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(54) **MULTIMEDIA PRESENTATION DEVICE WITH PAPER PAGES AND AN ELECTRONIC DISPLAY**

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(57) **ABSTRACT**

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There is provided a multimedia book including a plurality of pages of print content, a cover covering the plurality of pages, a display covered by the cover, and an electronic module covered by the cover. The electronic module includes a memory having a media content stored therein, wherein each of a plurality of segments of the media content a corresponding page of the print content. The electronic module also includes a power source and a processor configured to detect a current page of the plurality of pages, wherein the current page is being viewed by the user, retrieve, from the memory, a first segment of a plurality of segments of the media content corresponding to the current page being viewed by the user, and playback, on the display, a first segment of a plurality of segments of the media content corresponding to the current page being viewed by the user.

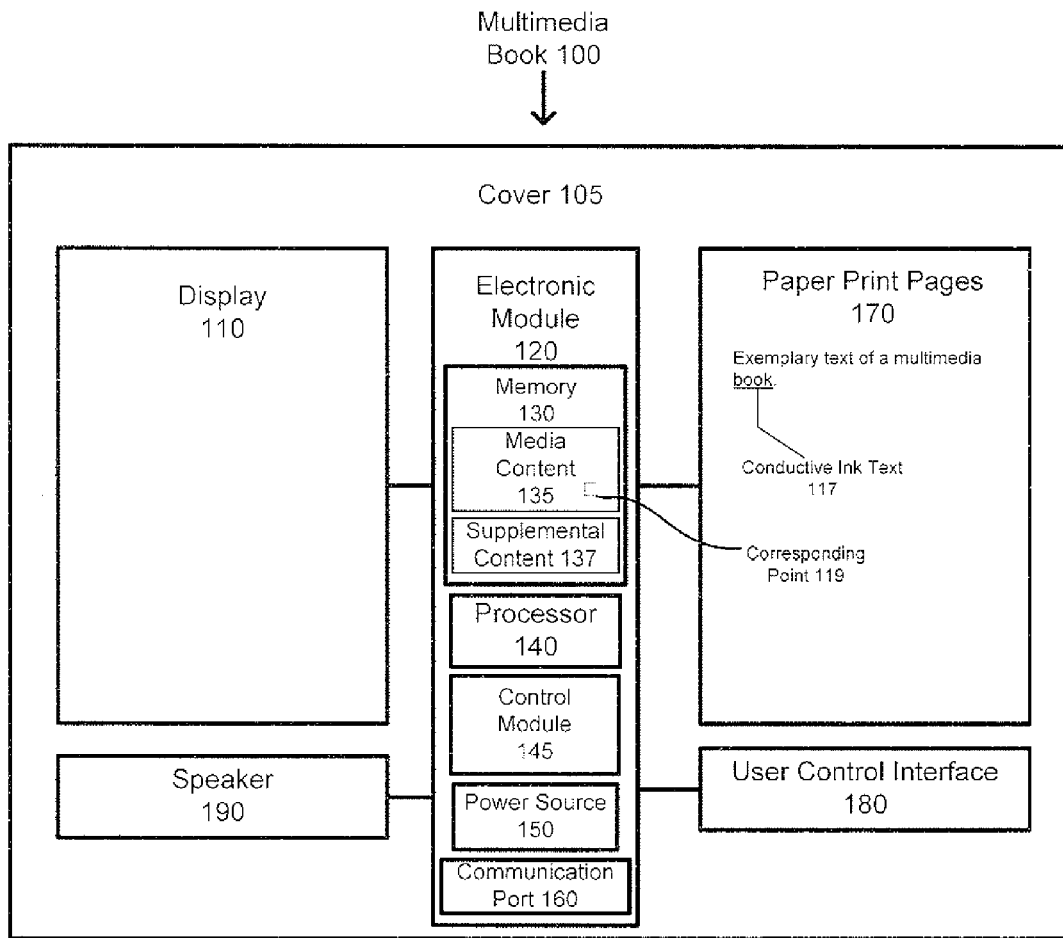
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Multimedia Book 100

