Colode: A digital painting system accessing to the lode of natural colors

Shengfan He
School of Informatics and
Computing, Indiana University.
901 E. 10th Street
Bloomington, IN 47408 USA
he32@indiana.edu

TEI 2015, January 15-19, 2015, Stanford, CA, USA
ACM XXX-X-XXXX-XXXX-X/XX/XX.

Abstract
Digital painting is becoming increasingly popular. While the interaction design of most digital painting software or device is confined to square screens, which limit the experience of painting. Colode is a digital painting system that reallocates the interactions of painting in a tangible approach. User can pick color from nature and use the color to draw on mobile devices anywhere. By integrating stylus and multiple mobile devices, the interface is more pervasive between painter, canvas and environment.

Author Keywords
Digital painting; tangible interaction; mobile devices

ACM Classification Keywords
H.5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

Introduction
Digital painting systems have developed a lot in the past two decades [1]. Most recently, the increasingly big-screen mobile devices make digital painting even more available and convenient [2]. With stylus and tablet, people can paint everywhere promptly. However, such devices or applications mostly focus on the interactions within the display, which sacrifice a smooth experience of painting in certain extend. Compare to

Figure 1. Design elements on the stylus of Colode

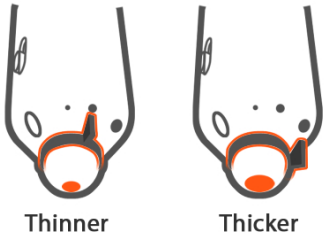

Figure 4. Adjusting thickness

painting with physical tools, the behaviors of digital painting, such as changing layer, picking color, adjusting thickness are all happening on the screen, which largely reduce the simplicity and purity of drawing space [3]. We introduced Colode, a mobile painting system that embracing and reallocating tangible elements that are intuitive for painters to use.

Interaction design

Too often, people who work with digital drawing tools spend vast energy on the interactions with digital devices, such as the tablet, the drawing board, the computer screen. Drawing with computer interface improved the efficiency by utilizing the ability of digital manipulating. Whereas, the direct communication between the mankind and nature somehow transformed to a disconnected form between users and the screens they use.

Technology should enhance our experience of sensing our environment, enjoying the nature; extend and break the boundary that human can reach. In a sense, the technology interface has to be transparent, intuitive, and eventually as natural as part of our body. This is why we developed the concept of Colode - everyone's color lode of the precious nature. We want to empower people the possibility to capture colors and textures directly from the scene they are viewing, environment they belong to, picture they are depicting; rather than from a picture, a description, or a memory fragment.

Colode system consists of three parts, including a stylus, a canvas interface on tablet, and a palette interface on mobile phone. This configuration is aiming at mimic the traditional and natural setting of a drawing workstation. The stylus capture real-time images via a micro-camera. Captured images then could be processed and remembered as colors, gradients, or textures. The image from the camera can be presented in a display screen at the bottom of the stylus (Figure 2). User can zoom the image by rolling back and forth on the control ball, so the user can easily monitor the target which will be captured.

Figure 2. Capturing color from nature with Colode.

The colors, gradients or textures captured are stored in a RAM in the stylus, and these data will be sent to the tablet or mobile phone via Bluetooth.

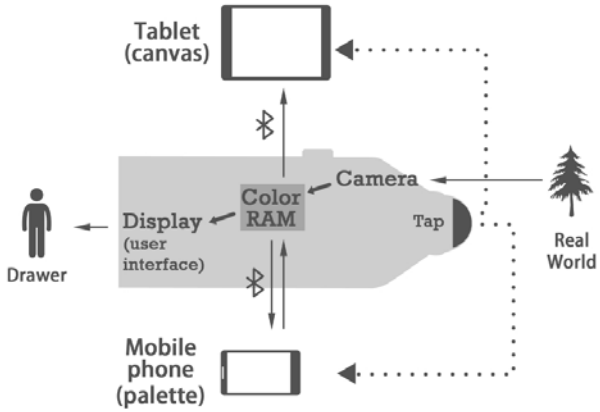

Figure 3. Colode system and interaction model.

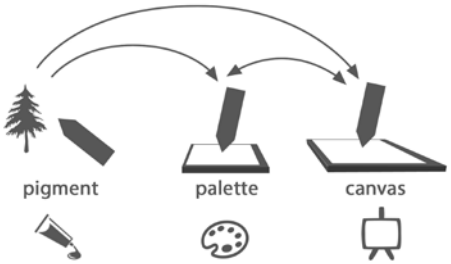

Figure 5. The relationship between stylus, tablet and mobile phone

Colode also enables the function of adjusting stroke thickness on the stylus itself rather than in the tablet. User can adjust thickness by rotating the slider aside the tip, and the thickness is indicating on the tip by the size of halo (Figure 4). On the other hand, Colode integrates mobile phone to the system as a palette, so user can save and pick color through the interface of the phone. The relationship between stylus, tablet and mobile phone is equivalent to the relationship between brush, canvas, and palette in traditional painting (Figure 5).

Acknowledgements

We thank all the volunteers, and all publications support and staff, who wrote and provided helpful comments on previous versions of this document.

References

[1] Smith A.R., “Digital Paint Systems: An Anecdotal and Historical Overview”, *IEEE Annals of the History of Computing*, 23, 2(2001), 4-30.

[2] Matulic, F., Norrie, M. Supporting active reading on pen and touch operated tabletops. *Proc. Int'l Working Conf. on Advanced Visual Interfaces (AVI'12)*. 2012. Capri Island, Italy.

[3] Sketchbook Pro, Autodesk Inc. http://www.autodesk.com/products/sketchbook-pro/overviewl.