Title of the Invention: Electronic device, server, system and method
Abstract Title: Electronic Device with context sensitive application which displays a message image in response to one or more message conditions being satisfied

An electronic device which comprises a display, an Internet data connection, and a processor wherein the processor is operable to run a context sensitive application which displays a message image on the display in response to one or more message conditions being satisfied at the electronic device. The processor is responsive to a user interacting with the displayed message image to initiate one or more message actions. One or more of the message image, the message conditions and the message actions are provided to the electronic device from a server via the Internet data connection as message information. In this way, the server is in overall control of the provision of messages to the context sensitive application at the mobile device, and also is able to control how those messages are handled using the message conditions and the message actions. However, the mobile device itself is responsive for actually testing against the message decisions to determine whether a message should be displayed. As a result, display decisions can be made based on the most recent context at the mobile device, without having to transmit that context at a high frequency to the server.
Electronic Device, Server, System and Method

Field of the invention

The present invention relates to an electronic device, a server, a system and a method of communicating messages from a server to an electronic device and displaying those messages using a context sensitive application. Embodiments of the present invention relate to a context sensitive application for execution on an electronic device, the application displaying messages provided by a server in dependence on context.

Background to the invention

When a mobile telephone is purchased by a subscriber, the subscriber is typically provided with the handset itself, a SIM card for a chosen carrier, and perhaps some information from the mobile network carrier explaining to the user what services are available through that carrier. Sometimes, the handset may come with an installed app provided by the carrier which provides a gateway to the services provided by the carrier. From this point, the usage of the mobile telephone is very much in the hands of the subscriber. Often, carriers will send SMS (text) messages to users informing them of their products and services. For example, when a subscriber takes their handset abroad, when the handset connects to a foreign network the carrier will be informed and may send an SMS message to the handset explaining roaming service options. There is a perceived problem that the communications channel between the carrier and the subscriber is either too passive, or too obtrusive, depending on the circumstances. Embodiments of the present invention seek to address these problems.

Summary of the invention

According to an aspect of the present invention, there is provided an electronic device, comprising:

- a display;
- an Internet data connection; and
a processor, the processor being operable to run a context sensitive application, the
context sensitive application displaying a message image on the display in response to one
or more message conditions being satisfied at the electronic device; wherein
the processor is responsive to a user interacting with the displayed message image
to initiate one or more message actions; and
one or more of the message image, the message conditions and the message
actions are provided to the electronic device from a server via the Internet data connection
as message information.

In this way, the server is in overall control of the provision of messages to the context
sensitive application at the mobile device, and also is able to control how those messages
are handled using the message conditions and the message actions. However, the mobile
device itself is responsive for actually testing against the message decisions to determine
whether a message should be displayed. As a result, display decisions can be made based
on the most recent context at the mobile device, without having to transmit that context at a
high frequency to the server.

Preferably, the processor is operable to communicate device data to the server, the
server being responsive to the received device data to communicate the message
information to the electronic device, the message information for communication to the
electronic device being selected at the server in dependence on the device data.

By applying some context at the server and other context at the mobile device, both
the frequency of updating and the number of messages transmitted from the server to the
mobile device can be kept under control.

The device data may comprise one or more of a telephone number associated with
the electronic device, a unique identifier for the electronic device, an identifier for a mobile
network associated with a SIM installed in the electronic device, an identifier for a mobile
network to which the electronic device is currently connected, an indication of the current
location of the electronic device, a brand identifier previously provided to the electronic
device, a device type for the electronic device, and an application type of the context
sensitive application.

The message information may further comprise usage conditions specifying the
interactions with the message image available to the user (e.g. delete, bookmark, share,
like).

The message actions may comprise one or more of opening an application or system
tool on the electronic device, downloading an application to the electronic device via the
Internet data connection, composing an SMS message using a recipient telephone number
and/or message text specified in the message information, and opening a web browser to a
web address specified in the message information.

The server may be operable to select message information for communication to the
electronic device in dependence on one or more of its relevance to the current day of the
week, its relevance to the current date, whether it or related message information has been
rejected or marked for deletion at the electronic device, a contract type with which the
electronic device is associated, a number of times which that message information has been
interacted with at the electronic device, and the model of the electronic device.

The device data may comprise user preferences or the past behaviour of the user,
and the server may be operable to select message information for communication to the
electronic device in dependence on the user preferences and/or past behaviour of the user.

The message conditions may relate to one or more of whether a particular
application is currently installed on the electronic device, whether a message has been
rejected or marked for deletion at the electronic device, whether or not the electronic device
is currently connected to a WiFi network, and whether the electronic device is currently
roaming away from its home network.

The server may be responsive to the device data to communicate to the electronic
device a schedule for the context sensitive application to communicate the device data to the
server.
The server may be responsive to the device data to communicate to the electronic device a brand identifier indicating the branding which the context sensitive application is required to use and, if the brand identifier is different to a brand identifier communicated from the electronic device to the server in the device data, branding content permitting the context sensitive application to rebrand on the electronic device.

Brand information and brand assets may be selected at the server device based on one or both of the mobile carrier associated with the SIM and a contract type associated with the SIM.

The message information may indicate an order in which a set of message images are to be displayed at the electronic device, and the processor may be responsive to the indicated order to display the message images in that order. Alternatively, the messages may be communicated to the electronic device in an order of intended display.

The processor may be operable to determine, each time a new message image is to be displayed by the context sensitive application, a next message which satisfies the predetermined message conditions out of the set of images, and to display that next message.

In one embodiment, the server is operable to define a group of related messages; and the server is operable to select message information for communication to the electronic device in dependence on whether the message information relates to group of related messages at least one of which has been rejected or marked for deletion at the electronic device.

In another embodiment, the server is operable to define a group of related messages; and the message conditions relate to whether the message information relates to a group of related messages at least one of which has been rejected or marked for deletion at the electronic device.

However, in some cases the message groups (also known as campaigns) can be configured to either allow a message delete to only affect a message, or a message delete to cause the remaining messages in that group to get deleted too.
In some embodiments the message groups may be configurable such that the
deletion of a message in the group does not trigger the deletion or non-selection of other
messages within the group. In other words, both group deletion and solo deletion within the
group can be provided for.

The message image may be one of an image file and a data structure permitting an
image to be rendered at the mobile device. Such a data structure may be a html file which
describes an image area in terms of the position, size and configuration of graphical and text
elements external to the data structure. In the latter case, the payload elements referred to
by the data structure may be present in the message information, or may be present in
advance at the mobile device.

According to another aspect of the present invention, there is provided a system
comprising an electronic device according to the above, and the server as described below.

According to another aspect of the present invention, there is provided a server,
comprising:

an Internet data connection; and

a processor, the processor being operable to communicate a message image, one or
more message conditions and one or more message actions to an electronic device via the
Internet data connection, the message images being for display at a context sensitive
application running on the electronic device, a message image being displayed at the
electronic device in response to the one or more message conditions being satisfied at the
electronic device, the message actions being for initiation by the electronic device in
response to a user interacting with the displayed message image.