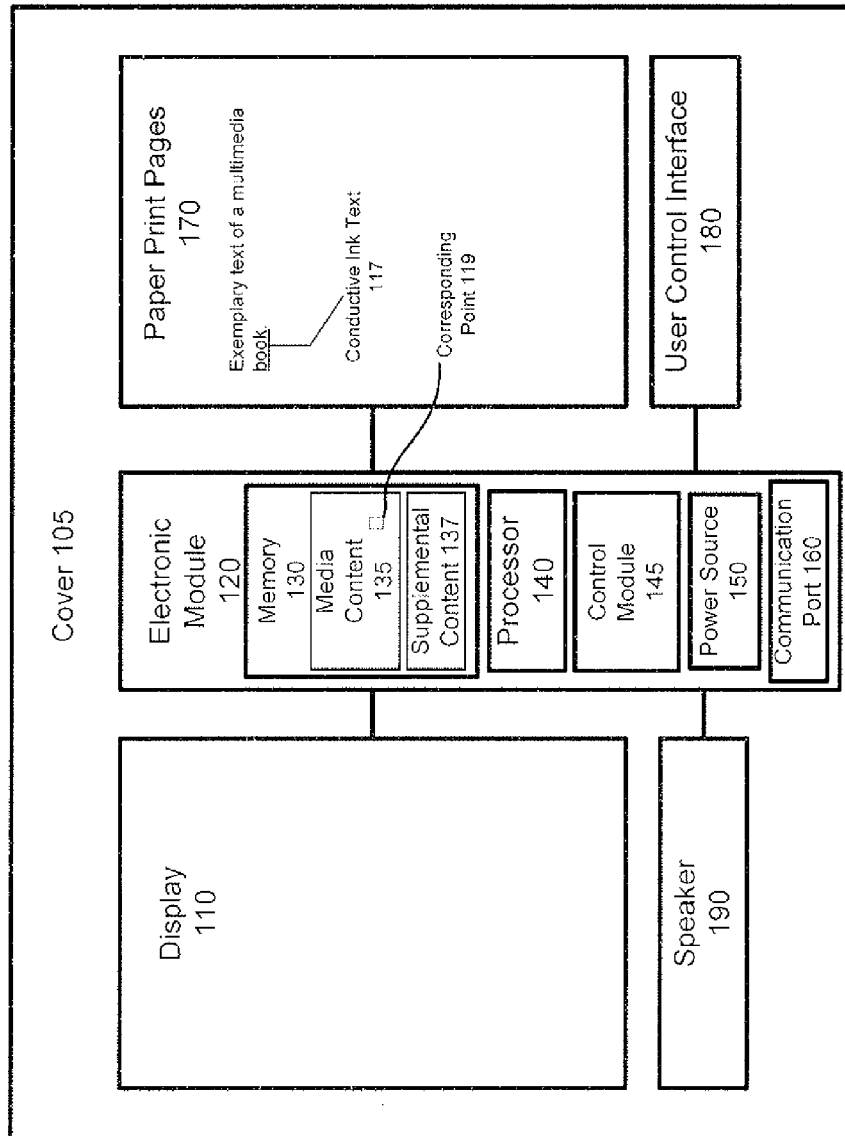


Figure 1

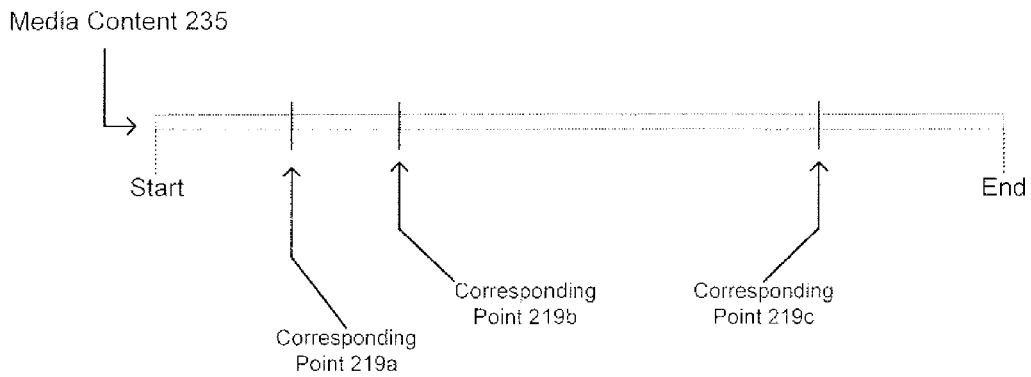
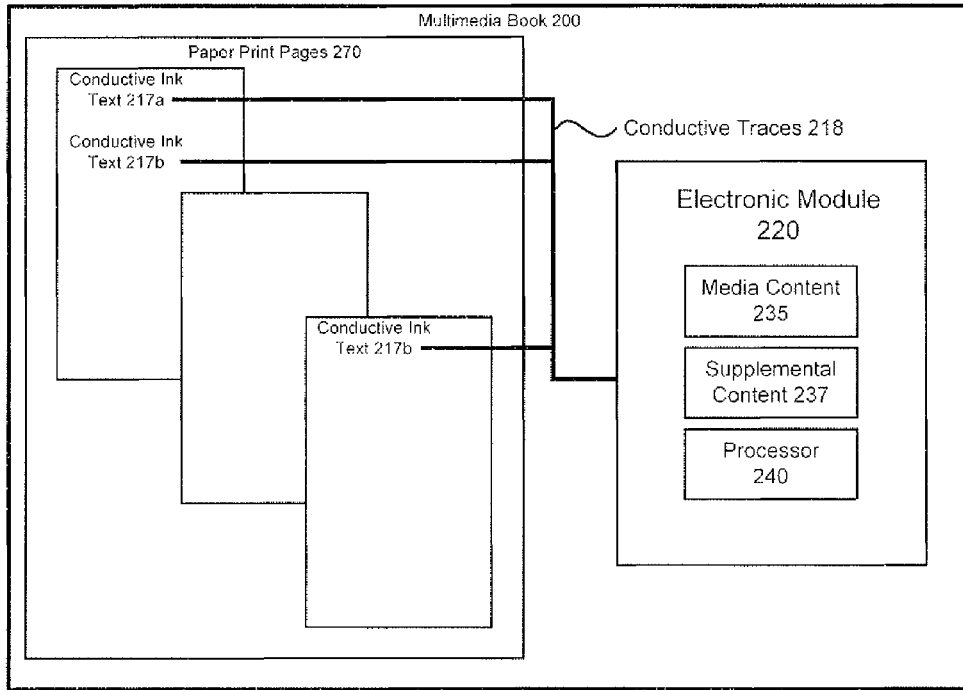


