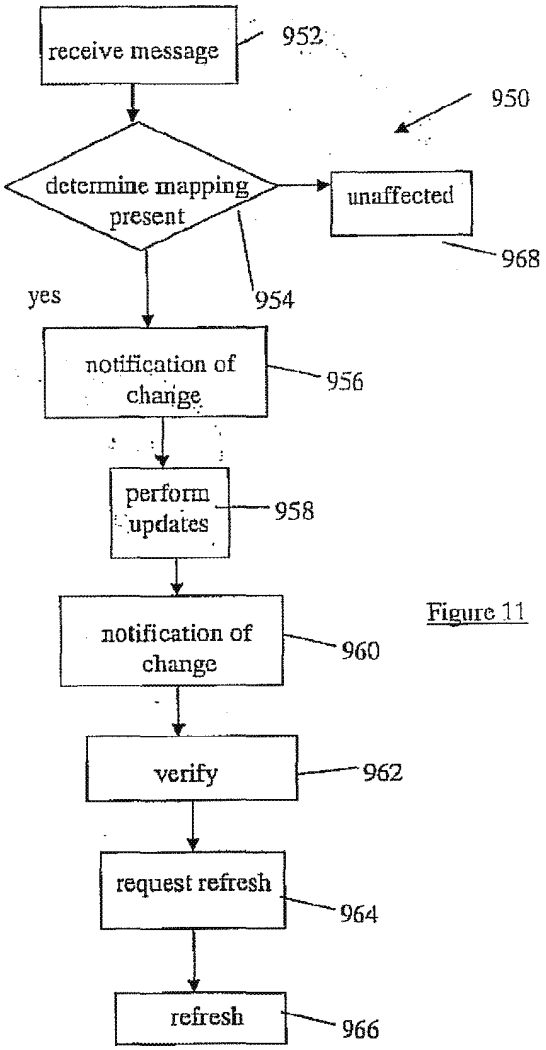


Figure 11

GTV00000340

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(71)Applicant: KTFREETEL CO., LTD.
(72)Inventor: BAE, HAN UP
YANG, SOO YEON
HONG, CHANG KI

(54) METHOD AND DEVICE FOR OFFERING MOBILE WEBPAGE USING TEMPLATE INCLUDING DYNAMICALLY CHANGEABLE ATTRIBUTE

(57) Abstract:

PURPOSE: A method and a device for offering a mobile webpage using a dynamic template are provided to offer diverse UI(User Interface) through one template by dynamically managing attribute of the template and offer the webpage fit for each browser environment by using the template having the dynamic attribute. CONSTITUTION: A template register(201) registers the template including the defined attribute. A content register(203) registers contents. A storing part(209) stores the templates and the contents. A template attribute processor(205) sets the attribute of the registered template by receiving attribute information corresponding to the defined attribute of the template. A webpage generator(207) generates the webpage by using the attribute-set template and the contents. An output part(208) outputs the generated webpage. The storing part stores more than one previously registered terminal model information. An attribute converter converts attribute data for corresponding to model information of each terminal.

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G06F 17/00 (2006.01)

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KR1020050037447 A

심사관 : 계원호

전체 청구항 수 : 총 7 항

(54) 동적 템플릿을 이용한 무선 웹 페이지 제공 방법 및 장치

(57) 요약

본 발명은 무선 웹 페이지 제공 방법 및 장치에 관한 것으로서, 좀 더 상세하게는 속성을 동적으로 정의할 수 있는 템플릿(template)을 이용한 무선 웹 페이지 제공 방법 및 장치에 관한 것이다. 본 발명의 바람직한 일 실시예에 따른 웹 페이지 제공장치에서 템플릿을 이용하여 무선 웹 페이지를 제공하는 방법은 속성이 정의된 템플릿을 등록받는 단계; 템플릿의 정의된 속성에 상응하는 속성 데이터를 입력받는 단계; 및 등록된 컨텐츠와 템플릿을 이용하여 웹 페이지를 생성하는 단계를 포함하여 구성된다. 따라서, 템플릿의 속성을 동적으로 관리함으로써, 다양한 UI의 제공을 가능하게 하는 웹 페이지 제공 방법 및 장치를 제공할 수 있는 효과가 있다.

대표도

도 2

특허청구의 범위

GTV00000343

청구항 1.

웹 페이지 제공장치가 템플릿을 이용하여 무선 웹 페이지를 제공하는 방법에 있어서,

특정 브라우저 규격에 상응하며 속성이 정의된 템플릿을 등록받는 단계;

상기 속성에 상응하는 속성 데이터를 입력받는 단계; 및

상기 템플릿, 상기 속성 데이터 및 등록된 컨텐츠를 상기 속성에 따라 결합하여 웹 페이지를 생성하는 단계를 포함하는 동적 템플릿을 이용한 무선 웹 페이지 제공 방법.

청구항 2.

제 1항에 있어서,

상기 템플릿의 속성은 상기 웹 페이지의 UI 구성을 위한 페이지 속성과, 상기 컨텐츠를 표현하기 위한 컨텐츠 속성을 포함하는 것을 특징으로 하는 동적 템플릿을 이용한 무선 웹 페이지 제공 방법.

청구항 3.

삭제

청구항 4.

제 1항에 있어서,

상기 템플릿의 정의된 속성에 상응하는 속성 데이터를 입력받는 단계는,

미리 등록된 적어도 하나의 단말기 기종 정보에 상응하도록 상기 속성 데이터를 변환하는 단계를 포함하며,

등록된 컨텐츠와 상기 템플릿을 이용하여 웹 페이지를 생성하는 단계는 상기 각 변환된 속성 데이터에 따른 각각의 웹 페이지를 생성하는 것을 특징으로 하는 동적 템플릿을 이용한 무선 웹 페이지 제공 방법.

청구항 5.

제 1항에 있어서,

등록된 컨텐츠와 상기 템플릿을 이용하여 웹 페이지를 생성하는 단계는,

상기 컨텐츠를 상기 템플릿과 결합하는 단계;

상기 속성 데이터에 상응하도록 상기 웹 페이지를 생성하는 단계; 및

상기 웹 페이지를 출력하는 단계를 포함하는 것을 특징으로 하는 동적 템플릿을 이용한 무선 웹 페이지 제공 방법.

청구항 6.

동적인 속성을 갖는 템플릿을 이용하여 무선 웹 페이지를 제공하는 장치에 있어서,

특정 브라우저 규격에 상응하며 속성이 정의된 템플릿을 등록받는 템플릿 등록부;

컨텐츠를 등록받는 컨텐츠 등록부;

상기 템플릿 및 상기 컨텐츠를 저장하는 저장부;

상기 템플릿의 정의된 속성에 상응하는 속성 데이터를 입력받아 상기 등록된 템플릿의 속성을 설정하는 템플릿 속성 처리부;

상기 속성이 설정된 템플릿과 상기 컨텐츠를 상기 정의된 속성에 상응하도록 결합하여 웹 페이지를 생성하는 웹 페이지 생성부; 및

상기 생성된 웹 페이지를 출력하는 출력부를 포함하는 웹 페이지 제공장치.

청구항 7.

제 6항에 있어서,

상기 저장부에는 미리 등록된 하나 이상의 단말기 기종 정보가 저장되고,

상기 각 단말기 기종 정보에 상응하도록 상기 속성 데이터를 변환하는 속성 변환부를 더 포함하는 것을 특징으로 하는 웹 페이지 제공장치.

청구항 8.

템플릿을 이용하며 무선 웹 페이지를 제공하기 위해 웹 페이지 제공 장치에서 실행될 수 있도록 유형적으로 구현되어 있으며, 상기 웹 페이지 제공 장치에 의해 판독될 수 있는 프로그램을 기록한 기록매체에 있어서,

특정 브라우저 규격에 상응하며 속성이 정의된 템플릿을 등록받는 단계;

상기 속성에 상응하는 속성 데이터를 입력받는 단계; 및

상기 템플릿, 상기 속성 데이터 및 등록된 컨텐츠를 상기 속성에 따라 결합하여 웹 페이지를 생성하는 단계를 포함하는 것을 특징으로 하는 프로그램을 기록한 기록매체.

명세서

발명의 상세한 설명

발명의 목적

발명이 속하는 기술 및 그 분야의 종래기술

본 발명은 무선 웹 페이지 제공 방법 및 장치에 관한 것으로서, 좀 더 상세하게는 속성을 동적으로 정의할 수 있는 템플릿(template)을 이용한 무선 웹 페이지 제공 방법 및 장치에 관한 것이다.

최근에는 PC를 통한 인터넷의 사용뿐만 아니라, 무선 인터넷 단말기를 이용한 무선 웹 서비스의 사용이 증가하고 있다. 특히, 초기의 무선 웹 서비스를 제공하기 위한 웹 페이지의 UI(User Interface) 는 단순한 형태였으나, 근래에는 이미지, 아이콘 등이 포함된 다양한 UI의 웹 페이지가 제공되고 있다.

최근 대부분의 웹 페이지는, 컨텐츠 뿐만 아니라 템플릿을 사용하여 다양한 UI를 제공하고 있다. 템플릿은 웹 페이지의 형식(꼴), 틀 또는 모형 등을 의미하며, 현재에는 이미지 등이 첨부된 다양한 형태의 템플릿이 사용되고 있다.

종래 기술에 따른, 템플릿을 이용한 웹 페이지의 제공 방법을 도 1을 참조하여 설명하기로 한다.

도 1은 종래 기술에 따른 템플릿을 이용한 웹 페이지의 제공방법을 설명하기 위한 도면이다.

종래 기술에 따른 템플릿은 단순히 컨텐츠가 추가되기 위한 틀에 지나지 않는다. 즉, 형식이 정해진 템플릿과 컨텐츠가 등록되고, 이를 통해 합쳐진 하나의 웹 페이지가 생성된다.

도 1을 참조하면, 컨텐츠(10)와, 컨텐츠(10)가 들어갈 영역과 나머지 미리 설정된 모양의 틀이 정해진 템플릿(30)이 도시되어 있다. 여기서, 컨텐츠(10)는 컨테츠 명, 컨텐츠 파일(통상적으로 컨텐츠 명에는 특정 주소가 매핑(mapping)되어 있으며, 매핑된 주소에는 특정 파일이 존재한다) 등을 모두 포함하는 개념으로, 웹 페이지를 통해 제공되는 모든 정보를 지칭한다.

이 둘을 통해 무선 모바일 서비스를 위한 웹 페이지(50)가 제공된다. 즉, 미리 설정된 템플릿을 통해 UI가 제공되는 다양한 컨텐츠가 포함된 웹 페이지의 제공이 가능하다.

하지만, 미리 설정되어 고정된 템플릿의 UI적인 속성인 폰트나 셀 색상, 추가 이미지에 대한 정보 등은 동적으로 정의하여 사용할 수 없다. 따라서, 템플릿(30)의 UI의 동적인 변화가 어렵고, 그에 따라 웹 페이지를 제공받는 각 단말기의 브라우저 환경에 각각 상응하는 템플릿을 적용하기가 어렵다. 즉, 단말기 별로 브라우저 환경의 차이가 많은 무선 인터넷 환경에서는 UI에 대한 요구사항을 충족시키기가 힘들다.

또한, 무선 웹 서비스를 위한 웹 페이지는 유선 인터넷을 통한 웹 페이지와는 달리, 크기가 작아 제공되는 정보가 적기 때문에 상위 또는 하위 페이지로의 이동이 잦은 편이며, 이에 따라 각각의 웹 페이지를 제공해야 한다. 따라서, 종래 기술에 따른 템플릿을 사용할 경우에는, 하나의 브라우저 규격에 대해서도 제공될 각각의 UI를 제공하기 위한 템플릿이 각각 필요하기 때문에, 다양한 UI 제공에 따른 템플릿 제작 및 관리의 효율성이 떨어진다.

발명이 이루고자 하는 기술적 과제

따라서, 본 발명은 상술한 문제점을 해결하기 위해 안출된 것으로서, 템플릿의 속성을 동적으로 관리함으로써, 하나의 템플릿을 이용하여 다양한 UI의 제공을 가능하게 하는 웹 페이지 제공방법 및 장치를 제공하는데 그 목적이 있다.

본 발명의 다른 목적은 동적인 속성을 갖는 템플릿을 이용하여 단말기의 각 브라우저 환경에 맞는 웹 페이지를 제공하는 방법 및 장치를 제공하는데 있다.

본 발명의 다른 목적들은 이하에 서술되는 바람직한 실시예를 통하여 보다 명확해질 것이다.

발명의 구성

상술한 목적을 달성하기 위한 본 발명의 제 1측면에 따르면, 웹 페이지 제공장치에서 템플릿을 이용하여 무선 웹 페이지를 제공하는 방법에 있어서, 속성이 정의된 템플릿을 등록받는 단계; 상기 템플릿의 정의된 속성에 상응하는 속성 데이터를 입력받는 단계; 및 등록된 컨텐츠와 상기 템플릿을 이용하여 웹 페이지를 생성하는 단계를 포함하는 것을 특징으로 하는 동적 템플릿을 이용한 무선 웹 페이지 제공 방법 및 그 방법을 기록한 기록매체가 제공된다.

여기서, 상기 템플릿의 속성은 상기 웹 페이지의 UI 구성을 위한 페이지 속성과, 상기 컨텐츠를 표현하기 위한 컨텐츠 속성을 포함할 수 있다.

또한, 상기 속성이 정의된 템플릿은 특정 브라우저 규격에 상응하는 것이며, 상기 속성 데이터는 상기 브라우저 규격에 상응하는 데이터일 수 있다.

또한, 상기 템플릿의 정의된 속성에 상응하는 속성 데이터를 입력받는 단계는, 미리 등록된 적어도 하나의 단말기 기종 정보에 상응하도록 상기 속성 데이터를 변환하는 단계를 포함하며, 등록된 컨텐츠와 상기 템플릿을 이용하여 웹 페이지를 생성하는 단계는 상기 각 변환된 속성 데이터에 따른 각각의 웹 페이지를 생성할 수 있다.

또한, 등록된 컨텐츠와 상기 템플릿을 이용하여 웹 페이지를 생성하는 단계는, 상기 컨텐츠를 상기 템플릿과 결합하는 단계; 상기 속성 데이터에 상응하도록 상기 웹 페이지를 생성하는 단계; 및 상기 웹 페이지를 출력하는 단계를 포함할 수 있다.

상술한 목적을 달성하기 위한 본 발명의 제 1측면에 따르면, 동적인 속성을 갖는 템플릿을 이용하여 무선 웹 페이지를 제공하는 장치에 있어서, 속성이 정의된 템플릿을 등록받는 템플릿 등록부; 컨텐츠를 등록받는 컨텐츠 등록부; 상기 템플릿 및 컨텐츠를 저장하는 저장부; 상기 템플릿의 정의된 속성에 상응하는 속성 데이터를 입력받아 상기 등록된 템플릿의 속성을 설정하는 템플릿 속성 처리부; 상기 속성이 설정된 템플릿과 상기 컨텐츠를 이용하여 웹 페이지를 생성하는 웹 페이지 생성부; 및 상기 생성된 웹 페이지를 출력하는 출력부를 포함하는 것을 특징으로 하는 웹 페이지 제공장치가 제공된다.

여기서, 상기 저장부에는 미리 등록된 하나 이상의 단말기 기종 정보가 저장되고,

상기 각 단말기 기종 정보에 상응하도록 상기 속성 데이터를 변환하는 속성 변환부를 더 포함할 수 있다.

이하, 본 발명의 바람직한 실시예에 따른 동적 템플릿을 이용한 웹 페이지 제공 방법 및 장치를 첨부 도면을 참조하여 상세히 설명하기로 한다.

도 2는 본 발명의 바람직한 일 실시예에 따른 웹 페이지 제공장치에서 동적 템플릿을 이용한 웹 페이지를 제공하기 위한 전체 시스템을 개략적으로 나타낸 구성도이다.

도 2를 참조하면, 웹 페이지 제공장치(200)는 PCS, PDA, PSP, 스마트 폰 등의 휴대용 무선 단말기 뿐만 아니라, PC 등의 인터넷이 가능한 모든 단말기에게 제공되는 웹 페이지를 생성 및 제공하는 기능을 수행한다. 여기서, 웹 페이지 제공장치(200)가 단말기에게 생성된 웹 페이지를 직접 제공할 수 있으나, 별도의 웹 서버에서 단말기로 웹 페이지를 제공할 수도 있음은 자명하다. 즉, 웹 페이지 제공장치(200)는 웹 페이지를 생성하는 기능만을 수행하며, 단말기에게 웹 서비스에 따른 웹 페이지를 제공하는 별도의 웹 서버가 존재하여, 상기 웹 서버로 생성된 웹 페이지를 제공하는 것이다.

웹 페이지 제공장치(200)에서 웹 페이지(250)를 생성 및 제공하기 위해서는, 제공될 컨텐츠(210)와 템플릿(230)을 먼저 등록받는다.

컨텐츠(210)는 유무선 전기 통신망에서 사용하기 위하여 문자ㅇ부호ㅇ음성ㅇ음향ㅇ이미지ㅇ영상 등을 디지털 방식으로 제작해 처리ㅇ유통하는 각종 정보 또는 그 내용물을 통틀어 이르는 개념이다. 이하에서는 컨텐츠 명, 컨텐츠 원본 파일(즉 그 내용물) 등을 모두 포함하여 컨텐츠라 칭하기로 한다. 따라서, 웹 페이지로 제공될 특정 정보 또는 그 내용인 컨텐츠(210)가 웹 페이지 제공장치(200)에 등록된다.

본 발명에 따른 템플릿(230)은 폰트, 셀 색상, 이미지 등이 고정된 값을 가지는 것이 아니라, 동적으로 설정될 수 있도록 각 속성이 정의된다. 즉, 템플릿(230)은 틀 형식, 구조 등에 대한 정보만이 정의되고, 그에 따른 각 속성값이 설정되지 않은 상태로 웹 페이지 제공장치(200)에 등록된다.

예를 들어, 상단의 특정 위치에 회사로고가 삽입된다는 정보만이 정의되어 등록되고, 이후 별도로 회사로고에 대응하는 이미지가 속성 데이터로서 등록된다.

또 다른 방법으로, 웹 페이지 제공장치(200)는 속성이 미리 설정된 템플릿(230)을 등록받을 수 있는데, 이 때에는 템플릿(230)의 속성에 대한 속성 데이터를 함께 등록받는다. 즉, 고정된 템플릿이 아닌, 속성의 변환이 가능한 템플릿이 등록되는 것이다. 따라서, 웹 페이지 제공장치(200)는 각 브라우저 규격에 대응되며 다양한 UI를 제공할 수 있는 템플릿(230)을 제공할 수 있다.

여기서, 각 템플릿(230)은 각 브라우저마다 크기가 다른 웹 페이지(270)가 사용될 수 있으므로, 각 브라우저 규격에 대응되는 각각의 템플릿(230)이 웹 페이지 제공장치(200)에 등록되는 것이 바람직하다.

템플릿 속성 데이터(250)는 속성을 갖지 않고 속성에 대한 정의만 된 템플릿(230)의 속성을 설정하기 위한 데이터이다. 따라서, 웹 페이지 제공장치(200)는 템플릿 속성 데이터를 등록받아 템플릿의 속성을 설정하여, 컨텐츠(210)가 결합된 웹 페이지(270)를 생성한다. 물론, 템플릿 속성 데이터(250)도 템플릿(230)이 각 브라우저 규격에 상응하도록 등록되기 때문에, 브라우저 규격에 따른 데이터가 입력되는 것이 바람직하다.

이하, 본 발명에 따른 웹 페이지 제공장치(200)가 웹 페이지(270)를 제공하는 기능을 수행하기 위한 전체 구성을 도면을 참조하여 설명하기로 한다.

도 3은 본 발명에 일 실시예에 따른 웹 페이지 제공장치의 기능에 따른 구성을 나타낸 기능 블록도이다.

웹 페이지 제공장치(200)는 템플릿 등록부(201), 컨텐츠 등록부(203), 템플릿 속성 처리부(205), 웹 페이지 생성부(207), 웹 페이지 출력부(208) 및 저장부(209)를 포함한다.

템플릿 등록부(201)는 속성이 정의된 템플릿을 등록받는 기능을 수행하며, 컨텐츠 등록부(203)는 컨텐츠를 등록받는 기능을 수행하고, 저장부(209)는 등록된 템플릿 및 컨텐츠를 저장한다.

템플릿 속성 처리부(205)는 등록된 템플릿의 정의된 속성에 상응하는 속성 데이터를 입력받아 템플릿의 속성을 설정하는 기능을 수행한다. 템플릿의 속성은 제공될 웹 페이지의 UI 구성을 위한 페이지 속성과, 해당 페이지에 표현될 컨텐츠를 위한 컨텐츠 속성으로 나뉠 수 있다. 즉, 페이지 속성은 페이지 중 컨텐츠가 표현되지 않는 공간에 이미지를 삽입하는 등의 페이지의 UI를 위한 속성이며, 컨텐츠 속성은 컨텐츠가 표현되는 페이지의 공간에 아이콘, 셀의 색상 등의 컨텐츠의 UI를 위한 속성이다. 템플릿 속성 처리부(205)는 입력된 속성 데이터에 상응하도록 페이지 속성 및 컨텐츠 속성을 설정한다.

웹 페이지 생성부(207)는 속성이 설정된 템플릿과 등록된 컨텐츠를 이용하여 웹 페이지를 생성하는 기능을 수행하고, 웹 페이지 출력부(208)는 생성된 웹 페이지를 출력하는 기능을 수행한다.

여기서, 템플릿 등록부(201), 컨텐츠 등록부(203) 및 템플릿 속성 처리부(205)는 템플릿, 컨텐츠, 속성 데이터를 입력받기 위한 각각의 입력부 및 통합된 하나의 입력부를 포함할 수 있음은 자명하며, 이에 대한 설명은 당업자에게는 자명하므로 상세한 설명은 생략하기로 한다.

여기서, 웹 페이지 제공장치(200)는 단말기 기종에 상응하는 템플릿 속성을 설정하도록 템플릿 속성 데이터를 변환하는 기능을 수행하는 속성 변환부(미도시)를 더 포함할 수 있다. 즉, 적어도 하나의 단말기 기종에 대한 정보를 미리 등록받아 저장부에 저장하여, 속성 데이터를 입력받을 시 각 단말기 기종에 상응하도록 속성 데이터를 변환한다. 따라서, 각 단말기 기종에 따라 최적화된 UI를 제공할 수 있다.

단말기 기종에 대한 정보는 사용되는 웹 브라우저 규격, 디스플레이 장치의 화소수 및 픽셀별 비트수 등에 대한 정보가 포함될 수 있으며, 이에 따라 웹 페이지 제공장치(200)는 속성 데이터를 각 단말기 기종에 상응하도록 변환하기 위한 변환 정보를 저장하고 있다.

예를 들어, 1024개의 색을 표현할 수 있는 디스플레이 장치가 장착된 단말기와 256개의 색을 표현할 수 있는 디스플레이 장치가 장착된 단말기의 기종에 대한 정보가 등록되어 있을 경우, 입력된 속성 데이터 중 컨텐츠 속성의 셀 색상에 대한 정보가 파랑에 상응하는 정보이면, 각 단말기 기종에 상응하는 색 표현 방법으로 파랑을 표현할 수 있는 값을 추출하여 속성 데이터를 변환한다. 또 다른 예로, 템플릿에 이미지 데이터를 속성 데이터로 입력하면, 각 단말기 기종에 따른 디스플레이 화소수에 상응하도록, 이미지의 크기를 변환할 수 있다.

이러한 속성 데이터 변환을 위해 웹 페이지 제공장치(200)는 각 단말기 기종에 대응된 단말기 기종 테이블 및 변환 테이블을 구비할 수 있다. 즉, 단말기 기종번호, 디스플레이 화소수, 픽셀별 비트수(색 표현 가지수가 정해짐), 브라우저 규격을 포함하는 단말기 기종 테이블을 구비하고, 디스플레이 화소수, 픽셀별 비트수, 브라우저 규격에 상응하는 변환방법을 포함하는 변환 테이블을 구비하여, 두 테이블을 매칭함에 따라 각 단말기 기종에 따른 변환방법을 인식하여 속성 데이터를 변환한다.

이하, 도 4 및 도 5를 참조하여, 웹 페이지의 제공과정을 설명하기로 한다.

도 4는 본 발명의 바람직한 일 실시예에 따른 웹 페이지 제공장치에서 웹 페이지를 제공하는 과정을 나타낸 흐름도이고, 도 5는 본 발명의 바람직한 다른 실시예에 따른 웹 페이지 제공장치에서 웹 페이지를 제공하는 과정을 나타낸 흐름도이다.

도 4를 참조하면, 단계 410에서, 웹 페이지를 통해 제공될 컨텐츠를 등록받는다. 단계 420에서 속성이 정의된 템플릿을 등록받는다. 여기서, 템플릿과 컨텐츠의 등록순서는 바뀔 수 있음은 자명하다 할 것이다.

단계 430에서 템플릿의 정의된 속성에 상응하는 속성 데이터를 입력받는다. 따라서, 속성 데이터에 따른 템플릿의 속성이 설정되고, 단계 440에서 속성이 설정된 템플릿과 컨텐츠를 이용하여 웹 페이지를 생성하여 출력한다.

따라서, 본 발명에 따른 웹 페이지의 제공 방법은 속성이 정의만 된 템플릿을 먼저 등록하고, 웹 페이지 제공장치(200)에서 웹 페이지 생성 전에 템플릿의 속성을 설정할 수 있으므로, 하나의 템플릿을 이용하여 동일한 브라우저 규격에 적합한 다양한 UI의 웹 페이지를 제공할 수 있다.

여기서, 속성 데이터의 입력에 있어서, 각 브라우저 규격에 상응하는 각각의 속성 데이터를 관리자(즉, 웹 페이지 제공장치(200) 사용자)가 직접 입력할 수도 있으나, 상술한 바와 같이, 미리 설정된 단말기 기종에 상응하는 하나의 속성 데이터만을 입력하면 웹 페이지 제공장치(200)에서 각 단말기 기종에 상응하는 속성 데이터로 변환하여 각 템플릿의 속성을 설정할 수도 있다. 따라서, 각 단말기 기종에 최적화된 UI의 웹 페이지를 제공할 수 있다.

도 5를 참조하면, 단계 510 내지 단계 530은 도 4의 단계 410 내지 단계 430과 동일하며, 단계 540에서 미리 등록된 적어도 하나의 단말기 기종을 인식한다. 웹 페이지를 제공받는 단말기의 기종에 따라 동일한 브라우저를 사용할 경우에도 웹 페이지의 디스플레이가 각기 상이할 수 있으므로, 각 단말기 기종에 적합한 웹 페이지의 제공을 위해서 템플릿의 속성 데이터를 인식된 각 단말기 기종에 상응하도록 단계 550에서 변환한다.

단계 560에서 변환된 적어도 하나의 각 속성 데이터에 상응하도록 템플릿의 속성을 설정하고, 각 속성이 설정된 템플릿과 컨텐츠를 통해 각각의 웹 페이지를 생성한다. 따라서, 각 단말기 기종에 상응하는 웹 페이지를 제공할 수 있으며, 이를 통해 각 단말기의 브라우저 뿐만 아니라 디스플레이 장치의 기능에 따른 최적화된 UI를 제공받을 수 있다.

도 6은 본 발명의 바람직한 일 실시예에 따른 웹 페이지의 제공 과정을 나타낸 도면이다.

도 6을 참조하면, 웹 페이지 제공장치(200)는 컨텐츠(610)를 등록받고, 속성이 정의된 템플릿(620)을 등록받는다. 여기서 템플릿(620)의 정의된 속성 중, 621, 622에 해당하는 속성은 해당 페이지 UI 구성의 전반에 필요한 페이지 속성이며, 625, 626, 627은 해당 페이지 내의 컨텐츠(610)를 표현하기 위해 필요한 컨텐츠 속성이다.

즉, 페이지 속성은 컨텐츠와는 무관한 단지 페이지를 꾸미는데 필요한 속성이며 이미지 정보 등이 설정될 수 있다. 또한, 컨텐츠 속성은 페이지에 들어갈 컨텐츠를 다양하게 꾸미기 위해 필요한 속성이다.

웹 페이지 제공장치(200)는 컨텐츠(610)와 템플릿(620)이 등록되면, 속성 데이터(630, 635)를 입력받는다. 이후, 웹 페이지 제공장치(200)는 페이지 속성에 따른 속성 데이터와, 컨텐츠 속성에 따른 속성 데이터를 이용하여 템플릿(620)의 속성을 설정하고, 컨텐츠(610)와 속성이 설정된 템플릿(620)을 이용하여 웹 페이지(640,645)를 생성하여 제공한다.

여기서, 도 6에는 속성 데이터 입력에 따른 각기 다른 웹 페이지의 제공을 설명하기 위해 두개의 속성 데이터(630,635)가 입력되는 것이 도시되어 있다. 속성 데이터 630에 따른 웹 페이지(640)와 속성 데이터 635에 따른 웹 페이지(645)의 UI는 입력된 템플릿의 속성 데이터에 대응하여 서로 상이하게 생성되어 제공된다. 도 6에 도시된 바와 같이, 속성 데이터 중 페이지 속성의 이미지를 달리함에 따라, 각기 UI가 상이한 웹 페이지(640,645)가 제공된다.

따라서, 입력되는 속성 데이터에 따른 다양한 웹 페이지의 제공이 가능하게 된다.

상술한 바와 같은 본 발명의 방법은 프로그램으로 구현되어 컴퓨터로 읽을 수 있는 기록매체(씨디롬, 램, 롬, 플로피 디스크, 하드디스크, 광자기디스크 등)에 저장될 수 있다.

본 발명은 상기 실시예에 한정되지 않으며, 많은 변형이 본 발명의 사상 내에서 당 분야에서 통상의 지식을 가진 자에 의하여 가능함은 물론이다.

발명의 효과

이상에서 상술한 바와 같이 본 발명에 따르면, 템플릿의 속성을 동적으로 관리함으로써, 다양한 UI의 제공을 가능하게 하는 웹 페이지 제공방법 및 장치를 제공할 수 있는 효과가 있다.

또한, 동적인 템플릿을 이용하여 단말기의 각 브라우저 환경에 최적화된 웹 페이지를 제공하는 방법 및 장치를 제공할 수 있는 효과도 있다.

또한, 새로운 규격의 브라우저, 및 단말기 출시에 대해 추가 개발 없이 대응할 수 있는 웹 페이지 제공 방법 및 장치를 제공할 수 있는 효과도 있다.

또한, 컨텐츠가 가지는 속성과 템플릿이 가지는 속성을 각각 분리하여 관리함으로써, 다양한 UI의 웹 페이지 제공에 따른 관리의 편의성을 제공할 수 있다.

상기에서는 본 발명의 바람직한 실시예를 참조하여 설명하였지만, 해당 기술 분야에서 통상의 지식을 가진 자라면 하기의 특허 청구범위에 기재된 본 발명의 사상 및 영역으로부터 벗어나지 않는 범위 내에서 본 발명을 다양하게 수정 및 변경시킬 수 있음을 이해할 수 있을 것이다.

도면의 간단한 설명

도 1은 종래 기술에 따른 템플릿을 이용한 웹 페이지의 제공방법을 설명하기 위한 도면.

도 2는 본 발명의 바람직한 일 실시예에 따른 웹 페이지 제공장치에서 동적 템플릿을 이용한 웹 페이지를 제공하기 위한 전체 시스템을 개략적으로 나타낸 구성도.

도 3은 본 발명에 일 실시예에 따른 웹 페이지 제공장치의 기능에 따른 구성을 나타낸 기능 블록도.

도 4는 본 발명의 바람직한 일 실시예에 따른 웹 페이지 제공장치에서 웹 페이지를 제공하는 과정을 나타낸 흐름도.

도 5는 본 발명의 바람직한 다른 실시예에 따른 웹 페이지 제공장치에서 웹 페이지를 제공하는 과정을 나타낸 흐름도.

도 6은 본 발명의 바람직한 일 실시예에 따른 웹 페이지의 제공 과정을 나타낸 도면.

<도면의 주요 부분에 대한 부호 설명>

200 : 웹 페이지 제공장치

210 : 컨텐츠

230 : 템플릿

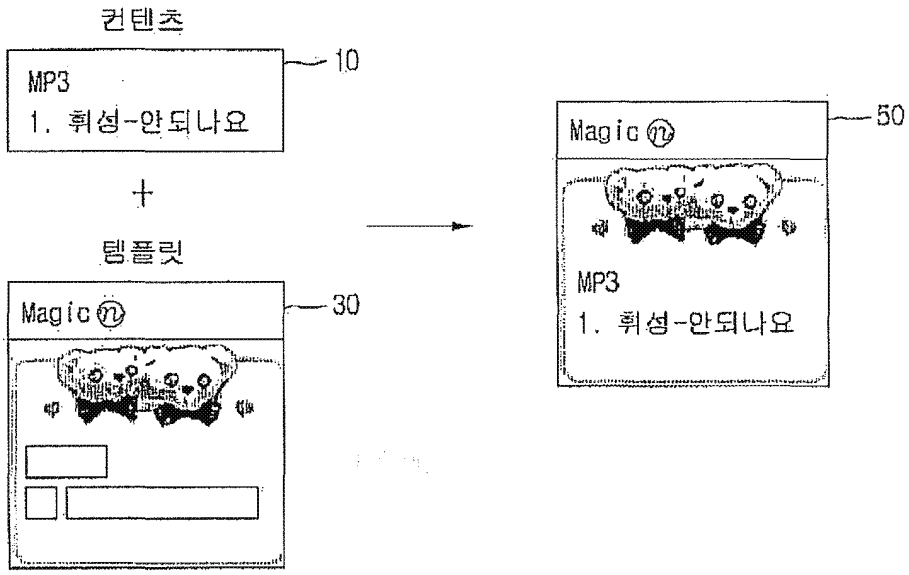
250 : 템플릿 속성 데이터

270 : 웹 페이지

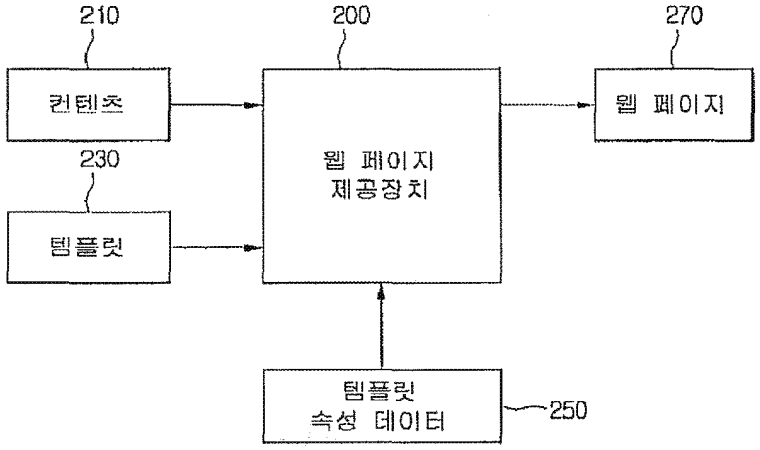
도면

GTV00000350

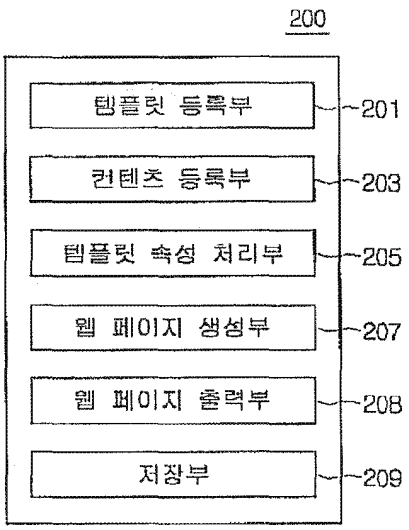
도면1


컨텐츠
MP3
1. 휘성-안되나요
10
+
템플릿
Magic
30
Magic
50
MP3
1. 휘성-안되나요

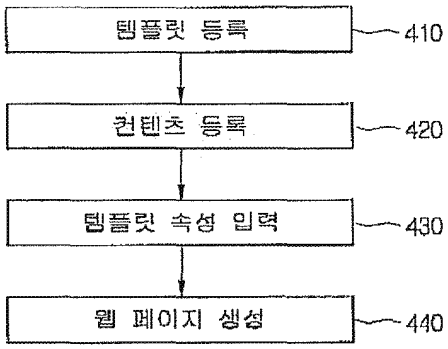
도면2


210
200
270
컨텐츠
웹 페이지
230
웹 페이지
제공장치
템플릿
템플릿
속성 데이터
250

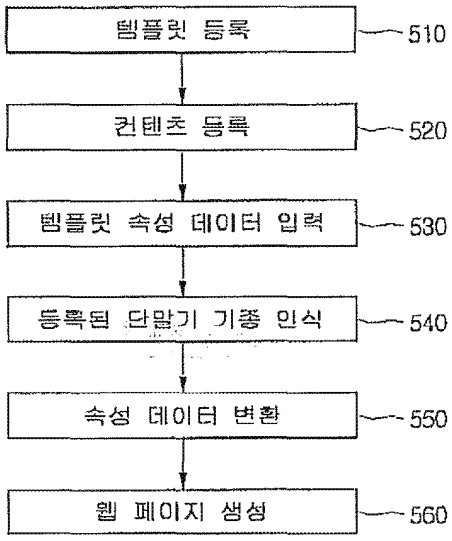
도면3



도면4



도면5



GTV00000352

도면6

610
컨텐츠
MP3
1. 휘성-안되나요
620
플레이리스트
621
622
625
626
627
630
621 ①:이미지 001.jpg
622 ②:이미지 002.jpg
625 ③:색상=파랑
626 ④:아이콘 100.gif
627 ⑤:색상=빨강
635
621 ①:이미지 005.jpg
622 ②:이미지 006.jpg
625 ③:색상=파랑
626 ④:아이콘 100.gif
627 ⑤:색상=빨강
속성 데이터 입력
웹 페이지 제공장치
200
640
645
Magic@
MP3

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/977,319	10/23/2007	Philippe Clavel	GOTV-008/00US 310663-2011	2210

58249 7590 08/19/2010

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EXAMINER	
SCHEIBEL, ROBERT C	

ART UNIT	PAPER NUMBER
2467	

MAIL DATE	DELIVERY MODE
08/19/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	11/977,319	CLAVEL ET AL.	
	Examiner	Art Unit	
	ROBERT C. SCHEIBEL	2467	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 October 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *22 January 2008* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims **14-18** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claims contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Specifically, the claims are single means claims. Claim 14 is directed towards "A server...comprising...a server...". As such, the server is described as only comprising a server means and thus covers every conceivable means for achieving the stated purpose. Since the specification discloses at most only those means known to the inventor, the claim does not comply with the enablement requirement. See section 2164.08(a) of the MPEP for more information. Dependent claims 15-18 are rejected for similar reasons.

