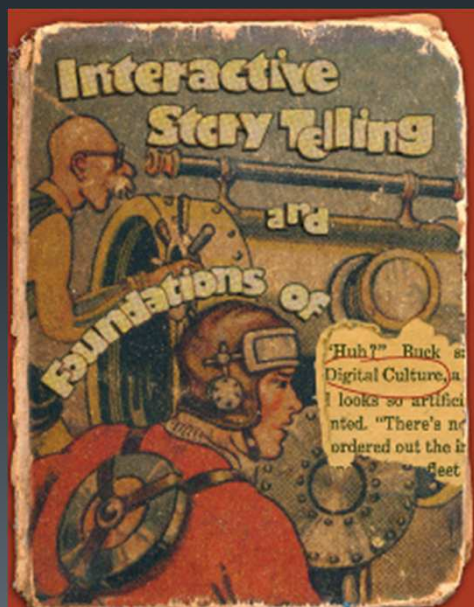


Augmenting Tangible Interactions for Storytelling



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Motivation

2

Storytelling

- Storytelling is the narration of events with the help of external aids like text, sound, picture etc.
- Stories are motivating and form a vital source of entertainment.
- Children grasp things easily that are narrated to them. Hence, this concept of education via storytelling is popular with educators who teach young children.

The question still remains unanswered, why is interactive storytelling important ?

- Technology enhances the storytelling experience by adding a virtual component to it.

Psychological significance of Objects

3

- Objects provide a gateway to express thoughts.
- Children make use of personal belongings and articles to construct descriptions from their imagination.

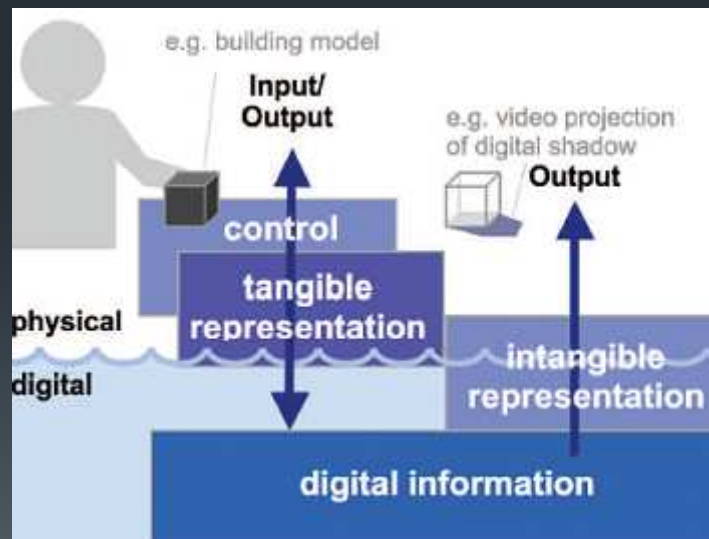


- Objects enhance the entertainment component of narration.
- Objects add flexibility in gathering the entire expressive gestures and other non-verbal attributes.

Tangible User Interface (TUI)

4

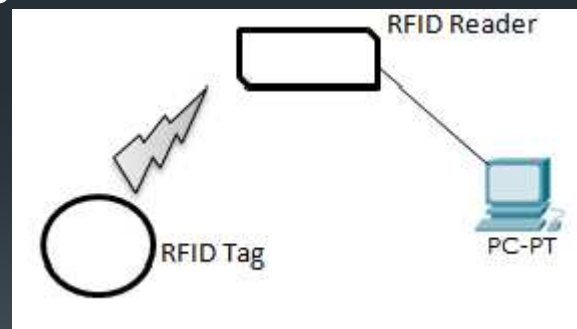
- TUI is a vital part of storytelling models.
- Came into existence in mid 90's.
- TUI makes interaction of digital technology via physical artifacts possible.



Methodology

5

- Interactive storytelling prototypes operate on different sensing technologies.
- The aim is to transfer the information from the physical artifacts to digital media.
- Example : Radio Frequency Identification (RFID).
- The object is tagged with an RFID sensor.