The processor of the server may be responsive to device data received at the server
from the electronic device to communicate the message information to the electronic device,
the processor being operable to select message information for communication to the
electronic device in dependence on the device data.
According to another aspect of the present invention, there is provided a method of communicating messages from a server to an electronic device and displaying those messages using a context sensitive application, the method comprising the steps of:

receiving at the electronic device one or more of a message image, message conditions and message actions from a server via the Internet data connection as message information;

displaying the message image on a display of the electronic device in response to one or more of the message conditions being satisfied at the electronic device; and responsive to a user interacting with the displayed message image, initiating the one or more of message actions.

The method may further comprise the steps of:

communicating device data from the electronic device to the server; and selecting the message information for communication to the electronic device at the server in dependence on the device data;

wherein the step of communicating the message information to the electronic device is conducted in response to the device data being received at the server.

The electronic device may be a mobile telephone, a tablet computer, an audio player such as an iPod, a laptop or desktop computer, a television, or any other electronic device with a display, an Internet data connection and a processor capable of being provided with the claimed features.

**Detailed description**

The invention will now be described by way of example with reference to the following Figures in which:

Figure 1 shows a schematic view of a message handling system comprising a server and a mobile device;

Figure 2 shows a more detailed schematic view of the message handling system;

Figure 3 schematically illustrates the incorporation of the context sensitive application into an Android Operating System;
Figure 4 schematically illustrates the incorporation of the context sensitive application into a Windows Operating System;

Figure 5 schematically illustrates the display of a context sensitive messages on a mobile device;

Figure 6 schematically illustrates how the context sensitive application can welcome a user to a new contract;

Figure 7 schematically illustrates how the context sensitive application can be integrated into the display of a Windows OS device;

Figure 8 schematically illustrates the pinning of a context sensitive application message into a tile of the user interface;

Figure 9 schematically illustrates how the context sensitive application can welcome a user to a new contract; and

Figure 10 schematically illustrates a Not Connected message and settings information offered to the user via the context sensitive application when the device has not yet connected to the Internet.

Referring to Figure 1, a system 1 comprising a server 20 and a mobile device 30 is schematically illustrated. The server 20 comprises a database 22 which stores message information forming the basis of messages to be provided to the mobile device 30, and user and device information for facilitating the selection and customisation of the message information. The message information and user/device information stored in the database 22 is processed using a processor 24 at the server 20. The processor 24 may be running a suite of software tools for manipulating the data and permitting an operator to control or influence the message selection and customisation process. The server 20 is connected to the Internet 40. Also connected to the Internet 40 is the mobile device 30. The mobile device 30 comprises a transceiver 38 which provides a wireless connection with the Internet via a base station 42. The mobile device 30 comprises a display 32 and a processor 34, which amongst other functions controls the operation of the display 32. The processor is able to execute a context sensitive application 36 which is installed on a storage medium.
(not shown) in the mobile device 30. A bidirectional communications channel 50 is set up between the server 20 and the mobile device 30 in order that the server is able to provide message information to the mobile device, and that the mobile device 30 is able to provide the necessary context information to the server 20 to enable the server 20 to make an appropriate selection of message information to send to the mobile device 30. The nature of the communications channel 50 and the infrastructure which supports it is not critical to the invention. In operation, the processor 34 of the mobile device 30 is controlled by the context sensitive application 36 to communication device data from the mobile device 30 to the server 20 via the communications channel 50. The device data provides the context which the server 20 requires in order to select appropriate messages for transmission to the mobile terminal 30. In response, the server 20 selects appropriate message information based on the device data and transmits it to the mobile device 30 via the communications channel 50. The message information comprises message images, message conditions and message actions. At the mobile device 30, the context sensitive application 36 uses the message conditions and status information about the mobile device 30 itself to determine which of the message images should be displayed. The context sensitive application 36 is also responsive to a user interaction with a displayed message image to execute the message action which corresponds to the message image. The interaction may be the user tapping or clicking on the message image, or on an icon, surround or other feature displayed in association with the message image. The messages supplied by the server may change on a daily basis, depending for example on who the administrator chooses to edit their messaging strategy for the user. The context sensitive application requests a daily update on messages, and the server will take all the available messages and remove the ones that are not appropriate (based on server assessed context) for the next 24 hours. The 24 hours for new messages to be sent is configurable and is a figure set by the server and sent to the widget. The context sensitive application will then apply the device context conditions to the messages it receives and only display those that at any given time the conditions apply.
For example: Server holds 100 messages, the context sensitive application requests messages for today and the server selects and sends 50 messages (others are deemed not appropriate). The context sensitive application then displays those messages that are appropriate at any given instant (others are deemed not appropriate). Accordingly, substantially less than those 50 messages may be displayed at the mobile device if the context evaluated at the device indicates that they are not appropriate for display.

It will be appreciated from the above overview (and will be further elaborated on below) that context in message selection is effectively assessed in two places. Context is first assessed at the server 20, where relatively static context (which is not expected to change frequently, and therefore can be updated each time the device data is provided to the server – which might for example be daily (although could be weekly, hourly or at any other interval)) is used to perform an initial selection and customisation of appropriate messages to feed to the context sensitive application. Context is secondly assessed at the mobile device itself, where the context sensitive application makes a determination (at the appropriate time) for each message supplied from the server as to whether that message is currently appropriate for display. This determination makes use of more dynamic context, which is expected to change too frequently for the server to keep up to date with unless very frequent or dynamic uploads of the device data to the server (and consequently downloads of message information from the server to the mobile device) are to be provided. It will be appreciated that such frequent updating would undesirably increase the amount of data traffic between the mobile device and the server, and the amount of update processing occurring at both the server and the mobile device. Applying all context at the mobile device on the other hand would require many more messages to be transmitted by the server to the mobile device since no initial filtering of the messages would be carried out prior to their transmission to the mobile device. By applying some static context at the server and dynamic context at the mobile device, both the frequency of updating and the number of messages transmitted from the server to the mobile device can be kept under control.
The overall system is based on a principle of delivering relevant pathways/journeys
to users on their mobile devices. The context sensitive application is able to serve as a
companion that the user views as a benign assistant which they can reach out to at any
time, but which does not nag or pester the user. From the carrier perspective, the context
sensitive application maintains a brand connection, and relationship on the home screen of a
mobile device. From the user perspective, the user is provided with the ability to self-serve
through a wide range of actions, providing relevant pathways/journeys for the user to access
and begin new journeys on their device. In particular, through simple interactions with the
context sensitive application, the user is able to begin a path (whether long or short) to
access information, tools, guides and switches via their mobile device. This journey can be
commenced with a single click on a message displayed via the context sensitive application.