Figure 2

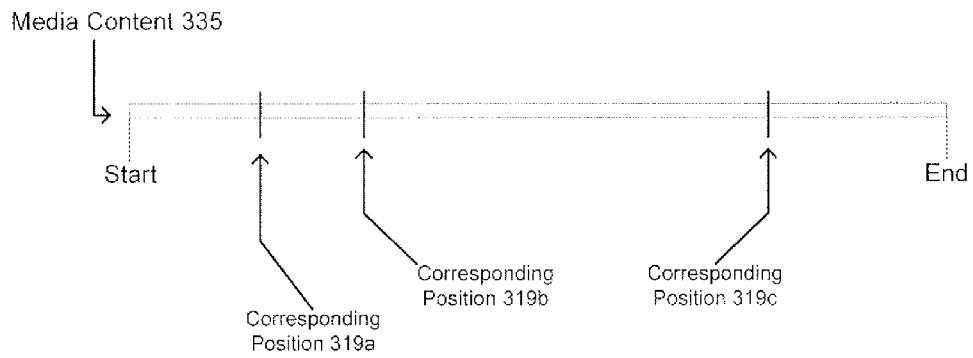
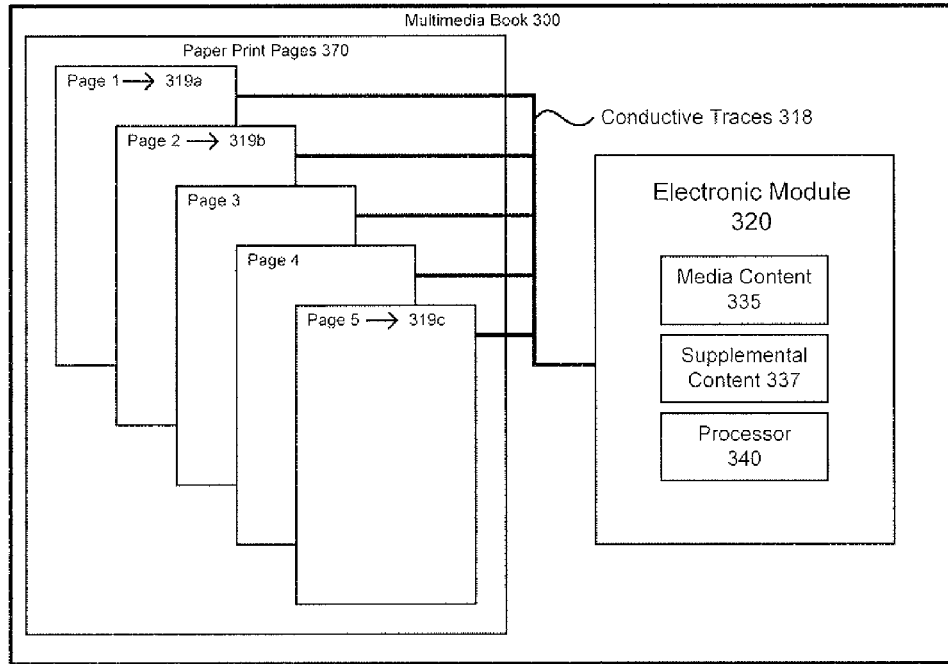


