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Synchronizing Page Location Between Physical and Electronic Books Using Bluetooth

ABSTRACT

When a user reads a physical book and attempts to continue reading via such a device, it is necessary for the user to find a location in the electronic book that corresponds to the page where they left off. Currently, there are no mechanisms to have a bookmark move from the physical world to an electronic book. This disclosure leverages short range wireless technology such as Bluetooth, to synchronize between a physical book and a digital device. The cover and spine of the physical book includes a Bluetooth LTE antenna and a low power transmitter. The current page number in the physical book is determined based on signal strength detected by the cover. Optionally, a special physical bookmark can be placed in the book to improve the fidelity of detection. The page number and book metadata are transmitted to a digital device that can identify the corresponding electronic book and map the page number to a corresponding location in the electronic book.

KEYWORDS

- Physical book
- Electronic book
- E-book
- Bookmark
- Reading location
- Page location
- Page number

BACKGROUND

Many users read physical books and also have access to an electronic version of the book on a digital device such as an e-book reader, tablet, laptop, or other device. When a user reads a physical book and attempts to continue reading via such a device, it is necessary for the user to find a location in the electronic book that corresponds to the page where they left off. Currently, there are no mechanisms to have a bookmark move from the physical world to an electronic book. A particular situation is when a student working on homework problems attempts to talk to a teacher or another person with reference to a portion of the book they are looking at.

DESCRIPTION

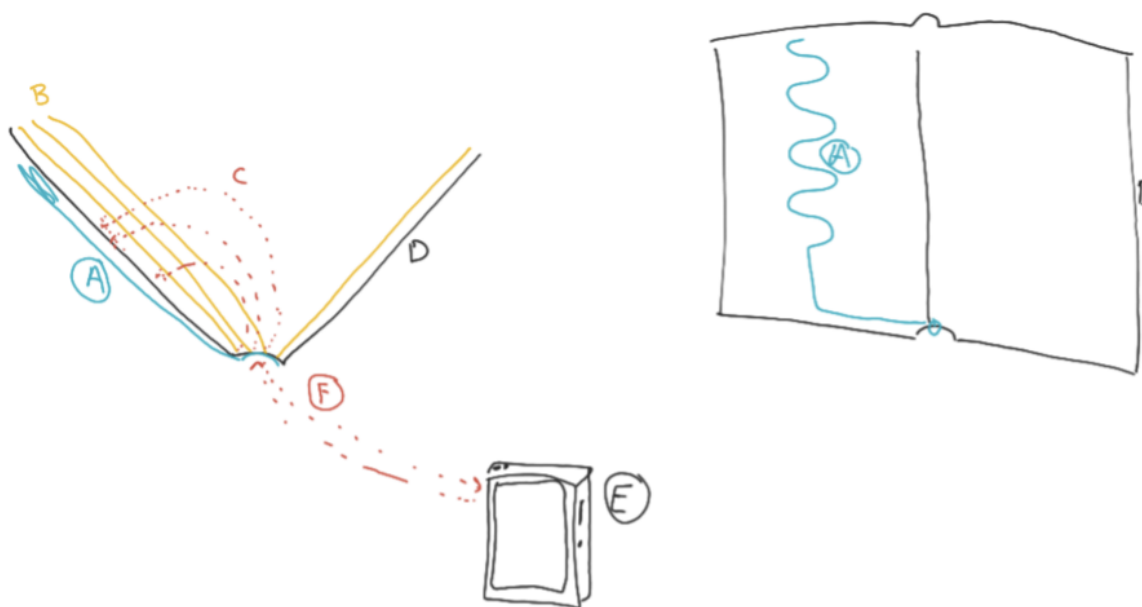


Fig. 1: Synchronizing location in a physical book with an electronic book

This disclosure leverages short range wireless technology such as Bluetooth to synchronize between a physical book and a digital device. Fig. 1 illustrates synchronization of location in a physical book with an electronic book.

In Fig. 1, the following components are shown:

- A: Bluetooth LTE antenna that is embedded in the cover and spine of a physical book along with a small low power transmitter.
- B: Pages of the physical book.
- C: Bluetooth signals being transmitted from the spine, through the air, to be received by a digital device.
- D: Cover of the physical book.
- E: Digital device such as a computer, smartphone, or tablet with a Bluetooth connection.
- F: Bluetooth connection from the book to the device.

Periodically, such as when polled by the digital device or when page-turn events are detected by sensors in the physical book spine, the spine transmitter measures signal strength as detected by the cover of the book. Based on the signal strength, the number of pages between the cover and the current position can be determined. Optionally, this can be aided by a special bookmark that can be placed in the physical book to improve the fidelity of the detected position.

Once the position is determined, the position and book metadata, e.g., international standard book number (ISBN), edition, version, etc. is transmitted to the digital device. The digital device can then synchronize the current physical location to the corresponding position in the electronic book based on a mapping of the electronic book locations to physical book page numbers.

Further to the descriptions above, a user may be provided with controls allowing the user to make an election as to both if and when systems, programs or features described herein

may enable collection of user information (e.g., information about a user's physical and electronic books, a user's preferences, or a user's current location), and if the user is sent content or communications from a server. In addition, certain data may be treated in one or more ways before it is stored or used, so that personally identifiable information is removed. For example, a user's identity may be treated so that no personally identifiable information can be determined for the user, or a user's geographic location may be generalized where location information is obtained (such as to a city, ZIP code, or state level), so that a particular location of a user cannot be determined. Thus, the user may have control over what information is collected about the user, how that information is used, and what information is provided to the user.

CONCLUSION

This disclosure leverages short range wireless technology such as Bluetooth, to synchronize between a physical book and a digital device. The cover and spine of the physical book includes a Bluetooth LTE antenna and a low power transmitter. The current page number in the physical book is determined based on signal strength detected by the cover. Optionally, a special physical bookmark can be placed in the book to improve the fidelity of detection. The page number and book metadata are transmitted to a digital device that can identify the corresponding electronic book and map the page number to a corresponding location in the electronic book.

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