The context sensitive application is able to understand the context of the user (and
the device) and provide relevant advice, suggestions and recommendations to the user
based on that context. Context may include time, date, device, previous behaviour,
downloads, account status, location, WiFi, roaming, and many others.

As discussed above, context can be evaluated either at the server, or at the mobile
device. Preferably, the server evaluates the following context: Day of week, Contract type
(Pay as you go, Contract, Business), Date (each message preferably has a start and end
date which can be compared with this), Deleted (if a message has been deleted by the user
previously they will not be send the message again), Remove after Clicks (a message can
be configured to be removed after x number of clicks. If the user has clicked it x times it is
no longer sent to the context sensitive application), Device Model (Samsung Galaxy SIII
versus HTC One XL), App compatibility (if an application/game is not compatible with a
device, the message relating to that application will not be sent to the context sensitive
application). It will be appreciated that the information required by the server to evaluate this
context is either inherent (e.g. the current date) or is provided to the server in the device data
transmitted from the mobile device (e.g. number of clicks on a message, whether a message
has been deleted etc.)
Preferably, the context sensitive application at the mobile device evaluates the following context: App installed (a particular application is installed on the device), App not installed, User deletes (will remove immediately – even though the server will not send it again as described above), On WiFi (device is currently connected to the Internet via WiFi), Roaming off network, Location information (e.g. geographical location of the user as determined by e.g. GPS, WiFi hotspot location or radio coverage cell for example) and Bookmark preferences.

In one example, the context sensitive application may be used to complete a New User Set-Up process. In this case, a user switches on their new mobile device and that device guides the user through the basic set-up wizards so the device becomes active. This is convention. However, the context sensitive application is also able to provide the user with tools and links to activate their mobile account, select tariffs and complete the device set-up process dependent on the contract and SIM they put into the device. It will be appreciated that the OEM (handset manufacturer) may install the context sensitive application as part of the device firmware at point of manufacture at the request of the OEM or the carrier. However, the service can be run equally well if the user downloads and installs the context sensitive application.

In another example, as a user continues to use their mobile device, new technology, software updates, clever applications or jaw dropping games will become available. The context sensitive application can provide an entry point to these new features, allowing the user to tap into a toolbox that helps make the most of their device through its life, or help them use some of the device features such as tethering (using the mobile device as a WiFi hotspot).

In another example, as a user comes to the end of the life of the device and/or the contract, the context sensitive application is able to find that user a new device with a new contract, suggest ways to transfer contacts, applications and e-mail accounts, and make any transition smooth.

Architecture
There are two system architectures to consider in understanding the present technique. The first architecture is the client-server architecture that describes how the context sensitive application (which may be a widget for example) on the mobile device interacts with a set of servers which together influence the display of messages at the context sensitive application. The second architecture is the device architecture on the various devices that describes how the context sensitive application functions on the device.

Client-Server Architecture

The context sensitive technique proposed is based on a client-server architecture allowing the context sensitive application running on the mobile device to be relevant to the user and the user’s device, and also keep the context sensitive application up-to-date and fresh throughout its lifecycle. The client-server architecture is schematically illustrated in Figure 2. As can be seen in Figure 2, mobile devices 30a, 30b, 30c, 30d each running the context sensitive application (potentially on different device types (e.g. Samsung, HTC, Apple) utilising different operating systems (e.g. Android, Windows, Blackberry, iOS)) are connected to the Internet 40’. Also connected to the Internet 40’ are a set of servers 20. In Figure 2 the various functions carried out centrally are handled by separate entities (which may be logical and/or physical entities), but it will be appreciated that a single server may be used instead. The servers 20 comprise an Application Programming Interface (API) smart message manager 24a which has access to a user profile data store 22a and which selects messages to be sent to the context sensitive applications provided on the mobile devices 30a, 30b, 30c, 30d. The messages are tailored to a user and their device, using information from the user profile data store 22a. The servers 20 also comprise an Assets Download Manager 24b for images and icons which has access to a file store 22b holding the various assets. Finally, the servers 20 also comprise a Reporting data manager 24c for widget activity which has access to transaction data stored at a transaction data store 22c.

The API smart message manager 24a feeds the context sensitive application of each device 30a, 30b, 30c, 30d with time relevant, device relevant messages and tools. The context sensitive application draws down assets (images, icons, colour schemes, text and
branding for example) from the asset manager 24b to display these messages, and user activity (interactions of the user with the context sensitive application, or with their device in general – for example records of messages the user has previously interacted with, apps the user has previously downloaded or used, use of data roaming abroad, websites the user has visited) is stored and monitored for analysis, better user targeting and system monitoring.

The Smart Message API 24a may require the context sensitive application to provide a set of data, and in turn will provide the context sensitive application with a set of branding information (used to render the overall appearance of the context sensitive application when displayed on the mobile device) and contextually selected messages to display.

The device data sent to the Smart Message API comprises:

- MSISDN (Mobile Subscriber Integrated Services Digital Network-Number) – the user's phone number
- IMEI (International Mobile Station Equipment Identity) – the unique ID for the hardware (handset) the user is using
- SIM Network – the international ID for the network the SIM originates from.
- DEVICE Network – the international ID for the network the Device is currently connected to.
- Cell – the current location of the device.
- Brand ID – The Brand ID the Smart Message API has previously passed the device – or a blank ID
- Device UA Short – What type of device is hosting the application (e.g. Galaxy S4, HTC One etc.)
- Context Sensitive Application Type –Used to indicate what customer (e.g. carrier network) the application is for.

The data returned from the Smart Message API in response to the device data comprises:

- Context sensitive application settings
- Refresh time – the frequency with which the application should refresh messages, or other schedule (e.g. time of day)
- Version control – indicating if the application needs to update
- Brand ID – The brand the carrier wishes to use
- Branding Assets – Copy, images and links that will allow the context sensitive widget to rebrand.
- Message Assets – A collection of messages that are deemed relevant to the widget at any specific time. This includes:
  - Message image – a simple png, jpeg, other graphics file or data structure for dynamically generating an image (e.g. html), for the context sensitive application to display. It will therefore be appreciated that while an actual 2D image will be presented on the screen, the message image received in the message information may instead be data representing an image, and which can be used to render the image.
  - Message Conditions - when it should display and how it can be used (usage conditions) – deleted, bookmarked, share, like etc.
  - Message Actions – what should happen if the user clicks the message. For example: download an app, compose an SMS or open a web browser, use social media tools to share the content of a message with their social network, Delete and bookmark – providing a tool for the user to manage the message on the device.