Figure 3

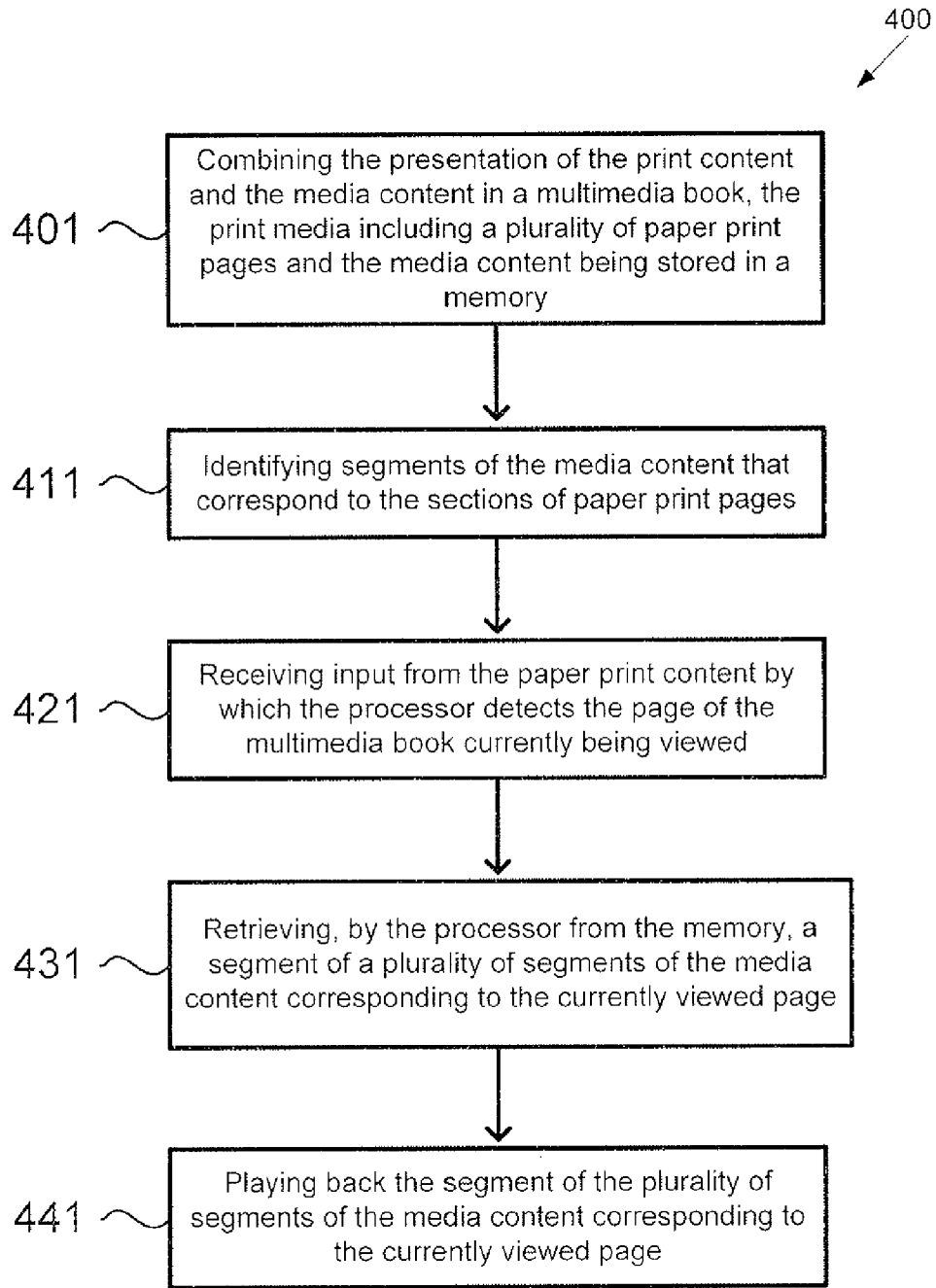


Figure 4

**MULTIMEDIA PRESENTATION DEVICE
WITH PAPER PAGES AND AN ELECTRONIC
DISPLAY**

BACKGROUND

[0001] Print media is commonly presented on paper, including books and magazines. Paper books offer a unique reading experience, and many readers enjoy the tactile experience of paper books. The touch and feel of paper, combined with the way the light reflects off the page, makes reading a paper book a different experience from reading an electronic reader. Paper print is still a prolific and useful medium, and will continue to be found on coffee tables, waiting rooms, offices, schools, among other places, for years to come. However, paper print does have limitations. As an example, paper print lacks interactivity. Other limitations include the fact that paper print is not updateable and graphics in paper books are still.

SUMMARY

[0002] There is provided a multimedia presentation device with paper pages and an electronic display, substantially as shown in and/or described in connection with at least one of the figures, and as set forth more completely in the claims.

