

electronic presentation, components such as a device module and a computer program product. In addition the invention relates to a method for delivering a print of an electronic presentation to a recipient.

[0013] The description mentions electronic presentation as an embodiment of the invention. Electronic presentation can be a multimedia message or other multimedia presentation being processed in a mobile device or in other data processing device and being composed of different multimedia elements. The electronic presentation is not limited to media types (image, text, video, audio).

[0014] Electronic presentation such as multimedia messages (e.g. SMIL presentation) with spatial, temporal and interaction aspects may not create same presentation when printed. The way how spatial aspects in the presentations are converted to printed surface may also be confusing to the end-user. However having a set of clear rules how a presentation is rendered to a printed page enables manufacturers to optimize products and guide end-users especially in case when messages are created specifically for printing services. The current invention is for presenting these rules.

[0015] The invention can also be utilized when considering interoperability of the multimedia messages of different versions. This is more discussed at the end of the description.

#### DESCRIPTION OF THE DRAWINGS

[0016] A better understanding of the invention may be obtained from the following considerations taken in conjunction with the accompanying drawings, which are not meant to restrict the scope of the invention in any way. Further objects and advantages of the invention are also considered in the description. The invention itself is defined with particularity in the claims.

[0017] FIG. 1 illustrates the principle of the current invention,

[0018] FIG. 2 illustrates a simplified structure of an multimedia message, consisting of regions,

[0019] FIG. 3 illustrates time axis formed of the events of the message,

[0020] FIG. 4a-d illustrates temporal events of the message figuratively and in principle,

[0021] FIG. 5a-b illustrates very principled flow charts of embodiments of the method according to the invention,

[0022] FIG. 6 illustrates very principled a device according to the invention, and

[0023] FIG. 7 illustrates very principled an medium printed from the electronic device.

#### DETAILED DESCRIPTION OF THE INVENTION

[0024] This invention is primarily addressed to the electronic presentation, and to the mark-up language used in such. The description discusses about multimedia messages as examples of the electronic presentation, but it should be noticed that multimedia messaging (MMS) is a way of transferring presentations between devices wirelessly, and the invention is not limited to that transfer method. Printable

outputs of electronic messages can be formed in a mobile device but also in some other data processing device, and they can be printed though a wireless network, through a cable, through a personal computer or through any other link to the printing device. It should be also noticed, that outputs can temporally be also printed only to file stored in some memory means.

[0025] An example of mark-up language used in multimedia messaging (e.g. 3GPP) is SMIL 2.0, but it should be noticed that the mark-up language can be newer versions of SMIL or some other mark-up language, that has similar features than discussed here. FIG. 2 illustrates the basic structure of an electronic message, which is similar to the basic structure of SMIL presentation. Similar to the HTML or XML, SMIL uses tags where the information of the presentation is set. The <layout> element consists information about the presentation and presents <root layout> which defines how the presentation is showed on the display and what is the size of the layout. The layout locations, as regions (shown in FIG. 2) R1-R3 define where in the root the presentation objects actually occur. The description of the region is made by attributes of which <id> is the identification of the region, <title> gives information about the region, <left>, <top>, <width> and <height> define the location of the region compared to the root. It is obvious that presentation is not limited to three regions R1-R3, as well as the invention is not limited to three regions R1-R3. Above-mentioned regions R1-R3 are for the sake of clarifying.

[0026] The <body> tag in SMIL contains the presentation objects in more detail, e.g. a media type of the object. The media types are <text>, <img>, <audio>, <video>. For the objects further details such as the "region", "src", "type" and "dur" are provided. "Region" defines the region in the message layout, where the object is shown, "type" defines the media type (for example MIME-type) for the object, "src" defines the source (e.g. URL) and "dur" defines the duration of the presentation. For example,  describes that image1 (media type is image) is shown in the Region1 for 10 seconds. It should be noticed that in the description only the images are discussed as media types, but in real situation objects can be any media such as text, image, video, and audio.

[0027] At first when forming a printable output from the electronic presentation according to the invention, the irrelevant, those that cannot be printed, objects e.g. interaction elements as well as those relevant multimedia elements which are rendered as a result of interaction are removed from the presentation. Other multimedia elements (e.g. sound media) can also be removed, if they do not have corresponding printable version or if they are just not wanted to be left. But it should be noticed that e.g. sound file can be converted into a text- or an image-file, especially when the sound file is known sound such as ring.wav or cuckoo.wav or the tag has information of the sound (e.g. boo.wav ALT="Scared?"). The sound files can be replaced e.g. by defining the conditions for it. The condition can, for example, be defined by a switch-sentence:

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<switch>
  <audio src="cuckoo.wav" device="mobile" />
  
</switch>
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