Android device architecture

On the android device it is possible to make use of the various Android components to provide the context sensitive application as a widget experience. The widget manager is schematically illustrated in Figure 3. The android device has a widget manager that uploads a view of the widget, and that view is updated at the request of the application process. The widget manager is shown to comprise an alarm manager. The context sensitive application
sets (and resets) alarms for itself using the alarm manager to remind it to perform actions such as auto-scroll to the next message, or refresh the database. The application process also uses the Android database and file storage to keep in a persistent store the assets and meta-data it needs to present and action messages. The application process remains dormant the majority of its life, waking when a user interacts with the widget, or when an alarm it has set wakes it and triggers an action.

Windows device architecture

On a windows device it is possible to make use of the various standard windows components to provide the context sensitive application as a widget experience. An example windows device architecture is schematically illustrated in Figure 4. The windows device has a tile wall manager that the context sensitive application uses to present primary and secondary tiles on a display. The application itself, when opened, allows the user to browse through the available messages. Message meta-data is stored in a windows standard database and the images and other assets are stored in Windows storage. The application process remains dormant the majority of its life, waking when a user interacts with the application, or an alarm it has set using a windows alarm manager wakes it and triggers an action.

The user experience on each Operating system (Android, Windows, Blackberry and iOS) may vary. However the core capabilities of contextually relevant messaging are OS agnostic.

Android user experience

Android users will see the context sensitive application as a widget that (if embedded on the device before being sold to the consumer) is presented on one of the user’s home screens. Figure 5 schematically illustrates this. On switching on the device the user may be presented with a message that offers the user assistance in getting the device connected. Once connected the widget will refresh the messages it presents by connecting to the Smart Message API. Initially the widget will present a constant message inviting the user to interact with the widget to discover a range of services. Once the user interacts with the
widget, the widget will auto-scroll through relevant messages automatically. On clicking a message the widget will open the appropriate page, application, service page etc. In Figure 5, six example messages A to F are shown, each of which satisfies the message conditions at the mobile device. Further messages may have been provided by the server to the mobile device but are not displayed because the context sensitive application has determined that these messages do not satisfy the message conditions. Message D is currently being displayed on the mobile device. The message D is a message indicating that the user’s mobile phone bill is ready to view, and selection of the message (for example by clicking anywhere on the message image, on a button area within the message image, or on an icon or other display element presented outside of but in association with the message image) causes the mobile device to open a browser window (which may be presented within a branded wrapper associated with the carrier network for example) and open a webpage at which the user can view their bill. The user is able to navigate to previous or subsequent messages using the arrows presented beneath the message image within the widget.

Taking each of the other message in turn:

Message A is a message proposing that the user download a particular strategy game app. The server has decided to send this message to the mobile device on the basis that the device data has indicated that the mobile device is using an appropriate operating system (Android 2.0+), and the user preferences stored at the server indicate that the user likes strategy games. These two items of context are handled by the server. The context sensitive application determines that the message condition that the strategy game app has not already been installed on the mobile device is satisfied, and thus displays the message at the appropriate time (either because the user has navigated to the message using the arrows, or because the application has automatically cycled through the contextually relevant messages to reach this message). Selection of the message initiates the message action of downloading the app. If the app had already been installed then this message (which would be received from the server because the server has no knowledge of whether
particular apps have been installed on the mobile devices) would not be presented for display.

Message B is a message for launching BBC iPlayer. The server has decided to send this message to the mobile device on the basis that the device data has indicated that the mobile device is of an appropriate type (Samsung S4). This item of context is handled by the server. The context sensitive application determines that the message conditions that the iPlayer app is installed on the device and that the mobile device is connected to the Internet via a WiFi connection are true, and thus displays the message at the appropriate time. Selection of the message will cause the message action of launching the iPlayer app to be initiated. It will be appreciated that the device type is relatively static (although will of course change if the user upgrades their handset) and so can be used at the server to decide whether to send the message to the mobile device, whereas the fact of whether a particular app is installed may change during the course of a day, and the fact of whether the mobile device is connected via a WiFi connection may change very frequently. In addition, the data handling overhead of advising the server each time an application is installed, updated or uninstalled from the device would be very burdensome.

Message C offers the user “bolt on” services for their pay monthly tariff, for example a data roaming package, extra text messages, extra calls or extra data usage. The server only sends this message to mobile devices on pay monthly contracts.

Message E offers the user information on data charges abroad while roaming. In one embodiment the server determines to send this message when the user is found to be roaming away from his home network, which can be identified at the server from the device network information in the device data. This message would not be sent if the user was connected to their home network at the time the device data was provided to the server. In another embodiment, roaming messages are transferred to the device regularly (not only when the device is away from its home network) as the server will not know when a device will roam off the user’s home network. However the roaming messages will appear when the device itself identifies that it is roaming. Also, preferably the context sensitive application
does not refresh when the device is roaming in order to prevent high data charges, unless the device is connected via WiFi. Furthermore, in relation to the possible display of message E at the mobile device, the context sensitive application determines whether the device is currently connected to the Internet via WiFi. If not then the message will not be displayed, since the message action of opening a web browser to view information about roaming charges cannot be carried out without an Internet connection. If a WiFi connection to the Internet is present, then the message E is displayed. It should be noted at this point that in some cases it may be appropriate to provide the device data to the server at a time other than the normal refresh time. One good example of this is where the user is roaming abroad.

Finally, Message F offers the user the opportunity to download an app for booking last minute holidays. The server only provides this message to the mobile device on a Thursday or a Friday. On other days, the server will not send this message to the mobile device. The context sensitive application will only display message F if the holiday booking app is not currently installed on the mobile device.

It will be appreciated that for some message types, none of the context which is assessed at the mobile device itself may be relevant. One example for this may be pushing a network status update to the user. In this case such a message will always be available for display, subject to any limitations on the number of viewable messages available.

Referring now to Figure 6, an example banner shown in the left hand image invites the user to explore their 4G offering from EE. When the user clicks on the message the browser is opened and automatically navigates to the appropriate mobile page hosted by EE, as shown in the right hand image.

Windows user experience

A Windows user will see a Tile on the device tile wall that represents the carrier experience conveyed by the context sensitive application. The tile will flip between a carrier tile and a message image, as shown in the left hand image of Figure 7. Once the user clicks on the message they will see all the messages that are relevant to the user (based on the
message conditions), as shown in the middle image of Figure 7. If a user clicks on a message they will be taken to the relevant action for that message (based on the message actions), as shown in the right hand image of Figure 7. The windows application also allows for messages to be deleted and bookmarked. The user simply presses and holds on a message and this brings up a message menu. On deletion the message will be removed.

The bookmark feature in Windows terminology is referred to as ‘PIN’, as a user is able to PIN a shortcut as a secondary tile onto the tile wall. Figure 8 schematically illustrates how a selected shortcut (left hand image in Figure 8) can be pinned (selection of pinning function in middle image) onto the tile wall (right hand image).

