Weathergods: tangible interaction in a digital tabletop game

Saskia Bakker, Debby Vorstenbosch, Elise van den Hoven,

Eindhoven University of Technology

P.O.Box 513

5600 MB Eindhoven, the Netherlands

e.v.d.hoven@tue.nl

Gerard Hollemans and Tom Bergman.

Philips Research Laboratories Eindhoven

High Tech Campus 34

5656 AE Eindhoven, the Netherlands

{gerard.hollemans, tom.bergman}@philips.com

ABSTRACT

In this paper we describe the game 'Weathergods', which is implemented on the Entertaible tabletop gaming platform [1]. The game uses either iconic or symbolic [2] tangible objects for interaction and marries both the advantages of traditional board games and computer games.

Author Keywords

Interaction design, digital tabletop gaming, tangible user interfaces, pervasive games, tangible interaction

ACM Classification Keywords

H.5.2 Information Interfaces and Presentation (e.g. HCI): User Interfaces - *Haptic I/O, Input devices and strategies (e.g., mouse, touchscreen), User-centered design.* K.8.0 Personal Computing: General – *games.*

INTRODUCTION

Traditional board games have been played for centuries. With the development of desktop PCs and game consoles, digital computer games were introduced. Although computer games allow using dynamic multimedia, they often lack physical activity and social interaction. To unite the advantages of computer games with the social advantages of board games, some research projects already combined tangible interaction with tabletop gaming. For example, the games 'False Prophets' [4], 'KnightMage' [3] and the STARS adaptation of Monopoly [3]. These games use tangible play pieces to represent game-characters.

As part of a study on tangible interaction in tabletop games, a new dedicated game is developed using either iconic (physically representing the association with the digital information) or symbolic (not representing this association) [2,5] play pieces. This game is implemented for the Entertaible touch-sensitive tabletop gaming platform [1],

developed at Philips.

To make meaningful use of tangible interaction and a digital tabletop, the design goal was to develop a game which marries the advantages of both traditional board games and computer games. The game is called Weathergods and will be used to study the differences between the two versions of play pieces. In this paper, we focus on the implementation of the Weathergods game.

GAME

To design a game that meets the above mentioned goal, 25 low-level game-concepts were generated during an informal brainstorm session of two of the authors. Of four of these concepts, paper prototype versions were tested with 2 groups of participants. These prototypes were eventually developed into one final game.

The Weathergods game is turn based in a clockwise order, and can be played with a maximum of 4 players. The setting of the game is the Arabic savannah, displayed on the screen (see Figure 1). The weather gods are having a fight and therefore it has not been raining for several weeks. Since this drought is threatening the harvest, each of the four villages in the savannah has sent one camel rider on a journey to collect offerings for the gods, who can influence the weather. Each of these four camel riders represents one of the four players. The first player to collect all the offerings, in the correct order, is the winner. In temples, offerings can be bought in exchange for gold. This gold can be gathered by selling camels' milk in a village. Milk is produced automatically if the camel walks over a grassy area (the fertility of the land reduces which makes the green color fade to yellow) and gold can be found hidden underneath some of the board tiles. During their journey, the camel riders can encounter dangers, e.g. quicksand or a bandit who steals their gold.
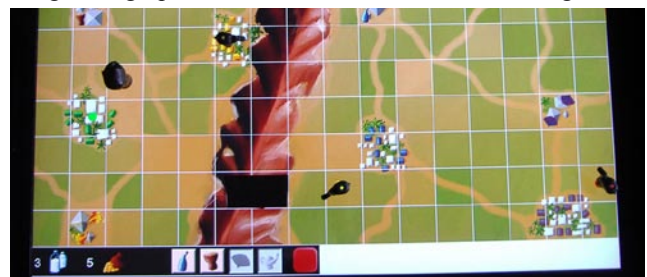

Figure 1. The 'board' on-screen of the Weathergods game.

Table 1. Tangible play pieces used in the game Weathergods.

INTERACTION

The game Weathergods uses three different classes of tangible objects for interaction (see Table 1). Each class contains two versions of objects: an iconic version and a symbolic version.You can play either with the iconic set or with the symbolic set of play pieces.

The first class of tangible objects is the camel rider. This object represents the player and the information of the player. The second class of tangible objects is the bandit who steals gold from the players. The third class of tangible objects is the detector. The function of this object is to reveal hidden gold. If gold is hidden underneath the tile the detector is placed upon, the crystal ball will show a yellow light, which is only visible to the player who is using the detector.

FEEDBACK

Using a digital board allows much more and different feedback than when using a physical board. In the game Weathergods, both visual and auditory feedback are used simultaneously. Visual feedback is used in different ways, ranging from colour changes to clear textual messages. Auditory feedback is used to support the visual feedback.

As explained above, the colour of the board tiles changes, showing the fertility of the land, and the crystal ball changes colour to show if there is gold hidden in the ground. In this last example, light conductors in the object are used to transfer the light from the board to the crystal ball. This technique is also used to show the colour of the players on their camel rider-objects (see Figure 2).

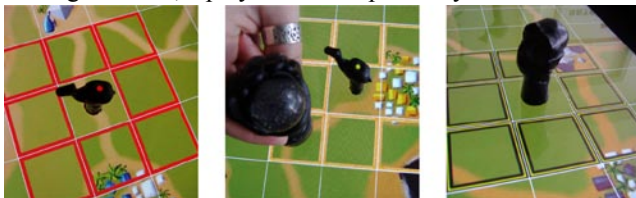During one turn, a player must respectively move his camel

Figure 2. Coloured squares to display the options
for moving the camel rider (left), placing the
detector (middle) and moving the bandit (right).

Figure 3. Event message 'you have found gold'.

rider, place his detector and move the bandit. To show the options for each of these three steps, coloured squares are displayed around the three different objects to show which steps the player can take (see Figure 2). When one step is performed an accompanying sound is played and the options for the next step are shown.

During the game, personal text messages are used to inform the player of events and possibilities. For example, when a camel rider finds gold, a message is shown in front of the player (see Figure 3). An OK-button (using touch) is added to assure that the player has received the message. When a player has the opportunity to sell milk or buy sacrifices, a message is shown together with input buttons. When messages appear, matching sounds inform the player.

CONCLUSION

As described in the introduction, the main goal was to combine the advantages of traditional board games and digital tabletop technology, to create a hybrid game. In the Weathergods game, tangible play pieces have been combined with the dynamic multimedia aspects of digital tabletops. The result is a unique hybrid game which uses the advantages of both traditional board games and computer games. This game will be used to study the differences between the two versions of play pieces.

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