Claim Rejections - 35 USC § 101

3. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims **19-20** are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claim 19 is directed towards "A computer readable media". It is known in the art that computer readable media comprise both non-transitory computer readable media (such as computer memory) as well as transitory computer readable media (such as signals or carrier waves). As the scope of claim 19 reasonably includes both types of computer readable media, the claim is rejected under 35 U.S.C. 101 as it includes non-statutory subject matter.

Dependent claim 20 is similarly rejected.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims **1-4, 7, 9, 11, 12, 14-17, and 19** are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application Publication 2007/0130333 to Bhalla et al in view of U.S. Patent Application Publication 2002/0018487 to Chen et al.

Regarding claim **1**, Bhalla discloses a server-based method for implementing a communications link, comprising:

receiving via a communications network a request for a communications link from a client communications component executing on a handheld device (see Figure 4 and paragraph 0021, for example; this describes the link establishment from the client perspective, but as indicated in step 115, a request is sent to the server and in steps 120 and 125, a connection is established with the server; this clearly indicates that the server received the request);

establishing a wireless communications link with the handheld device by using a server communications interface executing on the server (again, see Figure 4 and paragraph 0021; the server receives the client request and responds to establish a connection between the client and server as indicated in steps 115, 120, and 125; this requires a server communications interface for receiving and responding to the client request); and

automatically implementing an optimized protocol between the client communications component and the server based on the wireless communications link type and the handheld device type (as indicated throughout (see the abstract and paragraphs 0011 and 0024, for example), an optimized protocol (such as WAP access or direct HTTP access) is automatically implemented based on the communications link type and the handheld device type (see

paragraph 0011, for example, which indicates that the protocol "...may depend upon the wireless network, the handset, and the handset configuration")), and wherein the communications link is established via the communications component functioning with a device API component to configure hardware of the handheld device (disclosed at least in the auto detect mechanism which is used to establish the communications link and which configures the hardware of the handheld device as indicated in Figure 4).

Bhalla does not disclose expressly the limitation that the optimized protocol is implemented while maintaining a standardized application programming interface for the server communications interface. However, Chen discloses virtual machine interface (VMI) and an application programming interface (API) which are used to provide a consistent interface to wireless applications (see the abstract and paragraphs 0010, 0011, and 0039, for example). Chen further discloses that the API/VMI can be implemented on the infrastructure side (specifically in the base station). At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify Bhalla to include a standard application programming interface such as the API/VMI of Chen. The rationale for doing so would have been to provide an interface which allows an application programmer to support a variety of hardware implementations without the need to directly program the hardware as suggested in paragraph 0039.

Regarding claim **14**, Bhalla discloses a server for implementing an adaptable communications link with a wireless mobile handheld device (server 60 of Figure 3, for example), comprising:

a server to:

receive via a communications network a request for a communications link from a client communications component executing on a handheld device (see Figure 4 and paragraph 0021, for example; this describes the link establishment from the client perspective, but as indicated in step 115, a request is sent to the server and in steps 120 and 125, a connection is established with the server; this clearly indicates that the server received the request);

establish a wireless communications link with the handheld device by using a server communications interface executing on the server (again, see Figure 4 and paragraph 0021; the server receives the client request and responds to establish a connection between the client and server as indicated in steps 115, 120, and 125; this requires a server communications interface for receiving and responding to the client request); and

automatically implement an optimized protocol between the client communications component and the server based on the wireless communications link type and the handheld device type (as indicated throughout (see the abstract and paragraphs 0011 and 0024, for example), an optimized protocol (such as WAP access or direct HTTP access) is automatically implemented based on the communications link type and the handheld device type (see paragraph 0011, for example, which indicates that the protocol "...may depend upon the wireless network, the handset, and the handset configuration")), and wherein the communications link is established via the communications component functioning with a device API component to configure hardware of the handheld device (disclosed at least in the auto detect mechanism which is used to establish the communications link and which configures the hardware of the handheld device as indicated in Figure 4).

Bhalla does not disclose expressly the limitation that the server is for executing computer readable code, the computer readable code when executed by the server causes the server or the limitation that the optimized protocol is implemented while maintaining a standardized application programming interface for the server communications interface. However, Chen discloses virtual machine interface (VMI) and an application programming interface (API) which are used to provide a consistent interface to wireless applications (see the abstract and paragraphs 0010, 0011, and 0039, for example). Chen further discloses that the API/VMI can be implemented on the infrastructure side (specifically in the base station). At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify Bhalla to include a standard application programming interface such as the API/VMI of Chen. This clearly discloses that the server is for executing computer readable code as well as that the optimized protocol is implemented while maintaining a standard application programming interface for the server communications interface. The rationale for doing so would have been to provide an interface which allows an application programmer to support a variety of hardware implementations without the need to directly program the hardware as suggested in paragraph 0039.

Regarding claim **19**, Bhalla discloses a server for establishing an adaptable communications link with a wireless mobile handheld device comprising:

receive via a communications network a request for a communications link from a client communications component executing on a handheld device (see Figure 4 and paragraph 0021,

for example; this describes the link establishment from the client perspective, but as indicated in step 115, a request is sent to the server and in steps 120 and 125, a connection is established with the server; this clearly indicates that the server received the request);

establish a wireless communications link with the handheld device by using a server communications interface executing on the server (again, see Figure 4 and paragraph 0021; the server receives the client request and responds to establish a connection between the client and server as indicated in steps 115, 120, and 125; this requires a server communications interface for receiving and responding to the client request); and

automatically implement an optimized protocol between the client communications component and the server based on the wireless communications link type and the handheld device type (as indicated throughout (see the abstract and paragraphs 0011 and 0024, for example), an optimized protocol (such as WAP access or direct HTTP access) is automatically implemented based on the communications link type and the handheld device type (see paragraph 0011, for example, which indicates that the protocol "...may depend upon the wireless network, the handset, and the handset configuration")), and wherein the communications link is established via the communications component functioning with a device API component to configure hardware of the handheld device (disclosed at least in the auto detect mechanism which is used to establish the communications link and which configures the hardware of the handheld device as indicated in Figure 4), and wherein the optimized protocol is selected to be a socket full-duplex connection protocol, a socket half duplex connection protocol, or an HTTP tunneling protocol (see paragraph 0026, for example, which indicates that the optimized protocol may be implemented using an HTTP tunneling protocol as the WAP mechanism tunnels the

HTTP requests) based on the type of handheld device and a type of carrier network (see paragraph 0011, for example, which indicates that the protocol "...may depend upon the wireless network, the handset, and the handset configuration").

Bhalla does not disclose expressly the limitation of a computer readable media having computer readable code which, when executed a server computer system causes the server to implement a method or the limitation that the optimized protocol is implemented while maintaining a standardized application programming interface for the server communications interface. However, Chen discloses virtual machine interface (VMI) and an application programming interface (API) which are used to provide a consistent interface to wireless applications (see the abstract and paragraphs 0010, 0011, and 0039, for example). Chen further discloses that the API/VMI can be implemented on the infrastructure side (specifically in the base station). At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify Bhalla to include a standard application programming interface such as the API/VMI of Chen. This clearly discloses that the server is for executing computer readable code as well as that the optimized protocol is implemented while maintaining a standard application programming interface for the server communications interface. The rationale for doing so would have been to provide an interface which allows an application programmer to support a variety of hardware implementations without the need to directly program the hardware as suggested in paragraph 0039.

Regarding claim **2**, Bhalla discloses the limitation that the device API component is a J2ME component (see paragraph 0016, which discloses the limitation that the handheld operating system is J2ME, Symbian, or BREW; thus, the device API component is a J2ME component in an embodiment).

Regarding claim **3**, Bhalla discloses the limitation that the device API component is a BREW component (see paragraph 0016, which discloses the limitation that the handheld operating system is J2ME, Symbian, or BREW; thus, the device API component is a BREW component in an embodiment).

Regarding claim **4**, Bhalla discloses the limitation that the device API component is a Symbian component (see paragraph 0016, which discloses the limitation that the handheld operating system is J2ME, Symbian, or BREW; thus, the device API component is a Symbian component in an embodiment).

Regarding claim **7**, Bhalla discloses the limitation that the optimized protocol comprises an HTTP tunneling protocol (see paragraph 0026, for example, which indicates that the optimized protocol may be implemented using an HTTP tunneling protocol as the WAP mechanism tunnels the HTTP requests).

Regarding claims **9 and 17**, Bhalla discloses the limitation that the optimized protocol is selected to be a socket full-duplex connection protocol, a socket half duplex connection protocol,

or an HTTP tunneling protocol based on the type of handheld device and a type of carrier network (see paragraph 0026, for example, which indicates that the optimized protocol may be implemented using an HTTP tunneling protocol as the WAP mechanism tunnels the HTTP requests; the selection of this protocol is based on the type of handheld device and a type of carrier network as indicated in paragraph 0011, for example, which indicates that the protocol "...may depend upon the wireless network, the handset, and the handset configuration").

Regarding claim **11**, the combination of Bhalla and Chen discloses the limitations of parent claim 1 as indicated above. Bhalla does not disclose expressly the limitation of claim 11 that the communications component includes a hardware abstraction component for translating between the communications component and device specific hardware functions of the handheld device. However, Chen discloses this in the VMI/API described throughout. See paragraphs 0039 and 0040, for example. At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify Bhalla to include a standard application programming interface such as the API/VMI of Chen. The rationale for doing so would have been to provide an interface which allows an application programmer to support a variety of hardware implementations without the need to directly program the hardware as suggested in paragraph 0039.

Regarding claim **12**, the combination of Bhalla and Chen discloses the limitations of parent claim 11 as indicated above. Bhalla does not disclose expressly the limitation of claim 12 that the hardware abstraction component is for enabling the communications component to

implement a stable communications API when installed on multiple different handheld device types. However, Chen discloses this in the VMI/API described throughout. See paragraphs 0039 and 0040, for example, which indicate that the application can be written independent of the details of the underlying hardware and thus the API provides a stable interface for multiple different handheld device types. At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify Bhalla to include a standard application programming interface such as the API/VMI of Chen. The rationale for doing so would have been to provide an interface which allows an application programmer to support a variety of hardware implementations without the need to directly program the hardware as suggested in paragraph 0039.

Regarding claim **15**, Bhalla discloses the limitation that the device API component is a J2ME component, a BREW component, or a Symbian component (see paragraph 0016, which discloses the limitation that the handheld operating system is J2ME, Symbian, or BREW; thus, the device API component is a J2ME, BREW, or Symbian component in an embodiment).

Regarding claim **16**, Bhalla discloses the limitation that the optimized protocol is selected to be a socket full-duplex connection protocol, a socket half duplex connection protocol, or an HTTP tunneling protocol (see paragraph 0026, for example, which indicates that the optimized protocol may be implemented using an HTTP tunneling protocol as the WAP mechanism tunnels the HTTP requests).

7. Claims **5, 6, and 10** are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application Publication 2007/0130333 to Bhalla et al in view of U.S. Patent Application Publication 2002/0018487 to Chen et al and in further view of U.S. Patent 5,060,140 to Brown et al.

Regarding claim **5**, the combination of Bhalla and Chen discloses the limitations of parent claim 1 as indicated above. Bhalla discloses the limitation that the optimized protocol comprises a socket connection (see paragraph 0026, for example.) The combination of Bhalla and Chen does not disclose expressly the limitations of claim 5 that the optimized protocol comprises a socket full-duplex connection protocol. However, Brown discloses the use of full-duplex sockets and half duplex sockets in lines 19-22 of column 10. At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify Bhalla and Chen to support the full-duplex and half-duplex socket types. The rationale for doing so would have been to provide support for two way communication while also providing a lower bandwidth option for unidirectional traffic.

Regarding claim **6**, the combination of Bhalla and Chen discloses the limitations of parent claim 1 as indicated above. Bhalla discloses the limitation that the optimized protocol comprises a socket connection (see paragraph 0026, for example.) The combination of Bhalla and Chen does not disclose expressly the limitations of claim 5 that the optimized protocol comprises a socket half duplex connection protocol. However, Brown discloses the use of full-

duplex sockets and half duplex sockets in lines 19-22 of column 10. At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify Bhalla and Chen to support the full-duplex and half-duplex socket types. The rationale for doing so would have been to provide support for two way communication while also providing a lower bandwidth option for unidirectional traffic.

Regarding claim **10**, the combination of Bhalla and Chen discloses the limitations of parent claim 1 as indicated above. Bhalla discloses the limitation that the optimized protocol comprises a socket connection (see paragraph 0026, for example.) Bhalla also discloses that one of the optimized protocol types is an HTTP tunneling protocol (see paragraph 0011, for example, which indicates that the protocol "...may depend upon the wireless network, the handset, and the handset configuration"). Further, Bhalla discloses dynamically changing between protocol types as shown in Figure 4 where an existing connectivity selection can be changed if it is not working. The combination of Bhalla and Chen does not disclose expressly the limitations of claim 5 that the optimized protocol types which can be selected in the dynamic changing include a socket full-duplex connection protocol and a socket half duplex connection protocol. However, Brown discloses the use of full-duplex sockets and half duplex sockets in lines 19-22 of column 10. At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify Bhalla and Chen to support the full-duplex and half-duplex socket types. The rationale for doing so would have been to provide support for two way communication while also providing a lower bandwidth option for unidirectional traffic.

8. Claim **8** is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application Publication 2007/0130333 to Bhalla et al in view of U.S. Patent Application Publication 2002/0018487 to Chen et al and in further view of U.S. Patent 7,286,562 to Vargo et al.

The combination of Bhalla and Chen discloses the limitations of parent claim 1 as indicated above. The combination of Bhalla and Chen does not disclose the limitation of claim 8 that the optimized protocol is configured to maintain a communication latency of less than one second. However, configuring systems to maintain a defined latency is known in the art. Consider Vargo, for example, which defines a latency of less than 500 ms which is a latency of less than one second in lines 44-46 of column 12. At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify the above combination of Bhalla and Chen to configure the protocol for a latency of less than one second similar to the suggestion of Vargo. The rationale for doing so would have been to bound the latency in the system to provide the end users with a reasonable quality of service.

9. Claims **13, 18, and 20** are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application Publication 2007/0130333 to Bhalla et al in view of U.S. Patent Application Publication 2002/0018487 to Chen et al and in further view of U.S. Patent Application Publication 2009/0037391 to Agrawal et al.

Regarding claims **13, 18, and 20**, the combination of Bhalla and Chen discloses the limitations of parent claims 1, 14, and 19. The combination of Bhalla and Chen does not disclose expressly the limitations of claims 13, 18, and 20 that a plurality of application servers are coupled to communicate with the handheld device via the server communications interface. However, Agrawal discloses the use of a server interface which allows a plurality of application servers to be coupled to a handheld device through the interface. At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify the above combination of Bhalla and Chen to provide a single interface for a plurality of servers. The rationale for doing so would have been to provide common interface to the client devices as suggested in paragraph 0015 of Agrawal.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- U.S. Patent 7,599,665 to Sinivaara discloses a method for the selection of radio resources in a wireless communication device.
- U.S. Patent Application Publication 2003/0182419 to Barr et al discloses a method for adaptive connection routing over multiple communication channels.

Any inquiry concerning this communication or carlier communications from the examiner should be directed to ROBERT C. SCHEIBEL whose telephone number is (571)272-3169. The examiner can normally be reached on Mon-Fri from 8:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pankaj Kumar can be reached on 571-272-3011. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ROBERT C. SCHEIBEL
Examiner
Art Unit 2467

/ROBERT C. SCHEIBEL/
Examiner, Art Unit 2467

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/977,229	10/23/2007	Pierre Carion	HOMI-P008	1885

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EXAMINER	
KHATTAR, RAJESH	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

GTV00000372

Office Action Summary	Application No.	Applicant(s)	
	11/977,229	CARION ET AL.	
	Examiner	Art Unit	
	RAJESH KHATTAR	3693	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 October 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Acknowledgements

This office action is in response to Applicant's communication filed on 10/23/2007. Claims 1-20 are pending in the application.

Claim Objections

Claim 19 is objected to because of the following informalities: What is meant by RSS as in the term RSS feeds? Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 9-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 10-14 depend from a system claim 9, however, the dependent claims 10-14 recites "a method as described in claim 9". As a result of it, the Examiner is unclear whether the claims are directed towards a system or a method. This renders the claim indefinite.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-14 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Examiner asserts that the active steps of claim 1 fail to specifically include an apparatus to carry out the process steps. Applicant is, thus, required to positively include a non-nominal, computer-implemented step in the body of the claim in order to comply with 35 U.S.C. 101. Appropriate correction is requested.

Examiner further notes that the claim 9 is directed to a computer readable medium which typically covers forms of non-transitory tangible media and transitory propagating signals *per se* in view of the ordinary and customary meaning of computer readable media. See MPEP 2111.01. The claim 9 is rejected under 35 U.S.C. 101 as the broadest reasonable interpretation of a claim covers a signal *per se*. *See In re Nuijten*, 500 F.3d 1346, 1356-57 (Fed. Cir. 2007). Examiner recommends the Applicant to amend the claim to cover only statutory embodiments to avoid rejection under 35 USC 101 by adding the limitation "non-transitory" to the claim. Appropriate correction is requested.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-2, 9 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kraft et al., US Patent Application No. 2003/0018521. Kraft discloses a method for targeting one or more users, said method comprising:

monitoring user interaction, wherein said user interaction is with an application on a wireless device and a portion of said application executes on a server ([0002], [0004], [0005], [0011]-[0014], [0016]-0019], subscriber-based updating in [0017], transmitting information to subscribers requesting such information as in [0019], [0021]-[0023], [0037]-[0038], [0079], [0088], [0091]-[0092], [0097], claim 1);

analyzing information based on said user interaction ([0002], [0004], [0005], [0011]-[0014], [0016]-0019], subscriber-based updating in [0017], transmitting information to subscribers requested such information as in [0019], [0021]-[0023], [0037]-[0038], [0079], [0088], [0091]-[0092], [0097], claim 1); and

determining one or more customizations of said application based on said analysis, wherein said customizations target said one or more users ([0002], [0004], [0005], [0011]-[0014], [0016]-0019], subscriber-based updating in [0017], transmitting information to subscribers requested such information as in [0019], [0021]-[0023], [0037]-[0038], [0079], [0088], [0091]-[0092], [0097], claim 1); and

dynamically customizing said application based on said one or more customizations ([0002], [0004], [0005], [0011]-[0014], [0016]-0019], subscriber-based updating in [0017], transmitting information to subscribers requested such information as in [0019], [0021]-[0023], [0037]-[0038], [0079], [0088], [0091]-[0092], [0097], claim 1).

Therefore, it would have been obvious to a person having ordinary skills in the art at the time the invention was made to combine different embodiments of Kraft. The motivation for combining different embodiments would have been to target advertisements based upon a matching of events to subscribers based on location as illustrated by Kraft ([0002]).

Regarding claim 2, Kraft discloses wherein said customizing adds an advertisement based on said user interaction ([0002], [0004], [0005], [0011]-[0014], [0016]-0019], subscriber-based updating in [0017], transmitting information to subscribers requested such information as in [0019], [0021]-[0023], [0037]-[0038], [0079], [0088], [0091]-[0092], [0097], claim 1).

Claims 9 and 15 are substantially similar to claim 1 and hence rejected on similar grounds.

Claims 3-8, 10-14 and 16-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kraft et al., US Patent Application No. 2003/0018521 in view of Official Notice. Kraft discloses the invention as described above. Kraft fails to specifically disclose wherein said wireless application is executed on a server and corresponding rendering is performed on a client device, wherein said wireless application is a generic application customized for display according to the capabilities of a client wireless device, wherein said customizing rearranges the order of information presented by a client device, wherein said customizing comprising customizing a dynamic toolbar, wherein said customizing of said application comprises presenting a splash screen, wherein said action comprises adding an application to a wireless

account, wherein said plurality of requests originate from a plurality of wireless applications, wherein said determining of a targeted advertisement is based on aggregation of information for a plurality of applications, wherein said targeted advertisement is an SMS message, wherein said targeted advertisement is for a wireless application, wherein said targeted advertisement is based on requests of a plurality of users, wherein said advertisement comprises a link, wherein said advertisement comprises as a separate page, wherein said application customization module dynamically tailors said application to include advertisements, wherein said activity analyzing module analyzes access to RSS feeds and wherein said advertisement comprises a pop up message.

Examiner recognizes these limitations to be old and well known in the art and hence takes Official Notice in this regard.

Therefore, it would have been obvious to a person having ordinary skills in the art at the time the invention was made to modify the disclosure of Kraft to include the disclosure of Official Notice. The motivation for combining these references would have been within the personal knowledge of an individual having ordinary skills in the art.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to RAJESH KHATTAR whose telephone number is (571)272-7981. The examiner can normally be reached on Flex schedule.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Kramer can be reached on 571-272-6783. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Rajesh Khattar/
Examiner, Art Unit 3693

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/977,212	10/23/2007	Philippe Clavel	HOMI-P001	1784

7590 09/17/2009

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GTV00000380

Office Action Summary	Application No.	Applicant(s)	
	11/977,212	CLAVEL ET AL.	
	Examiner	Art Unit	
	Nam Thai	2441	

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Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 October 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *30 January 2008* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This office action is in response to the Application S/N 11/977212 filed on 10/23/2007.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 16 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The phrase "can be" on line 1 is not positively recited and renders the claim indefinite. It is unclear whether the limitations following the phrase are part of the invention.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al. (US 2002/0018487) hereinafter "Chen", in view of Fraley et al. (US 2004/0252197), hereinafter "Fraley".

6. As to claim 1, **Chen** teaches a client-based method for implementing a communications link **(paragraph [0040])**, comprising:

receiving a request for a communications link from an application executing on a handheld device *(example request for link from application)* **(paragraph [0152], line 9-12)**;

accessing a device API component to configure device hardware to implement the communications link **(paragraph [0052], "application program makes the appropriate calls to software routines of API... to perform the particular communication protocol")**;

establishing a wireless communications link with a base station *(functions, when called, will establish a link)* **(fig. 5, element 565 and 569)**;

automatically implementing an optimized protocol between a client communications component and the base station *(API automatically implements protocol)* **(paragraph [0052])**, based on the wireless communications link type and the handheld device type *(protocol is implemented based on selected protocol and wireless network communication apparatus)* **(paragraph [0046] line 7-11 and [0050], line 1-4)**, wherein the communications link is established via the communications component

functioning with a device API component to configure hardware of the handheld device **([0049], line 3-7)**.

Chen teaches using the claimed method to connect to a base station, but does not explicitly teach using the method to connect to a server.

Fraley teaches using API to abstract lower-level hardware functions from applications and to establish a link between a mobile device and a computer *(video server)* to transfer data (video) in both directions **(paragraph [0023])**.

It would be obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teachings of **Fraley** into **Chen,** since, both use APIs in mobile devices to abstract communication details from high level programming and the combination would allow a mobile device to establish a link with a server. One would be motivated to make the combination since servers can provide data to mobile devices, which have limited storage capabilities, enabling a greater range of applicable services on the mobile device.

7. As to claim 2, **Chen** in view of **Fraley** teaches the method of claim 1, wherein the device API component is a J2ME component **(Fraley, paragraph [0023], line 3-5)**.

8. As to claim 3, **Chen** in view of **Fraley** teaches the method of claim 1, wherein the device API component is a BREW component **(Fraley, paragraph [0023], line 12-15)**.

9. As to claim 4, **Chen** in view of **Fraley** teaches the method of claim 1, wherein the device is a cellular enabled hand held device **(Fraley, paragraph [0016], line 4-5)**.

10. As to claim 5, **Chen** in view of **Fraley** teaches the method of claim 1, wherein the optimized connection protocol comprises a socket full-duplex connection protocol *(CDMA)* **(Chen, paragraph [0042], line 12)**.

11. As to claim 6, **Chen** in view of **Fraley** teaches the method of claim 1, wherein the optimized connection protocol comprises a socket half duplex connection protocol *(TDMA)* **(Chen, paragraph [0042], line 12)**.

12. As to claim 7, **Chen** in view of **Fraley** teaches the method of claim 1, however does not explicitly teach wherein the optimized connection protocol comprises an HTTP tunneling protocol.

Official notice is taken stating that HTTP tunneling protocol is old and well-known.

It would be obvious to one of ordinary skill in the art at the time of the invention to include HTTP tunneling protocol among the compatible protocol of **Chen** in view of **Fraley**, since, **Chen** in view of **Fraley** is directed towards improving flexibility and adaptability **(Chen, paragraph [0009], line 14-16, and [0015])** though the use of devices which are configurable to use several protocols **(Chen, paragraph [0042], line 9-12)**. One would be motivated to include HTTP tunneling protocol since the inclusion of

any additional protocol would further improve flexibility and adaptability.

13. As to claim 8, **Chen** in view of **Fraley** teaches the method of claim 1, however does not explicitly teach wherein the optimized connection protocol comprises an HTTP polling protocol.

Official notice is taken stating that HTTP polling protocol is old and well-known.

It would be obvious to one of ordinary skill in the art at the time of the invention to include HTTP polling protocol among the compatible protocol of **Chen** in view of **Fraley**, since, **Chen** in view of **Fraley** is directed towards improving flexibility and adaptability **(Chen, paragraph [0009], line 14-16, and [0015])** though the use of devices which are configurable to use several protocols **(Chen, paragraph [0042], line 9-12)**. One would be motivated to include HTTP polling protocol since the inclusion of any additional device/network specific protocol would further improve flexibility and adaptability.

14. As to claim 9, **Chen** in view of **Fraley** teaches the method of claim 1, wherein the device API component *(BREW API)* is accessed by a communications component *(IP-related functions)* and the communications component is configured to implement a communications API *(pass function calls to the BREW API)* for the application executing on the handheld device **(Fraley, paragraph [0023], line 12-15)**.

15. As to claim 10, **Chen** in view of **Fraley** teaches the method of claim 9, wherein the communications component includes a hardware abstraction component for

translating between the communications component and the device specific hardware functions of the handheld device **(Chen, paragraph [0040], line 10-14)**.

16. As to claim 11, **Chen** in view of **Fraley** teaches the method of claim 10, wherein the hardware abstraction component is for enabling the communications component to implement a stable communications API when installed on multiple different handheld device types *(Virtual Machine adapts API to particular hardware device)* **(Chen, paragraph [0054])**.

17. As to claim 12, **Chen** in view of **Fraley** teaches the method of claim 1, but does not teach automatically reestablishing the communitarians link if the communications link is severed.

Official notice is taken that reestablishing a communication link if the link is severed is well known in the art.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the official notice with the teachings of **Chen** in view of **Fraley,** since, **Chen** in view of **Fraley** is directed towards mobile communication devices which are known to have issues with sustained connection due to their mobile nature (.i.e. lost of connection when entering a tunnel) and reestablishing a connection would address this issue and restore a lost connection.

18. As to claim 13, **Chen** in view of **Fraley** teaches a mobile handheld device for implementing an optimized communications link, comprising:

An embedded computer system within the device, the embedded computer system having a processor coupled to a memory *(a cellular phone)* **(Fraley, paragraph [0016], line 4-5)**, the memory having computer readable code which when executed by the processor causes the device to implement a method comprising *(device configured with software stored in memory)* **(Fraley, paragraph [0030], line 1-3)**:

the remaining limitation corresponds to method claim 1 and is rejected under the same rationale.

19. As to claim 14, **Chen** in view of **Fraley** teaches the device of claim 13, wherein the device API component is a J2ME component **(Fraley, paragraph [0023], line 3-5)**, A BREW component **(Fraley, paragraph [0023], line 12-15)**, a Symbian component, **or** a Java/J2SE component.

20. As to claim 15, **Chen** in view of **Fraley** teaches the device of claim 13, wherein the optimized connection protocol is a socket full-duplex connection protocol, a socket half duplex connection protocol *(TDMA and CDMA)* **(Chen, paragraph [0042], line 12)**, an HTTP tunneling protocol, **or** an HTTP polling protocol.

21. As to claim 16, **Chen** in view of **Fraley** teaches device of claim 13, wherein the optimized protocol can be dynamically changed between a socket full-duplex

connection protocol, a socket half duplex connection protocol **(Chen, paragraph [0042], line 9-12)**

However, **Chen** in view of **Fraley** does not explicitly teach wherein the optimized protocol can be dynamically changed between a socket full-duplex connection protocol, a socket half duplex connection protocol, and an HTTP tunneling protocol.

Official notice is taken stating that HTTP tunneling protocol is old and well-known.

It would be obvious to one of ordinary skill in the art at the time of the invention to include HTTP tunneling protocol among the compatible protocol of **Chen** in view of **Fraley**, since, **Chen** in view of **Fraley** is directed towards improving flexibility and adaptability **(Chen, paragraph [0009], line 14-16, and [0015])** though the use of devices which are configurable to use several protocols **(Chen, paragraph [0042], line 9-12)**. One would be motivated to include HTTP tunneling protocol since the inclusion of any additional protocol would further improve flexibility and adaptability.

22. Device claim 17 is substantially similar to method claim 9 and is rejected under the same rationale.

23. As to claim 18, **Chen** in view of **Fraley** teaches the device of claim 13, wherein the communications component includes a hardware abstraction component for translating between the communications component and device specific hardware functions of the device **(Chen, paragraph [0040], line 10-14)**, and wherein the

hardware abstraction component is for enabling the communications component to implement a stable communications API when installed on multiple different device types *(Virtual Machine adapts API to particular hardware device)* **(Chen, paragraph [0054])**.

24. As to claim 19, **Chen** in view of **Fraley** teaches a computer readable media having computer readable code which, when executed by a processor of an embedded computer system of a cellular enabled handheld device, causes the handheld device to implement a method for establishing an adaptable communications link, the method comprising *(device configured with software stored in memory)* **(Fraley, paragraph [0030], line 1-3)**:

wherein the device API component is a J2ME component **(Fraley, paragraph [0023], line 3-5)**, a BREW component **(Fraley, paragraph [0023], line 12-15)**, a Symbian component, **or** a Java/J2SE component, and wherein the optimized connection protocol is a socket full-duplex connection protocol, a socket half duplex connection protocol *(TDMA and CDMA)* **(Chen, paragraph [0042], line 12)**, an HTTP tunneling protocol, **or** an HTTP polling protocol.

the remaining limitation corresponds to method claim 1 and is rejected under the same rationale.

25. As to claim 20, **Chen** in view of **Fraley** teaches the computer readable media of claim 19, wherein the communications component includes a hardware abstraction

component for translating between the communications component and device specific hardware functions of the device **(Chen, paragraph [0040], line 10-14)**, and wherein the hardware abstraction component is for enabling the communications component to implement a stable communications API when installed on multiple different device types *(Virtual Machine adapts API to particular hardware device)* **(Chen, paragraph [0054])**.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nam Thai whose telephone number is (571)270-7531. The examiner can normally be reached on IFP.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wing Chan can be reached on (571)272-7493. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Wing F. Chan/
Supervisory Patent Examiner, Art Unit 2441

/Nam Thai/
Examiner, Art Unit 2441

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/977,186	10/23/2007	Pierre Carion	HOMI-P007	2215

7590 12/03/2008

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EXAMINER	
MADAMBA, CLIFFORD B	
ART UNIT	PAPER NUMBER
3696	

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12/03/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

GTV00000393

Office Action Summary	Application No.	Applicant(s)	
	11/977,186	CARION, PIERRE	
	Examiner	Art Unit	
	CLIFFORD MADAMBA	3696	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 October 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

GTV00000394

DETAILED ACTION

Status of Claims

This action is in reply to Application 11/977,186 filed on 23 October 2007.

Claims 1-20 are currently pending and have been examined.

Claim Rejections – 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office Action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Minear et al., U.S. Patent 6,996,537 ("Minear"), in view of Dowling, U.S. Patent 7,222,154 ("Dowling").

Re claim 1: Minear discloses a method for managing wireless account information, said method comprising:

- *presenting a list of applications via a web interface on a computing device, wherein said applications are operable to run on a wireless handheld device* [C2 L30-34];

- *receiving a selection of an application from said computing device* [C2 L47-53];

- *updating a wireless account via a link between a web account and a wireless account according to said selection of an application, such that said application is available when said wireless account is accessed via a wireless handheld device* [C3 L43-45; C8 L48-53].

Minear doesn't explicitly disclose:

- *presenting a plurality of billing options;*

This feature is expressly disclosed by Dowling, however, in a related endeavor [C3 L56-57; C6 L23-27; C9 L14-17; C11 L23-26]. Dowling discloses as his invention negotiated wireless peripheral systems. Dowling's invention relates generally to mobile data network infrastructure methods and systems and, more particularly, to methods and systems that allow mobile devices to wirelessly contract for products and services that can result in a temporary expansion of mobile unit capabilities. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine and/or modify Minear's disclosure with the teaching of Dowling for the motivation of providing for a billing arrangement with the mobile unit for services rendered.

Re claim 2: Minear in view of Dowling discloses the claimed limitation supra. Minear further discloses:

- *wherein said wireless account is independent of a wireless carrier account* [C5 L52-55].

Re claim 3: Minear in view of Dowling discloses the claimed limitation supra. Minear further discloses:

- *wherein said web interface is independent of a wireless carrier website* [C5 L43-48, L52-55].

Re claim 4: Minear in view of Dowling discloses the claimed limitation supra. Minear further discloses:

- *presenting an interactive version of a wireless application* [C6 L26-29].

Re claim 5: Minear in view of Dowling discloses the claimed limitation supra. Minear further discloses:

- *establishing a secure connection between a client and a server; wherein said client is a computing system* [C2 L47-53].

Re claim 6: Minear in view of Dowling discloses the claimed limitation supra. Minear further discloses:

- *setting an expiration date corresponding to said application on said second account, wherein said expiration date causes a wireless device to display a message indicating access to an application has expired* [C1 L55-59; C6 L47-51].

