

Veggie Diaries: Urban Mobile MR Entertainment

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Abstract

This proposal discusses the usage of Mixed Reality (MR) systems for entertainment in a mobile context. "Veggie Diaries" allows the integration of real-world outdoor objects with game elements, using MR techniques and a camera-mounted PDA.

1 Description

Veggie Diaries is a Mixed Reality gardening game in which players plant and grow vegetables on a diary book, through a camera mounted PDA. Players use real-world objects such as magazine cutouts and road signs as soil and nutrients to grow their vegetables.

Through its use of Mixed Reality, Veggie Diaries bridges the gap between virtual and real space in daily life outside of controlled, indoor environments. Users can look for game items in the same way as they snap objects of interest with a camera mounted cell phone; thus, the act of obtaining game items becomes a natural extension of an everyday act.

Our previous project, Little Red MR, focused on utilizing Mixed Reality in an entertainment setting by combining them with storytelling techniques and metaphoric interfaces. Veggie Diaries both builds on and deviates from the areas explored by Little Red MR: It brings entertainment using Mixed Reality to the mobile realm, by operating on camera mounted PDAs and pocket-sized diary books. In contrast to Little Red MR, which used PCs and full-size books, Veggie Diaries is designed with the players' mobility in mind, with a game system that requires players to carry the game outside, and look around their surroundings.

Communication was also an important aspect in the design of Veggie Diaries. Veggie Diaries utilizes the real world extensively- and other players are the ultimate real-world game elements. It was decided from the start for Veggie Diaries to enable players to interact with each other through it.

Through Veggie Diaries, we propose a style of mobile MR gaming where real world objects become game elements. We believe such systems implemented on mobile phones, for instance, could change the way people interact with mobile entertainment.

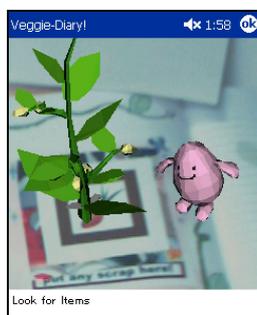


Figure 1. Veggie Diaries.

2 Exposition

The Veggie Diaries system consists of a diary book and a PDA running custom software. On each of the diary pages is a translucent pocket attached to it, which itself has a Mixed Reality recognition marker attached. Each marker has a picture of a seed printed on them. Seen from the PDA, a 3D model of the vegetable planted on the page is superimposed on the view of the real-world book. The plant is accompanied by an assistant 3D character who occasionally provides the player with in-game information.

Upon beginning play, the player must first find a soil bed to plant a seed. Paper pieces in real space represent soil in the virtual space. Players must obtain soil from pieces of paper, for instance magazine cutouts. The player then inserts them into the pages, using the pockets attached to each page. The MR system, in addition to seeing the markers printed on the page, also recognizes the colors from multiple points on the cutout. This combination of colors determines what the planted seed will grow into. The seed can become any of around a dozen possible vegetables. Since players cannot know what vegetable their cutout will grow, one may end up with doubles of the same plant. In these cases, players are free to swap and exchange the cutouts they have made by removing the cutout from the pocket and handing it over to another player, who may reinsert it into her own book.

Players will need to periodically give water and sun to their plants. Nutrients are hidden in common road signs; Players capture them from the signs using the camera mounted on the PDA. To do this, players switch the system into capture mode. In this mode, a crosshair is shown in the middle of the screen, which changes color when it has a road sign within itself. When the button on the PDA is pressed during this period, the system 'captures' the nutrient trapped within the road sign into the PDA. The player then releases the captured nutrients by aiming at their vegetables and pushing the button again. Internally, this is done by keeping templates of the road signs in the program and comparing the camera input to the stored templates.

As time passes, players who have taken care of their plants will see them grow from a bud to a full-fledged plant. Players who have neglected their duties will instead see them bend and wither.

Veggie Diaries presents a gaming interface in where the user never stays in the same place for long, and actively uses their surrounding environments as game elements.

Veggie Diaries was created in cooperation with Olympus Corp.

References

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