BRIEF DESCRIPTION OF THE DRAWINGS

[0003] FIG. 1 shows a diagram of an exemplary multimedia book, according to one implementation of the present disclosure;

[0004] FIG. 2 presents a multimedia book using conductive ink, according to one implementation of the present disclosure;

[0005] FIG. 3 presents a multimedia book with paper print pages connected to the processor by conductive traces, according to one implementation of the present disclosure; and

[0006] FIG. 4 shows a flowchart illustrating a method for presenting a multimedia content of a multimedia book, according to one implementation of the present disclosure.

DETAILED DESCRIPTION

[0007] The following description contains specific information pertaining to implementations in the present disclosure. One skilled in the art will recognize that the present disclosure may be implemented in a manner different from that specifically discussed herein. The drawings in the present application and their accompanying detailed description are directed to merely exemplary implementations. Unless noted otherwise, like or corresponding elements among the figures may be indicated by like or corresponding reference numerals. Moreover, the drawings and illustrations in the present application are generally not to scale, and are not intended to correspond to actual relative dimensions.

[0008] FIG. 1 shows a diagram of an exemplary multimedia book, according to one implementation of the present disclosure. As shown, multimedia book 100 includes cover 105, display 110, electronic module 120, paper print pages 170, user control interface 180, and audio output device 190. Electronic module 120 includes memory 130, processor 140, control module 145, power source 150, and may include communications port 160.

[0009] Cover 105 includes a front portion, a back portion, and a spine. Cover 105 can be a multi-fold cover, so that when

the front portion is opened, there is an additional flap that can be opened further, positioning the additional flap such that pages of the book will not cover the additional flap while the book is being read. The multi-fold portion can also be an additional flap on the back portion of cover 105.

[0010] According to the implementation shown in FIG. 1, display 110 can be in the front portion of cover 105. In other implementations, display 110 can be in the back portion of cover 105. Display 110 can be configured to show video or photographic content of media content 135. In some implementations, the display may be a light emitting diode (LED) display, an organic LED (OLED) display, a liquid crystal display (LCD), a backlit LCD, a flexible OLED display, a flexible LED display, flexible LCD display, or other flexible display known in the art. To create a more interactive multimedia book, display 110 can be a touch-screen display. The display can be used to show media content related to the print content of the multimedia book. In some implementations, the display 110 can be placed at different locations in multimedia book 100. For example, display 110 can be included as an integrated part of cover 105, e.g., inside the front portion of cover 105 or inside the back portion of cover 105, where inside refers to the side of the portion of cover 105 facing the pages of the book. Display 110 can be placed on the outside of the front portion of cover 105 of multimedia book 100 or outside the back portion of cover 105 of the multimedia book 100, where outside refers to the side of the cover that is visible when multimedia book 100 is closed.

[0011] In some implementations, multimedia book 100 can include a plurality of displays. An implementation may have a display inside the front portion of cover 105 and inside the back portion of cover 105, or on the outside of the front portion and inside the front portion of cover 105. However, placement of the display 110 is not limited to the portions of cover 105. In some implementations, display 110 or a plurality of displays can be interspersed with paper print pages 170 of multimedia book 100. Paper print pages 170 may contain a portion of a story, after which display 110 can be included as a following page to show a segment of media content 135. As such, a book having paper print pages 170 about a film can include segments of the film shown on display 110.

[0012] For example, multimedia book 100 may be a book about an animated film. Such a book may begin with a written section in paper print pages 170 that describe the animation process involved in making the film, and display 110 may playback a segment of media content 135 corresponding to the animation process. Next, multimedia book 100 may include another written section in paper print pages 170 about the voiceover process and voiceover actors involved in the making of the animated film, display 110 may playback another segment of media content 135 about the voiceover process and voiceover actors. While the instant example describes only two sections of written content and a display, multimedia book 100 may include any number of written sections and any number of display pages interspersed with paper print pages 170.

[0013] Yet, in some implementations, display 110 can be interspersed with paper print pages 170 by embedding display 110 into the page. Similar to including a display 110 as a full page, display 110 may be included in the page, like an illustration, a picture, or a graphic in multimedia book 100. In some implementations, display 110 can be embedded as a portion of a page, allowing media content 135, or segments thereof, to be displayed as the reader progresses through

multimedia book **100**. In some implementations, each display **110** of the plurality of displays can be configured to playback a corresponding segment of media content **135**.

[0014] In order to playback media content **135**, display **110** is electronically connected to electronic module **120**. Electronic module **120** includes memory **130**, hardware processor **140**, and power source **150**. Electronic module **120** may also include communication port **160**.