- <http://www.youtube.com/watch?v=UE6vIIYI5RI>

Prototypes Developed

6

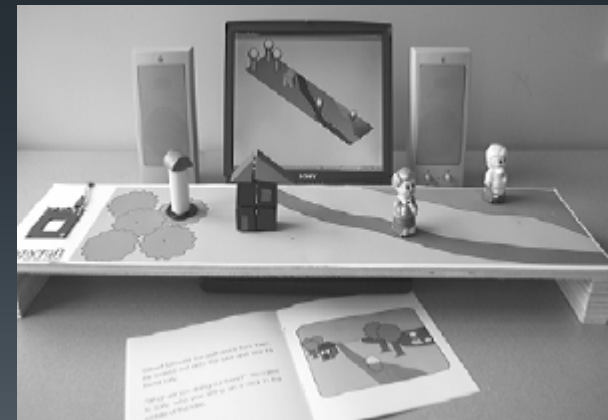
- PageCraft [1]

It allows story generation with complete control of the narrative environment. The users can save the stories they create or edit.

Components → Few printed stories, a laptop with compatible playmats, and blocks & characters, which are detected by collective action of IR sensors and LDR.

Limitation

- Interaction limited to playmats.



Prototypes Developed

7

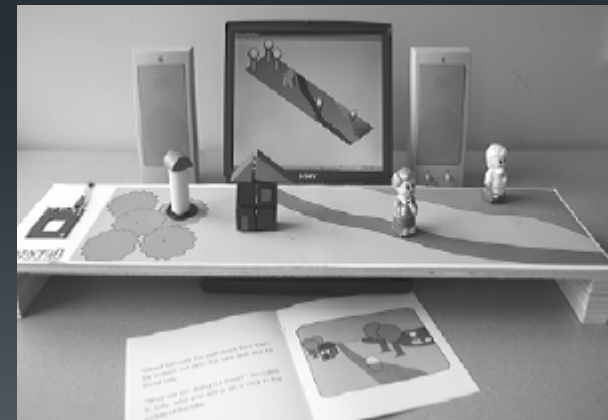
- iTheater [2]

It is an interactive storytelling prototype which allows users to create and edit stories via the puppet interface.

Components → A puppet interface that is used to manipulate the story characters and a TUI toolkit that assists in the animation of the virtual characters.

Limitation

- Lag in object recognition.



Prototypes Developed

8

- TellTable [3]

TellTable is a storytelling model that was designed for collaborative activities among children .

- TellTable differs from the prototypes discussed earlier, by the fact that it allows users to create stories by using pictures of physical objects and the images drawn by the user
- TellTable was designed to eliminate the external props that were used for navigation throughout the story.

Limitation

- Malfunctions in a multi-user environment.



Prototypes Developed

9

- Voodoo[4]

Voodoo is a work in progress which aims to achieve virtual interaction with dolls employed as tangible interface.

- The animation in Voodoo is based on the description of a popular predefined story.
- The user must know the context of the story for a successful interactive narration.

Limitation

- Does not support narrative recording.
- Narration is predefined, hence no room for editing a story.



Conclusion & Future work

10

Summary of the prototypes included in the report

Prototype	Interface Employed	Technology Used	Limitation	Multi-touch	Audio and Video	Recording Animations
PageCraft [1]	Play Blocks	IR sensors and LDR	Interaction limited to playmats	X		
iTheater [2]	Puppet Interface	IR system and RFID	Lag in object recognition	X		
The Reading Glove [5]	Glove	RFID	Replay required object switching	X		X
TellTable[3]	Table	Microsoft Surface [7]	System malfunctioned in multi-user environment			
Reactoon [6]	Table	TUIO Protocol	Limited narration			
Voodoo [4]	Dolls	Color Blob Tracking	Narration is predefined. No room for story editing.	X		X

- TUI's form the functional unit of interactive storytelling prototypes.
- Interactive storytelling is an important component of educating children.

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