

Wriggling Bits: Worm Pixels Squirming Out of The Desktop As A Dynamic Tangible Display

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ABSTRACT

This paper presents a three dimensional tangible display in which living, breathing worms act as dynamic tangible pixels.

Keywords

Tangible pixel, Worms, Art.

1. INTRODUCTION

Wriggling Bits provokes discussion concerning three-dimensional dynamic pixel systems and attempts to pursue an interface inspired by the natural world. Tracking the movement of animals is arguably something our brains are hardwired to do – can such an inclination be utilized in developing new display systems? Despite being so engaging, many people are revolted at the thought of touching creatures such as earthworms – so for a display to be truly “graspable” does it require more than just a tangible form?

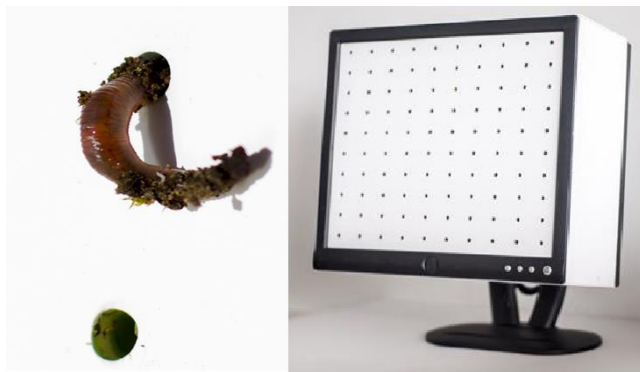


Figure 1: Worm pixel (left) squirming out of the desktop (right) as a dynamic tangible display.

2. DESCRIPTION

From a distance, the artifact resembles a standard flat-screen desktop display, but with white cardboard covering the actual screen. In fact, the LCD module and other electronic components were entirely removed so that only the frame of the original monitor remains.

The cardboard surface in place of the screen was dotted with 100 laser cut holes (5mm diameter) in order to produce a 10 x 10 grid. On the rear surface of the screen a plastic drinking straw of 10cm in length (5mm diameter) was fixed inside each hole.

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Figure 2: Outer (left), inner (right) view of dynamic display.

3. HOW IT WORKS

An earthworm is placed in each straw. Each straw is briefly sealed at both ends. Once every straw is “loaded” with a worm, “run time” begins: one end of every straw is opened near simultaneously so that the worms are able to move onto the surface of the display.



Figure 3: Worms in action, getting in to (left) and of to (right) the straw.

4. ETHICAL NOTE

When using animals as motivation for technological development it is very important to take ethical issues into consideration. That would mean any action that could cause harm or pain should be avoided in order not to disturb animals' welfare [2]. Accordingly, great care is taken to nurture the animals and return them to nature swiftly. Earthworms were selected as the drivers of this experimental display because “it is very unlikely that they can feel any pain”. [1]

5. REFERENCES

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- [2] Vaataja, H.K., Pesonen, E.K. Ethical Issues and Guidelines when Conducting HCI Studies with Animals. *Ext. Abstracts CHI 2013*, ACM Press (2013), 2159-2168.