Re claim 7: Minear in view of Dowling discloses the claimed limitation supra. Minear doesn't explicitly disclose:

- *presenting application customization options.*

This feature is expressly disclosed by Dowling, however, in a related endeavor [C10 L61-67]. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine and/or modify Minear's disclosure with the teaching of Dowling for the motivation of providing preferred means of accessing an application and/or e-commerce session.

Re claim 8: Minear discloses a computer readable media comprising instructions therein that when executed by a processor to implement a method of account management, said method comprising:

- receiving a first message to create an account [C7 L36-40];

- *creating a web account* [C3 L43-45; C8 L48-53];

- *establishing a link between said web account and a wireless applications account* [C3 L43-45; C8 L48-53].

Minear doesn't explicitly disclose:

- *sending a second message with an identifier to a wireless handheld device;*

- *receiving a third message comprising said identifier.*

This feature is expressly disclosed by Dowling, however, in a related endeavor [C8 L4-7; C10 L48-57]. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine and/or modify Minear's disclosure with the teaching of Dowling for the motivation of authenticating a wireless handheld device targeted for download of an application.

Re claim 9: Minear in view of Dowling discloses the claimed limitation supra. Minear further discloses:

- *wherein said second message is an SMS message* [C5 L56-60, 67; C6, L1-3].

Re claim 10: Minear in view of Dowling discloses the claimed limitation supra. Minear further discloses:

- *wherein said second message comprises a link which when accessed via said wireless device, identifies the wireless device* [C8 L48-53].

Re claim 11: Minear in view of Dowling discloses the claimed limitation supra. Minear doesn't explicitly disclose:

- *wherein login information is stored on a computing device for return access.*

This feature is expressly disclosed by Dowling, however, in a related endeavor [C8 L4-7; C10 L48-57]. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine and/or modify Minear's disclosure with the teaching of Dowling for the motivation of authenticating a wireless handheld device targeted for download of an application.

Re claim 12: Minear in view of Dowling discloses the claimed limitation supra. Minear doesn't explicitly disclose:

- *wherein said identifier comprises an identification code.*

This feature is expressly disclosed by Dowling, however, in a related endeavor [C8 L4-7; C10 L48-57]. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine and/or modify Minear's disclosure with the teaching of Dowling for the motivation of authenticating a wireless handheld device targeted for download of an application.

Re claim 13: Minear in view of Dowling discloses the claimed limitation supra. Minear doesn't explicitly disclose:

- *presenting customization options associated with said wireless applications account.*

This feature is expressly disclosed by Dowling, however, in a related endeavor [C10 L61-67]. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine and/or

modify Minear's disclosure with the teaching of Dowling for the motivation of providing preferred means of accessing an application and/or e-commerce session.

Re claim 14: Minear discloses a system for accessing information for wireless applications:

- *an account management component for managing web accounts and the associated authentication information* [C6 L47-51];

- *an account setup component for creating a web account and associating the account with a corresponding wireless device account* [C2 L30-34];

- *a wireless device account interface for accessing wireless device account information* [C6 L47-51].

Minear doesn't explicitly disclose:

- *a billing component for managing billing and purchasing of applications;*

This feature is expressly disclosed by Dowling, however, in a related endeavor [C3 L56-57; C6 L23-27; C9 L14-17; C11 L23-26]. Dowling discloses as his invention negotiated wireless peripheral systems. Dowling's invention relates generally to mobile data network infrastructure methods and systems and, more particularly, to methods and systems that allow mobile devices to wirelessly contract for products and services that can result in a temporary expansion of mobile unit capabilities. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine and/or modify Minear's disclosure with the teaching of Dowling for the motivation of providing for a billing arrangement with the mobile unit for services rendered.

Re claim 15: Minear in view of Dowling discloses the claimed limitation supra. Minear further discloses:

- *a sending component for sending a purchased application to a different account* [C2 L54-59].

Re claim 16: Minear in view of Dowling discloses the claimed limitation supra. Minear further discloses:

- *wherein said sending component sends a notification message of a purchased application* [C2 L54-59].

Re claim 17: Minear in view of Dowling discloses the claimed limitation supra. Minear doesn't explicitly disclose:

- *wherein said customization component allows selection of one or more application objects.*

This feature is expressly disclosed by Dowling, however, in a related endeavor [C10 L61-67; C12 L18-57]. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine and/or modify Minear's disclosure with the teaching of Dowling for the motivation of providing preferred means of accessing an application and/or e-commerce session.

Re claim 18: Minear in view of Dowling discloses the claimed limitation supra. Minear doesn't explicitly disclose:

- *wherein said application objects are RSS feeds.*

This feature is expressly disclosed by Dowling, however, in a related endeavor [C10 L61-67; C12 L18-57]. It would have been obvious to one of ordinary skill in the art at the time of the invention to

combine and/or modify Minear's disclosure with the teaching of Dowling for the motivation of providing preferred means of accessing an application and/or e-commerce session.

Re claim 19: Minear in view of Dowling discloses the claimed limitation supra. Minear doesn't explicitly disclose:

- *wherein said application objects are icons.*

This feature is expressly disclosed by Dowling, however, in a related endeavor [C10 L61-67; C12 L18-57]. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine and/or modify Minear's disclosure with the teaching of Dowling for the motivation of providing preferred means of accessing an application and/or e-commerce session.

Re claim 20: Minear in view of Dowling discloses the claimed limitation supra. Minear doesn't explicitly disclose:

- *a customization component for customizing information related to said wireless device account.*

This feature is expressly disclosed by Dowling, however, in a related endeavor [C10 L61-67]. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine and/or modify Minear's disclosure with the teaching of Dowling for the motivation of providing preferred means of accessing an application and/or e-commerce session.

Examiner's Note: The Examiner has pointed out particular references contained in the prior art of record within the body of this action for the convenience of the Applicant. Although the specified citations are representative of the teachings in the art and are applied to the specific limitations within the individual claim, other passages and figures may apply. Applicant, in preparing the response,

should consider fully the entire reference as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the Examiner.

Conclusion

Claims 1-20 are rejected.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Clifford Madamba whose telephone number is 571-270-1239. The examiner can normally be reached on Mon-Thu 7:30-5:00 EST Alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Dixon, can be reached at 571-272-6803. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/THOMAS A DIXON/
Supervisory Patent Examiner, Art Unit 3696

Clifford Madamba
Patent Examiner



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/977,186	10/23/2007	Pierre Carion	HOMI-P007	2215

7590 05/12/2009

MURABITO HAO & BARNES LLP
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EXAMINER	
MADAMBA, CLIFFORD B	
ART UNIT	PAPER NUMBER
3696	

MAIL DATE	DELIVERY MODE
05/12/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

GTV00000405

Office Action Summary	Application No.	Applicant(s)	
	11/977,186	CARION, PIERRE	
	Examiner	Art Unit	
	CLIFFORD MADAMBA	3696	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 March 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Status of Claims

This action is in reply to the remarks and amendment for Application 11/977,186 filed on 03 March 2009.

Claims 1-20 are currently pending and have been examined.

Response to Arguments

Applicant's arguments filed 03 March 2009 have been fully considered but they are not persuasive. Applicant's arguments will be addressed in sequential order as they were set forth in the "Remarks" section.

With regard to claim 1, Applicant argues that the cited references do not teach or suggest the limitation of updating a wireless account via a link between a web account and a wireless account. The Examiner respectfully disagrees and asserts that the argued limitation is disclosed by Minear as follows: "the invention relates to the provision of software applications that require a subscription for authorized use ["account"] thereof being installed on wireless devices from one or more application download servers on a wireless network ["web or wireless link"], and the subscription is automatically accounted ["updating"] for on a server-side accounting module..." (C1 L11-16); "In existing wireless networks, if the user of the wireless device desires to download and use a subscription-based ["account"] software application, the user will typically either call a service provider or contact the service provider through other means, such as through an Internet access ["web link"], and the service provider will either transmit the subscribed application to the wireless device across the wireless network or allow the user access to a secure site where the subscription-based application is downloadable or accessible." (C1 L63-67; C2 L1-4); "An accounting module receives ["updates"] subscription-based application download data ["account data"] from the one or more application

download servers for each subscription-based application downloaded by a wireless device..." (C2 L38-42); The accounting module, preferably implemented in software, accounts for the use ["updates accounts"] of subscription-based ["account-based"] software applications by each wireless device based upon the subscription-based software application download data received from the application download servers... the wireless device bridges a communication link ["links"] with the one or more application download servers... (C3 L8-11); "The application download server 16 and/or accounting server 32 communicate with a carrier network 40, through a data link, such as the Internet ["web link"], a secure LAN, WAN, or other network." (C5 L52-55). The argued limitation of updating a wireless account via a link between a web account and a wireless account is thus disclosed. The rejection is therefore maintained accordingly.

With regard to claim 4, Applicant argues that the cited references do not teach or suggest the limitation of presenting an interactive version of a wireless application. The Examiner respectfully disagrees and asserts that the argued limitation is disclosed by Minear as follows: "The wireless device, such as cellular telephone 12, can download subscription-based applications, such as games, news, sports data, stock monitors and the like, to be held in the local database 58 when not in use." (C6 L26-29). It is well know in the art for such applications to possess varying degrees of interactiveness.

The Examiner also recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention when there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and In re Jones, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this regard, Dowling also suggest the argued limitation as follows: "Prior art systems understand the restricted user interface capabilities of smart phones and similar mobile devices. As such, various dialects of XML (extensible Markup Language) have been developed to allow content to be customized for interactive display on specific types of smart phones and other mobile devices." (C1 L59-63); "The device specific user

interface involves an operating system that supplies an interactive image or set of buttons to a user." (C19 L66-67; C20 L1). The argued limitation of presenting an interactive version of a wireless application is thus disclosed. The rejection is therefore maintained accordingly.

With regard to claims 7 & 13, Applicant argues that the cited references do not teach or suggest the limitation of presenting application customization options and presenting customization options associated with the wireless applications account. The Examiner respectfully disagrees and asserts that the argued limitation is disclosed by Dowling as follows: "The ASP server delivers content customized according to the area-constrained user interface of the mobile unit, for example, using WML based content." (C4 L29-31); "The peripheral-device-reconfiguration message allows the ASP server 135 to customize content for the mobile unit 125 given its modified set of peripherals. When the position-dependent ecommerce session is terminated, another peripheral-device-reconfiguration message is sent to allow the ASP server 135 to once again customize content for the mobile unit 125..." (C15 L1-7); "In operation, the ASP server 135 provides device-customized content to mobile devices. For example, the ASP server 135 may implement XML and/or WML features that allow content to be customized for interactive display on specific mobile units..." (C16 L34-38); "If the application is local, the application is preferably sent a message from the OS to let it know that the augmented peripheral set is being used. This is necessary in many embodiments because the application program needs to customize the user interface differently for a small display." (C21 L20-24). The argued limitation of presenting application customization options is thus disclosed. The rejection is therefore maintained accordingly.

With regard to claim 18, Applicant argues that the cited references do not teach or suggest the limitation of application objects being RSS feeds. The Examiner respectfully disagrees and asserts that RSS feeds are a form of data provided from a data source which can be read using software that can be web-based, desktop-based, or mobile-device based. A standardized XML file format allows the information to be published once and viewed by many different programs. The user subscribes to a feed by entering into the reader the feed's URI (often referred to informally as a "URL" or by clicking

an RSS icon in a browser that initiates the subscription process. RSS formats are also specified using XML, which is a generic specification for the creation of data formats. Such data formats or its equivalent variants are taught by the Dowling reference as follows: "...various dialects of XML (extensible Markup Language) have been developed to allow content to be customized for interactive display on specific types of smart phones and other mobile devices. A variation of XML known as WML (Wireless Markup Language) includes language constructs (e.g., tag sets) that allow a server to deliver customized content to a mobile device..." (C1 L59-67); "In a similar embodiment, the NWP 105 can display a URI or URL that can be entered directly into the mobile unit 125's UI in order to create a connection ("feed") with the NWP 105. Note that the NWP identification code, URL or URI can be physically printed onto the NWP 105 or can be electronically displayed on a display surface provided by the NWP 105." (C10 L61-67); "In operation, the ASP server 135 provides device-customized content to mobile devices. For example, the ASP server 135 may implement XML and/or WML features that allow content to be customized for interactive display on specific mobile units..." (C16 L34-39). The argued limitation of application objects being RSS feeds is thus taught. The rejection is therefore maintained accordingly.

The Office has given consideration to the remarks and amendments made to the pending set of claims, but are considered moot in light of the grounds of rejection, provided below, for the current listing of claims.

Claim Rejections – 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office Action:

> A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said

subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Minear et al., U.S. Patent 6,996,537 ("Minear"), in view of Dowling, U.S. Patent 7,222,154 ("Dowling").

[Claim 1] Minear discloses a method for managing wireless account information, said method comprising:

- presenting a list of applications via a web interface on a computing device, wherein said applications are operable to run on a wireless handheld device [C2 L30-34];

- receiving a selection of an application from said computing device [C2 L47-53];

- updating a wireless account via a link between a web account and a wireless account according to said selection of an application, such that said application is available when said wireless account is accessed via a wireless handheld device [C3 L43-45; C8 L48-53].

Minear doesn't explicitly disclose:

- presenting a plurality of billing options;

This feature is expressly disclosed by Dowling, however, in a related endeavor [C3 L56-57; C6 L23-27; C9 L14-17; C11 L23-26]. Dowling discloses as his invention negotiated wireless peripheral systems. Dowling's invention relates generally to mobile data network infrastructure methods and systems and, more particularly, to methods and systems that allow mobile devices to wirelessly contract for products and services that can result in a temporary expansion of mobile unit capabilities. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine

and/or modify Minear's disclosure with the teaching of Dowling for the motivation of providing for a billing arrangement with the mobile unit for services rendered.

[Claim 2] Minear in view of Dowling discloses the claimed limitation supra. Minear further discloses:

- wherein said wireless account is independent of a wireless carrier account [C5 L52-55].

[Claim 3] Minear in view of Dowling discloses the claimed limitation supra. Minear further discloses:

- wherein said web interface is independent of a wireless carrier website [C5 L43-48, L52-55].

[Claim 4] Minear in view of Dowling discloses the claimed limitation supra. Minear further discloses:

- presenting an interactive version of a wireless application [C6 L26-29].

[Claim 5] Minear in view of Dowling discloses the claimed limitation supra. Minear further discloses:

- establishing a secure connection between a client and a server; wherein said client is a computing system [C2 L47-53].

[Claim 6] Minear in view of Dowling discloses the claimed limitation supra. Minear further discloses:

- setting an expiration date corresponding to said application on said second account, wherein said expiration date causes a wireless device to display a message indicating access to an application has expired [C1 L55-59; C6 L47-51].

[Claim 7] Minear in view of Dowling discloses the claimed limitation supra. Minear doesn't explicitly disclose:

- presenting application customization options.

This feature is expressly disclosed by Dowling, however, in a related endeavor [C4 L29-31; C15 L1-12; C16 L34-35, L56-64; C20 L63-66; C21 L20-24, L46-49, L60-64]. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine and/or modify Minear's disclosure with the teaching of Dowling for the motivation of providing preferred means of accessing an application and/or e-commerce session.

[Claim 8] Minear discloses a computer readable media comprising instructions therein that when executed by a processor to implement a method of account management, said method comprising:

- receiving a first message to create an account [C7 L36-40];

- creating a web account [C3 L43-45; C8 L48-53];

- establishing a link between said web account and a wireless applications account [C3 L43-45; C8 L48-53].

Minear doesn't explicitly disclose:

- sending a second message with an identifier to a wireless handheld device;

- receiving a third message comprising said identifier.

This feature is expressly disclosed by Dowling, however, in a related endeavor [C8 L4-7; C10 L48-57]. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine

and/or modify Minear's disclosure with the teaching of Dowling for the motivation of authenticating a wireless handheld device targeted for download of an application.

[Claim 9] Minear in view of Dowling discloses the claimed limitation supra. Minear further discloses:

- wherein said second message is an SMS message [C5 L56-60, 67; C6, L1-3].

[Claim 10] Minear in view of Dowling discloses the claimed limitation supra. Minear further discloses:

- wherein said second message comprises a link which when accessed via said wireless device, identifies the wireless device [C8 L48-53].

[Claim 11] Minear in view of Dowling discloses the claimed limitation supra. Minear doesn't explicitly disclose:

- wherein login information is stored on a computing device for return access.

This feature is expressly disclosed by Dowling, however, in a related endeavor [C8 L4-7; C10 L48-57]. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine and/or modify Minear's disclosure with the teaching of Dowling for the motivation of authenticating a wireless handheld device targeted for download of an application.

[Claim 12] Minear in view of Dowling discloses the claimed limitation supra. Minear doesn't explicitly disclose:

- wherein said identifier comprises an identification code.

This feature is expressly disclosed by Dowling, however, in a related endeavor [C8 L4-7; C10 L48-57]. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine and/or modify Minear's disclosure with the teaching of Dowling for the motivation of authenticating a wireless handheld device targeted for download of an application.

[Claim 13] Minear in view of Dowling discloses the claimed limitation supra. Minear doesn't explicitly disclose:

- presenting customization options associated with said wireless applications account.

This feature is expressly disclosed by Dowling, however, in a related endeavor [C4 L29-31; C15 L1-12; C16 L34-35, L56-64; C20 L63-66; C21 L20-24, L46-49, L60-64]. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine and/or modify Minear's disclosure with the teaching of Dowling for the motivation of providing preferred means of accessing an application and/or e-commerce session.

[Claim 14] Minear discloses a system for accessing information for wireless applications:

- an account management component for managing web accounts and the associated authentication information [C6 L47-51];

- an account setup component for creating a web account and associating the account with a corresponding wireless device account [C2 L30-34];

- a wireless device account interface for accessing wireless device account information [C6 L47-51].

Minear doesn't explicitly disclose:

- a billing component for managing billing and purchasing of applications;

This feature is expressly disclosed by Dowling, however, in a related endeavor [C3 L56-57; C6 L23-27; C9 L14-17; C11 L23-26]. Dowling discloses as his invention negotiated wireless peripheral systems. Dowling's invention relates generally to mobile data network infrastructure methods and systems and, more particularly, to methods and systems that allow mobile devices to wirelessly contract for products and services that can result in a temporary expansion of mobile unit capabilities. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine and/or modify Minear's disclosure with the teaching of Dowling for the motivation of providing for a billing arrangement with the mobile unit for services rendered.

[Claim 15] Minear in view of Dowling discloses the claimed limitation supra. Minear further discloses:

- a sending component for sending a purchased application to a different account [C2 L54-59].

[Claim 16] Minear in view of Dowling discloses the claimed limitation supra. Minear further discloses:

- wherein said sending component sends a notification message of a purchased application [C2 L54-59].

[Claim 17] Minear in view of Dowling discloses the claimed limitation supra. Minear doesn't explicitly disclose:

- wherein said customization component allows selection of one or more application objects.

This feature is expressly disclosed by Dowling, however, in a related endeavor [C10 L61-67; C12 L18-57]. It would have been obvious to one of ordinary skill in the art at the time of the invention to

combine and/or modify Minear's disclosure with the teaching of Dowling for the motivation of providing preferred means of accessing an application and/or e-commerce session.

[Claim 18] Minear in view of Dowling discloses the claimed limitation supra. Minear doesn't explicitly disclose:

- wherein said application objects are RSS feeds.

This feature is expressly disclosed by Dowling, however, in a related endeavor [C1 L58-67; C2 L28-30; C10 L47-51; 61-67; C12 L18-57; C16 L34-39]. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine and/or modify Minear's disclosure with the teaching of Dowling for the motivation of providing preferred means of accessing an application and/or e-commerce session.

[Claim 19] Minear in view of Dowling discloses the claimed limitation supra. Minear doesn't explicitly disclose:

- wherein said application objects are icons.

This feature is expressly disclosed by Dowling, however, in a related endeavor [C10 L61-67; C12 L18-57]. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine and/or modify Minear's disclosure with the teaching of Dowling for the motivation of providing preferred means of accessing an application and/or e-commerce session.

[Claim 20] Minear in view of Dowling discloses the claimed limitation supra. Minear doesn't explicitly disclose:

- a customization component for customizing information related to said wireless device account.

This feature is expressly disclosed by Dowling, however, in a related endeavor [C10 L61-67]. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine and/or modify Minear's disclosure with the teaching of Dowling for the motivation of providing preferred means of accessing an application and/or e-commerce session.

Examiner's Note: The Examiner has pointed out particular references contained in the prior art of record within the body of this action for the convenience of the Applicant. Although the specified citations are representative of the teachings in the art and are applied to the specific limitations within the individual claim, other passages and figures may apply. Applicant, in preparing the response, should consider fully the entire reference as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the Examiner.

Conclusion

Claims 1-20 are rejected.

THIS ACTION IS MADE FINAL. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Clifford Madamba whose telephone number is 571-270-1239. The examiner can normally be reached on Mon-Thu 7:30-5:00 EST Alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Dixon, can be reached at 571-272-6803. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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/THOMAS A DIXON/
Supervisory Patent Examiner, Art Unit 3696

/Clifford Madamba/
Patent Examiner, AU-3696

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/098,670	04/07/2008	Philippe Clavel	HOMI-P010	2849

41066 7590 06/29/2010

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SAN JOSE, CA 95113

EXAMINER	
RECEK, JASON D	

ART UNIT	PAPER NUMBER
2442	

MAIL DATE	DELIVERY MODE
06/29/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

GTV00000420

Office Action Summary	Application No.	Applicant(s)	
	12/098,670	CLAVEL, PHILIPPE	
	Examiner	Art Unit	
	JASON RECEK	2442	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 April 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *05 January 2010*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This is in response to the amendment filed on April 7th 2010.

Status of Claims

Claims 1-20 are pending.

Information Disclosure Statement

The information disclosure statement filed 1/5/10 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

Response to Arguments

1. Applicant's arguments filed 4/7/10 have been fully considered but they are not persuasive. Applicant asserts:

a. Claims 1-14 are not indefinite (pg. 8) because the method is "server implemented" and therefore the limitations "sending said plurality of scene components" and "sending said plurality of assets" do not render the claim indefinite. This is not persuasive. Even assuming applicant's argument that it is clear a server "sends" the

components and assets, the word "sending" renders the claim indefinite because it is still unclear whether these limitations require transmitting over a network or communications link, or merely "sending" the data (components and assets) to a queue or network interface on the server.

b. Claims 1, 9 and 15 are not anticipated by Veselvo (pg. 8-10) because Veselvo does not teach or suggest determining a partition of functionality of said application as recited by the claims. This argument is not persuasive. Applicant acknowledges that Veselvo teaches a provisioning server (pg. 9) but then concludes without explanation that Veselov does not teach provisioning functionality of an application. Veselvo discloses a provisioning server with provisioning adapter modules and provisioning application (col. 3 ln. 60-67), this provisioning server delivers services and content to devices (col. 4 ln. 20-25), these services and content are applications (col. 5 ln. 4-9). Thus Veselvo teaches partitioning functionality of an application because when an application is provisioned it is partitioned into content delivered to a client and content on the server needed for management (server uses provisioning models to manage services and content, col. 4 ln. 60-67, provisioning application manages the content of a service directory col. 5 ln. 28-29). Veselvo also teaches a serer behavior module is executed on the server (server modules translate commands col. 4 ln. 26-29) and a client behavior module is executed on the wireless device (content received by client is an executable file that provides functionality (col. 5 ln. 11-16, also known as a bundles which are parts of services, col. 5 ln. 33-35) as recited by the claims.

c. Claims 4, 12 and 17-18 are allowable based on the above arguments (pg. 10-11). This argument is not persuasive since the above arguments were not persuasive.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-14 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 1 and 9, they recite "sending said plurality of scene components; and sending said plurality of assets". These terms render the claims indefinite because it is unclear who/what is sending and who/where is receiving. Furthermore even if interpreted as a sever sending data (suggested by applicant pg. 8 or response dated 4/7/10) the claims are still indefinite because the word "sending" does not distinctly define the scope. Sending could require transmitting over a network or communication link or could simply mean the data is passed internally within the server and is not communicated externally. Since the scope of the claim cannot be determined the claims are indefinite. Claims 2-8 and 10-14 are rejected based on their dependency.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-3, 5-11, 13-16 and 19-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Veselov et al. US 7,580,703 B1.

Regarding claim 1, Veselov discloses "selecting a plurality of scene components ... comprise at least one behavior module operable to execute functionality" as services (col. 4 ln. 15-16) which are executable (col. 5 ln. 3-15);

"selecting a plurality of assets ... operable to be used in rendering a scene utilizing said plurality of scene components" content files are individual resources used to execute a functionality (col. 5 ln. 11-19);

"determining a partition of functionality of said application, wherein said partition defines a server behavior module for executing on said server and a client behavior module for executing on said wireless device" provisioning services between a client and a server (col. 3 ln. 45-67), includes providing content (i.e. application) to client for execution (col. 5 ln. 4-9, 33-35) content may be provided in bundles which are parts (i.e.

partitions) of services (i.e. applications), and managing services at the server (col. 5 ln. 28-29);

"customizing said plurality of scene components and ... assets for said wireless device" translate commands for the device (col. 4 ln. 39-49) and map generic application to specific application (col. 4 ln. 55-59); and

"sending ... scene components and ... assets" data is sent between server and client (Figs. 1 and 7, col. 5 ln. 4-5).

Regarding claim 2, Veselov discloses "receiving a request to initialize said application ... comprises wireless device information" request (col. 9 ln. 4-5) and device information (col. 9 ln. 15-18).

Regarding claim 3, Veselov discloses "a device profile" (Fig. 3 item 224, col. 6 ln. 40-41), and "phone attributes" (col. 3 ln. 15-17, 50-52, col. 4 ln. 43-45).

Regarding claim 5, Veselov discloses "injecting dynamic content into said plurality of scene components" as provisioning application can manipulate services dynamically (col. 5 ln. 29-32) and dynamically deliver applications (col. 7 ln. 10-12).

Regarding claim 6, Veselov discloses "compiled binary format" as an executable (col. 5 ln. 5-15).

Regarding claim 7, Veselov disclose "graphics customized for said wireless device" sound/video files (col. 5 ln. 15) that are dynamically provided (i.e. customized) based on device profile (col. 7 ln. 1-15).

Regarding claim 8, Veselov disclose "scene components are customized to adapt the animation pattern of said wireless device" graphical applications are provisioned/customized, such graphics inherently provide animation (col. 4 ln. 60-64, col. 5 ln. 14-16, col. 7 ln. 10-12).

Regarding claims 9-11, they are system claims that correspond to the method of claims 1-3, therefore they are rejected for similar reasons.

Regarding claim 13, Veselov discloses "custom components" as the files allow a user to customize (col. 5 ln. 9-11).

Regarding claim 14, Veselov discloses "scene components comprise a layout" as the application (e.g. game, calculator) has properties which would inherently include a layout (Fig. 5, col. 7 ln. 61-62).

Regarding claim 15, it is a system claim that corresponds to claim 1, those corresponding parts are rejected for similar reasons.

Veselov also discloses "a device profile library" (Figs. 3-4). Claim 15 also recites a scene generator and asset generator in place of the scene selector and asset selector found in claim 1. These features are also disclosed by Veselov as a bundle. Veselov teaches "generating" these bundles of components and assets when a service is requested (col. 5 ln. 33-43).

Regarding claims 16 and 19-20, they correspond to claims 2, 5 and 8 respectively, thus they are rejected for similar reasons.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 4 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Veselov.

Regarding claim 4, Veselov does not explicitly disclose "asynchronous communication" however it would have been obvious to one of ordinary skill in the art at the time of the invention. Veselov does not explicitly teach synchronous communication either. One of ordinary skill would have realized that communication could be performed asynchronously or synchronously. Thus, this is merely the combination of

known elements according to their established function in order to yield a predictable result.

Claim 17 corresponds to claim 4 and therefore is rejected for similar reasons.

8. Claims 12 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Veselov in view of Nishida US 2005/0223352 A1.

Regarding claim 12, Veselov discloses "storing a plurality of application data to facilitate the execution of another application" as storing application interactions (i.e. application data) to enable the mapping of the generic application to specific applications, thus the application data facilitates the execution of another application - the mapped specific application (col. 4 ln. 55-59).

Veselov does not explicitly disclose "said application data facilitates the resuming of an application at a later time" however this is taught by Nishida as storing program data and using it to resume a program (paragraph 13). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Veselov with the suspend/resume feature taught by Nishida. Suspending and resuming applications is well known in the art (as evidenced by Nishida). Thus, this is merely the combination of known features according to their established function in order to yield a predictable result.

Claim18 corresponds to claim 12 and therefore is rejected for similar reasons.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Lamb et al. US 2006/0236308 A1 discloses partitioning functionality between devices (abstract, paragraph 61).

Logston et al. US 2004/0236860 A1 discloses a distributed application (abstract).

Lau et al. US 2004/0210907 A1 discloses a client/server system that partitions applications (abstract).

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JASON RECEK whose telephone number is (571)270-1975. The examiner can normally be reached on Mon - Fri 9:00am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Philip Lee can be reached on (571) 272-3967. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jason Recek/
Examiner, Art Unit 2442
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EXAMINER	
MADAMBA, CLIFFORD B	
ART UNIT	PAPER NUMBER
3695	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

GTV00000432

Office Action Summary	Application No.	Applicant(s)	
	11/977,186	CARION, PIERRE	
	Examiner	Art Unit	
	CLIFFORD MADAMBA	3695	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 June 2010*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

GTV00000433

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office Action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 16 June, 2009 has been entered.

Status of Claims

This action is in reply to the remarks and amendment for Application 11/977,186 filed on 16 June, 2010.

Claims 1-21 are currently pending and have been examined.

Response to Arguments

In the remarks filed on 16 June, 2010, Applicant argues the following:

(1) That Hamzeh does not teach or suggest updating a first account via a link between a second account and the first account as per claim 1.

(2) That Hamzeh does not teach or suggest presenting an interactive version of a wireless application via the web interface where the web interface is independent of the wireless handheld device as per claim 4.

(3) That Dowling fails to teach or suggest application customization options and customization options as per claims 7 and 13.

In response to (1), the Office has given consideration to the remarks and/or amendments made to the pending set of claims, but are considered moot in light of the grounds of rejection, provided below, for the current listing of claims.

In response to (2), the Examiner respectfully disagrees. Hamzeh recites:

"This document discloses a system and method for sending web content from a website to a mobile device... A system includes a content delivery program associated with a webpage, where the webpage includes at least one content item. The content delivery program is configured to receive a user selection signal related to the at least one content item, receive an identifier of the mobile device, and initiate a delivery of the at least one content item to the mobile device based on the user selection signal and the identifier." (Hamzeh, P0006) - Discloses wherein web content needs to pass from a website to get to a mobile device which indicates or describes two separate or independent devices. Further discloses wherein mobile device still needs to be further identified in order to receive delivery of at least one content item which indicates that the identifier for the website is separate or independent from the identifier for the mobile device.

"...the system allows a user to "click" on a selected content item in the webpage... and enter a cell phone number or other identifier, and click "send." The selected content item is sent automatically to the mobile device associated with the cell phone number..." (Hamzeh, P0007) – Discloses wherein users of the webpage ("web account") still have to indicate a separate identification number or identifier to transmit a selected content to a wireless device which provides evidence of the independence or separateness of the two systems or device.

In one implementation, the content delivery program code [104] allows a user to... invoke a program that is configured to package the content data in a transmittable format, along with other data such as sender ID identifying the website and/or website owner/content originator... The content delivery program code [104] receives a recipient identifier, such as cell phone telephone number, from the user. The content delivery program code [104] packages the recipient identifier and content data for transmission to the recipient represented by the recipient identifier." (Hamzeh, P0020) - Discloses both a sender identifier identifying the website and recipient identifier identifying the mobile wireless device which indicates independent identifier accounts and devices.

The limitations for the claim(s) above as written, do not differentiate from the disclosures described above and are therefore interpreted broadly. The Office thus asserts that the above argued feature is sufficiently disclosed by the cited reference(s) in view of the current language of the claim recitation. The rejection is therefore maintained.

In response to (3), the Examiner respectfully disagrees. Dowling recites:

"The ASP server delivers content customized according to the area-constrained user interface of the mobile unit, for example, using WML based content." (C4 L29-31) – Discloses customization of content items associated with a wireless mobile unit account.

"The peripheral-device-reconfiguration message allows the ASP server 135 to customize content for the mobile unit 125 given its modified set of peripherals. When the position-dependent ecommerce session is terminated, another peripheral-device-reconfiguration message is sent to allow the ASP server 135 to once again customize content for the mobile unit 125..." (C15 L1-7) - Discloses customization of content items associated with a wireless mobile unit account.

"In operation, the ASP server 135 provides device-customized content to mobile devices. For example, the ASP server 135 may implement XML and/or WML features that allow content to be customized for

interactive display on specific mobile units..." (C16 L34-38) - Discloses customization of content items associated with a wireless mobile unit account.

"If the application is local, the application is preferably sent a message from the OS to let it know that the augmented peripheral set is being used. This is necessary in many embodiments because the application program needs to customize the user interface differently for a small display." (C21 L20-24) - Discloses customization of content items associated with a wireless mobile unit account.

The limitations for the claim(s) above as written, do not differentiate from the disclosures described above and are therefore interpreted broadly. The Office thus asserts that the above argued feature is sufficiently disclosed by the cited reference(s) in view of the current language of the claim recitation. The rejection is therefore maintained.

Claim Rejections – 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office Action:

> A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-3, 5-13, 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Minear et al., U.S. Patent 6,996,537 ("Minear"), in view of Dowling, U.S. Patent 7,222,154 ("Dowling"), further in view of Pousti, U.S. Pub 2007/0123229 ("Pousti").

[Claim 1] (Previously Presented) Minear discloses a method for managing wireless account information, said method comprising:

- presenting a list of applications via a web interface on a computing device, wherein said applications are operable to run on a wireless handheld device (C2 L30-34);

- receiving a selection of an application from said computing device (C2 L47-53);

Minear doesn't explicitly disclose:

- presenting a selected billing option of said plurality of billing options;

This feature is expressly disclosed by Dowling, however, in a related endeavor (C3 L56-57; C6 L23-27; C9 L14-17; C11 L23-26). Dowling discloses as his invention negotiated wireless peripheral systems. Dowling's invention relates generally to mobile data network infrastructure methods and systems and, more particularly, to methods and systems that allow mobile devices to wirelessly contract for products and services that can result in a temporary expansion of mobile unit capabilities. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine and/or modify Minear's disclosure with the teaching of Dowling for the motivation of providing for a billing arrangement with the mobile unit for services rendered.

Minear doesn't explicitly disclose:

- updating a first account via a link between a second account and said first account according to said selection of an application, such that said application is available when said first account is accessed via said wireless handheld device wherein said first account is a wireless account and

said second account is a web account and wherein as a result of said link fees associated with said application are automatically billed via said wireless account based on said selected billing option.

This is expressly disclosed by Pousti, however, in a related endeavor (Abstract; par. 0005, 0010, 0038, 0043-0045, 0051, 0054, 0078, 0097, 0106). Pousti discloses as his invention an automated billing and distribution platform for application providers. The invention relates to an automated distribution and billing platform for networked applications, and more particularly, relates to a micro-transaction billing platform through which transactions are conducted for the access and use of networked applications by mobile phone users. Pousti further discloses wherein networked application transactions are billable through a single intermediate billing platform which can effectuate a transaction through a wide variety of external billing mechanisms without the need for the retailer/vendor to establish an individual contractual relationship with each of the external billing mechanisms. It would have been obvious to one of ordinary skill in the art at the time of the invention to include the features as taught by Pousti to Minear for the motivation of differentiating billing for normal usage of a mobile device and usage of downloaded content item or application.

[Claim 2] (Previously Presented) Minear in view of Dowling in view of Pousti discloses the claimed limitation supra. Minear further discloses:

- wherein said second account is independent of a wireless carrier account (C5 L52-55).

[Claim 3] (Original) Minear in view of Dowling in view of Pousti discloses the claimed limitation supra. Minear further discloses:

- wherein said web interface is independent of a wireless carrier website (C5 L43-48, L52-55).

