eBee: An Electronics Quilting Bee and Game

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1 Introduction

eBee is a STEAM (science, technology, engineering, arts and math) project that combines game design, modern quilting, and e-textiles to blend the social experiences of a board game, a quilting bee, and an electronics maker community. The eBee team is developing a system consisting of a kit of pre-made components and design guidelines for producing quilting-based, electronics-enabled games. eBee merges the traditional craft of quilting, the social context of a board game, and "maker" and hacking culture to create a social experience aimed at bridging gender, ethnic, generational and social gaps associated with electronics and craft.

The eBee workshop for the SIGGAPH Studio will be one of a series of participatory design workshops to develop a system and social framework for creating eBee experiences. Participants will be given a game design challenge and a set of components to develop and prototype game ideas around the theme of building an electronic quilt in the process of playing a board game. The game mechanic will revolve around completing circuits to activate effects that include LEDs, fans, or other electronic gadgets, activated by e-textile-based connections such as magnetic snaps or conductive buttons (Figure 1). The quilt is built upon a substrate of a soft circuit board.

Figure 1. Buttons and buttonholes sewn with conductive thread.

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2 Creative Disruption

The long-term goal of our project is to facilitate the development of "eBees" in a variety of communities and contexts. A soldering iron alongside a sewing machine is a powerful vehicle for interdisciplinary collaboration and peer-learning. By bridging the craft communities of quilting with the male-dominated communities of electronics and technology, there is the potential to reach wide audiences:

1) Women & Girls: Quilting is historically and traditionally a feminine craft. Our research and the research of others has shown that creative activity, especially in a community setting, can be a strong motivator for women and girls acquiring STEM skills.

2) Underrepresented Ethnic Groups: As an international folk tradition, quilting and other needlecrafts have a strong representation of ethnic minorities. With their heavy reliance on geometry, quilts are often cited as an example of STEM practices in culturally-situated folk traditions.

3) Intergenerational: Quilting is a highly intergenerational folk craft. Modern quilting is the center of a vibrant technologically-facilitated international community that is already engaged with high-tech machinery such as computer-enabled sewing machines.

3 Talk Description

This talk will cover the overall goals of the eBee project, and demonstrate the different game components we have assembled for use in the workshop. It will discuss preliminary results from the {Craft, Game} Play workshop at the Foundations of Digital Games conference, where participants will create game prototypes based on craft practices, including expanding upon the eBee framework.

We will close the talk with discussion of intent for future work. It is our hope that eBee's presence at the SIGGRAPH studio can help build a community of scholars and practitioners interested in the intersection of electronics, craft, and games.

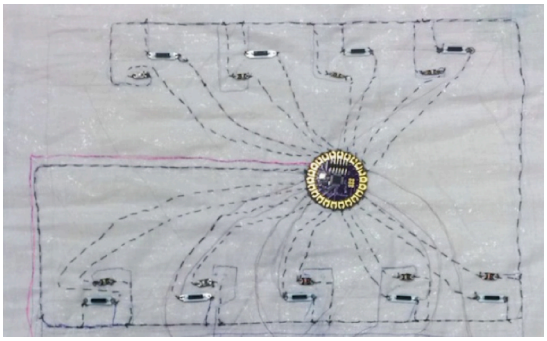

Figure 2. Substrate for the eBee quilt.