Case Study

The context sensitive application can be configured to deliver a Welcome and In-life experience to EE, Orange and T-Mobile customers in the UK. This will use the context sensitive application to create welcome messages that appear with the first few days of a user’s new contract, encourage them to download the MY EE application from account management, help them SMS for features and information such as Virgin WiFi access on the London Underground and help with the device settings. Figure 9 schematically illustrates a handset displaying a welcome message, with the message actions reachable using the welcome messages being illustrated in the surrounding circles of Figure 9.

System features

This section documents the features the context sensitive service enables and some examples of the user and customer benefits. Each feature is described in terms of who it is designed for, what the requirements are, what the solution is and what the benefits are.

Rebrand application

TARGET: Customer – OEM or Carrier

REQUIREMENT: To refresh or change the branding of the context sensitive application without a software update on device.

SOLUTION: The context sensitive application and/or the server checks a brand date. If the brand date is newer than the existing brand date stored at the mobile device, the context
sensitive application will download the new brand assets and refresh the display. It will be appreciated that this process could be driven by the mobile device or the server.

Branding may includes the following items: Colour (HEX code for the borders), Logos (Any brand logos used in the view), Icons (Any icons that are used in the view), Buttons (left and right buttons for example), POP-UP (the information pop-up also needs to be rebranded with: Header Text, Body Text and URLs for links). Rebranding should take place on first boot of the device or whenever the SIM card status changes: New SIM, SIM removed and SIM added.

BENEFITS: Rebrand managed by the API provides the customer with the following benefits:

OEM: Single Embed for multiple customers - a single embed can auto-rebrand for multiple clients, as soon as the ID of the carrier on the handset is recognised at the server, the server can cause a rebrand of the context sensitive application to correspond with that Carrier.

Carrier: Carrier rebrand - a carrier is able to rebrand with updated logos, links or colour palate and update the instances of the context sensitive application already released to customers.

Carrier tariffs – a carrier is able to provide a different branded experience for each tariff. This feature will allow a carrier to purchase devices in bulk with a single embed, that will provide a branded experience depending on the SIM placed in the device.

Global Carriers – a carrier can use a single embed strategy across multiple networks in multiple countries.

In-Life status change – as a user progress through the tools available it may be desirous to change the context sensitive application from being a set-up companion, to a recommendation companion. This can be achieved by simply rebranding the experience after a period of time within the life of the context sensitive application.

Information pop-up

The information Pop-up provides a place to explain to the user what the context sensitive application is for, who has provided it and how to find further information. It also serves as a placeholder for system information used for troubleshooting.
TARGET: User

REQUIREMENT: To provide information on the context sensitive application, what it’s role is and how to get further information.

SOLUTION: To provide a pop-up window or open a page that allows the user to read information about the context sensitive application, and provide:

- Header text and body text – allow the user to read about the context sensitive application
- URL text – description about a link
- URL – clickable link
- Version ID, API Version, Product ID
- Dismiss button – to clear the Pop-Up, close the page.

The intention is to provide a space and links to further information for the user to explore the ownership and read more about the context sensitive application companion. Links provide access to learn more, read terms and conditions, or simply access the Carrier/OEM web sites.

ANDROID SOLUTION: This can be achieved by making the brand logo a button that when clicked creates a Pop-Up window with the information included.

BENEFITS: The user is able to understand and build trust with the companion. It also provides space for the customer to add links to term and conditions, marketing opt-in information etc.

WRAPPER: The wrapper is a method of presenting mobile web information in a branded page view.

TARGET: Customer – OEM/Carrier

REQUIREMENT: To provide a branded app like experience when opening some mobile web pages.

SOLUTION: To provide an app like experience by opening mobile web pages into a branded App page. The wrapper would have a refresh button on the top left of the page and the logo on the top right of the page.
ANDRIOD SOLUTION: This wrapper is built into the APK for the widget.

BENEFITS: The customer will be able to present mobile web pages as if they are part of a larger application. Alternatively they will be able to give the appearance of creating a large (dynamically editable) application on the device that actually is populated by a series of mobile web pages.

MESSAGE ORDER
Each message should display in a particular order for the user. This order is used to indicate the sequence in which the messages are displayed.

TARGET: User

REQUIREMENT: Each message should be prioritized to enable the on device application (widget) to sequence the messages. The lower the order number the earlier in the sequence the message appears.

SOLUTION: The administrator should be able to update the order number for a department, and this will be inherited by the campaign and messages in that department. The administrator should be able to overwrite the order for a campaign. All messages will inherit the campaign order. The administrator should be able to overwrite the order for an individual message. The API will provide the messages to the context sensitive application in the correct sequence, enabling the application to store the messages in the correct sequence. Once messages are in the correct sequence on the device, the context sensitive application will present up the messages in sequence (skipping any messages in the sequence which do not satisfy the message conditions).

BENEFITS: User – the user is able to view the messages in order, and they can be set to make sure one message follows the next. If auto-scroll is not switched on then the user can be pushed through a set of messages in a pre-defined order. It is also important when used in combination with Max Messages to present only the ‘top’ messages at any time.

Not connected page
The user experience with a new device can often be frustrating if the SIM does not activate when expected. Therefore a ‘Not Connected Page’ can be provided to manage that experience.

**TARGET:** User

**REQUIREMENT:** To provide information and instructions for a user in the event their device does not have any network or WiFi connectivity.

**SOLUTION:** The Not Connected page would only appear if the device has never managed to connect. Figure 10 (left hand image) schematically illustrates a Not Connected page. Once the device has connected for the first time the user will get a fully branded experience.

If the user clicks on the context sensitive application before connection has been established they will be presented with a page of information that is configurable to the customer’s instructions, including links to open settings pages (such as the connection settings pages shown in the middle and right hand images of Figure 10), and displaying settings such as SIM status.

**BENEFITS:** The user typically experiences a no-mans-land period before their device is connected of not knowing if there is a problem with the SIM card or the mobile device. This page allows the customer to provide feedback and instructions.

Open in browser

The present technique includes providing the user with means to find further information. To do this one feature is to enable the context sensitive application to open the device browser and navigate to a particular URL specified by the server.

**TARGET:** Customer – OEM/Carrier

**REQUIREMENT:** To enable the user to access Mobile web content, and have it launched from the context sensitive application.

**SOLUTION:** To have messages configured such that when clicked they will (as a message action) open the native browser and navigate to a predefined URL.

**BENEFITS:** The user experience in this case is such that they will be able to use the companion as a launching point to find a wide range of information, web sites, pages etc., in
each case recommended by the customer (e.g. carrier) but tailored to the user’s personal and device requirements. The customer is able to re-use existing collateral, assets, sites, PDF’s and even videos (via You Tube) rather than building new assets for a project.

Open app

5 The context sensitive application is able to open installed applications. In doing this the application is able to navigate the user quickly to the appropriate answer, solution, tool to serve their need, rather than reading and interpreting the steps to complete an action.

TARGET: Customer – OEM/Carrier

REQUIREMENT: To enable the launch of an app installed on the device through a single click from the context sensitive application.

