

LilyPond: An Online Community for Sharing E-Textile Projects

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ABSTRACT

LilyPond is a new online community that enables people to document, share and browse e-textile projects—projects that blend electronics, computation and textiles. It was designed to be a project repository and a community gathering place for students, educators, and hobbyists who are creating e-textiles. In this paper, we describe the developing website and its user community. We examine the demographics of this community, its patterns of site usage and its emerging tastes and preferences.

Author Keywords

E-textiles, electronic textiles, online communities, creativity, LilyPond, LilyPad, Arduino.

ACM Classification Keywords

K.3.0 [Computers and Education]: General. C.3

General Terms: Human Factors, Design

INTRODUCTION

Electronic textiles (e-textiles) are interactive artifacts created from a combination of soft, flexible materials like fabrics and threads and electronic components like lights, speakers, and sensors. New tools including the LilyPad Arduino [1], the iCatch [4], and the Sparkle kit (<http://www.aniomagic.com>) are enabling students, hobbyists, educators and other non-engineers to construct e-textiles. The LilyPond site is designed to be a place where these builders can document and share their projects, browse other projects for inspiration, and socialize.

The site is similar in spirit to other online communities that center around documenting and sharing creative work. In building the site we were particularly inspired by Ravelry (<https://www.ravelry.com/>)—a site where knitters share patterns and documentations of their knitting projects—Instructables (<http://www.instructables.com/>)—a site where a wide variety of crafters, engineers, and builders share how-to instructions—and Scratch (<http://scratch.mit.edu/>) [3]—a site where Scratch programmers (mostly children) share interactive media designs. Like each of these sites, LilyPond provides creators with a venue for showcasing their work and visitors a means to familiarize themselves with the medium and find inspiration.

E-textile projects are documented on other sites including Instructables, Flickr (<http://www.flickr.com>), and YouTube

(<http://www.youtube.com>), but in these venues the projects are part of a mix of other content. LilyPond is intended to provide a place where e-textile crafters can encounter a critical mass of likeminded designers.

The LilyPond project is part of a larger research effort aimed at documenting and understanding the evolution of a creative community. We hope that developing a forum for a relatively young community will give us a unique opportunity to study how creative communities form, collectively establish evaluation criteria for their work, and reward exceptional contributions [2].

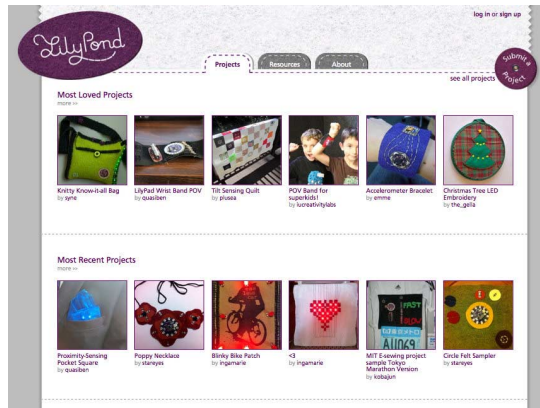
LILYPOND

Figure 1 shows a screen shot of the LilyPond homepage. Visitors to the site encounter three categories of user-contributed projects on the homepage: *Most Loved Projects*—the projects most often favorited by other users—*Most Recent Projects*—recent projects sorted in order of submission time—and *Workshop Projects*—projects created as part of organized workshops. Clicking on a project thumbnail takes a user to a page that displays more information about the project including: a media gallery of photos and videos, a description, a list of the components that went into the project, a copy of the source code that is controlling the project, and links to websites that have additional project documentation. A snapshot of a project page is also shown in Figure 1. After logging into the site, members can also comment on and love projects made by other users, as well as document and share their own projects.

LilyPond was launched in the Spring of 2010 and is now home to 158 projects and 81 users. So far, the site has been used primarily by members of our research team and affiliated students to document the outcome of e-textile workshops. We are receiving an increasing number of submissions from independent designers, educators, and hobbyists. Approximately 31% of site members are researchers or students directly involved in the project. Approximately 92% of projects on the site were created by students or researchers working on the project and 8% were created by independent developers.

Site usage

Members seem to be using the site in three primary ways: to document projects, find information and inspiration, and make community connections. Educators and researchers are using the site to document projects on behalf of students, and to share projects that they are testing in



Poppy Necklace by stareyes

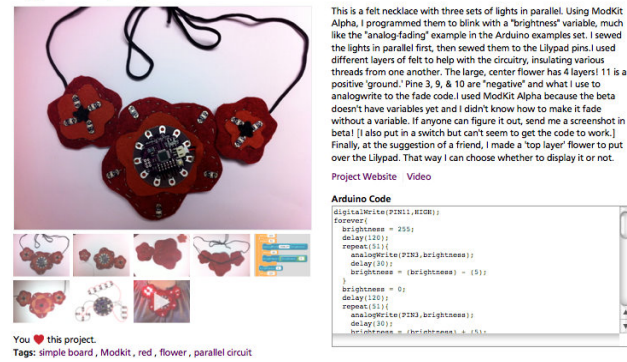


Figure 1: Screenshots of the LilyPond home page (left) and an individual project page (right).

advance of workshops. Independent hobbyists and designers are also posting projects to the site. In most cases these are projects that are also documented on the designers' personal web pages or other community sites like Instructables. These projects serve the important function of providing less experienced users with inspiration.

LilyPond generally allows people to browse projects for reference and inspiration. In workshops taught by the research team, students are encouraged to use the site in this fashion. Independent users seem to be employing the site in a similar manner. For example, Ravelry users *ingamarie* and *synemitchell* (independent LilyPond users *ingamarine* and *syne*) have linked to LilyPond from the Ravelry forums, citing it as a place to go for inspiration.

Finally, in addition to informational content, LilyPond provides users with access to a larger community of people who are creating e-textile projects—both other students and independent designers and hobbyists. Members can communicate with each other by loving projects and having conversations within project comment sections.

Community demographics and values

It is too early to draw clear conclusions about the character of the LilyPad community—particularly since a large percentage of users are associated with a research team that includes the site developers. However, what we do know about the users, their projects, and their viewing habits begins to paint an interesting picture. First, the majority of users (67%) are female (we have self reported gender data on 100% of our users), and a majority of LilyPond projects were constructed by girls or women. This kind of gender balance is unusual among technology focused communities.

It is also intriguing to examine the projects most loved by the community, which are not necessarily the most technically sophisticated. The community seems to value projects that are functional, beautiful, colorful, and well documented above those that are technically sophisticated but less aesthetically appealing. For example, a complex bike speedometer project was posted to the site around the same time as the most loved project of all time. The bike

project received considerable attention from other blogs and is clearly an accomplished project, but is not in the top 10 of loved projects. Meanwhile, the project at the top of the most loved list is technically sophisticated but also decorative and beautifully documented.

In short, LilyPond seems to be supporting a female dominated community of people experimenting with electronics and computation that has different values than that of more traditional technical communities.

CONCLUSION

The LilyPond project is still in its early stages. As we move forward with the project we intend to expand the site in several ways and deepen our assessment of the activities and communities that it is supporting. In particular, we plan to investigate the evolution of the community and its evaluation standards, and we hope that this will eventually enable us to better understand how creative communities form and grow.

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