# Chapter 18
# Interactive Picture Book with Story-Changeable System by Shuffling Pages

**Hiroki Yamada**
*The University of Tokyo, Japan*

**Michitaka Hirose**
*The University of Tokyo, Japan*

## ABSTRACT

*In this chapter, the authors introduce SequenceBook system, an interactive picture book that consists of a paper book with very thin IC (Integrated Circuit) tags embedded in each page and an RFID (Radio Frequency IDentification) antenna. This system uses a traditional paper book as an interface and realizes natural interface that keeps the affordance of traditional book and thus smoothly prompts users to experience its contents by just flipping pages in the same way as they read an ordinary book. Another important feature of the system is that users can change its storylines as they like. The system is designed like a bookbinder so that users can easily shuffle pages and make several patterns of stories.*

## INTRODUCTION

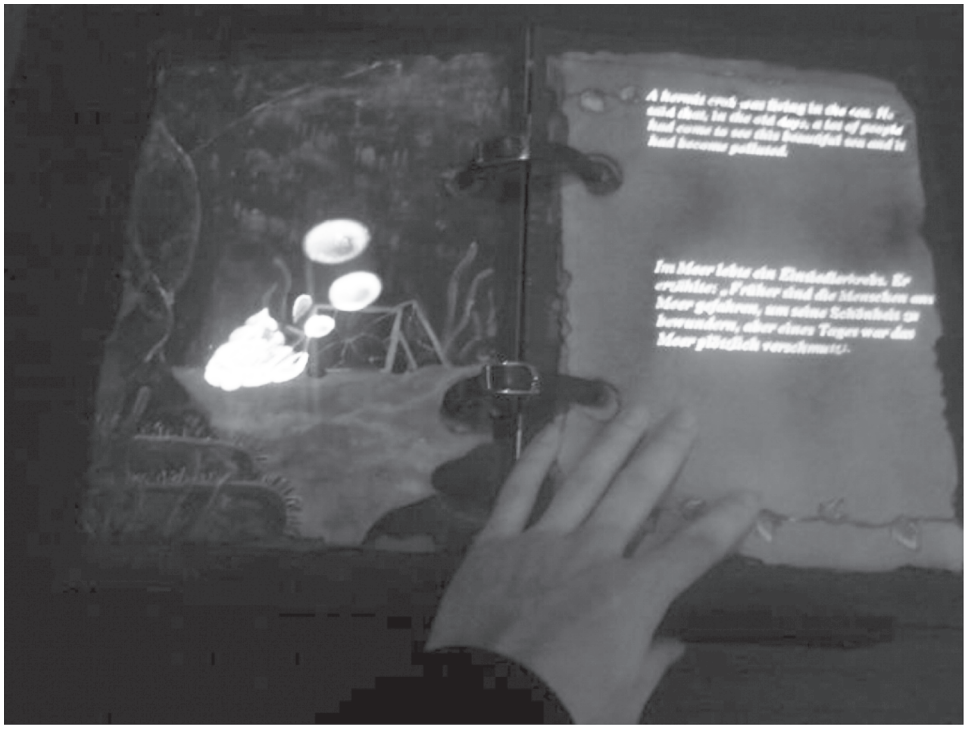
Since early times, picture storybook has been important tool for children and also enjoyed as entertainment by adults.

Many years later, as computers progress, people are becoming interested in making books highly computer-supported. As a result, some digital storytelling contents on computers, such as e-novels, have been created and spread into our daily life. However, while it allows users to enjoy rich multimodal contents that traditional paper books do not have, paper books have not faded from our daily life. We think that this is because of the naturalness and familiarity as an interface of paper books.

Based on the fact that traditional paper books have been widely used until now, we aim to develop novel paper books, which users can enjoy rich multimodal contents like software on computers while keeping the affordance of a traditional book.

DOI: 10.4018/978-1-4666-1628-8.ch018

*Figure 1. SequenceBook*



In this chapter, we propose *SequenceBook*, which uses a traditional paper book as an interface to experience digital contents, so that it can keep the affordances of paper books while adding electronic augmentation. The aim of this study is to achieve both highly computer-supported contents and natural interface, e.g., highly efficient combination of physical and digital world. With *SequenceBook*, every person (especially who is not good at operating computers) can enjoy rich digital contents just by flipping pages (see Figure 1).

In this study, we also aim to develop an efficient and novel system to encourage creativity and activeness of users in reading. To achieve this purpose, it is very important for users to make the sequences of a story by their own hand. Therefore, *SequenceBook* was constructed like a bookbinder so that users can easily change a sequence of pages and enjoy several patterns of stories.

## BACKGROUND (RELATED WORKS)

Some other media art works use a metaphor of picture book. *Moments de Jean-Jacques Rousseau* (Boissier, 2008) and *Beyond Pages* (Fujihata, 1995) are famous media art works. In addition, some researchers have been interested in visually augmented books. Augmentation of book by using Mixed Reality Technology has been also accomplished by previous works, e.g. *The Mixed Reality Book* (Grasset, et al., 2007) and *The Magic Book* (Billinghurst, et al., 2001) are representative examples. *Interactive textbook and interactive Venn diagram* (Koike, et al., 2000) attempted to project information next to the book. *Listen Reader* (Back, et al., 2001) is a system using IC tags embedded in each page like *SequenceBook*.

From a standpoint of story creation, some systems have been developed. *StoryMat* (Ryokai, et al., 1999) is a physical play mat that records voices of storytelling play and the movements of the toys.