SOLUTION: To provide a mechanism to associate a message with an application. The administrator will be able to associate a message with a application. They will also be able to include a download URL if that is desirable and select whether the message appears ONLY when the application is installed on the device, or whether or not the application is installed on the device. The message will only appear if the application is installed (alternatively we can use the same message to trigger a download if required). If a user clicks on the message the targeted application will open.

BENEFITS: User - The user has the option to use the context sensitive application companion as a bookmark, or come to see it as a guide that will ask questions, and automatically guide the user to the appropriate solution.

Customer - The customer will be able to target their own apps, and encourage download, and use of the apps to solve customer care questions, join services, or make better use of their device. In addition this can be used to increase adoption of applications the customer sees as desirable for the user to use. This can be own brand music or movie applications for example.

Simple System Assistant

The context sensitive application is able to open system pages such as ‘set up WiFi or ‘add an email account’. These system pages provide the tools for a user to set-up or configure
their device as they require. However, finding the right page to solve the right problem can be difficult. This feature will enable the application to pose a question, and direct the user to the right page to solve the problem.

TARGET: User and OEM

5 REQUIREMENT: To provide a single click access to device System pages.

SOLUTION: The Message ingestion process will allow the administrator to (at the server) select from a drop down list what system pages to open on click. The context sensitive application will display the message and in response to a click initiate an open request to the system page.

10 BENEFITS: User - The user will be able to use the context sensitive application as a companion to solve problems, as relevant targeted messages can appear when the user might most want them. For example a ‘set up WiFi’ message may only appear when the user is not on WiFi. Or a set up data roaming banner may appear only when the user is roaming.

15 OEM: The ability to guide the use through context relevant questions or suggestions to system pages will change the way they can interact with the user advanced users will ignore these messages in the context sensitive application, but the less confident user can fall back to the companion for some relevant assistance.

Carrier - As the carrier takes the majority of the burden with support calls, these tools can be tuned to the task and answer the types of questions their customers ask. This can be regionally specific (how do I connect to my BT Openzone network?) service specific (want to select the cheapest roaming partner?) or simply because the carrier does things differently (want to know how to switch off ‘Unknown sources’?)

SMS Composer

20 The solution should also provide more complex system support to enable the user to activate services. Once such method is through MO SMS (mobile Originated SMS). Many carrier systems are activated or enabled through user-friendly shortcodes. E.g - to get balance – send BALANCE to 150.
TARGET: Customer – Carrier

REQUIREMENT: To provide the composition of an SMS ready for the user to send, from a single click on a message in the context sensitive application.

SOLUTION: The solution is to enable an administrator to associate a message to an SMS composer, including the input of both the send address and the message text.

BENEFITS: Carrier - To be able to take advantage of a huge range of existing SMS services the carrier can create messages that prompt the user to get their balance, activate services, give feedback or even vote for their favourite contestant in a live talent show vote.

User - The user has ready access to a range of tools to help them tap into existing SMS services.

Display on Condition

The messages can be configured to present under different conditions. These conditions depend on the device environment.

TARGET: Customer – OEM/Carrier

REQUIREMENT: To provide the tools that allow messages to be shown within the context of local device conditions. These conditions include:

- On WiFi – display depending on whether the device is connected to the Internet via WiFi
- On Roaming – display depending on whether the SIM is roaming off its home network

SOLUTION: The administrator will be able to set conditions on a message to display or not display depending on local device conditions. The context sensitive application will detect and apply conditionality to messages depending on the local environment.

BENEFITS: User - The messages they see will be more relevant to their circumstances.

And also messages that are not relevant to the user will not clutter their device with messages that are not useful.

Display on day of week
The messages should be relevant to the day of the week. This can be used to create day specific offers (Happy Hour Mondays), or to make a message more relevant (all set for the weekend).

TARGET: Customer – OEM/Carrier

5 REQUIREMENT: To provide day of week sensitive messages that display only on set days of the week.

SOLUTION: The administrator should be able to configure a message to display on set days of the week. This could be multiple days or just one day. The messages should be updated (where possible) on a daily basis, and only those messages that due to be viewed on a particular day will be delivered to the context sensitive application on device on those days.

BENEFITS: User - Messages will be more relevant to their circumstances.
Customer – Carrier - Messages can be tailored to days of the week in order to target offerings, promotions or to simply vary the messages presented to a user.

DISPLAY ON DATE RANGE

15 The messages should be relevant to a specific date range. This can be used to create seasonal offers (Christmas special), or to make a message more relevant (watch the FA cup this weekend).

TARGET: Customer – OEM/Carrier

REQUIREMENT: To provide date sensitive messages that display only within specific start and end date ranges.

SOLUTION: The administrator should be able to configure a message to display on set dates. These will be bounded by a from and to date range. The messages should be updated to the mobile device (where possible) on a daily basis, and only those messages that are due to be viewed on a particular date will be delivered to the context sensitive application on device on those days.

BENEFITS: User - Messages will be more relevant to their circumstances.
Customer – Carrier - Messages can be tailored to date in order to target offerings, promotions or to simply vary the messages presented to a user.
Display on tenure date range

The messages should be relevant to the users tenure. Tenure will be based on the first date the server detected a particular MSISDN/IMEI combination on the upload of device data. This can be used to create contract sensitive campaigns related to the carrier’s relationship with the User.

TARGET: Customer – OEM/Carrier

REQUIREMENT: To provide tenure sensitive messages that display only within specific start and end date related to tenure. The message can be configured to appear after a set date or until a set date or both.

SOLUTION: The system will record the user IMEI and MSISDN received at the server in the device data. A tenure date will be recorded against this unique combination that indicates the first date that IMEI MSISDN combination was seen. The administrator should be able to configure a message to display related to user tenure dates. The context sensitive application messages should be updated (where possible) on a daily basis, and only those messages that due to be viewed on a particular day will be delivered to the context sensitive application on device on those days.

BENEFITS: User - Messages will be more relevant to their circumstances. Customer – Carrier - Messages can be tailored to the lifecycle of a users contract with the carrier. This can be for:

PAYG: Preventing 6 month churn

Contract: Assisting with “First Bill” managing end of contract renewal.

Campaigns and campaign items

The solution allows the administrator to group messages. This will give them the ability to group selections of messages together, possibly to be managed by a single administrator.

TARGET: Customer – OEM/Carrier

REQUIREMENT: To enable and administrator to group collections of messages. This will fill two criteria:

• To make it easier to administrate groups of messages
• To make it possible to have messages relate to each other in how they behave.

SOLUTION

The system is able to group messages into “Campaigns” and “Campaign Items”.

Campaign: A collection of messages that relate to single subject matter as determined by
the administrator.