[Claim 5] (Original) Minear in view of Dowling in view of Pousti discloses the claimed limitation supra. Minear further discloses:

- establishing a secure connection between a client and a server; wherein said client is a computing system (C2 L47-53).

[Claim 6] (Currently Amended) Minear in view of Dowling in view of Pousti discloses the claimed limitation supra. Minear further discloses:

- setting an expiration date corresponding to said application on said second account, wherein said expiration date causes a wireless device to display a message indicating access to an application has expired (C1 L55-59; C6 L47-51).

[Claim 7] (Original) Minear in view of Dowling in view of Pousti discloses the claimed limitation supra. Minear doesn't explicitly disclose:

- presenting application customization options.

This feature is expressly disclosed by Dowling, however, in a related endeavor (C4 L29-31; C15 L1-12; C16 L34-35, L56-64; C20 L63-66; C21 L20-24, L46-49, L60-64). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine and/or modify Minear's disclosure with the teaching of Dowling for the motivation of providing preferred means of accessing an application and/or e-commerce session.

[Claim 8] (Currently Amended) Minear discloses a computer readable media comprising instructions therein that when executed by a processor to implement a method of account management, said method comprising:

- receiving a first message to create an account (C7 L36-40);

- creating a web account (C3 L43-45; C8 L48-53);

Minear doesn't explicitly disclose:

- sending a second message with an identifier to a wireless handheld device;

- receiving a third message comprising said identifier.

This feature is expressly disclosed by Dowling, however, in a related endeavor (C8 L4-7; C10 L48-57). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine and/or modify Minear's disclosure with the teaching of Dowling for the motivation of authenticating a wireless handheld device targeted for download of an application.

Minear doesn't explicitly disclose:

- establishing a link between said first account and a second account wherein said first account is a wireless account and said second account is a web account.

This is expressly disclosed by Pousti, however, in a related endeavor (Abstract; par. 0005, 0010, 0038, 0043-0045, 0051, 0054, 0078, 0097, 0106). It would have been obvious to one of ordinary skill in the art at the time of the invention to include the features as taught by Pousti to Minear for the motivation of differentiating billing for normal usage of a mobile device and usage of downloaded content item or application.

[Claim 9] (Currently Amended) Minear in view of Dowling in view of Pousti discloses the claimed limitation supra. Minear further discloses:

- wherein said second message is an SMS message (C5 L56-60, 67; C6, L1-3).

[Claim 10] (Currently Amended) Minear in view of Dowling in view of Pousti discloses the claimed limitation supra. Minear further discloses:

- wherein said second message comprises a link which when accessed via said wireless device identifies the wireless device (C8 L48-53).

[Claim 11] (Currently Amended) Minear in view of Dowling in view of Pousti discloses the claimed limitation supra. Minear doesn't explicitly disclose:

- wherein login information is stored on a computing device for return access.

This feature is expressly disclosed by Dowling, however, in a related endeavor (C8 L4-7; C10 L48-57). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine and/or modify Minear's disclosure with the teaching of Dowling for the motivation of authenticating a wireless handheld device targeted for download of an application.

[Claim 12] (Currently Amended) Minear in view of Dowling in view of Pousti discloses the claimed limitation supra. Minear doesn't explicitly disclose:

- wherein said identifier comprises an identification code.

This feature is expressly disclosed by Dowling, however, in a related endeavor (C8 L4-7; C10 L48-57). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine and/or modify Minear's disclosure with the teaching of Dowling for the motivation of authenticating a wireless handheld device targeted for download of an application.

[Claim 13] (Currently Amended) Minear in view of Dowling in view of Pousti discloses the claimed limitation supra. Minear doesn't explicitly disclose:

- presenting customization options associated with said wireless applications account.

This feature is expressly disclosed by Dowling, however, in a related endeavor (C4 L29-31; C15 L1-12; C16 L34-35, L56-64; C20 L63-66; C21 L20-24, L46-49, L60-64). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine and/or modify Minear's disclosure with the teaching of Dowling for the motivation of providing preferred means of accessing an application and/or e-commerce session.

[Claim 21] (New) Minear in view of Dowling in view of Pousti discloses the claimed limitation supra. Minear further discloses:

- wherein said wireless account is a wireless service account (C5 L6-30).

Claims 4, 14-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Minear et al., U.S. Patent 6,996,537 ("Minear"), in view of Dowling, U.S. Patent 7,222,154 ("Dowling"), further in view of Pousti, U.S. Pub 2007/0123229 ("Pousti"), as applied to claims 1-3, 5-13 above, further in view of Hamzeh et al., U.S. Pub 2006/0031387 ("Hamzeh").

[Claim 4] (Previously Presented) Minear in view of Dowling in view of Pousti discloses the claimed limitation supra. Minear doesn't explicitly disclose:

- presenting an interactive version of a wireless application via said web interface wherein said web interface is independent of said wireless handheld device.

This feature is expressly disclosed by Hamzeh, however, in a related endeavor (P0006-0007, 0017). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine and/or modify Minear's disclosure with the teaching of Hamzeh for the motivation of viewing a content item or application on a webpage for subsequent selection and downloading.

[Claim 14] (Currently Amended) Minear discloses a system for accessing information for wireless applications:

- an account management component for managing web accounts and the associated authentication information (C6 L47-51);

- a wireless device account interface for accessing wireless device account information (C6 L47-51).

Minear doesn't explicitly disclose:

- a billing component for managing billing and purchasing of applications;

This feature is expressly disclosed by Dowling, however, in a related endeavor (C3 L56-57; C6 L23-27; C9 L14-17; C11 L23-26). Dowling discloses as his invention negotiated wireless peripheral systems. Dowling's invention relates generally to mobile data network infrastructure methods and systems and, more particularly, to methods and systems that allow mobile devices to wirelessly contract for products and services that can result in a temporary expansion of mobile unit capabilities. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine and/or modify Minear's disclosure with the teaching of Dowling for the motivation of providing for a billing arrangement with the mobile unit for services rendered.

Minear doesn't explicitly disclose:

- an account setup component for creating a first account and associating the account with a corresponding second account, wherein said first account is a wireless device account and a second account is a web account;

This feature is expressly disclosed by Hamzeh, however, in a related endeavor (P0002, P0005, P0028-0030, P0034-0035). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine and/or modify Minear's disclosure with the teaching of Hamzeh for the motivation of facilitating access to a subscription-based application.

[Claim 15] (Original) Minear in view of Dowling in view of Pousti in view of Hamzeh discloses the claimed limitation supra. Minear further discloses:

- a sending component for sending a purchased application to a different account (C2 L54-59).

[Claim 16] (Original) Minear in view of Dowling in view of Pousti in view of Hamzeh discloses the claimed limitation supra. Minear further discloses:

- wherein said sending component sends a notification message of a purchased application (C2 L54-59).

[Claim 17] (Original) Minear in view of Dowling in view of Pousti in view of Hamzeh discloses the claimed limitation supra. Minear doesn't explicitly disclose:

- wherein said customization component allows selection of one or more application objects.

This feature is expressly disclosed by Dowling, however, in a related endeavor (C10 L61-67; C12 L18-57). It would have been obvious to one of ordinary skill in the art at the time of the invention to

combine and/or modify Minear's disclosure with the teaching of Dowling for the motivation of providing preferred means of accessing an application and/or e-commerce session.

[Claim 18] (Original) Minear in view of Dowling in view of Pousti in view of Hamzeh discloses the claimed limitation supra. Minear doesn't explicitly disclose:

- wherein said application objects are RSS feeds.

This feature is expressly disclosed by Dowling, however, in a related endeavor (C1 L58-67; C2 L28-30; C10 L47-51; 61-67; C12 L18-57; C16 L34-39). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine and/or modify Minear's disclosure with the teaching of Dowling for the motivation of providing preferred means of accessing an application and/or e-commerce session.

[Claim 19] (Original) Minear in view of Dowling in view of Pousti in view of Hamzeh discloses the claimed limitation supra. Minear doesn't explicitly disclose:

- wherein said application objects are icons.

This feature is expressly disclosed by Dowling, however, in a related endeavor (C10 L61-67; C12 L18-57). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine and/or modify Minear's disclosure with the teaching of Dowling for the motivation of providing preferred means of accessing an application and/or e-commerce session.

[Claim 20] (Original) Minear in view of Dowling in view of Pousti in view of Hamzeh discloses the claimed limitation supra. Minear doesn't explicitly disclose:

- a customization component for customizing information related to said wireless device account.

This feature is expressly disclosed by Dowling, however, in a related endeavor (C10 L61-67). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine and/or modify Minear's disclosure with the teaching of Dowling for the motivation of providing preferred means of accessing an application and/or e-commerce session.

Conclusion

Claims 1-21 are rejected.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Clifford Madamba whose telephone number is 571-270-1239. The examiner can normally be reached on Mon-Thu 7:30-5:00 EST Alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles Kyle, can be reached at 571-272-6746. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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/Clifford Madamba/
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/977,186	10/23/2007	Pierre Carion	HOMI-P007	2215

7590 09/02/2009

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EXAMINER	
MADAMBA, CLIFFORD B	
ART UNIT	PAPER NUMBER
3696	

MAIL DATE	DELIVERY MODE
09/02/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

GTV00000449

Office Action Summary	Application No.	Applicant(s)	
	11/977,186	CARION, PIERRE	
	Examiner	Art Unit	
	CLIFFORD MADAMBA	3696	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 August 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

GTV00000450

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after notice of allowance. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office Action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12 August, 2009 has been entered.

Status of Claims

This action is in reply to the remarks and amendment for Application 11/977,186 filed on 12 August, 2009.

Claims 1-2, 4, 6, 8, 14 have been amended.

Claims 1-20 are currently pending and have been examined.

Response to Arguments

Applicant's arguments filed 12 August, 2009 have been fully considered but they are not persuasive.

With regard to independent claim 1, Applicant argues that the cited references do not disclose the dual account aspects of the embodiments of the present invention wherein the first account is a wireless account and the second account is a web account. The Examiner respectfully disagrees since the recited limitation, broadly interpreted, still reads on the cited embodiment disclosed by the combined references as follows:

"The invention also includes a method for providing downloadable subscription-based software on the one or more wireless devices in selective communication with one or more application download servers across a wireless network..." (Minear, C3 L18-29) - Discloses wherein subscription is required to facilitate downloading which entails the setting-up of a user account ("web account") which is distinguishable from a mobile device account ("wireless account"),

"The invention also provides an accounting module specifically for accounting module specifically for accounting for the use of the subscription-based software applications by the one or more wireless devices. The accounting is performed primarily based upon subscription-based application download data supplied from each application download server for each subscription-based software application downloaded by a wireless device..." (Minear, C3 L64-67, C4 L1-6) – Discloses use of a subscriber account to facilitate usage billing and accounting.

"The stored-application-related database 28 preferably contains stored-application related data to include the records for the specific applications downloaded by specific wireless devices 12, 18, 20, 22, from the server through the wireless network 14. The records can be used to generate the subscription-based download data requisite to bill the users of the wireless devices for the applications downloaded thereto." (Minear, C5 L31-39) - Discloses wherein user subscription records are stored for billing purposes.

"...the only way to access the application is to obtain a subscription to have download access to the application on the application download server 16. Alternatively, the subscription-based application can include a license indicating that the application is subscription-based." (Minear, C6, L29-36) - Discloses wherein a subscription is required to download access to an application which inherently requires the setting-up of a subscriber account which may or may not be different from a mobile device user account number.

"It would be desirable for the smart phone to wirelessly negotiate with the peripheral augmentation subsystem to pay for services rendered using either a per-usage payment schedule or a by-subscription payment schedule... A contract module is used to negotiate a billing arrangement with the mobile unit for services rendered." (Dowling, C3 L12-16, L56-57) – Discloses need to set up a subscription account.

"Also, the second entity can authenticate itself as an account holder for the products and/or services offered by the first entity." (Dowling, C10 L13-15) – Discloses need for user to be authenticated as an account holder for downloadable services.

For example, the services may cost different amounts at different times of day, or there may be different rates set depending on whether digital debit, credit card, or an existing subscriber account contract is used for payment." (Dowling, C11 L38-42) – Discloses need to set up an existing subscribe account for billing purposes.

Also, in some embodiments the negotiation module 320 may interact with a server side entity such as the NWP management server 140 who in this case manages a customer account related to services provided by the NWP 105." (Dowling, C14 L4-8) – Discloses wherein customers' accounts are set up and maintained by an applications provider.

The Office thus asserts that the above argued feature is sufficiently disclosed by the cited reference(s) in view of the current language of the claim recitation. The rejection is therefore maintained.

The Office has given consideration to the remarks and amendments made to the pending set of claims, but are considered moot in light of the grounds of rejection, provided below, for the current listing of claims.

Claim Objections

Claims 8-13 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim.

Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Article of manufacture claims 8-13 can be infringed without necessarily infringing method claim 1.

Claim Rejections – 35 USC § 112

Claims 1, 8, 14 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites in part "wherein said first account is a wireless account and said second account is a web account." Claim 8 recites in part "wherein said first account is a web account and said second account is a wireless applications account." Claim 14 recites in part "wherein said first account is a web account and a second account is a wireless device account." It is not clear if Applicant intends for the first accounts and second accounts to be uniform and the same accounts in all three claim recitations or if the accounts are meant to be different. Claim 1 indicates that the first account is a "wireless" account, yet claims 8 and 14 indicate that the first account is a web account. Similarly, claim 1 indicates that the second account is a web account, yet claim 8 indicates that the second account is a "wireless applications" account while claim 14 indicates that the second account is a "wireless device" account. Does Applicant intend for the first and second accounts to be intentionally different between the claims? Also, it is unclear whether a "wireless applications" account is different from a "wireless" account or a "wireless applications" account. For purposes of prosecution, it will be assumed that the wireless account refers to a mobile device subscriber's account for mobile wireless services. Further clarification and/or correction are required.

Claim Rejections – 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office Action:

> A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Minear et al., U.S. Patent 6,996,537 ("Minear"), in view of Dowling, U.S. Patent 7,222,154 ("Dowling"), and further in view of Hamzeh et al., U.S. Pub 2006/0031387 ("Hamzeh").

[Claim 1] Minear discloses a method for managing wireless account information, said method comprising:

- presenting a list of applications via a web interface on a computing device, wherein said applications are operable to run on a wireless handheld device (C2 L30-34);

- receiving a selection of an application from said computing device (C2 L47-53);

Minear doesn't explicitly disclose:

- presenting a selected billing option of said plurality of billing options;

This feature is expressly disclosed by Dowling, however, in a related endeavor (C3 L56-57; C6 L23-27; C9 L14-17; C11 L23-26). Dowling discloses as his invention negotiated wireless peripheral systems. Dowling's invention relates generally to mobile data network infrastructure methods and systems and, more particularly, to methods and systems that allow mobile devices to wirelessly contract for products and services that can result in a temporary expansion of mobile unit capabilities. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine and/or modify Minear's disclosure with the teaching of Dowling for the motivation of providing for a billing arrangement with the mobile unit for services rendered.

Minear doesn't explicitly disclose:

- updating a first account via a link between a second account and said first account according to said selection of an application, such that said application is available when said first account is accessed via said wireless handheld device wherein said first account is a wireless account and said second account is a web account and wherein as a result of said link fees associated with said application are automatically billed via said wireless account based on said selected billing option.

This feature is expressly disclosed by Hamzeh, however, in a related endeavor (P0002, P0005, P0028-0030, P0034-0035). Hamzeh discloses as his invention a system and method for delivering web content to a mobile device. The system includes a content delivery program associated with a webpage, where the webpage includes at least one content item. The content delivery program is configured to receive a user selection signal related to the at least one content item, receive an identifier of the mobile device, and initiate a delivery of the at least one content item to the mobile device based on the user selection signal and the identifier. Hamzeh further discloses wherein customers sign up and are issued an account number that can be a private label account, or associated with the website owner or the customer/recipient. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine and/or modify Minear's disclosure with the teaching of Hamzeh for the motivation of differentiating billing for normal usage of a mobile device

and usage of downloaded content item or application.

[Claim 2] Minear in view of Dowling in view of Hamzeh discloses the claimed limitation supra. Minear further discloses:

- wherein said wireless account is independent of a wireless carrier account (C5 L52-55).

[Claim 3] Minear in view of Dowling in view of Hamzeh discloses the claimed limitation supra. Minear further discloses:

- wherein said web interface is independent of a wireless carrier website (C5 L43-48, L52-55).

[Claim 4] Minear in view of Dowling in view of Hamzeh discloses the claimed limitation supra. Minear doesn't explicitly disclose:

- presenting an interactive version of a wireless application via said web interface wherein said web interface is independent of said wireless handheld device.

This feature is expressly disclosed by Hamzeh, however, in a related endeavor (P0006-0007, 0017). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine and/or modify Minear's disclosure with the teaching of Hamzeh for the motivation of viewing a content item or application on a webpage for subsequent selection and downloading.

[Claim 5] Minear in view of Dowling in view of Hamzeh discloses the claimed limitation supra. Minear further discloses:

- establishing a secure connection between a client and a server; wherein said client is a computing system (C2 L47-53).

[Claim 6] Minear in view of Dowling in view of Hamzeh discloses the claimed limitation supra. Minear further discloses:

- setting an expiration date corresponding to said application on said second account, wherein said expiration date causes a wireless device to display a message indicating access to an application has expired (C1 L55-59; C6 L47-51).

[Claim 7] Minear in view of Dowling in view of Hamzeh discloses the claimed limitation supra. Minear doesn't explicitly disclose:

- presenting application customization options.

This feature is expressly disclosed by Dowling, however, in a related endeavor (C4 L29-31; C15 L1-12; C16 L34-35, L56-64; C20 L63-66; C21 L20-24, L46-49, L60-64). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine and/or modify Minear's disclosure with the teaching of Dowling for the motivation of providing preferred means of accessing an application and/or e-commerce session.

[Claim 8] Minear discloses a computer readable media comprising instructions therein that when executed by a processor to implement a method of account management, said method comprising:

- receiving a first message to create an account (C7 L36-40);

- creating a web account (C3 L43-45; C8 L48-53);

Minear doesn't explicitly disclose:

- sending a second message with an identifier to a wireless handheld device;

- receiving a third message comprising said identifier.

This feature is expressly disclosed by Dowling, however, in a related endeavor (C8 L4-7; C10 L48-57). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine and/or modify Minear's disclosure with the teaching of Dowling for the motivation of authenticating a wireless handheld device targeted for download of an application.

Minear doesn't explicitly disclose:

- establishing a link between said first account and a second account wherein said first account is a web account and said second account is a wireless applications account.

This feature is expressly disclosed by Hamzeh, however, in a related endeavor (P0002, P0005, P0028-0030, P0034-0035). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine and/or modify Minear's disclosure with the teaching of Hamzeh for the motivation of facilitating access to a subscription-based application.

[Claim 9] Minear in view of Dowling in view of Hamzeh discloses the claimed limitation supra. Minear further discloses:

- wherein said second message is an SMS message (C5 L56-60, 67; C6, L1-3).

[Claim 10] Minear in view of Dowling in view of Hamzeh discloses the claimed limitation supra. Minear further discloses:

- wherein said second message comprises a link which when accessed via said wireless device identifies the wireless device (C8 L48-53).

[Claim 11] Minear in view of Dowling in view of Hamzeh discloses the claimed limitation supra. Minear doesn't explicitly disclose:

- wherein login information is stored on a computing device for return access.

This feature is expressly disclosed by Dowling, however, in a related endeavor (C8 L4-7; C10 L48-57). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine and/or modify Minear's disclosure with the teaching of Dowling for the motivation of authenticating a wireless handheld device targeted for download of an application.

[Claim 12] Minear in view of Dowling in view of Hamzeh discloses the claimed limitation supra. Minear doesn't explicitly disclose:

- wherein said identifier comprises an identification code.

This feature is expressly disclosed by Dowling, however, in a related endeavor (C8 L4-7; C10 L48-57). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine and/or modify Minear's disclosure with the teaching of Dowling for the motivation of authenticating a wireless handheld device targeted for download of an application.

[Claim 13] Minear in view of Dowling in view of Hamzeh discloses the claimed limitation supra. Minear doesn't explicitly disclose:

- presenting customization options associated with said wireless applications account.

This feature is expressly disclosed by Dowling, however, in a related endeavor (C4 L29-31; C15 L1-12; C16 L34-35, L56-64; C20 L63-66; C21 L20-24, L46-49, L60-64). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine and/or modify Minear's disclosure with the teaching of Dowling for the motivation of providing preferred means of accessing an application and/or e-commerce session.

[Claim 14] Minear discloses a system for accessing information for wireless applications:

- an account management component for managing web accounts and the associated authentication information (C6 L47-51);

- a wireless device account interface for accessing wireless device account information (C6 L47-51).

Minear doesn't explicitly disclose:

- a billing component for managing billing and purchasing of applications;

This feature is expressly disclosed by Dowling, however, in a related endeavor (C3 L56-57; C6 L23-27; C9 L14-17; C11 L23-26). Dowling discloses as his invention negotiated wireless peripheral systems. Dowling's invention relates generally to mobile data network infrastructure methods and systems and, more particularly, to methods and systems that allow mobile devices to wirelessly contract for products and services that can result in a temporary expansion of mobile unit capabilities. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine and/or modify Minear's disclosure with the teaching of Dowling for the motivation of providing for a billing arrangement with the mobile unit for services rendered.

Minear doesn't explicitly disclose:

- an account setup component for creating a first account and associating the account with a corresponding second account, wherein said first account is a web account and a second account is a wireless device account;

This feature is expressly disclosed by Hamzeh, however, in a related endeavor (P0002, P0005, P0028-0030, P0034-0035). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine and/or modify Minear's disclosure with the teaching of Hamzeh for the motivation of facilitating access to a subscription-based application.

[Claim 15] Minear in view of Dowling in view of Hamzeh discloses the claimed limitation supra. Minear further discloses:

- a sending component for sending a purchased application to a different account (C2 L54-59).

[Claim 16] Minear in view of Dowling in view of Hamzeh discloses the claimed limitation supra. Minear further discloses:

- wherein said sending component sends a notification message of a purchased application (C2 L54-59).

[Claim 17] Minear in view of Dowling in view of Hamzeh discloses the claimed limitation supra. Minear doesn't explicitly disclose:

- wherein said customization component allows selection of one or more application objects.

This feature is expressly disclosed by Dowling, however, in a related endeavor (C10 L61-67; C12 L18-57). It would have been obvious to one of ordinary skill in the art at the time of the invention to

combine and/or modify Minear's disclosure with the teaching of Dowling for the motivation of providing preferred means of accessing an application and/or e-commerce session.

[Claim 18] Minear in view of Dowling in view of Hamzeh discloses the claimed limitation supra. Minear doesn't explicitly disclose:

- wherein said application objects are RSS feeds.

This feature is expressly disclosed by Dowling, however, in a related endeavor (C1 L58-67; C2 L28-30; C10 L47-51; 61-67; C12 L18-57; C16 L34-39). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine and/or modify Minear's disclosure with the teaching of Dowling for the motivation of providing preferred means of accessing an application and/or e-commerce session.

[Claim 19] Minear in view of Dowling in view of Hamzeh discloses the claimed limitation supra. Minear doesn't explicitly disclose:

- wherein said application objects are icons.

This feature is expressly disclosed by Dowling, however, in a related endeavor (C10 L61-67; C12 L18-57). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine and/or modify Minear's disclosure with the teaching of Dowling for the motivation of providing preferred means of accessing an application and/or e-commerce session.

[Claim 20] Minear in view of Dowling in view of Hamzeh discloses the claimed limitation supra. Minear doesn't explicitly disclose:

- a customization component for customizing information related to said wireless device account.

This feature is expressly disclosed by Dowling, however, in a related endeavor (C10 L61-67). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine and/or modify Minear's disclosure with the teaching of Dowling for the motivation of providing preferred means of accessing an application and/or e-commerce session.

Conclusion

Claims 1-20 are rejected.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Clifford Madamba whose telephone number is 571-270-1239. The examiner can normally be reached on Mon-Thu 7:30-5:00 EST Alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Dixon, can be reached at 571-272-6803. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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7590 02/16/2010

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	11/977,186	CARION, PIERRE	
	Examiner	Art Unit	
	CLIFFORD MADAMBA	3695	

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A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 December 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Status of Claims

This action is in reply to the remarks and amendment for Application 11/977,186 filed on 02 December 2009.

Claims 2, 6, 8-14 have been amended.

Claims 1-20 are currently pending and have been examined.

Previous Claim Objections

Claims 8-13 were objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant has amended claims 9-13 by reciting the phrase "computer-readable media" instead of the phrase "method" in order to overcome the objection. The objection with regard to 37 CFR 1.75(c) is withdrawn.

Previous Claim Rejections – 35 USC § 112

Claims 1, 8, 14 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicant has amended 8 and 14 by correcting the term "first account" to reference a "wireless account", and the term "second account" to reference a "web account". The rejection with regard to 35 U.S.C. § 112, second paragraph, is withdrawn.

Response to Arguments

Applicant's arguments filed 02 December 2009 have been fully considered but they are not persuasive.

With regard to independent claim 1, Applicant argues that the cited references do not teach or suggest a first account and a second account, and thus cannot teach or suggest updating a first account via a link between a second account and the first account. The Examiner respectfully disagrees since the recited limitation, broadly interpreted, still reads on the cited embodiment disclosed by the combination of cited reference(s) as follows:

"The invention also includes a method for providing downloadable subscription-based software on the one or more wireless devices in selective communication with one or more application download servers across a wireless network..." (Minear, C3 L18-29) - Discloses wherein subscription is required to facilitate downloading which entails the setting-up of a user account ("subscription account") which is distinguishable from a mobile device account ("wireless account"),

"The invention also provides an accounting module specifically for accounting module specifically for accounting for the use of the subscription-based software applications by the one or more wireless devices. The accounting is performed primarily based upon subscription-based application download data supplied from each application download server for each subscription-based software application downloaded by a wireless device..." (Minear, C3 L64-67, C4 L1-6) – Discloses use of a subscriber account to facilitate usage billing and accounting.

"The stored-application-related database 28 preferably contains stored-application related data to include the records for the specific applications downloaded by specific wireless devices 12, 18, 20, 22, from the server through the wireless network 14. The records can be used to generate the subscription-based download data requisite to bill the users of the wireless devices for the applications downloaded thereto." (Minear, C5 L31-39) - Discloses wherein user subscription records are stored for billing purposes.

"...the only way to access the application is to obtain a subscription to have download access to the application on the application download server 16. Alternatively, the subscription-based application can include a license indicating that the application is subscription-based." (Minear, C6, L29-36) - Discloses wherein a subscription is required to download access to an application which inherently requires the setting-up of a subscriber account which may or may not be different from a mobile device user account number.

"It would be desirable for the smart phone to wirelessly negotiate with the peripheral augmentation subsystem to pay for services rendered using either a per-usage payment schedule or a by-subscription payment schedule... A contract module is used to negotiate a billing arrangement with the mobile unit for services rendered." (Dowling, C3 L12-16, L56-57) – Discloses need to set up a subscription account.

"Also, the second entity can authenticate itself as an account holder for the products and/or services offered by the first entity." (Dowling, C10 L13-15) – Discloses need for user to be authenticated as an account holder for downloadable services.

For example, the services may cost different amounts at different times of day, or there may be different rates set depending on whether digital debit, credit card, or an existing subscriber account contract is used for payment." (Dowling, C11 L38-42) – Discloses need to set up an existing subscriber account ("second account") for billing purposes.

Also, in some embodiments the negotiation module 320 may interact with a server side entity such as the NWP management server 140 who in this case manages a customer account related to services provided by the NWP 105." (Dowling, C14 L4-8) – Discloses wherein customers' accounts are set up and maintained by an applications provider.

The Office thus asserts that the above argued feature is sufficiently disclosed by the cited reference(s) in view of the current language of the claim recitation. The rejection is therefore maintained.

Independent claims 8 and 14 contain similar limitations and are rejected based on the same reasoning set forth above.

With regard to claim 4, Applicant argues that the cited references do not teach or suggest presenting an interactive version of a wireless application via the web interface wherein the web interface is independent of the wireless handheld device. The Examiner respectfully disagrees since the recited limitation, broadly interpreted, still reads on the cited embodiment disclosed by the combination of cited reference(s) as follows:

"This document discloses a system and method for sending web content from a website to a mobile device... A system includes a content delivery program associated with a webpage, where the webpage includes at least one content item. The content delivery program is configured to receive a user selection signal related to the at least one content item, receive an identifier of the mobile device, and initiate a delivery of the at least one content item to the mobile device based on the user selection signal and the identifier." (Hamzeh, P0006) - Discloses wherein web content needs to pass from a website to get to a mobile device which indicates or describes two separate or independent devices. Further discloses wherein mobile device still needs to be further identified in order to receive delivery of at least one content item which indicates that the identifier for the website is separate or independent from the identifier for the mobile device.

"...the system allows a user to "click" on a selected content item in the webpage... and enter a cell phone number or other identifier, and click "send." The selected content item is sent automatically to the mobile device associated with the cell phone number..." (Hamzeh, P0007) – Discloses wherein users of the webpage ("web account") still have to indicate a separate identification number or

identifier to transmit a selected content to a wireless device which provides evidence of the independence or separateness of the two systems or device.

In one implementation, the content delivery program code [104] allows a user to... invoke a program that is configured to package the content data in a transmittable format, along with other data such as sender ID identifying the website and/or website owner/content originator... The content delivery program code [104] receives a recipient identifier, such as cell phone telephone number, from the user. The content delivery program code [104] packages the recipient identifier and content data for transmission to the recipient represented by the recipient identifier." (Hamzeh, P0020) - Discloses both a sender identifier identifying the website and recipient identifier identifying the mobile wireless device which indicates independent identifier accounts and devices.

The Office thus asserts that the above argued feature is sufficiently disclosed by the cited reference(s) in view of the current language of the claim recitation. The rejection is therefore maintained.

With regard to claims 7 and 13, Applicant argues that the cited references do not teach or suggest presenting application customization options and presenting customization options associated with the wireless applications account respectively. The Examiner respectfully disagrees since the recited limitation, broadly interpreted, still reads on the cited embodiment disclosed by the combination of cited reference(s) as follows:

"The ASP server delivers content customized according to the area-constrained user interface of the mobile unit, for example, using WML based content." (C4 L29-31) – Discloses customization of content items associated with a wireless mobile unit account.

"The peripheral-device-reconfiguration message allows the ASP server 135 to customize content for the mobile unit 125 given its modified set of peripherals. When the position-dependent ecommerce session is terminated, another peripheral-device-reconfiguration message is sent to allow the ASP

server 135 to once again customize content for the mobile unit 125..." (C15 L1-7) - Discloses customization of content items associated with a wireless mobile unit account.

"In operation, the ASP server 135 provides device-customized content to mobile devices. For example, the ASP server 135 may implement XML and/or WML features that allow content to be customized for interactive display on specific mobile units..." (C16 L34-38) - Discloses customization of content items associated with a wireless mobile unit account.

"If the application is local, the application is preferably sent a message from the OS to let it know that the augmented peripheral set is being used. This is necessary in many embodiments because the application program needs to customize the user interface differently for a small display." (C21 L20-24) - Discloses customization of content items associated with a wireless mobile unit account.

The Office thus asserts that the above argued feature is sufficiently disclosed by the cited reference(s) in view of the current language of the claim recitation. The rejection is therefore maintained.

With regard to each of the dependent claims, the applicant's arguments stand unpersuasive in light of the rejection of independent claims discussed above from which the dependent claims depend.

The Office has given consideration to the remarks and amendments made to the pending set of claims, but are considered moot in light of the grounds of rejection, provided below, for the current listing of claims.

Claim Rejections – 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office Action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Minear et al., U.S. Patent 6,996,537 ("Minear"), in view of Dowling, U.S. Patent 7,222,154 ("Dowling"), and further in view of Hamzeh et al., U.S. Pub 2006/0031387 ("Hamzeh").

[Claim 1] (Previously Presented) Minear discloses a method for managing wireless account information, said method comprising:

- presenting a list of applications via a web interface on a computing device, wherein said applications are operable to run on a wireless handheld device (C2 L30-34);

- receiving a selection of an application from said computing device (C2 L47-53);

Minear doesn't explicitly disclose:

- presenting a selected billing option of said plurality of billing options;

This feature is expressly disclosed by Dowling, however, in a related endeavor (C3 L56-57; C6 L23-27; C9 L14-17; C11 L23-26). Dowling discloses as his invention negotiated wireless peripheral systems. Dowling's invention relates generally to mobile data network infrastructure methods and systems and, more particularly, to methods and systems that allow mobile devices to wirelessly

contract for products and services that can result in a temporary expansion of mobile unit capabilities. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine and/or modify Minear's disclosure with the teaching of Dowling for the motivation of providing for a billing arrangement with the mobile unit for services rendered.

Minear doesn't explicitly disclose:

- updating a first account via a link between a second account and said first account according to said selection of an application, such that said application is available when said first account is accessed via said wireless handheld device wherein said first account is a wireless account and said second account is a web account and wherein as a result of said link fees associated with said application are automatically billed via said wireless account based on said selected billing option.

This feature is expressly disclosed by Hamzeh, however, in a related endeavor (P0002, P0005, P0028-0030, P0034-0035). Hamzeh discloses as his invention a system and method for delivering web content to a mobile device. The system includes a content delivery program associated with a webpage, where the webpage includes at least one content item. The content delivery program is configured to receive a user selection signal related to the at least one content item, receive an identifier of the mobile device, and initiate a delivery of the at least one content item to the mobile device based on the user selection signal and the identifier. Hamzeh further discloses wherein customers sign up and are issued an account number that can be a private label account, or associated with the website owner or the customer/recipient. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine and/or modify Minear's disclosure with the teaching of Hamzeh for the motivation of differentiating billing for normal usage of a mobile device and usage of downloaded content item or application.

[Claim 2] (Previously Presented) Minear in view of Dowling in view of Hamzeh discloses the claimed limitation supra. Minear further discloses:

- wherein said second account is independent of a wireless carrier account (C5 L52-55).

[Claim 3] (Original) Minear in view of Dowling in view of Hamzeh discloses the claimed limitation supra. Minear further discloses:

- wherein said web interface is independent of a wireless carrier website (C5 L43-48, L52-55).

[Claim 4] (Previously Presented) Minear in view of Dowling in view of Hamzeh discloses the claimed limitation supra. Minear doesn't explicitly disclose:

- presenting an interactive version of a wireless application via said web interface wherein said web interface is independent of said wireless handheld device.

This feature is expressly disclosed by Hamzeh, however, in a related endeavor (P0006-0007, 0017). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine and/or modify Minear's disclosure with the teaching of Hamzeh for the motivation of viewing a content item or application on a webpage for subsequent selection and downloading.

[Claim 5] (Original) Minear in view of Dowling in view of Hamzeh discloses the claimed limitation supra. Minear further discloses:

- establishing a secure connection between a client and a server; wherein said client is a computing system (C2 L47-53).

[Claim 6] (Currently Amended) Minear in view of Dowling in view of Hamzeh discloses the claimed limitation supra. Minear further discloses:

- setting an expiration date corresponding to said application on said second account, wherein said expiration date causes a wireless device to display a message indicating access to an application has expired (C1 L55-59; C6 L47-51).

[Claim 7] (Original) Minear in view of Dowling in view of Hamzeh discloses the claimed limitation supra. Minear doesn't explicitly disclose:

- presenting application customization options.

This feature is expressly disclosed by Dowling, however, in a related endeavor (C4 L29-31; C15 L1-12; C16 L34-35, L56-64; C20 L63-66; C21 L20-24, L46-49, L60-64). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine and/or modify Minear's disclosure with the teaching of Dowling for the motivation of providing preferred means of accessing an application and/or e-commerce session.

[Claim 8] (Currently Amended) Minear discloses a computer readable media comprising instructions therein that when executed by a processor to implement a method of account management, said method comprising:

- receiving a first message to create an account (C7 L36-40);

- creating a web account (C3 L43-45; C8 L48-53);

Minear doesn't explicitly disclose:

- sending a second message with an identifier to a wireless handheld device;

- receiving a third message comprising said identifier.