[0015] Memory **130** is a non-transitory medium for storing data, and may be a non-volatile memory. Memory **130** includes media content **135**, and may also include supplemental content **137**. Media content **135** and supplemental content **137** can be audio content, visual content, audio and visual content, where visual content can include video, video clips, animation, photographs, or other graphics. In some implementations, media content **135** can be a movie or a short film. Supplemental content **137** can include advertisements, sponsorship messages, trailers for related movies, and other entertainment content, additional print content, complementary print content, or other audio/visual content to complement the paper print pages **170** of multimedia book **100**. In some implementations, supplemental content **137** can include audio content, such as a sound track or additional commentary content. Other implementations include any combination of media content **135** and supplemental content **137** including any combination of audio and visual content. Media content **135** and supplemental content **137** can each be divided into a plurality of segments. Media content **135** and supplemental content **137** can be presented in whole, or according to the plurality of segments.

[0016] Presentation of media content **135** and supplemental content **137** occurs when processor **140** plays back a segment of content **135** and supplemental content **137** on display **110** and/or audio output device **190**. In some implementations, a segment of media content **135** and supplemental content **137** can include only visual content, and accordingly playback will only use display **110**. Similarly, a segment of playback on display **110** can include media content **135** and supplemental content **137** can include only audio content, and playback will only use audio output device **190**. Also, playback may include playback of all of media content **135**, all of supplemental content **137**, or a segment that is less than all of media content **135** or supplemental content **137**.

[0017] Electronic module **120** also includes processor **140**, which may be electronically connected to display **110**, memory **130**, communication port **160**, paper print pages **170**, user control interface **180**. Additionally, processor **140** can be configured to receive input from paper print pages **170**, conductive ink text **117**, or user control interface **180**, and playback media content **135** and supplemental content **137** on display **110**. Processor **140** can be configured to playback each segment media content **135** and supplemental content **137** on display **110**. Control Module **145** is electronically connected to user control interface **180** and to media content **135**. In some implementations, control module **145** receives input from conductive ink text **117** associated with a corresponding point **119** of media content **135** in memory **130**. In some implementations, control module **145** receives input from page-turn controls associated with a corresponding point **119** of media content **135** in memory **130**.

[0018] Multimedia book **100**, using processor **140**, begins playback of media content **135** and supplemental content **137** by detecting a corresponding point **119** to begin playback. Corresponding point **119** can be the beginning of media con-

tent **135** or supplemental content **137**. In some implementations, corresponding point **119** can be at the beginning of a segment of media content **135** or supplemental content **137**. Processor **140** can determine corresponding point **119** at which to begin playback by detecting the page currently being viewed, by conductive ink text **217** input, or by a default setting. A default setting can be a typical starting point where media content **135** or supplemental content **137** would begin playback, such as the beginning.

[0019] Power source **150** of electronic module **120** provides power to the multimedia book **100**. In some implementations, power source **150** may be a battery. In some implementations, multimedia book **100** can have a display stand (not shown), where the display stand can be designed to recharge the battery using electronic pins or contacts when multimedia book **100** is placed on the display stand. Recharging of the battery of multimedia book **100** may be performed using a wire or wirelessly. For example, the battery of multimedia book **100** may be charged using conductive charging or inductive charging. In one implementation, the display stand for multimedia book **100** may be equipped with inductive charging, and the battery of multimedia book **100** may be charged while placed on the display stand providing an electromagnetic field to transfer wireless energy to the battery of multimedia book **100**.

[0020] Furthermore, electronic module **120** may include communication port **160**. Communication port **160** can be used to communicate with other devices, for example, for updating media content **135** and supplemental content **137** in memory **130**. Communication port **160** can be configured to connect electronic module **120** to a computer or computer network. In some implementations, communication port **160** can be configured to receive a communication cable such as a universal serial bus (USB) port, Firewire port, Ethernet cable port, telephone cable port, HDMI port. In some implementations, communications port **160** can be configured to receive a transferable memory device, such as an SD card, mini SD card, micro SD card, USB memory device (thumb drive), a memory stick, or other configurations of transferable memory known in the art. In some implementations, communication port **160** may communicate wirelessly, such that multimedia book **100** is wirelessly connectable to a computer or computer network using WiFi, cellular, Bluetooth, or other wireless technologies known in the art. Communications port **160** may also be used to recharge the battery, e.g., using a USB cable.

[0021] In some implementations, a user can utilize the connectivity of the multimedia book to purchase additional media from the publisher of the book, from the studio that created the media content **135**, or from third party media providers over the Internet. In some implementations, the user can load personal content, including photographs, images, video, or other personal content, onto multimedia book **100**. As such, users are able to create personalized books, such as a scrapbook to commemorate life events like a family trip. Wireless connectivity can also allow updates for media content **135** and supplemental content **137** to be pushed to multimedia book **100** by the publisher of the book, the studio that created the movie or other media content, or third party media providers.

