

The Cyclone Display: Rotation, Reflection, Flicker and Recognition combined to the pixels.

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Figure 1: (top-left)Overviews of 37 pixels, (top-center) shows character “3” (top-right) Interaction with hand shadows and flicker (bottom-left)rainbow color on the pixels (bottom-center) enlargement of pixels. (bottom-right)texture variation of rotation disks
It’s very difficult to take the picture as we see this display. It combines our color recognition and projected light.

1. Introduction

Most of us remember playing with colorful spinning tops when we were children. Here in our research, we made mechanical pixels with the spinning tops which introduces the mechanical display. This enables to enlarge the pixels without the direct lighting. Those mechanical pixels could be applied to make an ambient atmosphere in small or large space.

We added some essentials factors to the tops such as flicker, projection, rotation speed. The combination enables us to make multicolored expression and to recognize the difference of rotating speed of the disks.

This system should be able to contribute to a new kind of display engineering and interactive communication between display and humans.

2. Design

The prototype of the Cyclone display is made up of 37 rotating mechanical pixels. The pixels consist of PWM motor and pattern printing disk(Fig.1). Each pixel is controlled individually for its rotating speed. Now on flicker. Whether we use the flicker light or not we can see the colorful lines on rotating disks with variously printed patterns. So you could use rotating disk as a pixel of no illuminated display. We can also observe several striped patterns by using white flicker or just by

blinking the eyes. The colors and patterns depend on the speeds of rotation and flicker.

It is possible to change factors for each pixel according to the need and circumstance on the Cyclone display. Also I might add that if we use flickered “time-divided” RGB lights, Cyclone display can express several color gradations.

Cyclone display has many interesting factors and interactivity with the human(Fig. 2). By using natural body movement such as hands or eyes, the different color and different texture and different patterns are seen on the Cyclone Display.

3. Application

Cyclone Display offers the new and different approach for the interactions with the humans. We just have to wave our hand or blink the eyes. That enables us an individual communication with the display. The individual communicability has a possibility for entertainment application. At the point of ambient display, it suggest the new way to express “Rotation and Recognition Patterns”. Also, Cyclone pixels are easy to enlarge their sizes with low cost. Besides, we could choose the disk patterns to fit circumstances.

4. Future Work

We introduced the prototype of Cyclone Display made of printed-paper disks. If it was made of liquid crystals display we could change the patterns of each disk. On top of that, with projection images it would work as rotating disk screen for the new expression. It makes us to produce diffuse effect or reflection effect on certain disks such as reflective or unreflective disks.They deepen the texture expression of projected graphics. Furthermore, a little illuminated Cyclone Display is good for decoration for buildings because of its low cost expansion fee and characterizing the individual/ambient communications.

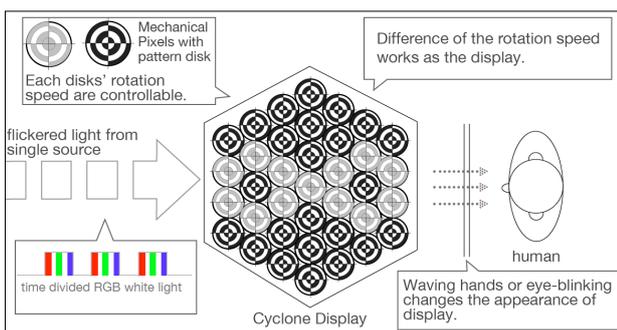


Figure2: System Over View

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