This feature is expressly disclosed by Dowling, however, in a related endeavor (C8 L4-7; C10 L48-57). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine and/or modify Minear's disclosure with the teaching of Dowling for the motivation of authenticating a wireless handheld device targeted for download of an application.

Minear doesn't explicitly disclose:

- establishing a link between said first account and a second account wherein said first account is a wireless account and said second account is a web account.

This feature is expressly disclosed by Hamzeh, however, in a related endeavor (P0002, P0005, P0028-0030, P0034-0035). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine and/or modify Minear's disclosure with the teaching of Hamzeh for the motivation of facilitating access to a subscription-based application.

[Claim 9] (Currently Amended) Minear in view of Dowling in view of Hamzeh discloses the claimed limitation supra. Minear further discloses:

- wherein said second message is an SMS message (C5 L56-60, 67; C6, L1-3).

[Claim 10] (Currently Amended) Minear in view of Dowling in view of Hamzeh discloses the claimed limitation supra. Minear further discloses:

- wherein said second message comprises a link which when accessed via said wireless device identifies the wireless device (C8 L48-53).

[Claim 11] (Currently Amended) Minear in view of Dowling in view of Hamzeh discloses the claimed limitation supra. Minear doesn't explicitly disclose:

- wherein login information is stored on a computing device for return access.

This feature is expressly disclosed by Dowling, however, in a related endeavor (C8 L4-7; C10 L48-57). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine and/or modify Minear's disclosure with the teaching of Dowling for the motivation of authenticating a wireless handheld device targeted for download of an application.

[Claim 12] (Currently Amended) Minear in view of Dowling in view of Hamzeh discloses the claimed limitation supra. Minear doesn't explicitly disclose:

- wherein said identifier comprises an identification code.

This feature is expressly disclosed by Dowling, however, in a related endeavor (C8 L4-7; C10 L48-57). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine and/or modify Minear's disclosure with the teaching of Dowling for the motivation of authenticating a wireless handheld device targeted for download of an application.

[Claim 13] (Currently Amended) Minear in view of Dowling in view of Hamzeh discloses the claimed limitation supra. Minear doesn't explicitly disclose:

- presenting customization options associated with said wireless applications account.

This feature is expressly disclosed by Dowling, however, in a related endeavor (C4 L29-31; C15 L1-12; C16 L34-35, L56-64; C20 L63-66; C21 L20-24, L46-49, L60-64). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine and/or modify Minear's

disclosure with the teaching of Dowling for the motivation of providing preferred means of accessing an application and/or e-commerce session.

[Claim 14] (Currently Amended) Minear discloses a system for accessing information for wireless applications:

- an account management component for managing web accounts and the associated authentication information (C6 L47-51);

- a wireless device account interface for accessing wireless device account information (C6 L47-51).

Minear doesn't explicitly disclose:

- a billing component for managing billing and purchasing of applications;

This feature is expressly disclosed by Dowling, however, in a related endeavor (C3 L56-57; C6 L23-27; C9 L14-17; C11 L23-26). Dowling discloses as his invention negotiated wireless peripheral systems. Dowling's invention relates generally to mobile data network infrastructure methods and systems and, more particularly, to methods and systems that allow mobile devices to wirelessly contract for products and services that can result in a temporary expansion of mobile unit capabilities. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine and/or modify Minear's disclosure with the teaching of Dowling for the motivation of providing for a billing arrangement with the mobile unit for services rendered.

Minear doesn't explicitly disclose:

- an account setup component for creating a first account and associating the account with a corresponding second account, wherein said first account is a wireless device account and a second account is a web account;

This feature is expressly disclosed by Hamzeh, however, in a related endeavor (P0002, P0005, P0028-0030, P0034-0035). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine and/or modify Minear's disclosure with the teaching of Hamzeh for the motivation of facilitating access to a subscription-based application.

[Claim 15] (Original) Minear in view of Dowling in view of Hamzeh discloses the claimed limitation supra. Minear further discloses:

- a sending component for sending a purchased application to a different account (C2 L54-59).

[Claim 16] (Original) Minear in view of Dowling in view of Hamzeh discloses the claimed limitation supra. Minear further discloses:

- wherein said sending component sends a notification message of a purchased application (C2 L54-59).

[Claim 17] (Original) Minear in view of Dowling in view of Hamzeh discloses the claimed limitation supra. Minear doesn't explicitly disclose:

- wherein said customization component allows selection of one or more application objects.

This feature is expressly disclosed by Dowling, however, in a related endeavor (C10 L61-67; C12 L18-57). It would have been obvious to one of ordinary skill in the art at the time of the invention to

combine and/or modify Minear's disclosure with the teaching of Dowling for the motivation of providing preferred means of accessing an application and/or e-commerce session.

[Claim 18] (Original) Minear in view of Dowling in view of Hamzeh discloses the claimed limitation supra. Minear doesn't explicitly disclose:

- wherein said application objects are RSS feeds.

This feature is expressly disclosed by Dowling, however, in a related endeavor (C1 L58-67; C2 L28-30; C10 L47-51; 61-67; C12 L18-57; C16 L34-39). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine and/or modify Minear's disclosure with the teaching of Dowling for the motivation of providing preferred means of accessing an application and/or e-commerce session.

[Claim 19] (Original) Minear in view of Dowling in view of Hamzeh discloses the claimed limitation supra. Minear doesn't explicitly disclose:

- wherein said application objects are icons.

This feature is expressly disclosed by Dowling, however, in a related endeavor (C10 L61-67; C12 L18-57). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine and/or modify Minear's disclosure with the teaching of Dowling for the motivation of providing preferred means of accessing an application and/or e-commerce session.

[Claim 20] (Original) Minear in view of Dowling in view of Hamzeh discloses the claimed limitation supra. Minear doesn't explicitly disclose:

- a customization component for customizing information related to said wireless device account.

This feature is expressly disclosed by Dowling, however, in a related endeavor (C10 L61-67). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine and/or modify Minear's disclosure with the teaching of Dowling for the motivation of providing preferred means of accessing an application and/or e-commerce session.

Conclusion

Claims 1-20 are rejected.

THIS ACTION IS MADE FINAL. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Clifford Madamba whose telephone number is 571-270-1239. The examiner can normally be reached on Mon-Thu 7:30-5:00 EST Alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles Kyle, can be reached at 571-272-6746. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Clifford Madamba/
Patent Examiner AU-3695

February 8, 2010

/Charles R. Kyle/
Supervisory Patent Examiner, Art Unit 3695

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/977,212	10/23/2007	Philippe Clavel	HOMI-P001	1784

7590 06/21/2010

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Two North Market Street
San Jose, CA 95113

EXAMINER	
THAI, NAM N	
ART UNIT	PAPER NUMBER
2441	

MAIL DATE	DELIVERY MODE
06/21/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

GTV00000485

Office Action Summary	Application No.	Applicant(s)	
	11/977,212	CLAVEL ET AL.	
	Examiner	Art Unit	
	Nam Thai	2441	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 January 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

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4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This office action is in response to the Amendment filed on 01/25/2010 with acknowledgement of an original application filled on 10/23/2007.

Response to Arguments

2. Applicant's arguments filed with respect to **claims 1, 13 and 19** have been fully considered but they are not persuasive. In the Remarks, Applicant argues that **(1)** Chen does not show or suggest automatically implementing an optimized protocol based on the wireless communication link type and the handheld device type (page 9, paragraph 2) **(2)** Chen "does not discuss a selection based upon a wireless communication link type and handheld device type" (page 9, paragraph 3) **(3)** Chen does not discuss link type and device type (page 10, line 1) and **(4)** Chen describes the operation of VMI objects, which is different from configuring hardware (page 10, line 5-7).

3. In response to argument **(1)**, the examiner notes that *automatically implementing an optimized protocol based on the wireless communication link type and the handheld device type* in its broadest reasonable interpretation is interpreted as automatically *implementing a protocol, the implementation based on the wireless communication link type and device type, the protocol being one that is optimized.* **Chen** teaches implementing a protocol **([0052] API makes the appropriate calls to implement the**

particular communication protocol) the implementation based on the wireless communication link type and device type **(paragraph [0046] line 7-11, API functions take into account the effects of a given communication protocol and [0050], line 1-4 VMI that functions with the API implements the protocol accounting for different hardware consideration)** the protocol being one that is optimized since the hardware is specifically configured to function with the protocol. The implementation is made automatic by the API abstracting the lower level details of the hardware and communication protocol **([0046])**, in effect automating the steps of accounting for the lower level details. Thus, **Chen** reads on the limitation of the claims.

4. In response to argument **(2)**, it is noted that the features upon which applicant relies (i.e., "a selection based upon a wireless communication link type and handheld device type") are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). However, since Chen teaches implementing a protocol it in effect must first select a protocol in order to implement it. Hence, applicant's remarks are not persuasive.

Examiner respectfully submits that *a selection of [an optimal protocol] based on link and device type* would involve choosing, from multiple possible protocols, the protocol best suited for the link type and device type; however, the claims recite nothing to that effect.

The claim language states:

A client-based method for implementing a communications link, comprising:

receiving a request for a communications link from an application executing on a handheld device;

accessing a device API component to configure device hardware to implement the communications link;

establishing a wireless communications link with a server;

automatically **implementing** an optimized protocol between a client communications component and the server based on the wireless communications link type and the handheld device type, wherein the communications link is established via the communications component functioning with a device API component to configure hardware of the handheld device.

Thus, it is clear from the claim language that a **selection** is not positively recited.

Furthermore, if *a selection based upon a wireless communication link type and handheld device type* is in fact a critical feature of the invention, then it should be present in the claim language.

5. In response to argument **(3)**, it is noted the specification of the instant application explicitly discloses "link type" as the type of protocol used, including CDMA and "device type" as specifics of the device including such as hardware specifics (page 6, line 3).

Chen implements the protocol based on the selected link type being Wireless CDMA **([0047])**. **Chen** is concerned with the manual manipulation of requirements of different hardware **([0010-0011])** and seeks to automate and abstract away the lower

level complexities **([0045])**, thus, in doing so must take into consideration different hardware types/device types in the process of automation. Therefore, **Chen** does discuss link type and device type.

6. In response to argument **(4)**, it is noted that **Chen** teaches the VMI provides the specifics of the hardware and parameters necessary to implement the specific communication protocol **([0050])** which is in turn used by the Virtual Machine to allocate and reconfigure the hardware to support the specified protocol **([0052] application program makes appropriate calls to API to perform the particular communication protocol and [0055] resource allocator receives and processes instructions from the VM to allocate and reconfigure necessary hardware resources of the reconfigurable wireless network communication apparatus)**. Therefore, Chen does teach configuring hardware.

Claim Rejections - 35 USC § 101

7. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

8. Claims 16-18, and 25 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

The United States Patent and Trademark Office (USPTO) is obliged to give claims their broadest reasonable interpretation consistent with the specification during proceedings before the USPTO. *See In re Zletz*, 893 F.2d 319 (Fed. Cir. 1989) (during patent examination the pending claims must be interpreted as broadly as their terms reasonably allow). The broadest reasonable interpretation of a claim drawn to a computer readable medium (also called machine readable medium and other such variations) typically covers forms of ***non-transitory tangible media*** and ***transitory propagating signals per se*** in view of the ordinary and customary meaning of computer readable media, particularly when the specification is silent. *See* MPEP 2111.01. When the broadest reasonable interpretation of a claim covers a signal *per se*, the claim must be rejected under 35 U.S.C. § 101 as covering non-statutory subject matter. *See In re Nuijten*, 500 F.3d 1346, 1356-57 (Fed. Cir. 2007) (transitory embodiments are not directed to statutory subject matter) and *Interim Examination Instructions for Evaluating Subject Matter Eligibility Under 35 U.S.C. § 101*, Aug. 24, 2009; p. 2.

The USPTO recognizes that applicants may have claims directed to computer readable media that cover signals *per se*, which the USPTO must reject under 35 U.S.C. § 101 as covering both non-statutory subject matter and statutory subject matter.

In an effort to assist the patent community in overcoming a rejection or potential rejection under 35 U.S.C. § 101 in this situation, the USPTO suggests the following approach. A claim drawn to such a computer readable medium that covers both ***transitory*** and ***non-transitory*** embodiments may be amended to narrow the claim to cover only statutory embodiments to avoid a rejection under 35 U.S.C. § 101 by adding the limitation "***non-transitory***" to the claim. *Cf. Animals - Patentability*, 1077 *Off. Gaz. Pat. Office* 24 (April 21, 1987) (suggesting that applicants add the limitation "non-human" to a claim covering a multi-cellular organism to avoid a rejection under 35 U.S.C. § 101). Such an amendment would typically not raise the issue of new matter, even when the specification is silent because the broadest reasonable interpretation relies on the ordinary and customary meaning that includes signals *per se*. The limited situations in which such an amendment could raise issues of new matter occur, for example, when the specification does not support a non-transitory embodiment because a signal *per se* is the only viable embodiment such that the amended claim is impermissibly broadened beyond the supporting disclosure. *See, e.g., Gentry Gallery, Inc. v. Berkline Corp.*, 134 F.3d 1473 (Fed. Cir. 1998).

9. As per claim 19, the claims are directed to a *computer program embodied on a computer readable medium*. The instant Specification does not use the terms ***computer readable medium*** nor define them and therefore given the broadest reasonable interpretation, they would include that of a carrier wave transmitting a signal from one endpoint to another, with stored data thereon, which under 35 U.S.C. § 101 is

not statutory. Dependent claim 20 fails to cure this deficiency and is therefore similarly rejected.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

11. Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al. (US 2002/0018487) hereinafter "Chen", in view of Fraley et al. (US 2004/0252197), hereinafter "Fraley".

12. As to claim 1, **Chen** teaches a client-based method for implementing a communications link **(paragraph [0039-0040], API along with VMI abstract details of specific hardware for implementing a communication protocol and resulting link)**, comprising:

receiving a request for a communications link from an application executing on a handheld device *(example request for link from application)* **(paragraph [0152], line 9-12)**;

accessing a device API component to configure device hardware to implement the communications link **(paragraph [0052], "application program makes the appropriate calls to software routines of API... to perform the particular communication protocol")**;

establishing a wireless communications link with a base station *(functions used to establish a new uplink or downlink)* **(fig. 5, element 565 and 569 and paragraph [0111])**;

automatically implementing an optimized protocol between a client communications component and the base station *(API automatically implements protocol in a fashion that is suited/optimized to the specific hardware with out manual customization by the user)* **(paragraph [0045-0052], API used to provide hardware independent functions that implement the communication protocol)**, based on the wireless communications link type and the handheld device type *(protocol is implemented based on link type defined by the selected protocol and handheld device type defined by wireless network communication apparatus hardware)* **(paragraph [0046] line 7-11, API functions take into account the effects of a given communication protocol and [0050], line 1-4 VMI that functions with the API implements the protocol accounting for different hardware consideration)**, wherein the communications link is established via the communications component functioning with a device API component to configure hardware of the handheld device **([0049], line 3-7 and [0055] instructions from VM configure hardware resources to allow hardware differences to be transparent from the user)**.

Chen teaches using the claimed method to connect to a base station, but does not explicitly teach using the method to connect to a server.

Fraley teaches using API to abstract lower-level hardware functions from applications and to establish a link between a mobile device and a computer *(video server)* to transfer data (video) in both directions **(paragraph [0023])**.

It would be obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teachings of **Fraley** into **Chen,** since, both use APIs in mobile devices to abstract communication details from high level programming and the combination would allow a mobile device to establish a link with a server. One would be motivated to make the combination since servers can provide data to mobile devices, which have limited storage capabilities, enabling a greater range of applicable services on the mobile device.

13. As to claim 2, **Chen** in view of **Fraley** teaches the method of claim 1, wherein the device API component is a J2ME component **(Fraley, paragraph [0023], line 3-5)**.

14. As to claim 3, **Chen** in view of **Fraley** teaches the method of claim 1, wherein the device API component is a BREW component **(Fraley, paragraph [0023], line 12-15)**.

15. As to claim 4, **Chen** in view of **Fraley** teaches the method of claim 1, wherein the device is a cellular enabled hand held device **(Fraley, paragraph [0016], line 4-5)**.

16. As to claim 5, **Chen** in view of **Fraley** teaches the method of claim 1, wherein the optimized connection protocol comprises a socket full-duplex connection protocol *(CDMA)* **(Chen, paragraph [0042], line 12)**.

17. As to claim 6, **Chen** in view of **Fraley** teaches the method of claim 1, wherein the optimized connection protocol comprises a socket half duplex connection protocol *(TDMA)* **(Chen, paragraph [0042], line 12)**.

18. As to claim 7, **Chen** in view of **Fraley** teaches the method of claim 1, however does not explicitly teach wherein the optimized connection protocol comprises an HTTP tunneling protocol.

Official notice is taken stating that HTTP tunneling protocol is old and well-known.

It would be obvious to one of ordinary skill in the art at the time of the invention to include HTTP tunneling protocol among the compatible protocol of **Chen** in view of **Fraley**, since, **Chen** in view of **Fraley** is directed towards improving flexibility and adaptability **(Chen, paragraph [0009], line 14-16, and [0015])** though the use of devices which are configurable to use several protocols **(Chen, paragraph [0042], line 9-12)**. One would be motivated to include HTTP tunneling protocol since the inclusion of any additional protocol would further improve flexibility and adaptability.

19. As to claim 8, **Chen** in view of **Fraley** teaches the method of claim 1, however does not explicitly teach wherein the optimized connection protocol comprises an HTTP polling protocol.

Official notice is taken stating that HTTP polling protocol is old and well-known.

It would be obvious to one of ordinary skill in the art at the time of the invention to include HTTP polling protocol among the compatible protocol of **Chen** in view of **Fraley**, since, **Chen** in view of **Fraley** is directed towards improving flexibility and adaptability **(Chen, paragraph [0009], line 14-16, and [0015])** though the use of devices which are configurable to use several protocols **(Chen, paragraph [0042], line 9-12)**. One would be motivated to include HTTP polling protocol since the inclusion of any additional device/network specific protocol would further improve flexibility and adaptability.

20. As to claim 9, **Chen** in view of **Fraley** teaches the method of claim 1, wherein the device API component *(BREW API)* is accessed by a communications component *(IP-related functions)* and the communications component is configured to implement a communications API *(pass function calls to the BREW API)* for the application executing on the handheld device **(Fraley, paragraph [0023], line 12-15)**.

21. As to claim 10, **Chen** in view of **Fraley** teaches the method of claim 9, wherein the communications component includes a hardware abstraction component for translating between the communications component and the device specific hardware

functions of the handheld device **(Chen, paragraph [0040], line 10-14)**.

22. As to claim 11, **Chen** in view of **Fraley** teaches the method of claim 10, wherein the hardware abstraction component is for enabling the communications component to implement a stable communications API when installed on multiple different handheld device types *(Virtual Machine adapts API to particular hardware device)* **(Chen, paragraph [0054])**.

23. As to claim 12, **Chen** in view of **Fraley** teaches the method of claim 1, but does not teach automatically reestablishing the communitarians link if the communications link is severed.

Official notice is taken that reestablishing a communication link if the link is severed is well known in the art.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the official notice with the teachings of **Chen** in view of **Fraley,** since, **Chen** in view of **Fraley** is directed towards mobile communication devices which are known to have issues with sustained connection due to their mobile nature (.i.e. lost of connection when entering a tunnel) and reestablishing a connection would address this issue and restore a lost connection.

24. As to claim 13, **Chen** in view of **Fraley** teaches a mobile handheld device for implementing an optimized communications link, comprising:

An embedded computer system within the device, the embedded computer system having a processor coupled to a memory *(a cellular phone)* **(Fraley, paragraph [0016], line 4-5)**, the memory having computer readable code which when executed by the processor causes the device to implement a method comprising *(device configured with software stored in memory)* **(Fraley, paragraph [0030], line 1-3)**:

the remaining limitation corresponds to method claim 1 and is rejected under the same rationale.

25. As to claim 14, **Chen** in view of **Fraley** teaches the device of claim 13, wherein the device API component is a J2ME component **(Fraley, paragraph [0023], line 3-5)**, A BREW component **(Fraley, paragraph [0023], line 12-15)**, a Symbian component, **or** a Java/J2SE component.

26. As to claim 15, **Chen** in view of **Fraley** teaches the device of claim 13, wherein the optimized connection protocol is a socket full-duplex connection protocol, a socket half duplex connection protocol *(TDMA and CDMA)* **(Chen, paragraph [0042], line 12)**, an HTTP tunneling protocol, **or** an HTTP polling protocol.

27. As to amended claim 16, **Chen** in view of **Fraley** teaches device of claim 13, wherein the optimized protocol is dynamically changeable between a socket full-duplex connection protocol, a socket half duplex connection protocol **(Chen, paragraph [0042], line 9-12)**

However, **Chen** in view of **Fraley** does not explicitly teach wherein the optimized protocol can be dynamically changed between a socket full-duplex connection protocol, a socket half duplex connection protocol, and an HTTP tunneling protocol.

Official notice is taken stating that HTTP tunneling protocol is old and well-known.

It would be obvious to one of ordinary skill in the art at the time of the invention to include HTTP tunneling protocol among the compatible protocol of **Chen** in view of **Fraley**, since, **Chen** in view of **Fraley** is directed towards improving flexibility and adaptability **(Chen, paragraph [0009], line 14-16, and [0015])** though the use of devices which are configurable to use several protocols **(Chen, paragraph [0042], line 9-12)**. One would be motivated to include HTTP tunneling protocol since the inclusion of any additional protocol would further improve flexibility and adaptability.

28. Device claim 17 is substantially similar to method claim 9 and is rejected under the same rationale.

29. As to claim 18, **Chen** in view of **Fraley** teaches the device of claim 13, wherein the communications component includes a hardware abstraction component for translating between the communications component and device specific hardware functions of the device **(Chen, paragraph [0040], line 10-14)**, and wherein the hardware abstraction component is for enabling the communications component to implement a stable communications API when installed on multiple different device

types *(Virtual Machine adapts API to particular hardware device)* **(Chen, paragraph [0054])**.

30. As to claim 19, **Chen** in view of **Fraley** teaches a computer readable media having computer readable code which, when executed by a processor of an embedded computer system of a cellular enabled handheld device, causes the handheld device to implement a method for establishing an adaptable communications link, the method comprising *(device configured with software stored in memory)* **(Fraley, paragraph [0030], line 1-3)**:

wherein the device API component is a J2ME component **(Fraley, paragraph [0023], line 3-5)**, a BREW component **(Fraley, paragraph [0023], line 12-15)**, a Symbian component, **or** a Java/J2SE component, and wherein the optimized connection protocol is a socket full-duplex connection protocol, a socket half duplex connection protocol *(TDMA and CDMA)* **(Chen, paragraph [0042], line 12)**, an HTTP tunneling protocol, **or** an HTTP polling protocol.

the remaining limitation corresponds to method claim 1 and is rejected under the same rationale.

31. As to claim 20, **Chen** in view of **Fraley** teaches the computer readable media of claim 19, wherein the communications component includes a hardware abstraction component for translating between the communications component and device specific hardware functions of the device **(Chen, paragraph [0040], line 10-14)**, and wherein

the hardware abstraction component is for enabling the communications component to implement a stable communications API when installed on multiple different device types *(Virtual Machine adapts API to particular hardware device)* **(Chen, paragraph [0054])**.

Conclusion

Examiner's Note: Examiner has cited particular columns and line numbers in the references applied to the claims above for the convenience of the applicant. Although the specified citations are representative of the teachings of the art and are applied to specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant in preparing responses, to fully consider the references in entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the Examiner.

In the case of amending the claimed invention, Applicant is respectfully requested to continue to indicate the portion(s) of the specification which dictate(s) the structure relied on for proper interpretation and also to verify and ascertain the metes and bounds of the claimed invention.

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nam Thai whose telephone number is (571)270-7531. The examiner can normally be reached on IFP.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wing Chan can be reached on (571)272-7493. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Wing F. Chan/
Supervisory Patent Examiner, Art Unit 2441

/Nam Thai/
Examiner, Art Unit 2441

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/098,670	04/07/2008	Philippe Clavel	HOMI-P010	2849

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EXAMINER	
RECEK, JASON D	

ART UNIT	PAPER NUMBER
2442	

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01/07/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

GTV00000505

Office Action Summary	Application No.	Applicant(s)	
	12/098,670	CLAVEL, PHILIPPE	
	Examiner	Art Unit	
	JASON RECEK	2442	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 April 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *07 April 2008* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This is in response to application 12/098670 filed on April 7th 2009, in which claims 1-20 are presented for examination.

Status of Claims

Claims 1-20 are pending, of which claims 1, 9 and 15 are in independent form.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-14 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 1 and 9, they recite "sending said plurality of scene components; and sending said plurality of assets". These terms render the claims indefinite because it cannot be determined who/what is sending and who/where is receiving. Please indicate what component performs the sending and a destination. Claims 2-8 and 10-14 are rejected based on their dependency.

3. Claim 1 recites the limitation "said application" in line eight. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-3, 5-11, 13-16 and 19-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Veselov et al. US 7,580,703 B1.

Regarding claim 1, Veselov discloses "selecting a plurality of scene components ... comprise at least one behavior module operable to execute functionality" as services (col. 4 ln. 15-16) which are executable (col. 5 ln. 3-15);

"selecting a plurality of assets ... operable to be used in rendering a scene utilizing said plurality of scene components" content files are individual resources used to execute a functionality (col. 5 ln. 11-19);

"determining a partition of functionality of said application, wherein said partition defines a server behavior module for executing on said server and a client behavior

module for executing on said wireless device" provisioning services between a client and a server (col. 3 ln. 45-67);

"customizing said plurality of scene components and ... assets for said wireless device" translate commands for the device (col. 4 ln. 39-49) and map generic application to specific application (col. 4 ln. 55-59); and

"sending ... scene components and ... assets" data is sent between server and client (Figs. 1 and 7, col. 5 ln. 4-5).

Regarding claim 2, Veselov discloses "receiving a request to initialize said application ... comprises wireless device information" request (col. 9 ln. 4-5) and device information (col. 9 ln. 15-18).

Regarding claim 3, Veselov discloses "a device profile" (Fig. 3 item 224, col. 6 ln. 40-41), and "phone attributes" (col. 3 ln. 15-17, 50-52, col. 4 ln. 43-45).

Regarding claim 5, Veselov discloses "injecting dynamic content into said plurality of scene components" as provisioning application can manipulate services dynamically (col. 5 ln. 29-32) and dynamically deliver applications (col. 7 ln. 10-12).

Regarding claim 6, Veselov discloses "compiled binary format" as an executable (col. 5 ln. 5-15).

Regarding claim 7, Veselov disclose "graphics customized for said wireless device" sound/video files (col. 5 ln. 15) that are dynamically provided (i.e. customized) based on device profile (col. 7 ln. 1-15).

Regarding claim 8, Veselov disclose "scene components are customized to adapt the animation pattern of said wireless device" graphical applications are provisioned/customized, such graphics inherently provide animation (col. 4 ln. 60-64, col. 5 ln. 14-16, col. 7 ln. 10-12).

Regarding claims 9-11, they are system claims that correspond to the method of claims 1-3, therefore they are rejected for similar reasons.

Regarding claim 13, Veselov discloses "custom components" as the files allow a user to customize (col. 5 ln. 9-11).

Regarding claim 14, Veselov discloses "scene components comprise a layout" as the application (e.g. game, calculator) has properties which would inherently include a layout (Fig. 5, col. 7 ln. 61-62).

Regarding claim 15, it is a system claim that corresponds to claim 1, those corresponding parts are rejected for similar reasons.

Veselov also discloses "a device profile library" (Figs. 3-4). Claim 15 also recites a scene generator and asset generator in place of the scene selector and asset selector found in claim 1. These features are also disclosed by Veselov as a bundle. Veselov teaches "generating" these bundles of components and assets when a service is requested (col. 5 ln. 33-43).

Regarding claims 16 and 19-20, they correspond to claims 2, 5 and 8 respectively, thus they are rejected for similar reasons.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 4 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Veselov.

Regarding claim 4, Veselov does not explicitly disclose "asynchronous communication" however it would have been obvious to one of ordinary skill in the art at the time of the invention. Veselov does not explicitly teach synchronous communication either. One of ordinary skill would have realized that communication could be performed asynchronously or synchronously. Thus, this is merely the combination of

known elements according to their established function in order to yield a predictable result.

Claim 17 corresponds to claim 4 and therefore is rejected for similar reasons.

8. Claims 12 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Veselov in view of Nishida US 2005/0223352 A1.

Regarding claim 12, Veselov discloses "storing a plurality of application data to facilitate the execution of another application" as storing application interactions (i.e. application data) to enable the mapping of the generic application to specific applications, thus the application data facilitates the execution of another application - the mapped specific application (col. 4 ln. 55-59).

Veselov does not explicitly disclose "said application data facilitates the resuming of an application at a later time" however this is taught by Nishida as storing program data and using it to resume a program (paragraph 13). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Veselov with the suspend/resume feature taught by Nishida. Suspending and resuming applications is well known in the art (as evidenced by Nishida). Thus, this is merely the combination of known features according to their established function in order to yield a predictable result.

Claim18 corresponds to claim 12 and therefore is rejected for similar reasons.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Alder et al. US 2009/0227274 A1 discloses a method for configuring a device by receiving a device profile (abstract).

Chithambaram et al. US 2003/0120637 A1 discloses customizing an application for a user based on a profile (paragraph 18).

Moraes US 2009/0259940 A1 discloses a tool for developing and deploying a media application to a mobile device (abstract).

Coppinger et al. US 2009/0037329 A1 discloses a method for deploying application programs to wireless devices (abstract).

Leitner US 2008/0016176 A1 discloses deploying games on mobile devices (abstract).

Higgins et al. US 2007/0067373 A1 discloses deploying and updating applications on mobile devices (abstract).

Lockton et al. US 2007/0078009 A1 discloses transmitting media files to devices via a server for the purpose of playing games (abstract, paragraph 8).

Vialle et al. US 2009/0220068 A1 discloses suspending an application (paragraph 47).

Hulaj et al. US 2009/0177663 A1 discloses facilitating execution of server-side applications at mobile devices (abstract).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JASON RECEK whose telephone number is (571)270-1975. The examiner can normally be reached on Mon - Fri 9:00am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Saleh Najjar can be reached on (571) 272-4006. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jason Recek/
Examiner, Art Unit 2442
(571) 270-1975
/Asad M Nawaz/
Primary Examiner, Art Unit 2455

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference	FOR FURTHER ACTION	see Form PCT/ISA/220 as well as, where applicable, item 5 below.
HOMIP010WO		
International application No.	International filing date *(day/month/year)*	(Earliest) Priority Date *(day/month/year)*
PCT/US2009/001514	**09 MARCH 2009 (09.03.2009)**	07 APRIL 2008 (07.04.2008)

Applicant

HANDS-ON MOBILE, INC. et al

This International search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 3 sheets.

☐ It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the report**
   a. With regard to the **language**, the international search was carried out on the basis of :
      ☒ the international application in the language in which it was filed
      ☐ a translation of the international application into _____, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b))
   b. ☐ This international search report has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43.6*bis*(a)).
   c. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.
2. ☐ **Certain claims were found unsearchable** (See Box No. II)
3. ☐ **Unity of invention is lacking** (See Box No. III)
4. With regard to the **title,**
   ☒ the text is approved as submitted by the applicant.
   ☐ the text has been established by this Authority to read as follows:
5. With regard to the **abstract,**
   ☒ the text is approved as submitted by the applicant.
   ☐ the text has been established, according to Rule 38.2, by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.
6. With regard to the drawings,
   a. the figure of the **drawings** to be published with the abstract is Figure No. 6
      ☒ as suggested by the applicant.
      ☐ as selected by this Authority, because the applicant failed to suggest a figure.
      ☐ as selected by this Authority, because this figure better characterizes the invention.
   b. ☐ none of the figure is to be published with the abstract.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2009/001514

A. CLASSIFICATION OF SUBJECT MATTER

H04W 4/00(2009.01)i, H04W 8/20(2009.01)i, H04W 88/18(2009.01)i

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)

IPC 8 : G06F 17/30, G06F 15/00, G06F 3/048, G06F 15/16, G06F 3/00, G06F 15/00, G06Q 50/00C3

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

Korean Utility models and applications for Utility Models since 1975

Japanese Utility models and applications for Utility Models since 1975

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

eKOMPASS(KIPO internal) : wireless, dynamic, and interface

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2007-0130156 A1 (JOUKO U. TENHUNEN et al.) 07 June 2007 See abstract, paragraphs [0037], [0039]-[0040], and figure 1	1-20
A	US 2003-0106022 A1 (ANTHONY JOHN GOODACRE et al.) 05 June 2003 See abstract, paragraphs [0047]-[0069], and figures 2-3	1-20
A	KR 10-2008-0022697 A (ELECTRONICS AND TELECOMMUNICATIONS RESEARCH INSTITUTE) 12 March 2008 See abstract, figures 1-3, and claims 1, 3	1-20
A	KR 10-2007-0003418 A (KTFREETEL CO., LTD.) 05 January 2007 See abstract, figures 1-2, and claim 1	1-20

☐ Further documents are listed in the continuation of Box C.

☒ 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

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"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

"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

"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

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
06 OCTOBER 2009 (06.10.2009)	**06 OCTOBER 2009 (06.10.2009)**

Name and mailing address of the ISA/KR	Authorized officer
Korean Intellectual Property Office Government Complex-Daejeon, 139 Seonsa-ro, Seo-gu, Daejeon 302-701, Republic of Korea	LIM, Chang Soo
Facsimile No. 82-42-472-7140	Telephone No. 82-42-481-8201

Form PCT/ISA/210 (second sheet) (July 2008)

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.
PCT/US2009/001514

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2007-0130156 A1	07.06.2007	AU 2007-263521 A1	25.06.2007
		CA 2631696 A1	07.06.2007
		EP 1979836 A2	15.10.2008
		EP 2036270 A2	18.03.2009
		US 2007-0167182 A1	19.07.2007
		WO 2007-063414 A8	21.08.2008
		WO 2007-063414 A2	07.06.2007
		WO 2008-001214 A2	03.01.2008
		WO 2007-063414 A3	07.06.2007
		WO 2008-001214 A3	03.01.2008
US 2003-0106022 A1	05.06.2003	None	
KR 10-2008-0022697 A	12.03.2008	None	
KR 10-2007-0003418 A	05.01.2007	None	

GTV00000517

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:
SOCHOR MICHAEL D.

MURABITO, HAO AND BARNES LLP TWO NORTH MARKET STREET THIRD FLOOR SAN JOSE CA 95113 USA

PCT

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

Date of mailing *(day/month/year)*	**06 OCTOBER 2009 (06.10.2009)**
Applicant's or agent's file reference: HOMIP010WO	**FOR FURTHER ACTION**: See paragraph 2 below

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/US2009/001514	**09 MARCH 2009 (09.03.2009)**	07 APRIL 2008 (07.04.2008)

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

H04W 4/00(2009.01)i, H04W 8/20(2009.01)i, H04W 88/18(2009.01)i

Applicant

HANDS-ON MOBILE, INC. et al

1. This opinion contains indications relating to the following items:

- [x] Box No. I Basis of the opinion
- [ ] Box No. II Priority
- [ ] Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- [ ] Box No. IV Lack of unity of invention
- [x] Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- [ ] Box No. VI Certain documents cited
- [ ] Box No. VII Certain defects in the international application
- [ ] Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.
For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/KR	Date of completion of this opinion	Authorized officer
Korean Intellectual Property Office Government Complex-Daejeon, 139 Seonsa-ro, Seo-gu, Daejeon 302-701, Republic of Korea Facsimile No. 82-42-472-7140	06 OCTOBER 2009 (06.10.2009)	LIM, Chang Soo Telephone No.82-42-481-8201

Form PCT/ISA/237 (cover sheet) (April 2007)

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2009/001514

Box No. I Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of :

   ☒ the international application in the language in which it was filed

   ☐ a translation of the international application into _____ , which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b))

2. ☐ This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43*bis*.1(a))

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of:

   a. type of material
   - ☐ a sequence listing
   - ☐ table(s) related to the sequence listing

   b. format of material
   - ☐ on paper
   - ☐ in electronic form

   c. time of filing/furnishing
   - ☐ contained in the international application as filed.
   - ☐ filed together with the international application in electronic form.
   - ☐ furnished subsequently to this Authority for the purposes of search.

4. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additioanl copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

5. Additional comments:

GTV00000519

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2009/001514

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1-20	YES
	Claims	None	NO
Inventive step (IS)	Claims	1-20	YES
	Claims	None	NO
Industrial applicability (IA)	Claims	1-20	YES
	Claims	None	NO

2. Citations and explanations :

Reference is made to the following documents:

D1: US 2007-0130156 A1 (JOUKO U. TENHUNEN et al.) 07 June 2007
D2: US 2003-0106022 A1 (ANTHONY JOHN GOODACRE et al.) 05 June 2003
D3: KR 10-2008-0022697 A (ELECTRONICS AND TELECOMMUNICATIONS RESEARCH INSTITUTE) 12 March 2008
D4: KR 10-2007-0003418 A (KTFREETEL CO., LTD.) 05 January 2007

1. Novelty and Inventive Step

Embodiments of the present invention relate to the field of wireless communication systems. More particularly, embodiments of the present invention relate to a method and system for executing applications on a wireless device.

Independent claims 1, 9 and 15 of the present invention differ from the prior art documents D1-D4 in that the present invention comprises the step of selecting scene components and assets and the step of determining the functionality of an application. And the invention defined in claims 1, 9 and 15 is not obvious to a person skilled in the art from the documents when taken alone or in combination.

Therefore, independent claims 1, 9, 15 and their dependent claims 2-8, 10-14, 16-20 meet the requirements of PCT Article 33(2) and (3) with respect to novelty and inventive step.

2. Industrial Applicability

Claims 1-20 are industrially applicable under PCT Article 33(4).

GTV00000520

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference	FOR FURTHER ACTION	see Form PCT/ISA/220 as well as, where applicable, item 5 below.
HOMIP009WO		
International application No.	International filing date *(day/month/year)*	(Earliest) Priority Date *(day/month/year)*
PCT/US2009/001516	**09 MARCH 2009 (09.03.2009)**	07 APRIL 2008 (07.04.2008)

Applicant

HANDS-ON MOBILE, INC. et al

This International search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 4 sheets.

☐ It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the report**
   a. With regard to the **language**, the international search was carried out on the basis of :
      ☒ the international application in the language in which it was filed
      ☐ a translation of the international application into _____, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b))
   b. ☐ This international search report has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43.6*bis*(a)).
   c. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.
2. ☒ **Certain claims were found unsearchable** (See Box No. II)
3. ☐ **Unity of invention is lacking** (See Box No. III)
4. With regard to the **title,**
   ☒ the text is approved as submitted by the applicant.
   ☐ the text has been established by this Authority to read as follows:
5. With regard to the **abstract,**
   ☒ the text is approved as submitted by the applicant.
   ☐ the text has been established, according to Rule 38.2, by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.
6. With regard to the drawings,
   a. the figure of the **drawings** to be published with the abstract is Figure No. 5
      ☒ as suggested by the applicant.
      ☐ as selected by this Authority, because the applicant failed to suggest a figure.
      ☐ as selected by this Authority, because this figure better characterizes the invention.
   b. ☐ none of the figure is to be published with the abstract.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2009/001516

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☒ Claims Nos.: 9-13, 15-20
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

1. Dependent claims 9-12 and 15-20 do not comply with PCT Rule 6.4(c) because all dependent claims shall refer back to one or more previous claims.
2. Claim 13 refers to claim 12 which does not comply with PCT Rule 6.4(c).

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required addtional search fees were timely paid by the applicant, this international search report covers all searchable claims.

2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
☐ No protest accompanied the payment of additional search fees.

GTV00000522

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2009/001516

A. CLASSIFICATION OF SUBJECT MATTER

H04W 4/00(2009.01)i, H04B 1/40(2006.01)i

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)

IPC 8 : G06F 17/30, G06F 3/048, G06F 15/16, G06F 3/00, G06F 15/00,

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

Korean Utility models and applications for Utility Models since 1975

Japanese Utility models and applications for Utility Models since 1975

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

eKOMPASS(KIPO internal) : wireless, dynamic, interface

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 20070130156 A1 (JOUKO U. TENHUNEN et al.) 07 June 2007 See abstract, paragraphs [0037], [0039]-[0040], and figure 1.	1-8, 14
A	KR 10-2008-0022697 A (ELECTRONICS AND TELECOMMUNICATIONS RESEARCH INSTITUTE) 12 March 2008 See abstract, figures 1-3, and claims 1, 3.	1-8, 14
A	US 2003-0106022 A1 (ANTHONY JOHN GOODACRE et al.) 05 June 2003 See abstract, paragraphs [0047]-[0069], and figures 2-3.	1-8, 14
A	EP 1571547 A (RESEARCH IN MOTION LIMITED) 07 September 2005 See abstract, claim 1, figures 1-3.	1-8, 14

☐ Further documents are listed in the continuation of Box C.

☒ 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

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"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

"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

"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

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
06 OCTOBER 2009 (06.10.2009)	**06 OCTOBER 2009 (06.10.2009)**

Name and mailing address of the ISA/KR

Korean Intellectual Property Office
Government Complex-Daejeon, 139 Seonsa-ro, Seo-gu, Daejeon 302-701, Republic of Korea

Facsimile No. 82-42-472-7140

Authorized officer

LIM, Chang Soo

Telephone No. 82-42-481-8201

Form PCT/ISA/210 (second sheet) (July 2008)

GTV00000523

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/US2009/001516

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2007-0130156 A1	07.06.2007	AU 2007-263521 A1	25.06.2007
		CA 2631696 A1	07.06.2007
		EP 1979836 A2	15.10.2008
		EP 2036270 A2	18.03.2009
		US 2007-0167182 A1	19.07.2007
		WO 2007-063414 A8	21.08.2008
		WO 2007-063414 A2	07.06.2007
		WO 2008-001214 A2	03.01.2008
		WO 2007-063414 A3	07.06.2007
		WO 2008-001214 A3	03.01.2008
KR 10-2008-0022697 A	12.03.2008	None	
US 2003-106022 A1	05.06.2003	None	
EP 1571547 A1	07.09.2005	AU 2005-200852 A1	25.02.2005
		CA 2498540 A1	27.08.2005
		CN 100424637 C	08.10.2008
		CN 1661554 A	31.08.2005
		CN 100424637 C	08.10.2008
		JP 2005-259131 A	22.09.2005
		JP 2009-087340 A	23.04.2009
		KR 2006-0042393 A	12.05.2006
		KR 10-0795765 B1	21.01.2008
		SG 114770 A1	28.09.2005
		SG 135202 A1	28.09.2007

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:
SOCHOR MICHAEL D.

MURABITO, HAO AND BARNES LLP TWO NORTH MARKET STREET THIRD FLOOR SAN JOSE CA 95113 USA

PCT

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

Date of mailing *(day/month/year)*	**06 OCTOBER 2009 (06.10.2009)**
Applicant's or agent's file reference HOMIP009WO	**FOR FURTHER ACTION** See paragraph 2 below

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/US2009/001516	**09 MARCH 2009 (09.03.2009)**	07 APRIL 2008 (07.04.2008)

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

H04W 4/00(2009.01)i, H04B 1/40(2006.01)i

Applicant

HANDS-ON MOBILE, INC. et al

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☒ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☒ Box No. VII Certain defects in the international application
- ☒ Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.
For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/KR	Date of completion of this opinion	Authorized officer
Korean Intellectual Property Office Government Complex-Daejeon, 139 Seonsa-ro, Seo-gu, Daejeon 302-701, Republic of Korea Facsimile No. 82-42-472-7140	06 OCTOBER 2009 (06.10.2009)	LIM, Chang Soo Telephone No.82-42-481-8201

Form PCT/ISA/237 (cover sheet) (April 2007)

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2009/001516

Box No. I Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of :

   ☒ the international application in the language in which it was filed

   ☐ a translation of the international application into _____ , which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b))

2. ☐ This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43*bis*.1(a))

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of:

   a. type of material
   - ☐ a sequence listing
   - ☐ table(s) related to the sequence listing

   b. format of material
   - ☐ on paper
   - ☐ in electronic form

   c. time of filing/furnishing
   - ☐ contained in the international application as filed.
   - ☐ filed together with the international application in electronic form.
   - ☐ furnished subsequently to this Authority for the purposes of search.

4. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additioanl copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

5. Additional comments:

GTV00000526

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2009/001516

Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non obvious), or to be industrially applicable have not been examined in respect of:

☐ the entire international application

☒ claims Nos. 9-12, 15-20

because:

☐ the said international application, or the said claims Nos. _____ relate to the following subject matter which does not require an international search *(specify)*:

☒ the description, claims or drawings *(indicate particular elements below)* or said claims Nos. 13 are so unclear that no meaningful opinion could be formed *(specify)*:

Claim 13 is unclear in that the said claim refers to claim 12 which does not comply with PCT Rule 6.4(c).

☐ the claims, or said claims Nos. _____ are so inadequately supported by the description that no meaningful opinion could be formed *(specify)*:

☒ no international search report has been established for said claims Nos. 9-13, 15-20

☐ a meaningful opinion could not be formed without the sequence listing; the applicant did not, within the prescribed time limit:

- ☐ furnish a sequence listing on paper complying with the standard provided for in Annex C of the Administrative Istructions, and such listing was not available to the International Searching Authority in a form and manner acceptable to it.
- ☐ furnish a sequence listing in electronic form complying with the standard provided for in Annex C of the Administrative Istructions, and such listing was not available to the International Searching Authority in a form and manner acceptable to it.
- ☐ pay the required late furnishing fee for the furnishing of a sequence listing in response to an invitation under Rule 13ter.1(a) or (b).

☐ a meaningful opinion could not be formed without the tables related to the sequence listings; the applicant did not, within the prescribed time limit, furnish such tables in electronic form complying with the technical requirements provided for in Annex C-bis of the Administrative Instructions, and such tables were not available to the International Searching Authority in a form and manner acceptable to it.

☐ the tables related to the nucleotide and/or amino acid sequence listing, if in electronic form only, do not comply with the technical requirements provided for in Annex C-bis of the Administrative Instructions.

☐ See Supplemental Box for further details.

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WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2009/001516

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1-8, 14	YES
	Claims	None	NO
Inventive step (IS)	Claims	1-8, 14	YES
	Claims	None	NO
Industrial applicability (IA)	Claims	1-8, 14	YES
	Claims	None	NO

2. Citations and explanations :

Reference is made to the following documents:

D1: US 20070130156 A1 (JOUKO U. TENHUNEN et al.) 07 June 2007
D2: KR 10-2008-0022697 A (ELECTRONICS AND TELECOMMUNICATIONS RESEARCH INSTITUTE) 12 March 2008
D3: US 2003-0106022 A1 (ANTHONY JOHN GOODACRE et al.) 05 June 2003
D4: EP 1571547 A1 (RESEARCH IN MOTION LIMITED) 07 September 2005

1. Novelty and Inventive Step

Embodiments of the present invention relate to the field of wireless communication systems. More particularly, embodiments of the present invention relate to a method and system for executing applications on a wireless device.

Independent claims 1, 8 and 14 of the present invention differ from the prior art documents D1-D4 in that the present invention includes the elements of scene components and assets and the steps of generating and rendering. And the invention defined in claims 1, 8 and 14 is not obvious to a person skilled in the art from the documents when taken alone or in combination.

Therefore, independent claims 1, 8, 14 and dependent claims 2-7 meet the requirements of PCT Article 33(2) and (3) with respect to novelty and inventive step.

2. Industrial Applicability

Claims 1-8 and 14 are industrially applicable under PCT Article 33(4).

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WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2009/001516

Box No. VII Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

Dependent claims 9-12 and 15-20 do not comply with PCT Rule 6.4(c) because all dependent claims shall refer back to one or more previous claims.

GTV00000529

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2009/001516

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

Claim 13 is unclear contrary to PCT Article 6 in that the said claim refers to claim 12 which does not comply with PCT Rule 6.4(c).

GTV00000530

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:

see form PCT/ISA/220

PCT

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY
(PCT Rule 43*bis*.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/US2008/009303	31.07.2008	01.08.2007

International Patent Classification (IPC) or both national classification and IPC
INV. G06F9/44

Applicant
HANDS-ON MOBILE, INC.

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☒ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☒ Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notifed the International Bureau under Rule 66.1*bis*(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:	Date of completion of this opinion	Authorized Officer
European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	see form PCT/ISA/210	Jonsson, Svante Telephone No. +49 89 2399-5980

Form PCT/ISA/237 (Cover Sheet) (April 2005)

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2008/009303

Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of:

   ☒ the international application in the language in which it was filed

   ☐ a translation of the international application into , which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1 (b)).

2. ☐ This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43bis.1(a))

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:

   a. type of material:

      ☐ a sequence listing

      ☐ table(s) related to the sequence listing

   b. format of material:

      ☐ on paper

      ☐ in electronic form

   c. time of filing/furnishing:

      ☐ contained in the international application as filed.

      ☐ filed together with the international application in electronic form.

      ☐ furnished subsequently to this Authority for the purposes of search.

4. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

5. Additional comments:

Box No. II Priority

1. ☒ The validity of the priority claim has not been considered because the International Searching Authority does not have in its possession a copy of the earlier application whose priority has been claimed or, where required, a translation of that earlier application. This opinion has nevertheless been established on the assumption that the relevant date (Rules 43*bis*.1 and 64.1) is the claimed priority date.

2. ☐ This opinion has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rules 43*bis*.1 and 64.1). Thus for the purposes of this opinion, the international filing date indicated above is considered to be the relevant date.

3. Additional observations, if necessary:

Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	1-41
	No:	Claims	
Inventive step (IS)	Yes:	Claims	12,25,39
	No:	Claims	1-11,13-24,26-39,40,41
Industrial applicability (IA)	Yes:	Claims	1-41
	No:	Claims	

2. Citations and explanations

see separate sheet

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

GTV00000533

1 Documents

The following documents are referred to in this communication; the numbering will be adhered to in the rest of the procedure:

D1: US-B1-6 345 279 (LI CHUNG-SHENG [US] ET AL) 5 February 2002 (2002-02-05)

D2: MIR FAROOQ ALI ET AL: "Building Multi-Platform User Interfaces with UIML" INTERNET CITATION, [Online] XP002280476 Retrieved from the Internet: URL:http://arxiv.org/ftp/cs/papers/0111/0111024.pdf> [retrieved on 2004-05-17]

D3: MARC ABRAMS & CONTANTINOS PHANOURIOU: "UIML: An XML Language for Building Device-Independent User Interfaces" XML CONFERENCE PROCEEDINGS. PROCEEDINGS OF XML, XX, XX, 1 December 1999 (1999-12-01), XP002161335

Re Item V.

2 Lack of inventive step of independent claims 1, 14 and 28 (Article 33(3) PCT)

2.1 Document D1, which is considered to represent the **most relevant state of the art, discloses** (the references in parentheses applying to this document; the original wording of the claim is set in *italic font*; features not disclosed in the prior art are set ~~strikeout~~):

A server implemented method (column 12, lines 12 - 13: "the content adaptation process can be deployed on the server-side") *for processing data* (column 2, lines 54 - 55: "content is dynamically adapted to the client device") *for a wireless device* (column 1, line 33: "smart cellular phones"), *said method comprising: executing an application program which generates content operable to be rendered on said wireless device* (column 2, lines 22 - 22: "adapts multimedia content ... to optimally match the capabilities of the client device requesting it" - it is obvious that

the content is generated by an executing application) *and wherein said content is wireless device generic* (column 2, lines 24 - 25: "Each of these content items is then transcoded into multiple resolution and modality versions so that they can be rendered on different devices" - since the items are transcoded for different devices they are originally device generic)*;*
generating a first screen description based on said content and based on a device profile of said wireless device wherein said device profile describes a rendering capability of said wireless device (column 6, lines 42 - 47: "A content adaptation process 350 uses the client profile 310 to select from among the InfoPyramids 280 the versions 374 that best satisfy the particular client profile. These selected versions are rendered into a document 370 which is an adaptation (i.e., customization) of the original multimedia document"; lines 3 - 4: "A client device is characterized by its profile 310 which lists the capabilities 320 and resources 330 of the device"; lines 11 - 13: "Examples of capabilities that may be specified include: ... image display capability")*;*
~~*translating said first screen description into a second screen description comprising discrete low level rendering commands that are within said rendering capability of said wireless device but that are of a syntax that is wireless device generic; and*~~
providing said second screen description for transmission to said wireless device (column 6, lines 47 - 48: "The client device receives the customized document").

2.2 The **subject-matter** of claim 1 therefore **differs** from the disclosure of D1 in that device generic low level commands are used.

2.3 The **objective problem** to be solved by the present invention may therefore be regarded as how to support multiple devices having similar capabilities.

2.4 The **solution** proposed in claim 1 of the present application cannot be considered as involving an inventive step (Article 33(3) PCT) since D2 discloses the use of screen descriptions (Abstract: "canonical description of UIs for different platforms") comprising low level rendering commands (page 5, line 35: "set of generic UI elements" within the rendering capability of the device (page 5, lines 26 - 27: "family refers to multiple platforms that share common layout capabilities") in a device

GTV00000535

generic syntax (page 5, lines 32 - 33: "A generic vocabulary of UI elements, used in conjunction with UIML, can describe any UI for any platform within its family").

2.5 Server system claim 14 only comprises features corresponding to those of claim 1. Therefore, the objections concerning lack of inventive step of claim 1 **apply accordingly** to claim 14.

2.6 Server system claim 28 only contains features corresponding to those of claim 1 and the additional feature of "a device profile library operable to store a device profile describing the rendering capability of said wireless device". Since it is considered obvious to the skilled person that the client profiles used in the system of D1 are stored somewhere in the system, this additional feature is not considered to involve an inventive step and therefore the subject-matter of claim 28 is not considered to be inventive in the sense of Article 33(3) PCT.

3 **Lack of inventive step of dependent claims 2 - 11, 13, 15 - 24, 26, 27, 29 - 38, 40 and 41 (Article 33(3) PCT)**

These dependent claims do not appear to contain any additional features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of inventive step (Article 33(3) PCT), the reasons being as follows:

a. **claims 2, 15** and **29**: that the first screen description is within the rendering capability of the device is disclosed in D1 (column 6, lines 3 - 47). To use a generic syntax for the first screen description is considered obvious to the skilled person in light of the combination of D1 and D2 and can therefore not be considered to involve an inventive step;

b. **claims 3, 16** and **30**: to use relative positions is considered obvious to the skilled person when developing device generic systems and can therefore not be considered to involve an inventive step;

c. **claims 4, 17** and **31**: the use of XML-compliant syntax is disclosed in D2 (page 1, lines 5 - 6) and can therefore not be considered to involve an

inventive step;

d. **claims 5 - 8, 18 - 21** and **32 - 35**: the use of a plurality of rendering blocks, physical positions and parameters is disclosed in D2 (page 5, lines 25 - last and Fig. 2) and can therefore not be considered to involve an inventive step;

e. **claims 9, 22** and **36**: to transmit the screen description to the device is disclosed in D1 (column 6, lines 47 - 48) and can therefore not be considered to involve an inventive step;

f. **claims 10, 23** and **37**: the use of display and audio rendering commands is disclosed in D2 (page 2, lines 16 - 19) and can therefore not be considered to involve an inventive step;

g. **claims 11, 24** and **38**: the use of generic applications is disclosed in D2 (page 1, lines 26 - 29). The use of templates is a technique well known to the skilled person (see also D3, page 8, line 15 - last) and can therefore not be considered to involve an inventive step;

h. **claims 13, 26** and **41**: that the system of D1 comprises a plurality of profiles and that profiles are identified based on device types is considered as obvious to the skilled person and can therefore not be considered to involve an inventive step;

i. **claims 27** and **40**: to store adaptions already made by the system as configurations and select one based on information concerning device type and application would be a normal design decision well in reach of the skilled person and can therefore not be considered to involve an inventive step.

4 **Inventiveness of dependent claims 12, 25 and 39**

The subject-matter of these dependent claims does not seem to be disclosed or anticipated by the available prior art and therefore seems to be **new** and involving an **inventive** step.

Re Item VIII.

5 **Lack of clarity of the independent claim 28 (Article 6 PCT)**

5.1 Claim 28 has been formulated as an independent claim although it comprises all the features of claim 14. This claim should therefore have been formulated so as to define this dependency (Rule 6.4 PCT).

5.2 Additionally, claim 28 comprises references to "said bus" and "said wireless device" although none of these features have been defined earlier in the claim.

5.3 Furthermore, later in the claim (line 5) "a bus" is defined. It is not clear to the reader if this is the same bus which was earlier in the claim referenced by "said bus".

6 **Lack of clarity of the dependent claims 4, 17 and 31 (Article 6 PCT)**

The vague and **unclear** formulation "substantially" used in these claims leaves the reader in doubt as to the matter for which protection is sought.

7 **Lack of clarity of the dependent claims 27 and 40 (Article 6 PCT)**

These claims comprise references to "said custom configuration" although no singular custom configuration has been defined earlier in the claims.

8 **Lack of clarity (Article 6 PCT)**

The **vague and imprecise statement** "spirit of the invention" in the description on page 9 implies that the subject-matter for which protection is sought may be different to that defined by the claims, thereby resulting in lack of clarity (Article 6 PCT, PCT Guidelines 5.30) when used to interpret them.

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:

see form PCT/ISA/220

PCT

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY
(PCT Rule 43*bis*.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/US2008/009302	31.07.2008	01.08.2007

International Patent Classification (IPC) or both national classification and IPC
INV. G06F9/44

Applicant
HANDS-ON MOBILE, INC.

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☒ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☒ Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notifed the International Bureau under Rule 66.1*bis*(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:	Date of completion of this opinion	Authorized Officer
European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	see form PCT/ISA/210	Jonsson, Svante Telephone No. +49 89 2399-5980

Form PCT/ISA/237 (Cover Sheet) (April 2005)

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2008/009302

Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of:

   ☒ the international application in the language in which it was filed

   ☐ a translation of the international application into , which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1 (b)).

2. ☐ This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43bis.1(a))

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:

   a. type of material:

      ☐ a sequence listing

      ☐ table(s) related to the sequence listing

   b. format of material:

      ☐ on paper

      ☐ in electronic form

   c. time of filing/furnishing:

      ☐ contained in the international application as filed.

      ☐ filed together with the international application in electronic form.

      ☐ furnished subsequently to this Authority for the purposes of search.

4. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

5. Additional comments:

Box No. II Priority

1. ☒ The validity of the priority claim has not been considered because the International Searching Authority does not have in its possession a copy of the earlier application whose priority has been claimed or, where required, a translation of that earlier application. This opinion has nevertheless been established on the assumption that the relevant date (Rules 43*bis*.1 and 64.1) is the claimed priority date.

2. ☐ This opinion has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rules 43*bis*.1 and 64.1). Thus for the purposes of this opinion, the international filing date indicated above is considered to be the relevant date.

3. Additional observations, if necessary:

Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	1-36
	No:	Claims	
Inventive step (IS)	Yes:	Claims	
	No:	Claims	1-36
Industrial applicability (IA)	Yes:	Claims	1-36
	No:	Claims	

2. Citations and explanations

see separate sheet

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

1 Documents

The following documents are referred to in this communication; the numbering will be adhered to in the rest of the procedure:

D1: US 2002/109718 A1 (MANSOUR PETER M [US] ET AL) 15 August 2002 (2002-08-15)

D2: SIMON, RAINER ET AL: "Tool-supported Single Authoring for Device Independence and Multimodality" PROCEEDINGS OF THE 7TH INTERNATIONAL CONFERENCE ON HUMAN COMPUTER INTERACTION WITH MOBILE DEVICES & SERVICES, [Online] 19 September 2005 (2005-09-19), - 22 September 2005 (2005-09-22) pages 91-98, XP002511216 Retrieved from the Internet: URL:http://portal.acm.org/citation.cfm?id=1085777.1085793> [retrieved on 2009-01-19]

D3: MIR FAROOQ ALI ET AL: "Building Multi-Platform User Interfaces with UIML" INTERNET CITATION, [Online] XP002280476 Retrieved from the Internet: URL:http://arxiv.org/ftp/cs/papers/0111/01 11024.pdf> [retrieved on 2004-05-17]

Re Item V.

2 Lack of inventive step of independent claims 1, 13, 25 (Article 33(3) PCT)

2.1 Document D1, which is considered to represent the **most relevant state of the art, discloses** (the references in parentheses applying to this document; the original wording of the claim is set in *italic font*; features not disclosed in the prior art are set ~~strikeout~~):

A method of rendering content on a wireless device ([0219]: "the client device 2402

performs the UI rendering tasks"; [0021]: "A distributed user interface (UI) architecture according to the present invention can specifically address the wireless HCD [handheld computing device] scenario"), *said method comprising:*
receiving an identification of a custom configuration of a plurality of rendering blocks of said wireless device ([0160]: "the UI server may send a UI form definition or a corresponding identifier to the client device ... although the client device actually renders the UI, the UI server dictates which UI forms to display"), *wherein said custom configuration is associated with an application and configures said plurality of rendering blocks to render content in a manner customized to said application* ([0093]: "UI forms database element 717 preferably stores information related to the forms, controls, layouts, parameters, and/or characteristics associated with the application UIs. In a practical embodiment, the UI forms database element 717 stores form definitions that are utilized by the client devices during UI processing and rendering");
receiving compiled content generated in part from execution of said application ~~*wherein said compiled content comprises render commands expressed in a syntax that is generic to said wireless device*~~ (Claim 1: "transmitting, from said UI server, a number of source data items ... said number of source data items being related to said server-based application");
using a graphical user interface comprising said plurality of rendering blocks to generate renderable content based on said compiled content and said custom configuration (Claim 1: "instructing a client device to render a UI form corresponding to said UI form definition and ... a number of source data items for population in said UI form"); *and*
rendering said renderable content on said wireless device ([0219]: "the client device 2402 performs the UI rendering tasks").

2.2 The **subject-matter** of claim 1 therefore **differs** from the disclosure of D1 in the use of device generic syntax for render commands.

2.3 The **objective problem** to be solved by the present invention may therefore be regarded as how to support multiple device types in the distributed user interface system of D1.

2.4 The **solution** proposed in claim 1 of the present application cannot be considered as involving an inventive step (Article 33(3) PCT) since D2 discloses the use of a "user interface description language" (page 92 , left column, line 5) in which interfaces are specified "using a set of generic widgets" (page 92, right column, line 16) which at the client are translated and presented to the user (page 92, right column, lines 8 - 10).

2.5 Since both D1 and D2 come from the field of distributed user interfaces for mobile devices, which is the field of the application, it is considered obvious to the skilled person to use the teaching from D2 when trying to improve the system of D1.

2.6 Computer readable media claim 13 and device claim 25 only comprise features corresponding to those of claim 1. Therefore, the objections concerning lack of inventive step of claim 1 **apply accordingly** to claims 13 and 25.

3 **Lack of inventive step of dependent claims 2 - 12, 14 - 24 and 26 - 36 (Article 33(3) PCT)**

These dependent claims do not appear to contain any additional features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of inventive step (Article 33(3) PCT), the reasons being as follows:

a. **claims 2, 14** and **26**: the use of a reader is disclosed in D2 (page 92, left column, line 6: "presentation server") and issuing commands to rendering blocks based on received commands is disclosed in D1 ([0131]) and can therefore not be considered to involve an inventive step;

b. **claims 3, 15** and **27**: that the content comprises audio and display content is disclosed in D2 (page 92, left column, line 16) and can therefore not be considered to involve an inventive step;

c. **claims 4, 16** and **28**: that the application is operating on a remote server is disclosed in D1 (Abstract) and can therefore not be considered to involve an inventive step;

d. **claims 5, 17** and **29**: that the content is dependent on the capabilities of the device is also disclosed in D1 (e.g. [0217]) and can therefore not be considered to involve an inventive step;

e. **claims 6, 7, 18, 19, 30** and **31**: that devices belong to types sharing a common platform is well known (e.g. see D3, page 5 , lines 26 - 27) and that the rendering blocks and configuration information are device specific and instructed using device generic syntax is disclosed in D1 ([0162]) and can therefore not be considered to involve an inventive step;

f. **claims 8, 20** and **32**: that configuration and content is specific to the application is disclosed in D1 ([0160] and Claim 1) and can therefore not be considered to involve an inventive step;

g. **claims 9, 21** and **33**: that multiple pages sharing the same configuration are received at the client device is implicitly disclosed by the email example in D1 ([0072] - [0075]) and can therefore not be considered to involve an inventive step;

h. **claims 10, 11, 22, 23** and **34**: receiving and storing configurations and receiving an id for identifying a configuration is disclosed in D1 ([0160], [0218]) and can therefore not be considered to involve an inventive step;

i. **claims 12, 24, 35** and **36**: these are well known user interface elements and to use them can therefore not be considered to involve an inventive step.

Re Item VIII.

4 **Lack of clarity of independent claim 25 (Article 6 PCT)**

In claim 25 (third line of the claim) a reference is made to "said bus" although no bus has been defined earlier in the claim.

5 **Lack of clarity (Article 6 PCT)**

The **vague and imprecise statement** "spirit of the invention" in the description on page 9 implies that the subject-matter for which protection is sought may be different to that defined by the claims, thereby resulting in lack of clarity (Article 6 PCT, PCT

Guidelines 5.30) when used to interpret them.

GTV00000546

Electronic Patent Application Fee Transmittal

Application Number:	11888799
Filing Date:	01-Aug-2007
Title of Invention:	Server method and system for rendering content on a wireless device
First Named Inventor/Applicant Name:	Pierre Carion
Filer:	David W. Hopkins/Marilyn Harris
Attorney Docket Number:	GOTV-001/00US 310663-2005

Filed as Large Entity

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Extension - 3 months with $0 paid	1253	1	1110	1110

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
Submission- Information Disclosure Stmt	1806	1	180	180
		Total in USD ($)		**1290**

Electronic Acknowledgement Receipt

EFS ID:	9075445
Application Number:	11888799
International Application Number:	
Confirmation Number:	5349
Title of Invention:	Server method and system for rendering content on a wireless device
First Named Inventor/Applicant Name:	Pierre Carion
Customer Number:	58249
Filer:	David W. Hopkins/Marilyn Harris
Filer Authorized By:	David W. Hopkins
Attorney Docket Number:	GOTV-001/00US 310663-2005
Receipt Date:	21-DEC-2010
Filing Date:	01-AUG-2007
Time Stamp:	10:58:52
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	$1290
RAM confirmation Number	9704
Deposit Account	501283
Authorized User	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)

1		310663-2005-resp.PDF	947252 57a1d34badd2e8592a98f240003669b0f32e1e6e	yes	19

Multipart Description/PDF files in .zip description		
Document Description	**Start**	**End**
Amendment/Req. Reconsideration-After Non-Final Reject	1	1
Claims	2	11
Applicant Arguments/Remarks Made in an Amendment	12	14
Transmittal Letter	15	17
Information Disclosure Statement (IDS) Filed (SB/08)	18	19

Warnings:					
Information:					
2	Foreign Reference	KR697.PDF	269079 288a6a2dbc6c32782ba890a9d7a05e949ebd857b	no	7
Warnings:					
Information:					
3	Foreign Reference	EP547.PDF	1430389 217cb997d1b8403390d7e6340eb16e803b908a58	no	29
Warnings:					
Information:					
4	Foreign Reference	KR418.PDF	655419 2f07b5fa7e130d86cc32d2964b0c924b8491e283	no	13
Warnings:					
Information:					
5	NPL Documents	OA319-8-19-10.PDF	807894 1760acfe298e975797072d9facc7f5c7dfb1b4cf	no	18
Warnings:					
Information:					
6	NPL Documents	OA229-7-30-10.PDF	349138 1aeb76a6e50fe6b9bc952c8e0fcfcc0ebd91070d	no	8
Warnings:					
Information:					

7	NPL Documents	OA212-9-17-09.PDF	514579 2daf2c3ac16e4b57690bc7c83b9aaa76ff91ae9d	no	13
Warnings:					
Information:					
8	NPL Documents	OA186-12-3-08.PDF	410856 73e9711445d3cf0877e0ae8dd5a85149edab7ab4	no	12
Warnings:					
Information:					
9	NPL Documents	OA186-5-12-09.PDF	597448 e0948e9c8783b326ba5b94c09608b2505f069681	no	15
Warnings:					
Information:					
10	NPL Documents	OA670-6-29-10.PDF	475066 e2b23d10d04030c374bd47552794e7d7d80370bb	no	12
Warnings:					
Information:					
11	NPL Documents	OA186-7-9-10.PDF	633114 335861dcfc7853b64965e96421018e54350acc50	no	17
Warnings:					
Information:					
12	NPL Documents	OA186-9-2-09.PDF	627927 96749ae85a81e09d538d15f44f7fe5a16df16b66	no	17
Warnings:					
Information:					
13	NPL Documents	OA186-2-16-10.PDF	761475 bb66141886718e651a7a47c479b74429047fc658	no	19
Warnings:					
Information:					
14	NPL Documents	OA212-6-21-10.PDF	812799 c2b49382be5cabb9394fada39ade61574edf23f6	no	20
Warnings:					
Information:					
15	NPL Documents	OA670-1-7-10.PDF	389043 c51e1977b5657db2d425b5718231053baa361a11	no	10
Warnings:					
Information:					

16	NPL Documents	PCT514-npl.PDF	305383 7688f6c81cebca2f88404af6c899d3e9107c05da	no	6
Warnings:					
Information:					
17	NPL Documents	PCT516-npl.PDF	439548 62318d18e4fa273869f8b4851ef9e1f985a3f466	no	10
Warnings:					
Information:					
18	NPL Documents	PCT9303-npl.PDF	417466 40733c094fff46d398d44018beb4146d15e715f0	no	8
Warnings:					
Information:					
19	NPL Documents	PCT9302-npl.PDF	376344 d751157105e526328e0187540e686d53851ca214	no	8
Warnings:					
Information:					
20	Fee Worksheet (PTO-875)	fee-info.pdf	32364 9ca9d8ee3ee6a95ee65b6b1119d87ac208cd7851	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	11252583		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 11/886,799	Filing Date	☐ To be Mailed

APPLICATION AS FILED – PART I

		(Column 1)		(Column 2)	(Column 3)	SMALL ENTITY		OR	OTHER THAN SMALL ENTITY	
AMENDMENT	12.21.10	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 36	Minus	** 41	= 0	X $ =		OR	X $ =	
	Independent (37 CFR 1.16(h))	* 3	Minus	*** 3	= 0	X $ =		OR	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

		(Column 1)		(Column 2)	(Column 3)					
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =		OR	X $ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =		OR	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

Legal Instrument Examiner:

/Vincent Butler/

NO.	IND	DEP
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TOT		

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UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/888,799	08/01/2007	Pierre Carion	GOTV-001/00US 310663-2005	5349

58249 7590 02/07/2011

COOLEY LLP
ATTN: Patent Group
Suite 1100
777 - 6th Street, NW
WASHINGTON, DC 20001

EXAMINER	
SURYAWANSHI, SURESH	
ART UNIT	**PAPER NUMBER**
2115	

MAIL DATE	DELIVERY MODE
02/07/2011	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	11/888,799	CARION ET AL.	
	Examiner	Art Unit	
	SURESH K. SURYAWANSHI	2115	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 December 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3-8,10-14,16-21,23,25,28,30-35,37,39,41-45* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3-8,10-14,16-21,23,25,28,30-35,37,39,41-45* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *12/21/10*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1, 3-8, 10-14, 16-21, 23, 25, 28, 30-35, 37, 39, and 41-45 are presented for examination.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1, 3-8, 10-13, 28, 30-35, 37, 39, and 41-45 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Applicants fail to describe the newly claimed limitation of "said plurality of content items using both said screen description and said custom configuration." Examiner is unable to find any detail to this new limitation anywhere in the provided specification. Examiner also searched through the specification using keywords "screen description" and "custom configuration" but unable to find any paragraph clearly saying that plurality of content items using both the screen description and the custom configuration.

4. Claims 1, 3-8, 10-13, 28, 30-35, 37, 39, and 41-45 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Applicants fail to teach the newly claimed limitation of "said plurality of content items using both said screen description and said custom configuration." Examiner is unable to find any detail to this new limitation anywhere in the provided specification. Examiner also searched through the specification using keywords "screen description" and "custom configuration" but unable to find any paragraph clearly saying that plurality of content items using both the screen description and the custom configuration. The examiner submits that it would require undue experimentation to make and use the claimed new limitation.