[0022] To create a multimedia experience that is functional and appealing, electronic module **120** can be integrated into multimedia book **100**. In some implementations, electronic module **120** can be embedded in the spine of multimedia book

100. In some implementations, electronic module **120** can be partially in the spine, partially in cover **105** or completely in cover **105**.

[0023] In order to playback media content **135** on display **110**, processor **140** can be configured to receive input from user control interface **180**. User control interface **180** can include traditional media playback controls such as play, pause, stop, forward, reverse, scene skip, and menu. User control interface **180** can be a traditional interface having buttons. Buttons on user control interface **180** can be physical buttons, capacitive buttons, resistive buttons, or other buttons known in the art. In some implementations, user control interface **180** can be integrated into display **110**, e.g. using a touch-screen user control interface **180**. In some implementations, user control interface **180** can include controls other than buttons, such as conductive ink and page-turn controls.

[0024] In some implementations, the current page can be detected by an electronic signal being sent from paper print pages **170** to processor **140** by, for example, an electronic contact. In such an implementation, each page of paper print pages **170** can send a signal to processor **140** corresponding to the page that is currently being viewed. In some implementations, this could be a physical connection, e.g., an electronic contact to indicate multimedia hook **100** is open to the corresponding page. In some implementations, a proximity detector, indicating that multimedia book **100** is open to the corresponding page, may send the signal. In some implementations, multimedia book **300** can be written with the content of paper print pages **170** divided into sections, and each section can correspond to a segment of media content **135**. Multimedia book **100** can be configured such that each segment of media content **135** corresponds to a page of paper print pages **170**. In some implementations, multimedia book **100** can detect the currently viewed page, can have conductive ink text **117**, or both page detection and conductive ink text. Page detection and conductive ink text **117** are discussed in detail below. Although the present disclosure refers to paper print pages **170**, it should be noted that pages of print content can be of different materials, e.g. plastic or any material on which ink can be printed.

[0025] Conductive ink is ink that can be used in printed text or graphics that, when touched, acts like a button. Referring to FIG. 2, paper print pages **270** can include text printed in conductive ink, such as conductive ink text **217**. Conductive ink text **217a** is connected to electronic module **220** using conductive traces **218**. Conductive text **217a** corresponds to corresponding point **219a**, conductive text **217b** corresponds to corresponding point **219b**, conductive text **217c** corresponds to corresponding point **219c**. Corresponding point **219** can be a point in media content **235** or in supplemental content **237**. In some implementations, each page of paper print pages **270** contains conductive text. In other implementations, some pages of paper print pages **270** contain conductive ink text **217** and other pages do not, as shown in FIG. 2. The conductive ink may appear in a different color for ease of user perception. In FIG. 2, each corresponding point **219a-c** corresponds to the beginning of a segment of media content **235**, and media content **235** is depicted as a timeline to demonstrate how conductive ink text **217** corresponds to corresponding point **219** media content **235**. When a user touches conductive ink **217**, playback of media content **235** or supplemental content **237** begins at corresponding point **219**. Conductive ink text **217** can be electronically connected to electronic module **220** by conductive traces **218**. In some

implementations, a page can have one instance of conductive ink text **217**, more than one instance of conductive ink text **217**, or no instances of conductive ink text **217**.

[0026] FIG. 3 shows paper print page **370** that is associated with corresponding point **319**. To associate paper print pages **370** with corresponding point **319**, paper print pages **370** can be electronically connected to electronic module **320** by conductive traces **318**. As shown in FIG. 3, Page **1** is associated with corresponding point **319a**, Page **2** is associated with corresponding point **319b**, and Page **5** is associated with corresponding point **319c**. Thus, when a reader is viewing Page **1**, control module **337**, through processor **340**, cues the playback of media content **335** to corresponding point **319a**. At this point, if the reader initiates playback of media content **335**, processor **340** retrieves the corresponding segment of media content **335** from the plurality of segments stored in memory **330**, and the playback begins at corresponding point **319a**. If the reader is viewing Page **2** and initiates playback, playback of media content **335** begins at corresponding point **319b**. In some implementations, each page can be associated with a corresponding point **319** in media content **335**, with each successive page advancing through media content **335**. In some implementations, as shown in FIG. 3, some pages are associated with a corresponding point, while others are not. In some implementations, even pages that are not associated with a corresponding point are still connected to processor **340**. Multimedia book **300** can be configured to playback the entirety of media content **335** at once, or it can be configured to playback media content **335** in a plurality of segments that make up media content **335**.

