

Kinetic mirror facade for conveying messages with daylight

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Principle

In human history sunlight is seen as sanctity. In architecture daylight is always an important topic. There are many well known examples using sunlight cleverly, not only for practical reason but also for spiritual meaning. For instance the sainted glass illuminated by sunlight could be an illustrated bible to illiterate populace.

Daylight is everywhere. Through the artificial manipulation the sunlight could be emphasized to evoke the human senses. In the childhood, it's common to play with reflected light of mirrors. Even the spot is small and feeble, it is attractive because the human eyes are sensitive organs that even faint difference of luminance could be recognized. This paper demonstrates our work on a kinetic mirror facade that manipulate the daylight via mirror to convey messages. Based on our approach we also address the potential of using daylight in an interactive process outdoors.

Project introduction

There are two parts of the mirror facade: mirror part which consists of many small mirrors and mechanical part which supports the mirrors rotation. To convey different messages, every single mirror which is controlled by two servo motors can rotate through the horizontal axis and vertical axis separately. To get the sunlight angel in real time, one sensor is placed on the top of the mirror facade. As soon as the sensor is illuminated, the angel of the sunlight will be measured and the information will be sent to a central computer to generate the rotation angle of each mirror and send to the servo motors digitally.

The image composed by amount of spot pixels won't have high resolution like the digital screen. It breaks the conventional reading custom. Since information will not be shown clearly, the human need to reconstruct the images in the brain. This way humans could get different and abstract experience.