5. Claims 14, 16-21, 23 and 25 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Applicants fail to describe the newly claimed limitation of "remove, using ... unsupported by the wireless device." Examiner is unable to find any detail to this new limitation anywhere in the provided specification. Examiner also searched through the specification using keywords "remov" and "removing" but unable to find any paragraph clearly saying that plurality of content items using both the screen description and the custom configuration.

6. Claims 14, 16-21, 23 and 25 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Applicants fail to teach the newly claimed limitation of "remove, using ... unsupported by the wireless device." Examiner is unable to find any detail to this new limitation anywhere in the provided specification. Examiner also searched through the specification using keywords "remov" and "removing" but unable to find any paragraph clearly saying that plurality of content items using both the screen description and the custom configuration. The examiner submits that it would require undue experimentation to make and use the claimed new limitation.

Response to Arguments

7. Applicant's arguments filed on 12/21/10 have been fully considered but they are not persuasive. Amendments have introduced a new subject matter as detailed above.

8. Prior rejection (dated 6/25/10) maintained.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SURESH K. SURYAWANSHI whose telephone number is (571)272-3668. The examiner can normally be reached on 9:00am - 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas C. Lee can be reached on 571-272-3667. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Suresh K Suryawanshi/
Primary Examiner, Art Unit 2115

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UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
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BIB DATA SHEET

CONFIRMATION NO. 5349

SERIAL NUMBER	FILING or 371(c) DATE RULE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
11/888,799	08/01/2007	713	2115	GOTV-001/00US 310663-2005

APPLICANTS
Pierre Carion, La Jolla, CA;
Kevin Smith, San Diego, CA;

**** CONTINUING DATA ***************************
None /SKS/

**** FOREIGN APPLICATIONS ***************************
None /SKS/

**** IF REQUIRED, FOREIGN FILING LICENSE GRANTED ****
08/15/2007

Foreign Priority claimed ☐ Yes ☑ No 35 USC 119(a-d) conditions met ☐ Yes ☐ No Verified and Acknowledged /SURESH SURYAWANSHI/ Examiner's Signature	☐ Met after Allowance Initials	STATE OR COUNTRY	SHEETS DRAWINGS	TOTAL CLAIMS	INDEPENDENT CLAIMS
		CA	9	~~41~~ 34	3

ADDRESS

/SKS/
2/4/11

COOLEY LLP
ATTN: Patent Group
Suite 1100
777 - 6th Street, NW
WASHINGTON, DC 20001
UNITED STATES

TITLE

Server method and system for rendering content on a wireless device

FILING FEE RECEIVED		
2050	FEES: Authority has been given in Paper No._____ to charge/credit DEPOSIT ACCOUNT No._____ for following:	☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time) ☐ 1.18 Fees (Issue) ☐ Other _____ ☐ Credit

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	11888799	CARION ET AL.
	Examiner	Art Unit
	SURESH K SURYAWANSHI	2115

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	06/22/2010	02/04/2011							
	1	✓	✓							
	2	✓	-							
	3	✓	✓							
	4	✓	✓							
	5	✓	✓							
	6	✓	✓							
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	8	✓	✓							
	9	✓	-							
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	25	✓	✓							
	26	✓	-							
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	28	✓	✓							
	29	✓	-							
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	33	✓	✓							
	34	✓	✓							
	35	✓	✓							
	36	✓	-							

GTV00000562

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	11888799	CARION ET AL.
	Examiner	Art Unit
	SURESH K SURYAWANSHI	2115

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	06/22/2010	02/04/2011							
	37	✓	✓							
	38	✓	-							
	39	✓	✓							
	40	✓	-							
	41	✓	✓							
	42		✓							
	43		✓							
	44		✓							
	45		✓							

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	11888799	CARION ET AL.
	Examiner	**Art Unit**
	SURESH K SURYAWANSHI	2115

SEARCHED

Class	Subclass	Date	Examiner
713	100	6/21/10, 6/22/10	SKS
Search updated		2/3/11, 2/4/11	SKS

SEARCH NOTES

Search Notes	Date	Examiner
EAST; USPAT; US-PGPUB; EPO; JPO; IBM_TDB; NPL	6/21/10, 6/22/10	SKS
Search updated	2/3/11, 2/4/11	SKS

INTERFERENCE SEARCH

Class	Subclass	Date	Examiner
713	1	6/21/10, 6/22/10	SKS
709	246, 203	6/21/10, 6/22/10	SKS
Search updated		2/3/11, 2/4/11	SKS

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	7	("5060140" "6795710" "6996537" "7222154" "7286562" "7580703" "7599665").pn.	USPAT	OR	OFF	2011/02/03 11:35
S2	23	"20020018487" "20030018521" "20030106022" "20030120637" "20030182419" "20040210907" "20040236860" "20040252197" "20050223352" "20060031387" "20060236308" "20070067373" "20070078009" "20070123229" "20070130156" "20070130333" "20080016176" "20090037329" "20090037391" "20090177663" "20090220068" "20090227274" "20090259940"	US-PGPUB	OR	OFF	2011/02/03 12:12
S3	0	send$3 near2 custom adj1 configuration near3 wireless	USPAT	OR	OFF	2011/02/03 13:10
S4	0	send$3 near2 custom adj1 configuration near3 wireless	US-PGPUB	OR	OFF	2011/02/03 13:10
S5	0	send$3 near2 custom adj1 configuration near3 wireless	EPO; JPO; IBM_TDB	OR	OFF	2011/02/03 13:10
S6	0	send$3 near2 custom adj1 configuration near3 (phone cell $1phone mobile)	USPAT	OR	OFF	2011/02/03 13:11

S7	0	send$3 near2 custom adj1 configuration near3 (phone cell $1phone mobile)	US-PGPUB	OR	OFF	2011/02/03 13:11
S8	0	send$3 near2 custom adj1 configuration near3 (phone cell $1phone mobile)	EPO; JPO; IBM_TDB	OR	OFF	2011/02/03 13:12
S9	0	send$3 near2 screen adj1 description near3 wireless	USPAT	OR	OFF	2011/02/03 13:13
S10	0	send$3 near2 screen adj1 description near3 wireless	US-PGPUB	OR	OFF	2011/02/03 13:13
S11	0	send$3 near2 screen adj1 description near3 wireless	EPO; JPO; IBM_TDB	OR	OFF	2011/02/03 13:13
S12	1	send$3 near2 screen adj1 description near3 (mobile cell$1phone phone)	USPAT	OR	OFF	2011/02/03 13:14
S13	0	send$3 near2 screen adj1 description near3 (mobile cell$1phone phone)	US-PGPUB	OR	OFF	2011/02/03 13:15
S14	0	send$3 near2 screen adj1 description near3 (mobile cell$1phone phone)	EPO; JPO; IBM_TDB	OR	OFF	2011/02/03 13:15
S15	1	"6345279".pn.	USPAT	OR	OFF	2011/02/04 10:37
S16	0	screen adj1 description with (wireless adj1 device mobile phone hand $1held) with content with configuration	USPAT	OR	OFF	2011/02/04 11:18
S17	0	screen adj1 description with (wireless adj1 device mobile phone hand $1held) with content with configuration	US-PGPUB	OR	OFF	2011/02/04 11:18

S18	0	screen adj1 description with (wireless adj1 device mobile phone hand $1held) with content with configuration	EPO; JPO; IBM_TDB	OR	OFF	2011/02/04 11:18
S19	0	rendering adj1 content near3 wireless adj1 device	USPAT	OR	OFF	2011/02/04 11:24
S20	6	rendering adj1 content near3 wireless adj1 device	US-PGPUB	OR	OFF	2011/02/04 11:24
S21	0	rendering adj1 content near3 wireless adj1 device	EPO; JPO; IBM_TDB	OR	OFF	2011/02/04 11:27

2/4/2011 3:17:16 PM
C:\Documents and Settings\ssuryawanshi\My Documents\EAST\Workspaces\11888799RenderingContentWirelessDevicePart2.wsp

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PTO/SB/08A (07-05)
Approved for use through 07/31/2006. OMB 0651-0031

Substitute for form 1449A/PTO **INFORMATION DISCLOSURE STATEMENT BY APPLICANT** (*use as many sheets as necessary*)		***Complete if Known***	
		Application Number	11/888,799
		Filing Date	August 1, 2007
		First Named Inventor	Pierre CARION
		Group Art Unit	2115
		Examiner Name	Suresh K. Suryawanshi
Sheet	1 of 2	Attorney Docket Number	GOTV-001/00US 310663-2005

U.S. PATENT DOCUMENTS					
Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] (*if known*)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		5,060,140	10-22-1991	Brown et al.	
		6,795,710	09-21-2004	Creemer	
		6,996,537	02-07-2006	Minear et al.	
		7,222,154	05-22-2007	Dowling	
		7,286,562	10-23-2007	Vargo et al.	
		7,580,703	08-25-2009	Veselov et al.	
		7,599,665	10-06-2009	Sinivaara	
		2002/0018487	02-14-2002	Chen et al.	
		2003/0018521	01-23-2003	Kraft et al.	
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		2004/0236860	11-25-2004	Logston et al.	
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		2006/0031387	02-09-2006	Hamzeh et al.	
		2006/0236308	10-19-2006	Lamb et al.	
		2007/0067373	03-22-2007	Higgins et al.	
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		2007/0123229	05-31-2007	Pousti	
		2007/0130156	06-07-2007	Tenhunen et al.	
		2007/0130333	06-07-2007	Bhalla et al.	
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		2009/0037329	02-05-2009	Coppinger et al.	
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		2009/0227274	09-10-2009	Adler et al.	
		2009/0259940	10-15-2009	Moraes	

Examiner Signature		Date Considered	

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This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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PTO/SB/08A (07-05)
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Substitute for form 1449A/PTO **INFORMATION DISCLOSURE STATEMENT BY APPLICANT** (*use as many sheets as necessary*)		***Complete if Known***	
		Application Number	11/888,799
		Filing Date	August 1, 2007
		First Named Inventor	Pierre CARION
		Group Art Unit	2115
		Examiner Name	Suresh K. Suryawanshi
Sheet	2 of 2	Attorney Docket Number	GOTV-001/00US 310663-2005

FOREIGN PATENT DOCUMENTS						
Examiner Initials*	Cite No.[1]	Foreign Patent Document Country Code[3] Number[4] Kind Code[5] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T[2]
		KR1020080022697	12-03-2008	Electronics and Telecommunications Research Institute		
		EP1571547	07-09-2005	Research in Motion Limited		
		KR1020070003418 (w/English Abstract(	05-01-2007	Ktfreetel, Co., Ltd.		

OTHER – NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No.[1]	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T[2]
		Office Action mailed August 19, 2010 for U.S. Application No. 11/977,319, filed October 23, 2007	
		Office Action mailed July 30, 2010 for U.S. Application No. 11/977,229, filed October 23, 2007	
		Office Action mailed September 17, 2009 for U.S. Application No. 11/977,212, filed October 23, 2007	
		Office Action mailed December 3, 2008 for U.S. Application No. 11/977,186, filed October 23, 2007	
		Final Office Action mailed May 12, 2009 for U.S. Application No. 11/977,186, filed October 23, 2007	
		Final Office Action mailed June 29, 2010 for U.S. Application No. 12/098,670, filed April 7, 2008	
		Office Action mailed July 9, 2010 for U.S. Application No. 11/977,186, filed October 23, 2007	
		Office Action mailed September 2, 2009 for U.S. Application No. 11/977,186, filed October 23, 2007	
		Office Action mailed February 16, 2010 for U.S. Application No. 11/977,186, filed October 23, 2007	
		Office Action mailed June 21, 2010 for U.S. Application No. 11/977,212, filed October 23, 2007	
		Office Action mailed January 7, 2010 for U.S. Application No. 12/098,670, filed April 7, 2008	
		International Search Report and Written Opinion mailed October 6, 2009 for International PCT Application No. PCT/US2009/001514, 6 pgs.	
		International Search Report and Written Opinion mailed October 6, 2009 for International PCT Application No. PCT/US2009/001516, 10 pgs.	
		Written Opinion mailed February 1, 2010 for International PCT Aplication No. PCT/US2008/009303, 8 pgs.	
		Written Opinion mailed February 1, 2010 for International PCT Aplication No. PCT/US2008/009302, 8 pgs.	
Examiner Signature	/Suresh Suryawanshi/	Date Considered	02/04/2011

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. [1]Unique citation designation number (optional). [2]See attached Kinds of U.S. Patent Documents. [3]Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). [4]For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [5]Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [6]Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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Request for Continued Examination (RCE) Transmittal

Address to:
Mail Stop RCE
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P.O. Box 1450
Alexandria, VA 22313-1450

Application Number	11/888,799
Filing Date	August 1, 2007
First Named Inventor	Pierre Carion, et al.
Art Unit	2115
Examiner Name	Suresh Suryawanshi
Attorney Docket Number	38285-704.201

This is a Request for Continued Examination (RCE) under 37 CFR 1 .114 of the above-identified application.
Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, or to any design application. See Instruction Sheet for RCEs (not to be submitted to the USPTO) on page 2.

1. Submission required under 37 CFR 1.114 Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).

   a. ☐ Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked.

      i. ☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____

      ii. ☐ Other _____

   b. ☒ Enclosed

      i. ☒ Amendment/Reply

      ii. ☐ Affidavit(s)/ Declaration(s)

      iii. ☐ Information Disclosure Statement (IDS)

      iv. ☐ Other _____

2. Miscellaneous

   Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a

   a. ☐ period of ___ months. (Period of suspension shall not exceed 3 months; Fee under 37 CFR 1.17(i) required)

   b. ☐ Other _____

3. Fees The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.
   The Director is hereby authorized to charge the following fees any underpayment of fees or credit any overpayments to

   a. ☒ Deposit Account No. 23-2415 .

      i. ☒ RCE fee required under 37 CFR 1.17(e)

      ii ☒ Extension of time fee (37 CFR 1.136 and 1.17)

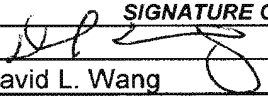
      iii ☐ Other _____

   b. ☐ Check in the amount of $ _____ enclosed

   c. ☐ Payment by credit card (Form PTO-2038 enclosed)

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

Signature		Date	August 8, 2011
Name (Print/Type)	David L. Wang	Registration No.	57,405

CERTIFICATE OF MAILING OR TRANSMISSION

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Mail Stop RCE, Commissioner for Patents, P. O. Box 1450, Alexandria, VA 22313-1450 or facsimile transmitted to the U.S. Patent and Trademark Office on the date shown below. **Electronically Filed on august 8, 2011.**

Signature	Lydia C. Vosburgh		
Name (Print/Type)	Lydia C. Vosburgh	Date	August 8, 2011

This collection of information is required by 37 CFR 1.114. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Mail Stop RCE, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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PATENT
Attorney Docket No. 38285-704.201

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No.:	11/888,799	Confirmation No.:	**5349**
Inventor:	Pierre Carion, et al.	Examiner:	Suresh Suryawanshi
Filed:	August 1, 2007	Group Art Unit:	2115
Title:	**SERVER METHOD AND SYSTEM FOR RENDERING CONTENT ON A WIRELESS DEVICE**	Customer No.	**21971**

FILED ELECTRONICALLY ON: AUGUST 8, 2011

AMENDMENT/RESPONSE TO FINAL OFFICE ACTION

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir or Madam:

In response to Examiner's Final Office Action mailed February 7, 2011, Applicants respectfully request reconsideration of the above-referenced application in view of the following amendments and remarks. This submission is accompanied by a three-month extension fee, extending the time for response to August 7, 2011. As this date falls on a Sunday, this response, filed on Monday, August 8, 2011, is timely filed.

Amendments to the Claims begin on page 2 of this paper.

Remarks begin on page 9.

Amendments to the Claims

1. (Currently Amended) A server implemented method for processing data for a wireless device, comprising:

receiving from the wireless device a request for an application program, said request including an indication of a type of the wireless device;

executing, in response to receiving said request, said application program to generate a wireless device generic template including a plurality of content items;

sending a custom configuration to the wireless device, said custom configuration being specific to said application program;

generating a ~~screen description~~ page description based on said wireless device generic template and a capability of the wireless device, said ~~screen description~~ page description having at least one discrete low level rendering command that is within said rendering capability of said wireless device but that is of a syntax that is wireless device generic; and

sending said ~~screen description~~ page description to the wireless device such that the wireless device is capable of presenting at least one content item from said plurality of content items using both said ~~screen description~~ page description and said custom configuration.

2. (Canceled)

3. (Previously Presented) The method of claim 1, wherein said wireless device generic template includes relative screen location and display object size information and is independent of screen dimensions of the wireless device.

4. (Previously Presented) The method of claim 1, wherein said wireless device generic template is substantially compliant with extensible markup language (XML) syntax.

5. (Currently Amended) The method of claim 1, wherein said at least one discrete low level rendering command of said ~~screen description~~ page description is operable to be executed by a plurality of rendering blocks of a graphical user interface of the wireless device.

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6. (Previously Presented) The method of claim 5, wherein said at least one discrete low level rendering command includes a physical screen position of a display element of said at least one content item.

7. (Previously Presented) The method of claim 5, wherein said at least one discrete low level rendering command includes:

a specification of a location and a size of a screen area; and

an identification of a rendering block from said plurality of rendering blocks of said graphical user interface to operate within said screen area.

8. (Previously Presented) The method of claim 7, wherein said at least one discrete low level rendering command includes parameters associated with said rendering block from said plurality of rendering blocks.

9. (Canceled)

10. (Currently Amended) The method of claim 1, wherein said ~~screen description~~ page description includes at least one display rendering command and at least one audio rendering command.

11. (Currently Amended) The method of claim 1, wherein said application program is wireless device generic and said wireless device generic template is a wireless device generic ~~screen description~~ page description template.

12. (Previously Presented) The method of claim 1, wherein the wireless device is operable to configure a plurality of rendering blocks of a graphical user interface based on said custom configuration.

13. (Previously Presented) The method of claim 1, wherein said server stores a plurality of device profiles, said method further comprises:

identifying a device profile from said plurality of device profiles associated with the wireless device based on said type of said wireless device.

14. (Currently Amended) A non-transitory processor-readable medium storing code representing instructions to cause a processor to:

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receive a request for an application program from a wireless device, said request including an indication of a type of the wireless device;

execute said application program to generate a wireless device generic template including a plurality of content items;

request, using said indication of said type of the wireless device, a device profile from a library of device profiles, said device profile providing an indication of a rendering capability of the wireless device;

~~remove~~ eliminate, using said device profile, at least one content item from said plurality of content items from said wireless device generic template to define a device specific template associated with the wireless device, said at least one content item being unsupported by the wireless device.

translate said device specific template into a ~~screen description~~ page description having at least one discrete low level rendering command that is within said rendering capability of the wireless device but that is of a syntax that is wireless device generic; and

send said ~~screen description~~ page description to the wireless device.

15. (Canceled)

16. (Previously Presented) The non-transitory processor-readable medium of claim 14, wherein said wireless device generic template contains relative screen location and display object size information independent of screen dimensions of the wireless device.

17. (Previously Presented) The non-transitory processor-readable medium of claim 14, wherein said wireless device generic template is substantially compliant with extensible markup language (XML) syntax.

18. (Currently Amended) The non-transitory processor-readable medium of claim 14, wherein said at least one discrete low level rendering command of said ~~screen description~~ page description is operable to be executed by a plurality of rendering blocks of a graphical user interface of the wireless device.

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19. (Previously Presented) The non-transitory processor-readable medium of claim 18, wherein said at least one discrete low level rendering command includes a physical screen position of a display element of a content item from the plurality of content items.

20. (Previously Presented) The non-transitory processor-readable medium of claim 18, wherein said at least one discrete low level rendering command includes:

a specification of a location and a size of a screen area; and

an identification of a rendering block from said plurality of rendering blocks of said graphical user interface.

21. (Previously Presented) The non-transitory processor-readable medium of claim 20, wherein said at least one discrete low level rendering command includes at least one parameter associated with said rendering block from said plurality of rendering blocks.

22. (Canceled)

23. (Currently Amended) The non-transitory processor-readable medium of claim 14, wherein said ~~screen description~~ page description includes at least one display rendering command and at least one audio rendering command.

24. (Canceled)

25. (Previously Presented) The non-transitory processor-readable medium of claim 14, further comprising code representing instructions to cause said processor to: send, in response to said request, a custom configuration to said wireless device, the wireless device is operable to configure a plurality of rendering blocks of graphical user interface based on said custom configuration.

26.-27. (Canceled)

28. (Currently Amended) A server system, comprising:

a memory; and

a processor operable to execute an application program that generates content for rendering on a wireless device, said content being wireless device generic, said processor being operable to implement:

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a device profile library operable to store a device profile describing a rendering capability of the wireless device;

a decoding system operable to send to the wireless device a custom configuration associated with said application program in response to receiving an indication from the wireless device that said custom configuration is not stored on the wireless device;

a template engine operable to generate a template based on said content and based on said device profile of the wireless device; and

a screen layout translator to translate said template into a ~~screen description~~ page description having at least one discrete low level rendering command that is within said rendering capability of the wireless device but that is of a syntax that is wireless device generic, said screen layout translator operable to send said ~~screen description~~ page description and said custom configuration to the wireless device such that the wireless device is capable of presenting said content using both said ~~screen description~~ page description and said custom configuration.

29. (Canceled)

30. (Previously Presented) The server system of claim 29, wherein said template includes relative screen location and display object size information and is independent of screen dimensions of the wireless device.

31. (Previously Presented) The server system of claim 28, wherein said template is substantially compliant with extensible markup language (XML) syntax.

32. (Currently Amended) The server system of claim 28, wherein said at least one discrete low level rendering command of said ~~screen description~~ page description is operable to be executed by a plurality of rendering blocks of a graphical user interface of the wireless device.

33. (Previously Presented) The server system of claim 32, wherein said at least one discrete low level rendering command includes a physical screen position of a display element of said content.

34. (Previously Presented) The server system of claim 32, wherein said at least one discrete low level rendering command includes:

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a specification of a location and a size of a screen area; and

an identification of a rendering block from said plurality of rendering blocks of said graphical user interface.

35. (Previously Presented) The server system of claim 34, wherein said at least one discrete low level rendering command includes at least one parameter associated with said rendering block from said plurality of rendering blocks.

36. (Canceled)

37. (Currently Amended) The server system of claim 28, wherein said ~~screen description~~ page description includes at least one display rendering command and at least one audio rendering command.

38. (Canceled)

39. (Previously Presented) The server system of claim 28, wherein said custom configuration is operable to configure a plurality of rendering blocks of a graphical user interface of the wireless device.

40. (Canceled)

41. (Previously Presented) The server system of claim 28 wherein said memory includes a plurality of device profiles, said processor is operable to receive an identification of a type of the wireless device and is operable to identify said device profile from said plurality of device profiles based on said type of the wireless device.

42. (Previously Presented) The method of claim 1, wherein the sending the custom configuration to the wireless device is in response to receiving an indication from the wireless device that the custom configuration is not stored at the wireless device.

43. (Currently Amended) The method of claim 1, wherein the generating said ~~screen description~~ page description includes generating said ~~screen description~~ such that said ~~screen description~~ page description does not include a content item from said plurality of content items, said content item being unsupported by the wireless device.

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44. (Currently Amended) The method of claim 1, wherein said plurality of content items is a first plurality of content items, said ~~screen description~~ page description being a first ~~screen description~~ page description, the method further comprising:

receiving an indication that said custom configuration is stored on the wireless device; and

sending a second ~~screen description~~ page description associated with a second plurality of content items to the wireless device such that the wireless device is capable of is configured to presenting said second plurality of content items using said second ~~screen description~~ page description and said custom configuration.

45. (Currently Amended) The non-transitory processor-readable medium of claim 14, further comprising code representing instructions to cause the processor to:

send a custom configuration to the wireless device, said custom configuration being specific to said application program, the wireless device operable to present a content item from said plurality of content items using said ~~screen description~~ page description and said custom configuration.

GTV00000578

SUMMARY OF CLAIMS

Claims 1, 5, 10, 11, 14, 18, 23, 28, 32, 37, and 43-45 are herein amended. Support for the claim amendments and new claims can be found throughout the original specification, particularly from paragraphs 0016, 0017, 0019, 0042, 0167, and 0193. No new matter has been added. Accordingly, claims 1, 3-8, 10-14, 16-21, 23, 25, 28, 30-35, 37, 39, and 41-45 are now pending.

REMARKS

The following remarks are in response to the Examiner's Non-Final Office Action mailed on February 7, 2011. Reconsideration and allowance of this application are respectfully requested in light of the following remarks.

Claim Rejections under 35 U.S.C. §112

A. Claims 1, 3-8, 10-13, 28, 30-35, 37, 39, and 41-45 are rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the written description and enablement requirements.

Applicants have amended independent claim 1 to recite, "presenting at least one content item from said plurality of content items using both said page description and said custom configuration." Support for this amendment may be found in paragraph 0165 which states, "A page description contains basic commands that may include a description of the scrolling area ..., the horizontal and vertical coordinates ... and the like. As a result, the client 210 may draw the screen according to the description as specified by the received discrete low level basic commands and in accordance with the identified custom configuration." Independent claim 28 has been similarly amended. Claims 3-8, 10-13, 30-35, 37, 39, and 41-45, which depend upon independent claims 1 and 28, should be allowed for at least a similar rationale as discussed for claim 1 and 28, as well as for the additional features they recite. In view of the claim amendments provided above, withdrawal of the claim rejections under 35 U.S.C. §112 is respectfully requested.

GTV00000579

B. Claims 14, 16-21, 23 and 25 are rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the written description and enablement requirements.

Independent claim 14 has been amended to recite, "eliminate, using ... said at least one content item being unsupported by the wireless device." Support for this amendment may be found in paragraph 0017, which states that "the template engine communicates with a device profile of the wireless device and may eliminate content of the requested application that is not supported by the wireless device based on the capabilities of the wireless device." Claims 16-21, 23, and 25, which depend upon independent claim 14 should be allowed for at least a similar rationale as discussed for claim 14, as well as for the additional features they recite. In view of the claim amendments provided above, withdrawal of the claim rejections under 35 U.S.C. §112 is respectfully requested.

GTV00000580

CONCLUSION

Applicants submit that this paper fully addresses the Office Action mailed on February 7, 2011. Should the Examiner have any question, the Examiner is encouraged to contact the undersigned.

The Commissioner is authorized to charge any additional fees which may be required, including petition fees and extension of time fees, to Deposit Account No. 23-2415 (Docket No. 38285-704.201).

Respectfully submitted,

Date: August 8, 2011 By: _____

David L. Wang
Registration No. 53,913

WILSON SONSINI GOODRICH & ROSATI
650 Page Mill Road
Palo Alto, CA 94304-1050
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Customer No. 21971

Electronic Patent Application Fee Transmittal

Application Number:	11888799
Filing Date:	01-Aug-2007
Title of Invention:	Server method and system for rendering content on a wireless device
First Named Inventor/Applicant Name:	Pierre Carion
Filer:	Vernon A. Norviel/Lydia Vosburgh (UPE/DLW/lcv)
Attorney Docket Number:	GOTV-001/00US 310663-2005

Filed as Large Entity

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Extension - 3 months with $0 paid	1253	1	1110	1110

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
Request for continued examination	1801	1	810	810
		Total in USD ($)		**1920**

Electronic Acknowledgement Receipt

EFS ID:	10692020
Application Number:	11888799
International Application Number:	
Confirmation Number:	5349
Title of Invention:	Server method and system for rendering content on a wireless device
First Named Inventor/Applicant Name:	Pierre Carion
Customer Number:	58249
Filer:	Vernon A. Norviel/Lydia Vosburgh (UPE/DLW/lcv)
Filer Authorized By:	Vernon A. Norviel
Attorney Docket Number:	GOTV-001/00US 310663-2005
Receipt Date:	08-AUG-2011
Filing Date:	01-AUG-2007
Time Stamp:	21:32:51
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	$1920
RAM confirmation Number	6581
Deposit Account	232415
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		38285-704-201-RCE-Amendment-08-08-2011.pdf	973658 183a046a28df2bd765483957104ff852c93dc1a7	yes	12

Multipart Description/PDF files in .zip description

Document Description	Start	End
Request for Continued Examination (RCE)	1	1
Amendment After Final	2	2
Claims	3	9
Applicant Arguments/Remarks Made in an Amendment	10	12

Warnings:

Information:

2	Fee Worksheet (SB06)	fee-info.pdf	32542 c85b251fb160741be18df4bdad1c08b9a8dc736b	no	2

Warnings:

Information:

Total Files Size (in bytes):	1006200

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/06 (07-06)
Approved for use through 1/31/2007. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number	Filing Date	☐ To be Mailed
11/888,799	08/01/2007	

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY ☐ RATE ($)	SMALL ENTITY ☐ FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =		OR	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =			X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT	08/08/2011	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE ($)	SMALL ENTITY ADDITIONAL FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 34	Minus	** 41	= 0	X $ =		OR	X $52=	0
	Independent (37 CFR 1.16(h))	* 3	Minus	***3	= 0	X $ =		OR	X $220=	0
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	0

AMENDMENT		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)	OR	RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =		OR	X $ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =		OR	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

Legal Instrument Examiner:
/VENESSA JONES/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

NOTICE OF ALLOWANCE AND FEE(S) DUE

58249 7590 09/07/2011

COOLEY LLP
ATTN: Patent Group
Suite 1100
777 - 6th Street, NW
WASHINGTON, DC 20001

EXAMINER
SURYAWANSHI, SURESH

ART UNIT	PAPER NUMBER
2115	

DATE MAILED: 09/07/2011

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/888,799	08/01/2007	Pierre Carion	GOTV-001/00US 310663-2005	5349

TITLE OF INVENTION: SERVER METHOD AND SYSTEM FOR RENDERING CONTENT ON A WIRELESS DEVICE

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	$1510	$300	$0	$1810	12/07/2011

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail **Mail Stop ISSUE FEE**
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

58249 7590 09/07/2011

COOLEY LLP
ATTN: Patent Group
Suite 1100
777 - 6th Street, NW
WASHINGTON, DC 20001

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/888,799	08/01/2007	Pierre Carion	GOTV-001/00US 310663-2005	5349

TITLE OF INVENTION: SERVER METHOD AND SYSTEM FOR RENDERING CONTENT ON A WIRELESS DEVICE

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	$1510	$300	$0	$1810	12/07/2011

EXAMINER	ART UNIT	CLASS-SUBCLASS
SURYAWANSHI, SURESH	2115	713-100000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

❑ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

❑ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

(1) the names of up to 3 registered patent attorneys or agents OR, alternatively,

(2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 _____

2 _____

3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ❑ Individual ❑ Corporation or other private group entity ❑ Government

4a. The following fee(s) are submitted:

❑ Issue Fee

❑ Publication Fee (No small entity discount permitted)

❑ Advance Order - # of Copies _____

4b. Payment of Fee(s): **(Please first reapply any previously paid issue fee shown above)**

❑ A check is enclosed.

❑ Payment by credit card. Form PTO-2038 is attached.

❑ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)

❑ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.

❑ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/888,799	08/01/2007	Pierre Carion	GOTV-001/00US 310663-2005	5349

58249 7590 09/07/2011

COOLEY LLP
ATTN: Patent Group
Suite 1100
777 - 6th Street, NW
WASHINGTON, DC 20001

EXAMINER	
SURYAWANSHI, SURESH	

ART UNIT	PAPER NUMBER
2115	

DATE MAILED: 09/07/2011

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 452 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 452 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Notice of Allowability	Application No.	Applicant(s)	
	11/888,799	CARION ET AL.	
	Examiner	Art Unit	
	SURESH SURYAWANSHI	2115	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *RCE filed on 8/8/11*.

2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

3. ☐ The allowed claim(s) is/are _____.

