

## USER INTERFACE FOR MOBILE TV INTERACTIVE SERVICES

### BACKGROUND

**[0001]** 1. Field

**[0002]** The aspects of the disclosed embodiments generally relate to graphical user interfaces, and in particular, to graphical user interfaces in mobile TV technology.

**[0003]** 2. Brief Description of Related Developments

**[0004]** Interactive services are part of the Open Mobile Alliance Mobile Broadcast Services Enabler Suite (OMA BCAST) service guide. The OMA BCAST is an open global specification for mobile TV and on-demand video services which can be adapted to any IP-based mobile and Peer to Peer (P2P) content delivery technology. The OMA BCAST specification is designed to support broadcast technologies such as Digital Video Broadcasting (DVB-H), 3<sup>rd</sup> Generation Partnership Project (3GPP), Multimedia Broadcast Multicast Service (MBMS), 3<sup>rd</sup> Generation Partnership Project 2 (3GPP2) and mobile unicast streaming systems. The OMA BCAST standard specifies a variety of features including electronic service guide, file and stream delivery, service and content protection, terminal and service provisioning, interactivity and notifications.

**[0005]** In DVB-H Mobile TV systems, interactive services are delivered in the OMA BCAST service guide via Interactivity Data elements and related Interactivity Media Documents. An Interactivity Media Document may specify multiple different types of services. Actions for interactive services can include, for example, launching an application, starting a web page, sending a Short Message Service (SMS) and voting, or some combination of these actions. The Interactivity Media Document structures can also specify choice elements and allow for building voting systems.

**[0006]** Multiple interactive services can also be associated with a channel or program. An interactive service will generally have a time span during which it is valid and active. The user should be able to detect and access interactive services when consuming a TV channel or program (also referred to herein as "broadcast content"). Multimedia Broadcast Multicast Service based mobile TV systems also use the BCAST program guide and allow the same Interactivity mechanism.

**[0007]** Interactive services browsing requires a user interface. Services are meant to be accessed while consuming broadcast content. It would be advantageous to be able to build a user interface that supports all required options and promotes interactive services when they are active.

**[0008]** With mobile TV broadcasts, different kinds of interactive services can be provided with each program. These services are essential to the service providers and operators in order to provide other valuable services and generate more income and revenue. One example of an interactive service that can be offered is the ability to send a short message service message, such as a vote for a competitor on a program. For example, many of the "competition" style TV programs allow viewers to call in to cast a "vote" for a particular competitor. Making these types of interactive services as visible as possible, and easy to access, is a key element in providing the interactive services. The users need to be aware of the interactive services features and must be able to easily understand and access the underlying functionality. In the past, formally accessing these types of services has not been straightforward, and has typically required that the user access an options menu of the device. The interactive services

in this type of menu are not necessarily visible enough among other items, and accessing these services can be difficult. It would be advantageous to be able to easily and quickly recognize, identify and access interactive services in a device without the need to open and parse a separate menu.

**[0009]** An essential part of the TV and broadcast content experience is an electronic program guide that gives the user more information about programming and the content of a broadcast. The electronic program guide can be used to provide the user with, among other things, detailed information about the times and content of ongoing and future broadcasts and programs.

**[0010]** Typically, an electronic program guide will display a list of all of the available channels. The list of channels can include the channel logo or identifier and program information (e.g. program name and time) and it would be helpful to be able to switch to any desired channel in a quick and convenient fashion. One example of such an electronic program guide is shown in FIG. D1. Enabling fast channel selection from the electronic program guide can be a problem. It would be advantageous to be able to easily switch from the electronic program guide to a channel or a program without the need to execute multiple steps.

**[0011]** Generally, the user can view the ongoing and future TV programs from electronic program guide view. However, with small display devices, the display or viewing area for the program guide can be limited. Thus, some of the program information may not be fully visible, if visible at all. One aspect of the programming guide is the ability to set a reminder for a program or to set up to record to the program. In a device with a small or limited display area, such as a handheld terminal, the reminder or programming options may not be visible. It would be advantageous to make reminder and programming information and fields readily visible to the user no matter how larger or small the display area of the particular device is.

**[0012]** Part of TV experience is the program recording feature. The program recording feature allows user to record a program, such as a TV show, for later viewing. Generally a user can set several recordings that are not overlapping. However, the user may not be able to check the set recordings from any user interface of the application. It would be advantageous to have a view that allows the user to easily to view, manage and edit the set recordings.

**[0013]** Changing a channel is an essential feature of any TV device. With small portable devices the full screen picture size is important in order to obtain as much viewable area as possible. When the device is in the full-screen mode it is not always possible to easily discern how to change the channel. In many cases, the channel changing functions are not visible to the user and one must hit the "escape" key to revert to the normal screen size where the corresponding control functions are displayed and available. In situations where the channel changing functions are displayed in the full-screen mode, they are generally represented by soft key controls that overlay an area of the picture. Touch screen devices may not provide any hardware keys that easily enable a channel change. It would be advantageous to have a simple and fast way to change a channel on a mobile TV device even when the device is in the full-screen mode.

**[0014]** Small display terminals tend to switch off illumination of the screen and disable all streaming functionalities when a key pad lock function is activated in the terminal. The purpose for this is generally to prevent inadvertent usage of