Campaign Item: A collection of messages that have are expected to behave together in
some respect. For example:
• If a user deletes one message from a campaign item this will delete all items from a
campaign item. In the short term this will cause the context sensitive application to not
display any items from this campaign. Following the next message refresh from the server
to the mobile device, messages from this campaign will no longer be communicated from the
server to the mobile device.
• All messages in a campaign item have the same order number
• Only one message at a time is displayed from a single campaign item

BENEFITS: Customer – OEM/Carrier - The OEM and carrier will be able to manage their
messages easier and also be able to group messages in such a way that they perform
relative to each other.

User - The user is able to delete single message and the related messages are also
removed.

Delete banner

The solution allows the user to tailor their experience by deleting or rejecting messages they
are not interested in. The solution should then (where possible) respect those deletions and
not show the user any related items.

TARGET: User

REQUIREMENT: To enable the user to delete messages from their widget experience and
therefore craft a more personalized experience. The administrator can identify which
messages can be deleted and which cannot. The user is able to delete a message, and
they are asked confirmation before the delete is registered.
SOLUTION: The system provides the administrator with ability to define if a message can be deleted or not. If a user deletes the message, they will be prevented from seeing any message from the same Campaign Group.

ANDROID SOLUTION: If a message can be deleted, a small semi-transparent cross appears in the top left of the message image. When clicked the user will be asked to confirm the delete, after which the widget will record the delete and not display again, and the server will remember the delete and not present messages from that Campaign group again.

BENEFITS: User - The user is able to personalize their experience, and also is able to see more content by deleting messages.

Operating System functions
The solution allows the administrator to create on-click actions that open device set-up pages. These may be the ‘Set-up WiFi’ page, a ‘tethering’ page or simply a help page for setting up an email account on the device.

TARGET: Customer – OEM/Carrier

REQUIREMENT: To enable the administrator to create on-click actions that will open device system pages.

SOLUTION: The administrator should be able to configure a message on click action to initiate one of a selection of System actions. These system actions are standard procedure calls within the device OS. The Administrator should select from a dropdown menu of possible system calls. The context sensitive application on device will make the system call when the user clicks on a message with one of these actions associated.

BENEFITS: User - Message actions will directly take the user to assist them with a device relates issue.

Customer – Carrier - Carrier can select those activities the user finds most difficult (looking at their customer care call statistics), and provide direct on device help.

Auto scroll
The solution on Android presents a collection of messages within a widget window. Those messages should auto-scroll through the available messages to increase the likelihood that the user will see a message of interest.

TARGET: Customer – User

REQUIREMENT: To enable the user to see a variety of messages if they come across the widget at different times in the day. The widget should have a configurable scroll interval and allow the user to navigate through the messages despite the auto-scroll. The auto-scroll will only begin once the user has first interacted with the widget.

ANDROID SOLUTION: The widget will auto-scroll after first interaction. Scroll through all messages that are valid for the given context.

BENEFITS: Carrier/OEM - There is a greater chance that one of the messages will engage the user and draw them into using the context sensitive application and therefore realize the other benefits of the product.

Display if/ if not installed

The messages displayed should correspond to the local (device) environment. This will include whether certain applications have been installed on the device. This would allow the administrator to tailor the messages displayed to the user depending on whether target applications are installed or not.

TARGET: Customer – OEM/Carrier

REQUIREMENT: To enable the context sensitive application on the device to recognize if target applications are installed and apply a display condition depending on the install status. To enable an administrator to associate an AppID (Package ID) to a message and apply a display condition depending on whether the application is installed or not installed.

SOLUTION: The management interface may allow an administrator to associate a message to a Mobile Application Package ID, and choose whether to have the message display only if the Mobile Application is installed on the device or only if the Mobile Application is not installed. In this way, messages can be configured so that they prompt the user to either download an application (if it is not already installed) or open an application (if it is installed).
An example would be to have two banking messages for a banking app. A first message would suggest if a user wants to check their balance, they should download the banking app, while the second message would suggest if they want to check their balance they open the application. Only one or other of these messages would appear at any time depending on whether the App is already installed.

**BENEFITS:** User – Targeted messages that respond to the user and device context.
Carrier/OEM – allow for better targeting of messages.

Max messages
This is used to limit the number of messages a user is able to scroll through.

**TARGET:** Customer – OEM/Carrier

**REQUIREMENT:** The Android widget should only display a maximum number of messages at any given time. This number should be configurable and set whenever the context sensitive application contacts the API to get the latest messages.

**SOLUTION:** The Administrator is able to set a configurable setting for Max Messages.

When the context sensitive application calls the API they it be provided with the Max Message value. While displaying messages the Android Widget will rotate through all the messages in the correct sequence. However, the application will only loop through X messages where X is Max Messages. If a user deletes a message then the context sensitive application will select the next message in the sequence to add to the collection of X messages for display.

**BENEFITS:** User – the user will be able to see a limited number of messages, so they do not get inundated with messages. They will also be able to see the ‘next’ message in the sequence by order.

Carrier/OEM – the user will be able to drip feed messages to users so as not to overwhelm them with messages.

**System software check**
The context sensitive application should be able to inform the user when there is a new device firmware for the device.
TARGET: Customer – OEM/Carrier

REQUIREMENT: The Carrier and OEM suffer from support queries when the device software is not up-to-date. This can cause problems because bugs may have been fixed that inconvenience the user, prompt calls into customer support or damage the brand.

Therefore the solution should be able to target devices that do not have the latest firmware, and send them a message to prompt them to update their firmware. The action for this message, when clicked, would open the system update check page.

SOLUTION: The administrator should be able to create a message that has a flag to only display if the device does not have the latest firmware. The context sensitive application should collect the device firmware and pass it to the server when calling the API. The API will then pass the message to the device to display only if the firmware is not up to date.

BENEFITS: Carrier/OEM – will reduce the propensity for bugs to cause customer service calls.

GLOSSARY

The following terms are used within the document, with a brief explanation being provided for each term.

Context sensitive application – on device companion which provides users with more relevant access to information tools and services.

User – the end user of the product, who buys a mobile device and begins using the context sensitive application.

Administrator – the manager influencing what the user sees on their context sensitive application.

Customer – the organization sponsoring the context sensitive application on user devices.

Device – A (usually mobile) electronics device typically with an Android, iOS, Windows or BlackBerry operating system.

Home screen – One of the multiple screen views a user has on their device that they can populate with app icons, tools folders etc.
Widget – An android specific technology for displaying information on the user's device home screen.

Embed – the policy of pre-loading an application onto a device before it is given to a user. Path – a process of travelling a journey through a device.

Message – A collective term for the communication the carrier or OEM is hoping to convey to the user.

Action – Instructions used by the device to initiate the user path once a message is clicked or otherwise interacted with.

Condition – The conditions under which the message will be passed to the device and displayed by the application.