4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
7. ☐ Examiner's Amendment/Comment
8. ☐ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

/SURESH SURYAWANSHI/
Primary Examiner, Art Unit 2115

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	11888799	CARION ET AL.
	Examiner	Art Unit
	SURESH K SURYAWANSHI	2115

SEARCHED

Class	Subclass	Date	Examiner
713	100	6/21/10, 6/22/10	SKS
Search updated		2/3/11, 2/4/11	SKS
Search updated		8/31/11, 9/1/11	SKS

SEARCH NOTES

Search Notes	Date	Examiner
EAST; USPAT; US-PGPUB; EPO; JPO; IBM_TDB; NPL	6/21/10, 6/22/10	SKS
Search updated	2/3/11, 2/4/11	SKS
Search updated	8/31/11, 9/1/11	SKS
Claim language searched in US-PGPUB	8/31/11, 9/1/11	SKS

INTERFERENCE SEARCH

Class	Subclass	Date	Examiner
713	1	6/21/10, 6/22/10	SKS
709	246, 203	6/21/10, 6/22/10	SKS
Search updated		2/3/11, 2/4/11	SKS
Search updated		8/31/11, 9/1/11	SKS

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	0	(send$3 sent receiv$3) near2 page adj1 description with (wireless adj1 device phone)	USPAT	OR	OFF	2011/08/31 15:09
S2	0	(send$3 sent receiv$3) near2 page adj1 description with (wireless adj1 device phone)	US-PGPUB	OR	OFF	2011/08/31 15:09
S3	0	(send$3 sent receiv$3) near2 page adj1 description with (wireless adj1 device phone)	EPO; JPO; IBM_TDB	OR	OFF	2011/08/31 15:10
S4	8	(send$3 sent receiv$3) near2 page adj1 description same (wireless adj1 device phone hand$1held portable)	USPAT	OR	OFF	2011/08/31 15:10
S5	6	(send$3 sent receiv$3) near2 page adj1 description same (wireless adj1 device phone hand$1held portable)	US-PGPUB	OR	OFF	2011/08/31 15:32
S6	0	(send$3 sent receiv$3) near2 page adj1 description same (wireless adj1 device phone hand$1held portable)	EPO; JPO; IBM_TDB	OR	OFF	2011/08/31 16:04
S7	0	page adj1 description near3 wireless adj1 device	USPAT	OR	OFF	2011/08/31 16:05
S8	0	page adj1 description near3 wireless adj1 device	US-PGPUB	OR	OFF	2011/08/31 16:05
S9	0	page adj1 description near3 wireless adj1 device	EPO; JPO; IBM_TDB	OR	OFF	2011/08/31 16:06
S10	2	page adj1 description same wireless adj1 device	USPAT	OR	OFF	2011/08/31 16:06
S11	4	page adj1 description same wireless adj1 device	US-PGPUB	OR	OFF	2011/08/31 16:08
S12	0	page adj1 description same wireless adj1 device	EPO; JPO; IBM_TDB	OR	OFF	2011/08/31 16:08
S13	5	render$3 near2 content$1 near3 wireless adj1 device$1	USPAT	OR	OFF	2011/08/31 16:11
S14	22	render$3 near2 content$1 near3 wireless adj1 device$1	US-PGPUB	OR	OFF	2011/08/31 16:27
S15	2	render$3 near2 content$1 near3 wireless adj1 device$1	EPO; JPO; IBM_TDB	OR	OFF	2011/08/31 16:35
S16	6	page adj1 description with rendering adj1 command	USPAT	OR	OFF	2011/08/31 16:50
S17	9	page adj1 description with rendering adj1 command	US-PGPUB	OR	OFF	2011/08/31 16:55
S18	1	page adj1 description with rendering adj1 command	EPO; JPO; IBM_TDB	OR	OFF	2011/08/31 16:57
S19	0	page adj1 description with custom adj1 configuration	USPAT	OR	OFF	2011/08/31 17:05
S20	0	page adj1 description with custom adj1 configuration	US-PGPUB	OR	OFF	2011/08/31 17:06

GTV00000593

S21	0	page adj1 description with custom adj1 configuration	EPO; JPO; IBM_TDB	OR	OFF	2011/08/31 17:06
S22	0	wireless adj1 device with generic adj1 template$1	USPAT	OR	OFF	2011/08/31 17:08
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S24	0	wireless adj1 device with generic adj1 template$1	EPO; JPO; IBM_TDB	OR	OFF	2011/08/31 17:09
S25	0	page adj1 description with generic adj1 template	USPAT	OR	OFF	2011/08/31 17:15
S26	2	page adj1 description with generic adj1 template	US-PGPUB	OR	OFF	2011/08/31 17:17
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S29	787	smith.in. with kevin	US-PGPUB; USPAT	OR	OFF	2011/08/31 17:35
S30	0	smith.in. with kevin and hands$1on.as.	US-PGPUB; USPAT	OR	OFF	2011/08/31 17:36
S31	0	smith.in. with kevin and mobile.as.	US-PGPUB; USPAT	OR	OFF	2011/08/31 17:36
S32	0	smith.in. with kevin and hands.as.	US-PGPUB; USPAT	OR	OFF	2011/08/31 17:37
S33	2	smith.in. with kevin and render$3 with wireless	US-PGPUB; USPAT	OR	OFF	2011/08/31 17:37
S34	1572	710/100.ccls.	USPAT	OR	OFF	2011/09/01 08:20
S35	424	710/100.ccls.	US-PGPUB	OR	OFF	2011/09/01 08:39
S36	1	713/100.ccls. and (send$3 sent receiv$3) near2 page adj1 description same (wireless adj1 device phone hand$1held portable)	US-PGPUB; USPAT	OR	OFF	2011/09/01 08:51
S37	1	713/100.ccls. and page adj1 description same wireless adj1 device	US-PGPUB; USPAT	OR	OFF	2011/09/01 08:51
S38	1	713/100.ccls. and render$3 near2 content$1 near3 wireless adj1 device$1	US-PGPUB; USPAT	OR	OFF	2011/09/01 08:52
S39	0	713/100.ccls. and page adj1 description with rendering adj1 command	US-PGPUB; USPAT	OR	OFF	2011/09/01 08:52
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S41	0	713/100.ccls. and wireless adj1 device with generic adj1 template$1	US-PGPUB; USPAT	OR	OFF	2011/09/01 08:53
S42	1	713/100.ccls. and page adj1 description with	US-	OR	OFF	2011/09/01

		generic adj1 template	PGPUB; USPAT			08:53
S43	3095	713/1.ccls.	USPAT	OR	OFF	2011/09/01 08:53
S44	1344	713/1.ccls.	US-PGPUB	OR	OFF	2011/09/01 09:07
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S47	0	713/1.ccls. and render$3 near2 content$1 near3 wireless adj1 device$1	US-PGPUB; USPAT	OR	OFF	2011/09/01 09:17
S48	0	713/1.ccls. and page adj1 description with rendering adj1 command	US-PGPUB; USPAT	OR	OFF	2011/09/01 09:18
S49	0	713/1.ccls. and page adj1 description with custom adj1 configuration	US-PGPUB; USPAT	OR	OFF	2011/09/01 09:18
S50	0	713/1.ccls. and wireless adj1 device with generic adj1 template$1	US-PGPUB; USPAT	OR	OFF	2011/09/01 09:18
S51	0	713/1.ccls. and page adj1 description with generic adj1 template	US-PGPUB; USPAT	OR	OFF	2011/09/01 09:18
S52	1984	709/246.ccls.	USPAT	OR	OFF	2011/09/01 09:19
S53	1287	709/246.ccls.	US-PGPUB	OR	OFF	2011/09/01 09:28
S54	0	709/246.ccls. and (send$3 sent receiv$3) near2 page adj1 description same (wireless adj1 device phone hand$1held portable)	US-PGPUB; USPAT	OR	OFF	2011/09/01 09:32
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S56	5	709/246.ccls. and render$3 near2 content$1 near3 wireless adj1 device$1	US-PGPUB; USPAT	OR	OFF	2011/09/01 09:33
S57	0	709/246.ccls. and page adj1 description with rendering adj1 command	US-PGPUB; USPAT	OR	OFF	2011/09/01 09:34
S58	0	709/246.ccls. and page adj1 description with custom adj1 configuration	US-PGPUB; USPAT	OR	OFF	2011/09/01 09:34
S59	0	709/246.ccls. and wireless adj1 device with generic adj1 template$1	US-PGPUB; USPAT	OR	OFF	2011/09/01 09:34
S60	0	709/246.ccls. and page adj1 description with generic adj1 template	US-PGPUB; USPAT	OR	OFF	2011/09/01 09:34

9/ 1/ 2011 11:37:30 AM
C:\ Users\ ssuryawanshi\ Documents\ EAST\ Workspaces\ 11888799RenderingContentWirelessDevicePart3.wsp

Issue Classification

Application/Control No.	Applicant(s)/Patent Under Reexamination
11888799	CARION ET AL.
Examiner	**Art Unit**
SURESH SURYAWANSHI	2115

ORIGINAL	
CLASS	SUBCLASS
713	100

CROSS REFERENCE(S)

CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)				
713	1				
709	246				

INTERNATIONAL CLASSIFICATION					
CLAIMED					NON-CLAIMED
G	0	6	F	1 / 24 (2006.01.01)	
G	0	6	F	9 / 00 (2006.01.01)	
G	0	6	F	15 / 16 (2006.01.01)	

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
1	1	14	17	25	33										
	2	15	18	26	34										
2	3	16	19	27	35										
3	4	17	20		36										
4	5	18	21	28	37										
5	6		22		38										
6	7	19	23	29	39										
7	8		24		40										
	9	20	25	30	41										
8	10		26	31	42										
9	11		27	32	43										
10	12	21	28	33	44										
11	13		29	34	45										
12	14	22	30												
	15	23	31												
13	16	24	32												

NONE (Assistant Examiner) (Date)	**Total Claims Allowed:** 34
/SURESH SURYAWANSHI/ Primary Examiner.Art Unit 2115 9/01/2011 (Primary Examiner) (Date)	O.G. Print Claim(s): 1 O.G. Print Figure: 7

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	11888799	CARION ET AL.
	Examiner	Art Unit
	SURESH K SURYAWANSHI	2115

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	06/22/2010	02/04/2011	09/01/2011						
1	1	✓	✓	=						
	2	✓	-	-						
2	3	✓	✓	=						
3	4	✓	✓	=						
4	5	✓	✓	=						
5	6	✓	✓	=						
6	7	✓	✓	=						
7	8	✓	✓	=						
	9	✓	-	-						
8	10	✓	✓	=						
9	11	✓	✓	=						
10	12	✓	✓	=						
11	13	✓	✓	=						
12	14	✓	✓	=						
	15	✓	-	-						
13	16	✓	✓	=						
14	17	✓	✓	=						
15	18	✓	✓	=						
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18	21	✓	✓	=						
	22	✓	-	-						
19	23	✓	✓	=						
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	27	✓	-	-						
21	28	✓	✓	=						
	29	✓	-	-						
22	30	✓	✓	=						
23	31	✓	✓	=						
24	32	✓	✓	=						
25	33	✓	✓	=						
26	34	✓	✓	=						
27	35	✓	✓	=						
	36	✓	-	-						

GTV00000597

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	11888799	CARION ET AL.
	Examiner	Art Unit
	SURESH K SURYAWANSHI	2115

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	06/22/2010	02/04/2011	09/01/2011						
28	37	✓	✓	=						
	38	✓	-	-						
29	39	✓	✓	=						
	40	✓	-	-						
30	41	✓	✓	=						
31	42		✓	=						
32	43		✓	=						
33	44		✓	=						
34	45		✓	=						

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

BIB DATA SHEET

CONFIRMATION NO. 5349

SERIAL NUMBER	FILING or 371(c) DATE RULE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
11/888,799	08/01/2007	713	2115	GOTV-001/00US 310663-2005

APPLICANTS

Pierre Carion, La Jolla, CA;
Kevin Smith, San Diego, CA;

**** CONTINUING DATA ***************************

None /SKS/

**** FOREIGN APPLICATIONS ***************************

None /SKS/

**** IF REQUIRED, FOREIGN FILING LICENSE GRANTED ****

08/15/2007

Foreign Priority claimed ☐ Yes ☑ No 35 USC 119(a-d) conditions met ☐ Yes ☐ No Verified and Acknowledged /SURESH SURYAWANSHI/ Examiner's Signature	☐ Met after Allowance Initials	STATE OR COUNTRY	SHEETS DRAWINGS	TOTAL CLAIMS	INDEPENDENT CLAIMS
		CA	9	41	3

ADDRESS

COOLEY LLP
ATTN: Patent Group
Suite 1100
777 - 6th Street, NW
WASHINGTON, DC 20001
UNITED STATES

TITLE

Server method and system for rendering content on a wireless device

FILING FEE RECEIVED		
2050	FEES: Authority has been given in Paper No._____ to charge/credit DEPOSIT ACCOUNT No._____ for following:	☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time) ☐ 1.18 Fees (Issue) ☐ Other _____ ☐ Credit

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UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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P.O. Box 1450
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/888,799	08/01/2007	Pierre Carion	GOTV-001/00US 310663-2005	5349

58249 7590 09/30/2011

COOLEY LLP
ATTN: Patent Group
Suite 1100
777 - 6th Street, NW
WASHINGTON, DC 20001

EXAMINER	
SURYAWANSHI, SURESH	
ART UNIT	**PAPER NUMBER**
2115	

MAIL DATE	DELIVERY MODE
09/30/2011	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
www.uspto.gov

Application No. : 11888799
Applicant : Carion
Filing Date : 08/01/2007
Date Mailed : 09/30/2011

NOTICE TO FILE CORRECTED APPLICATION PAPERS

Notice of Allowance Mailed

This application has been accorded an Allowance Date and is being prepared for issuance. The application, however, is incomplete for the reasons below.

Applicant is given 2 month(s) from the mail date of this Notice, or the time remaining from the Notice of Allowance and Fee(s) Due, whichever is longer, within which to respond.

The informalities requiring correction are indicated in the attachment(s). If the informality pertains to the abstract, specification (including claims) or drawings, the informality must be corrected with an amendment in compliance with 37 CFR 1.121 (or, if the application is a reissue application, 37 CFR 1.173). Such an amendment may be filed after payment of the issue fee if limited to correction of informalities noted herein. See Waiver of 37 CFR 1.312 for Documents Required by the Office of Patent Publication, 1280 Off. Gaz. Patent Office 918 (March 23, 2004). In addition, if the informality is not corrected until after payment of the issue fee, for purposes of 35 U.S.C. 154(b)(1)(iv), "all outstanding requirements" will be considered to have been satisfied when the informality has been corrected. A failure to respond within the above-identified time period will result in the application being ABANDONED. **This period for reply is NOT extendable under 37 CFR 1.136(a).**

See attachment(s).

A copy of this notice MUST be returned with the reply. Please address response to "Mail Stop Issue Fee,Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450".

/Doug Gemmill/
Publication Branch
Office of Data Management
(571) 272-4200

Application No. 11888799

IDENTIFICATION OF SPECIFICATION/DRAWING INCONSISTENCIES

[X] On Page 10 of the specification there is a brief description of FIG. 1A, but the drawings filed 08/01/2007 do not include a drawing with that designation. Applicant must respond either by supplying the omitted drawing or by amending the specification to remove all references to that drawing.

[X] The drawings filed 08/01/2007 include FIG. 1, but the specification's brief description of the drawings does not describe a drawing with that designation. Applicant must respond either by amending the specification to add a brief description of that drawing or by correcting the drawings to remove the drawing in question.

[ ] Drawings are present in the application and are referred to in the detailed description of the invention, but the specification does not contain a brief description of the drawings as required by 37 CFR 1.74 and 37 CFR 1.77(b)(8).

[ ] Page of the specification refers to FIG. , but no drawing with that designation is described in the brief description of the drawings and no drawing with that designation is present in the application. Applicant must respond either by amending the specification to remove all references to that drawing, or by supplying that drawing and amending the specification to add a brief description of it.

[ ] OTHER:

[ ] COMMENTS:

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application:			
Inventor:	Pierre Carion, et al	Confirmation No.:	5349
Application No.:	11/888,799	Examiner:	Suresh Suryawanshi
Filed:	August 1, 2007	Group Art Unit:	2115
Title:	Server Method and System for Rendering Content on Wireless Device	Customer No.	021971

File No. 38285-704.201

POWER OF ATTORNEY TO PROSECUTE APPLICATIONS BEFORE THE USPTO and 3.73 STATEMENT

☒ I hereby appoint the practitioners associated with Customer Number: **021971**

As attorney(s) or agent(s) to represent the undersigned before the United States Patent and Trademark Office (USPTO).

☒ Please address all correspondence for the above-identified application to: **021971**

STATEMENT UNDER 37 CFR 3.73(b)

GoTV Networks, Inc. a California corporation
(Name of Assignee) (Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that it is: the assignee of the entire right, title and interest; in the patent application/patent identified above by virtue of either:

A. ☐ An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel , Frame , ***or for which a copy thereof is attached.***

OR

B. ☒ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as shown below:

1. From: **Pierre Carion, Kevin Smith** To:**Hands-On Mobile, Inc.**
   The document was recorded in the United States Patent and Trademark Office at
   Reel **019695**, Frame **0102**, ***or for which a copy thereof is attached.***
2. From: **Hands-On Mobile, Inc.** To: **GoTV Networks, Inc.**
   The document was recorded in the United States Patent and Trademark Office at
   Reel **024306**, Frame **0841**, ***or for which a copy thereof is attached.***

I am an authorized representative of the:

☒ Assignee of record of the entire interest. See 37 CFR 3.71.
Statement under 37 CFR 3.73(b) is incorporated herein.

SIGNATURE of Assignee of Record

Signature
Name/Title Alan S. Knitowski, CEO
Date 9/27/2011 Telephone No. (512) 745-4080

Electronic Acknowledgement Receipt

EFS ID:	11111950
Application Number:	11888799
International Application Number:	
Confirmation Number:	5349
Title of Invention:	SERVER METHOD AND SYSTEM FOR RENDERING CONTENT ON A WIRELESS DEVICE
First Named Inventor/Applicant Name:	Pierre Carion
Customer Number:	58249
Filer:	Um Ping Peter Eng/Lydia Vosburgh (UPE/lcv)
Filer Authorized By:	Um Ping Peter Eng
Attorney Docket Number:	GOTV-001/00US 310663-2005
Receipt Date:	04-OCT-2011
Filing Date:	01-AUG-2007
Time Stamp:	20:35:13
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Power of Attorney	38285-704-201-POA.pdf	57957 4ed12aad5641676b145b4b531251b072aef24ce6	no	1

Warnings:	
Information:	

Total Files Size (in bytes):	57957

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
11/888,799	08/01/2007	Pierre Carion	GOTV-001/00US 310663-2005

CONFIRMATION NO. 5349

21971
WILSON, SONSINI, GOODRICH & ROSATI
650 PAGE MILL ROAD
PALO ALTO, CA 94304-1050

POA ACCEPTANCE LETTER

OC000000050452439

Date Mailed: 10/18/2011

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 10/04/2011.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

/tcaldwell/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
11/888,799	08/01/2007	Pierre Carion	GOTV-001/00US 310663-2005

CONFIRMATION NO. 5349

POWER OF ATTORNEY NOTICE

OC000000050452438

58249
COOLEY LLP
ATTN: Patent Group
Suite 1100
777 - 6th Street, NW
WASHINGTON, DC 20001

Date Mailed: 10/18/2011

NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 10/04/2011.

- The Power of Attorney to you in this application has been revoked by the assignee who has intervened as provided by 37 CFR 3.71. Future correspondence will be mailed to the new address of record(37 CFR 1.33).

/tcaldwell/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
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P.O. Box 1450
Alexandria, Virginia 22313-1450
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Bib Data Sheet

CONFIRMATION NO. 5349

SERIAL NUMBER	FILING OR 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
11/888,799	08/01/2007 RULE	713	2115	GOTV-001/00US 310663-2005

APPLICANTS

Pierre Carion, La Jolla, CA;
Kevin Smith, San Diego, CA;

**** CONTINUING DATA ***************************

**** FOREIGN APPLICATIONS *********************

IF REQUIRED, FOREIGN FILING LICENSE GRANTED
** 08/15/2007

		STATE OR COUNTRY	SHEETS DRAWING	TOTAL CLAIMS	INDEPENDENT CLAIMS
Foreign Priority claimed	☐ yes ☐ no	CA	9	41	3
35 USC 119 (a-d) conditions met	☐ yes ☐ no ☐ Met after Allowance				
Verified and Acknowledged	Examiner's Signature Initials				

ADDRESS
21971

TITLE

SERVER METHOD AND SYSTEM FOR RENDERING CONTENT ON A WIRELESS DEVICE

FILING FEE RECEIVED		
2050	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:	☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time) ☐ 1.18 Fees (Issue) ☐ Other _____ ☐ Credit

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/888,799	08/01/2007	Pierre Carion	GOTV-001/00US 310663-2005	5349

21971 7590 11/03/2011

WILSON, SONSINI, GOODRICH & ROSATI
650 PAGE MILL ROAD
PALO ALTO, CA 94304-1050

EXAMINER	
SURYAWANSHI, SURESH	

ART UNIT	PAPER NUMBER
2115	

MAIL DATE	DELIVERY MODE
11/03/2011	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Supplemental Notice of Allowability	Application No. 11/888,799	Applicant(s) CARION ET AL.	
	Examiner SURESH SURYAWANSHI	Art Unit 2115	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☐ This communication is responsive to _____.

2. ☒ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

3. ☒ The allowed claim(s) is/are *1,3-8,10-14,16-21,23,25,28,30-35,37,39,41-45*.

4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
7. ☐ Examiner's Amendment/Comment
8. ☐ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

/SURESH SURYAWANSHI/
Primary Examiner, Art Unit 2115

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail **Mail Stop ISSUE FEE**
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

58249 7590 09/07/2011

COOLEY LLP
ATTN: Patent Group
Suite 1100
777 - 6th Street, NW
WASHINGTON, DC 20001

ELECTRONICALLY FILED ON DECEMBER 7, 2011

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)

(Signature)

(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/888,799	08/01/2007	Pierre Carion	GOTV-001/00US 310663-2005	5349

TITLE OF INVENTION: SERVER METHOD AND SYSTEM FOR RENDERING CONTENT ON A WIRELESS DEVICE

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	$1510	$300	$0	$1810	12/07/2011

EXAMINER	ART UNIT	CLASS-SUBCLASS
SURYAWANSHI, SURESH	2115	713-100000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

(1) the names of up to 3 registered patent attorneys or agents OR, alternatively,

(2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 WILSON SONSINI GOODRICH & ROSATI

2

3

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE: PHUNWARE, INC.

(B) RESIDENCE: (CITY and STATE OR COUNTRY): AUSTIN, TEXAS

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☒ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

☒ Issue Fee

☒ Publication Fee (No small entity discount permitted)

☐ Advance Order - # of Copies _____

4b. Payment of Fee(s): **(Please first reapply any previously paid issue fee shown above)**

☐ A check is enclosed.

☐ Payment by credit card. Form PTO-2038 is attached.

☒ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number 23-2415 (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)

☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.

☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____ Date DECEMBER 7, 2011

Typed or printed name DAVID L. WANG Registration No. 57,405

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT
Attorney Docket No. 38285-704.201

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No.:	11/888,799	Confirmation No.:	**5349**
Inventor:	Pierre Carion, et al.	Examiner:	Suresh Suryawanshi
Filed:	August 1, 2007	Group Art Unit:	2115
Title:	**SERVER METHOD AND SYSTEM FOR RENDERING CONTENT ON A WIRELESS DEVICE**	Customer No.	**21971**

FILED ELECTRONICALLY ON: DECEMBER 7, 2011

RESPONSE/AMENDMENT TO NOTICE TO FILE CORRECTED APPLICATION PAPERS

M/S Issue Fee
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir or Madam:

This is in response to the Notice to File Corrected Application Papers mailed on September 30, 2011. Attached herewith is a Replacement Drawing in compliance with 37 C.F.R. 1.121. This response is being submitted within the time remaining from the Notice of Allowance and Fees(s) Due, therefore no extension fee is required to enter this amendment.

Amendments to the Drawings begin on page 2 of this paper.

Remarks begin on page 3.

GTV00000612

Amendments to the Drawings

The attached Replacement Drawing is provided to correct a typographical error of listing Figure 1A as Figure 1. The sheet marked as "Replacement Sheet" correctly identifies the figures as Figure 1A pursuant to 37 C.F.R. § 1.121(d).

Attachment: Replacement Sheet

GTV00000613

REPLACEMENT SHEET

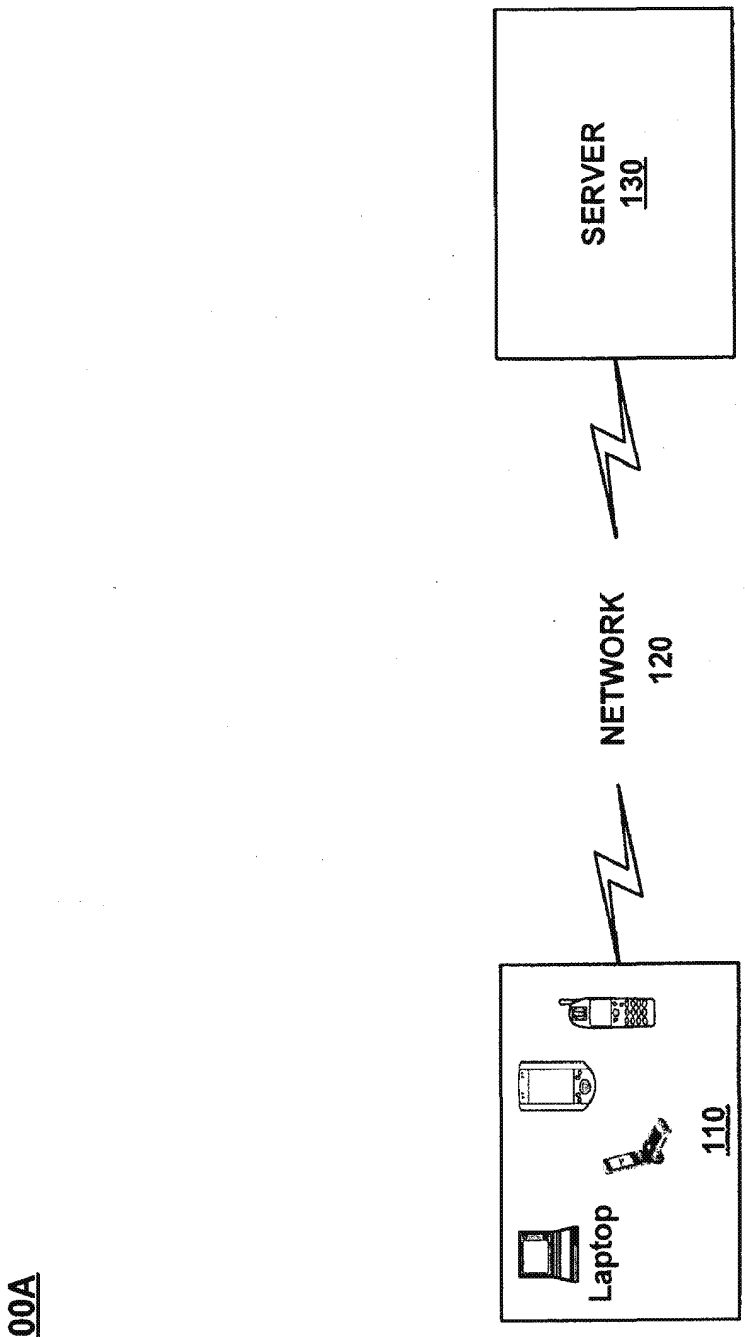


FIGURE 1A

REMARKS

Applicants respectfully request entry of this Amendment. Should the Examiner have any questions, the Examiner is encouraged to contact the undersigned.

The Commissioner is authorized to charge any additional fees which may be required, including petition fees and extension of time fees, to Deposit Account No. 23-2415 (Docket No. 38285-704.201).

Respectfully submitted,

Date: December 7, 2011

By: _____
David L. Wang
Registration No. 53,913

WILSON SONSINI GOODRICH & ROSATI
650 Page Mill Road
Palo Alto, CA 94304-1050
Direct Dial: (650) 493-9300
Customer No. 21971

GTV00000615

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/888,799	08/01/2007	Pierre Carion	GOTV-001/00US 310663-2005	5349

58249 7590 09/30/2011

COOLEY LLP
ATTN: Patent Group
Suite 1100
777 - 6th Street, NW
WASHINGTON, DC 20001

EXAMINER	
SURYAWANSHI, SURESH	

ART UNIT	PAPER NUMBER
2115	

MAIL DATE	DELIVERY MODE
09/30/2011	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
www.uspto.gov

Application No. : 11888799
Applicant : Carion
Filing Date : 08/01/2007
Date Mailed : 09/30/2011

NOTICE TO FILE CORRECTED APPLICATION PAPERS

Notice of Allowance Mailed

This application has been accorded an Allowance Date and is being prepared for issuance. The application, however, is incomplete for the reasons below.

Applicant is given 2 month(s) from the mail date of this Notice, or the time remaining from the Notice of Allowance and Fee(s) Due, whichever is longer, within which to respond.

The informalities requiring correction are indicated in the attachment(s). If the informality pertains to the abstract, specification (including claims) or drawings, the informality must be corrected with an amendment in compliance with 37 CFR 1.121 (or, if the application is a reissue application, 37 CFR 1.173). Such an amendment may be filed after payment of the issue fee if limited to correction of informalities noted herein. See Waiver of 37 CFR 1.312 for Documents Required by the Office of Patent Publication, 1280 Off. Gaz. Patent Office 918 (March 23, 2004). In addition, if the informality is not corrected until after payment of the issue fee, for purposes of 35 U.S.C. 154(b)(1)(iv), "all outstanding requirements" will be considered to have been satisfied when the informality has been corrected. A failure to respond within the above-identified time period will result in the application being ABANDONED. **This period for reply is NOT extendable under 37 CFR 1.136(a).**

See attachment(s).

A copy of this notice MUST be returned with the reply. Please address response to "Mail Stop Issue Fee,Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450".

/Doug Gemmill/
Publication Branch
Office of Data Management
(571) 272-4200

Application No. 11888799

IDENTIFICATION OF SPECIFICATION/DRAWING INCONSISTENCIES

[X] On Page 10 of the specification there is a brief description of FIG. 1A, but the drawings filed 08/01/2007 do not include a drawing with that designation. Applicant must respond either by supplying the omitted drawing or by amending the specification to remove all references to that drawing.

[X] The drawings filed 08/01/2007 include FIG. 1, but the specification's brief description of the drawings does not describe a drawing with that designation. Applicant must respond either by amending the specification to add a brief description of that drawing or by correcting the drawings to remove the drawing in question.

[ ] Drawings are present in the application and are referred to in the detailed description of the invention, but the specification does not contain a brief description of the drawings as required by 37 CFR 1.74 and 37 CFR 1.77(b)(8).

[ ] Page of the specification refers to FIG. , but no drawing with that designation is described in the brief description of the drawings and no drawing with that designation is present in the application. Applicant must respond either by amending the specification to remove all references to that drawing, or by supplying that drawing and amending the specification to add a brief description of it.

[ ] OTHER:

[ ] COMMENTS:

Electronic Patent Application Fee Transmittal

Application Number:	11888799
Filing Date:	01-Aug-2007
Title of Invention:	SERVER METHOD AND SYSTEM FOR RENDERING CONTENT ON A WIRELESS DEVICE
First Named Inventor/Applicant Name:	Pierre Carion
Filer:	Um Ping Peter Eng/Lydia Vosburgh (UPE/DLA/lcv)
Attorney Docket Number:	GOTV-001/00US 310663-2005

Filed as Large Entity

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Utility Appl issue fee	1501	1	1740	1740
Publ. Fee- early, voluntary, or normal	1504	1	300	300

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	**2040**

Electronic Acknowledgement Receipt

EFS ID:	11566603
Application Number:	11888799
International Application Number:	
Confirmation Number:	5349
Title of Invention:	SERVER METHOD AND SYSTEM FOR RENDERING CONTENT ON A WIRELESS DEVICE
First Named Inventor/Applicant Name:	Pierre Carion
Customer Number:	21971
Filer:	Um Ping Peter Eng/Lydia Vosburgh (UPE/DLA/lcv)
Filer Authorized By:	Um Ping Peter Eng
Attorney Docket Number:	GOTV-001/00US 310663-2005
Receipt Date:	07-DEC-2011
Filing Date:	01-AUG-2007
Time Stamp:	18:10:42
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	$2040
RAM confirmation Number	7323
Deposit Account	232415
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: Charge any Additional Fees required under 37 C.F.R. Section 1.16 (National application filing, search, and examination fees) Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)	

Charge any Additional Fees required under 37 C.F.R. Section 1.19 (Document supply fees) Charge any Additional Fees required under 37 C.F.R. Section 1.20 (Post Issuance fees) Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Issue Fee Payment (PTO-85B)	38285-704-201-IssueFee.pdf	180758 f1e3bdf52c69bd33a64c80be9ef540cd0381b545	no	1
Warnings:					
Information:					
2		38285-704-201-ResponseNoticetoFileCorrectedPapers.pdf	300512 d0a93dd45bb689da2d1be6181b4ff9bc000d4c93	yes	7

Multipart Description/PDF files in .zip description

Document Description	Start	End
Transmittal Letter	1	1
Drawings-only black and white line drawings	2	3
Applicant Arguments/Remarks Made in an Amendment	4	4
Miscellaneous Incoming Letter	5	7

Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	32289 64f46ca59d69e5b34502f4733aef7f6a1930a7c0	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	513559		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PRINTER RUSH

(PTO ASSISTANCE)

Application:	11888799	**Examiner:**	Suryawanshi	**GAU:**	2115
From:	Doug Gemmill	**Location:**	IDC	**Creation Date:**	12/12/2011

Tracking #: Week Date: 09/12/2011

DOC CODE	DOC DATE	MISCELLANEOUS
[ ] 1449		[ ] Continuing Data
[ ] IDS		[ ] Foreign Priority
[X] CLM	08/08/2011	[ ] Document Legibility
[X] IIFW/FWCLM	09/07/2011	[ ] Fees
[ ] SRFW		[ ] Petition (TC)
[ ] DRW		[ ] Other
[ ] OATH		
[ ] 312		
[ ] SPEC		

[RUSH] Message:

Renumbered claim 22 (original claim 30) depends on original claim 29 which has been canceled. Please correct.

Thank You.

[XRUSH] Response:

Initials: _____

Examiner: PUBS contacts - for DESIGNS: Don Fairchild, 703-756-1566; for ALL OTHER files: Bernadette Queen, 703-756-1565.
NOTE: This form will be included as part of the official USPTO record with the response document coded as XRUSH.
REV: Oct 11

PRINTER RUSH

(PTO ASSISTANCE)

Application:	11888799	**Examiner:**	Suryawanshi	**GAU:**	2115
From:	Doug Gemmill	**Location:**	IDC	**Creation Date:**	12/12/2011

Tracking #: Week Date: 09/12/2011

DOC CODE	DOC DATE	MISCELLANEOUS
[ ] 1449		[ ] Continuing Data
[ ] IDS		[ ] Foreign Priority
[X] CLM	08/08/2011	[ ] Document Legibility
[X] IIFW/FWCLM	09/07/2011	[ ] Fees
[ ] SRFW		[ ] Petition (TC)
[ ] DRW		[ ] Other
[ ] OATH		
[ ] 312		
[ ] SPEC		

[RUSH] Message:

Renumbered claim 22 (original claim 30) depends on original claim 29 which has been canceled. Please correct.

Thank You.

[XRUSH] Response:

Applicant agreed for an examiner's amendment. Corrected the problem.

Initials: SKS

Examiner: PUBS contacts - for DESIGNS: Don Fairchild, 703-756-1566; for ALL OTHER files: Bernadette Queen, 703-756-1565.
NOTE: This form will be included as part of the official USPTO record with the response document coded as XRUSH.
REV: Oct 11

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/888,799	08/01/2007	Pierre Carion	GOTV-001/00US 310663-2005	5349

21971 7590 12/15/2011

WILSON, SONSINI, GOODRICH & ROSATI
650 PAGE MILL ROAD
PALO ALTO, CA 94304-1050

EXAMINER	
SURYAWANSHI, SURESH	
ART UNIT	**PAPER NUMBER**
2115	

MAIL DATE	DELIVERY MODE
12/15/2011	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Examiner-Initiated Interview Summary	Application No.	Applicant(s)	
	11/888,799	CARION ET AL.	
	Examiner	Art Unit	
	SURESH SURYAWANSHI	2115	

All participants (applicant, applicant's representative, PTO personnel):

(1) *SURESH SURYAWANSHI*. (3)_____.

(2) *David L. Wang (Reg. No. 53,913)*. (4)_____.

Date of Interview: *13 December 2011*.

Type: ☒ Telephonic ☐ Video Conference
☐ Personal [copy given to: ☐ applicant ☐ applicant's representative]

Exhibit shown or demonstration conducted: ☐ Yes ☒ No.
If Yes, brief description: _____.

Issues Discussed ☐101 ☐112 ☐102 ☐103 ☐Others
(For each of the checked box(es) above, please describe below the issue and detailed description of the discussion)

Claim(s) discussed: *30*.

Identification of prior art discussed: *None*.

Substance of Interview
(For each issue discussed, provide a detailed description and indicate if agreement was reached. Some topics may include: identification or clarification of a reference or a portion thereof, claim interpretation, proposed amendments, arguments of any applied references etc...)

Applicant agreed for an examiner's amendment to correct the dependency of claim 30 from a canceled claim 29.

Applicant recordation instructions: It is not necessary for applicant to provide a separate record of the substance of interview.

Examiner recordation instructions: Examiners must summarize the substance of any interview of record. A complete and proper recordation of the substance of an interview should include the items listed in MPEP 713.04 for complete and proper recordation including the identification of the general thrust of each argument or issue discussed, a general indication of any other pertinent matters discussed regarding patentability and the general results or outcome of the interview, to include an indication as to whether or not agreement was reached on the issues raised.

☐ Attachment

/SURESH SURYAWANSHI/ Primary Examiner, Art Unit 2115	

Supplemental Notice of Allowability	Application No. 11/888,799	Applicant(s) CARION ET AL.	
	Examiner SURESH SURYAWANSHI	Art Unit 2115	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *interview summary*.

2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

3. ☒ The allowed claim(s) is/are *1,3-8,10-14,16-21,23,25,28,30-35,37,39 and 41-45*.

4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☒ Interview Summary (PTO-413), Paper No./Mail Date _____ .
7. ☒ Examiner's Amendment/Comment
8. ☐ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

/SURESH SURYAWANSHI/
Primary Examiner, Art Unit 2115

DETAILED ACTION

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with David L. Wang (Reg. No. 53,913) on 12/13/2011.

2. The application has been amended as follows:

In the Claim:

I. claim 30, line 1

i. deleted "29";

ii. inserted after "of claim", -- 28 --.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SURESH SURYAWANSHI whose telephone number is (571)272-3668. The examiner can normally be reached on 9:00am - 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas C. Lee can be reached on 571-272-3667. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/SURESH SURYAWANSHI/
Primary Examiner, Art Unit 2115

A SERVER METHOD AND SYSTEM FOR RENDERING CONTENT ON A WIRELESS DEVICE

RELATED U.S. PATENT APPLICATION

Change(s) applied to document, /D.A.G./ 9/29/2011

This Application is related to US Patent Application 11/888,803 filed on August 1, 2007, by Carion et al., and entitled "A METHOD AND SYSTEM FOR RENDERING CONTENT ON A WIRELESS DEVICE" with the Attorney Docket No. HOMI-P003 and assigned to the assignee of the present invention.

TECHNICAL FIELD

Embodiments of the present invention relate to the field of wireless communication systems. More particularly, embodiments of the present invention relate to a method and system for rendering applications on a wireless device.

BACKGROUND ART

The widespread and increase in popularity of wireless devices have led to an increase in the number of wireless device types in the world. For example, the use of cellular phones, personal digital assistants (PDAs), PalmPilots, BlackBerrys, laptops, IPods, etc., have become prevalent in the market. The increase in the number of wireless devices has also increased the demand for various applications to run on various wireless devices.

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APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/888,799	01/24/2012	8103865	GOTV-001/00US 310663-2005	5349

21971 7590 01/04/2012

WILSON, SONSINI, GOODRICH & ROSATI
650 PAGE MILL ROAD
PALO ALTO, CA 94304-1050

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment is 814 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Data Management (ODM) at (571)-272-4200.

APPLICANT(s) (Please see PAIR WEB site http://pair.uspto.gov for additional applicants):

Pierre Carion, La Jolla, CA;
Kevin Smith, San Diego, CA;