[0027] FIG. 4 shows flowchart **400** illustrating a method for presenting a multimedia content of a multimedia book, according to one implementation of the present disclosure. Flowchart **400** begins at **401** with combining paper print pages **170** and media content **135** in multimedia book **100**, where media content **135** is stored in memory **130** and multimedia book **100** includes display **110**. Print media of paper print pages **170** is divided into a plurality of sections and media content **135** is divided into a plurality of segments. At **411**, processor **140** identifies segments of media content **135** that correspond to sections of print media in paper print pages **170**.

[0028] As a reader of multimedia book **100** progresses through paper print pages **170**, at **421**, processor **140** receives input from paper print pages **170**. Input from paper print pages **170** may come from conductive ink text **117**, or by a signal indicative of a page currently being viewed by the reader. Input from paper print pages **170** may be communicated to processor **140** using conductive traces **218**. Based on the input received from paper print pages **170**, at **431**, processor **140** retrieves, from the plurality of media segments stored in memory **130**, the segment of media content **135** corresponding to the currently viewed page or the selected conductive ink text **117**. At **441**, processor **140** plays back on display **110**, the corresponding segment of media content **135** retrieved from memory **130**, based on the input received from paper print pages **170**, where the playback of the corresponding segment begins at corresponding point **119**.

[0029] From the above description it is manifest that various techniques can be used for implementing the concepts described in the present application without departing from the scope of those concepts. Moreover, while the concepts have been described with specific reference to certain implementations, a person of ordinary skill in the art would recog-

nize that changes can be made in form and detail without departing from the scope of those concepts. As such, the described implementations are to be considered in all respects as illustrative and not restrictive. It should also be understood that the present application is not limited to the particular implementations described herein, but many rearrangements, modifications, and substitutions are possible without departing from the scope of the present disclosure.

What is claimed is:

1. A multimedia book comprising:
 - a plurality of pages of print content;
 - a cover covering the plurality of pages;
 - a display covered by the cover; and
 - an electronic module covered by the cover, the electronic module including:
 - a memory having a media content stored therein, wherein each of a plurality of segments of the media content a corresponding page of the print content;
 - a power source;
 - a processor configured to:
 - detect a current page of the plurality of pages, wherein the current page is being viewed by the user;
 - retrieve, from the memory, a first segment of a plurality of segments of the media content corresponding to the current page being viewed by the user; and
 - playback, on the display, the first segment of the plurality of segments of the media content corresponding to the current page being viewed by the user.
2. The multimedia book of claim 1, wherein the cover includes a spine, and wherein the spine includes at least a portion of the electronic module.
3. The multimedia book of claim 1, wherein the plurality of pages of print content further comprise conductive ink, wherein the conductive ink is coupled to the processor using a conductive trace for corresponding to a segment of the media content by the processor.
4. The multimedia book of claim 1 further comprising a plurality of displays including the display.
5. The multimedia book of claim 4, wherein at least one of the plurality of displays is interspersed with the plurality of pages of print content.
6. The multimedia book of claim 1, wherein the display is one of an OLED, LED, and LCD panel.
7. The multimedia book of claim 1, wherein the display is a touch-screen display.
8. The multimedia book of claim 1, wherein the memory further comprises a supplemental content stored therein.
9. The multimedia book of claim 1, wherein the memory is updateable.
10. The multimedia book of claim 1, wherein the multimedia book is connectable to a computer network.
11. A method of presenting multimedia content in a multimedia book comprising a cover including a spine, a display, a plurality of pages of print content, a processor, and a memory having a media content stored therein, the method comprising:
 - detecting, by the processor, a current page of the plurality of pages of print content, wherein the current page is being viewed by the user;
 - retrieving, by the processor from the memory, a first segment of a plurality of segments of the media content corresponding to the current page being viewed by the user; and
 - playing back, on the display, the first segment of the plurality of segments of the media content corresponding to the current page being viewed by the user.
12. The method of claim 11, wherein the spine includes at least a portion of the electronic module.
13. The method of claim 11, wherein the plurality of pages of print content further comprise conductive ink, wherein the conductive ink is coupled to the processor using a conductive trace for corresponding to a segment of the media content.
14. The method of claim 11, wherein the multimedia book comprises a plurality of displays including the display.
15. The method of claim 14, wherein at least one of the plurality of displays is interspersed with the plurality of pages of print content.
16. The method of claim 11, wherein the integrated display is one of an OLED, LED, and LCD panel.
17. The method of claim 11, wherein the display is a touch-screen display.
18. The method of claim 11, wherein the memory further comprises a supplemental content stored therein.
19. The method of claim 11, wherein the memory is updateable.
20. The method of claim 11, wherein the multimedia book is connectable to a computer network.

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