While embodiments of the present invention have been described above in relation to a mobile telephone, the invention is applicable to many other types of electronic device, both fixed and portable.
CLAIMS

1. An electronic device, comprising:
   a display;
   an Internet data connection; and
   a processor, the processor being operable to run a context sensitive application, the
   context sensitive application displaying a message image on the display in response to one
   or more message conditions being satisfied at the electronic device; wherein
   the processor is responsive to a user interacting with the displayed message image
   to initiate one or more message actions; and
   one or more of the message image, the message conditions and the message
   actions are provided to the electronic device from a server via the Internet data connection
   as message information.

2. An electronic device according to claim 1, wherein the processor is operable to
   communicate device data to the server, the server being responsive to the received device
   data to communicate the message information to the electronic device, the message
   information for communication to the electronic device being selected at the server in
   dependence on the device data.

3. An electronic device according to claim 2, wherein the device data comprises one or
   more of a telephone number associated with the electronic device, a unique identifier for the
   electronic device, an identifier for a mobile network associated with a SIM installed in the
   electronic device, an identifier for a mobile network to which the electronic device is currently
   connected, an indication of the current location of the electronic device, a brand identifier
   previously provided to the electronic device, a device type for the electronic device, and an
   application type of the context sensitive application.

4. An electronic device according to any preceding claim, wherein the message
   information further comprises usage conditions specifying the interactions with the message
   image available to the user.
5. An electronic device according to any preceding claim, wherein the message actions comprise one or more of opening an application or system tool on the electronic device, downloading an application to the electronic device via the Internet data connection, composing an SMS message using a recipient telephone number and/or message text specified in the message information, and opening a web browser to a web address specified in the message information.

6. An electronic device according to claim 2, wherein the server is operable to select message information for communication to the electronic device in dependence on one or more of its relevance to the current day of the week, its relevance to the current date, whether it or related message information has been rejected or marked for deletion at the electronic device, a contract type with which the electronic device is associated, a number of times which that message information has been interacted with at the electronic device, and the model of the electronic device.

7. An electronic device according to any preceding claim, wherein the device data comprises user preferences or the past behaviour of the user, and the server is operable to select message information for communication to the electronic device in dependence on the user preferences and/or past behaviour of the user.

8. An electronic device according to any preceding claim, wherein the message conditions relate to one or more of whether a particular application is currently installed on the electronic device, whether a message has been rejected or marked for deletion at the electronic device, whether or not the electronic device is currently connected to a WiFi network, and whether the electronic device is currently roaming away from its home network.

9. An electronic device according to claim 2, wherein the server is responsive to the device data to communicate to the electronic device a schedule for the context sensitive application to communicate the device data to the server.

10. An electronic device according to claim 2, wherein the server is responsive to the device data to communicate to the electronic device a brand identifier indicating the branding which the context sensitive application is required to use and, if the brand identifier is
different to a brand identifier communicated from the electronic device to the server in the
device data, branding content permitting the context sensitive application to rebrand on the
electronic device.

11. An electronic device according to claim 10, wherein brand information and brand
assets are selected at the server device based on one or both of the mobile carrier
associated with the SIM and a contract type associated with the SIM.

12. An electronic device according to claim 2, wherein the message information indicates
an order in which a set of message images are to be displayed at the electronic device, and
the processor is responsive to the indicated order to display the message images in that
order.

13. An electronic device according to claim 12, wherein the processor is operable to
determine, each time a new message image is to be displayed by the context sensitive
application, a next message which satisfies the predetermined message conditions out of
the set of images.

14. An electronic device according to claim 2, wherein

the server is operable to define a group of related messages; and

the server is operable to select message information for communication to the
electronic device in dependence on whether the message information relates to group of
related messages at least one of which has been rejected or marked for deletion at the
electronic device.

15. An electronic device according to claim 2, wherein

the server is operable to define a group of related messages; and

the message conditions relate to whether the message information relates to a group
of related messages at least one of which has been rejected or marked for deletion at the
electronic device.

16. An electronic device according to claim 14 or claim 15, wherein the message groups
are configurable such that the deletion of a message in the group does not trigger the
deletion or non-selection of other messages within the group.
17. An electronic device according to any preceding claim, wherein the message image is one of an image file and a data structure permitting an image to be rendered at the mobile device.

18. A system comprising an electronic device according to any preceding claim and the server.

19. A server, comprising:

an Internet data connection; and

a processor, the processor being operable to communicate a message image, one or more message conditions and one or more message actions to an electronic device via the Internet data connection, the message images being for display at a context sensitive application running on the electronic device, a message image being displayed at the electronic device in response to the one or more message conditions being satisfied at the electronic device, the message actions being for initiation by the electronic device in response to a user interacting with the displayed message image.

20. A server according to claim 19, wherein the processor is responsive to device data received at the server from the electronic device to communicate the message information to the electronic device, the processor being operable to select message information for communication to the electronic device in dependence on the device data.

21. A method of communicating messages from a server to an electronic device and displaying those messages using a context sensitive application, the method comprising the steps of:

receiving at the electronic device one or more of a message image, message conditions and message actions from a server via the Internet data connection as message information;

displaying the message image on a display of the electronic device in response to one or more of the message conditions being satisfied at the electronic device; and

responsive to a user interacting with the displayed message image, initiating the one or more of message actions.
22. A method according to claim 21, comprising the steps of:
   communicating device data from the electronic device to the server; and
   selecting the message information for communication to the electronic device at the
   server in dependence on the device data;
   wherein the step of communicating the message information to the electronic device
   is conducted in response to the device data being received at the server.

23. An electronic device substantially as hereinbefore describes with reference to the
    accompanying drawings.

24. A system substantially as hereinbefore described with reference to the
    accompanying drawings.

25. A server substantially as hereinbefore described with reference to the accompanying
    drawings.

26. A method substantially as hereinbefore described with reference to the
    accompanying drawings.
### Patents Act 1977: Search Report under Section 17

#### Documents considered to be relevant:

<table>
<thead>
<tr>
<th>Category</th>
<th>Relevant to claims</th>
<th>Identity of document and passage or figure of particular relevance</th>
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<tr>
<td>X</td>
<td>1, 19, 21 at least</td>
<td>WO2005/107290 A1&lt;br&gt;(NOKIA CORPORATION): Whole document relevant.</td>
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#### Categories:

- **X**: Document indicating lack of novelty or inventive step
- **Y**: Document indicating lack of inventive step if combined with one or more other documents of same category.
- **&**: Member of the same patent family
- **A**: Document indicating technological background and/or state of the art.
- **P**: Document published on or after the declared priority date but before the filing date of this invention.
- **E**: Patent document published on or after, but with priority date earlier than, the filing date of this application.

#### Field of Search:

Search of GB, EP, WO & US patent documents classified in the following areas of the UKC:

Worldwide search of patent documents classified in the following areas of the IPC

H04L; H04M; H04W

The following online and other databases have been used in the preparation of this search report.
### International Classification:

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