

Aago

Mobile Media Diaries for Youth Citizen Journalists

Final Project Report

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Introduction

In recent years new media technologies have facilitated rapid production and distribution of information particularly among youth. Emerging social media platforms such as Facebook, Myspace and Youtube have significantly lowered the barrier to entry for young media makers and has expanded their capacity for distribution. The early adopters often involve young teenagers and curious students, who continue to participate in large online communities engaged in creation, consumption and circulation of diverse forms of digital expression from blogging to sharing video. The networked social media movement has allowed these technologically-savvy youth communities to engage in new Do-It-Yourself (DIY) and participatory cultures, that could support new forms of collaborative media making and civic agency.

Since early 2011, the MIT Program in Art, Culture and Technology (ACT) and the MIT Center for Future Civic Media has been supporting the design and development of *Aago*¹, a form of mobile media diaries for youth citizen journalists. The project has been led by Dr. Nitin Sawhney with students Lorraine Shim, Phu Nguyen, and Xinyi Zhang, and supported by Audubon Dougherty. The project was initiated in response to the need for more personalized and user-friendly collaborative tools to support young media makers. Though pre-existing social networking platforms support convenient publishing venues, they don't readily support story creation and digital media production activities from concept to creation/production and collaborative publishing of new media content. The project began with an aim to develop a set of technology tools that would assist young media producers to easily capture, organize and present rich digital media narratives, both individually and in collaborative teams.

Project Overview

The semester was heavily invested in defining a strong design rationale and a set of concept designs for the platform. Following the iterative process of user observation, requirement analysis, design, evaluation, and prototyping, conducted repeatedly, the project concluded its first phase this semester with a solid rendering of the information architecture and user interface design. Each stage of the project progression is documented in detail in this report; the most recent version of the prototype design is attached at the end of the report and is also referenced throughout the following discussion.

Design Approach

The project began with analysis of the culture of product design, capture and representation as observed among students. The project's development cycle can be framed under what Ben Schneiderman and Catherine Plaisant identify as the Four Pillars of Design: User-Interface Requirements, Guidelines Documents and Process, User-Interface Software Tools, and Expert Reviews and Usability Testing (Schneiderman 2010). The team approached the design challenge by analyzing the user, task, and domain requirements and discussed various methods for creating quick prototypes and low-fidelity implementations. As the project progressed, the team assigned specific design responsibilities to each member: Lorraine Shim to conduct user observations and create concept designs, Xinyi Zhang to design the information/database architecture, and Phu Nguyen to develop a working prototype. During the summer, the team plans to regularly consult expert users within the MIT Media Lab for professional feedback and engage with selected focus groups with actual youth for participatory design and contextual usability testing, through on-site workshops and urban media making exercises.

¹ The word "Aago" is derived from the Spanish phrase "Que Hago" or to make, which fits the DIY media maker ethos of this project.

Concept Brainstorming

The *Aago* team met on a weekly basis to present individual project progress, while conducting group feedback and brainstorming. The first few weeks were spent brainstorming broad ideas regarding the project goals and the prospective users. From the collaborative brainstorming sessions, we concluded that the function and appearance of a good user interface design should embody a form of “deceptive simplicity” that harbors complex functionality, yet appears very simple to lower the learning curve required and improve usability. Active user participation often drives and motivates the design effort, and it is what established the popular term “user-centered design.” This concept was especially relevant to the project as we aimed to develop tools for a wide range of users.

The target audience was broadly identified as two groups within the creative community: DIY designers and citizen journalists (civic advocacy). DIY designers refer to a community of individuals or teams that collaboratively pursue design activities and often informally publish their product innovations for broader circulation and re-production. The DIY culture has recently become rather active online, and its growing appeal continues to engage everyday individuals as designers in active online and place-based communities (so called “maker spaces”). In a recent *Wired Magazine* article, Limor Fried, an MIT graduate who now runs Adafruit Industries (an online DIY community), shares how networked DIY platforms like Instructables and Etsy encourage regular sharing of designs among thousands of community members and implicitly induce peer-based learning among amateur and expert DIY designers (Anderson 2011). The DIY community hence harbors a productive setting for informal learning, especially among young designers and would benefit from technologies that could better facilitate the documentation and sharing of design information. Citizen journalists that are often referred to as bloggers online are also producers of media in both formal and informal settings. Their need for rapid media production and dissemination emphasizes collaboration and information sharing among a community of media makers, and hence they could also be beneficiaries of the platform.

Once the user audience was defined, the team proceeded to discuss the basic needs, domains, and functions of the *Aago* platform. *Aago* needed to provide quick ways to browse and summarize the individual design process while facilitating social forms of making and learning. The essential media content captured includes text, images, audio and video to represent the product design process or an emerging citizen media story. The application would then allow users to organize and narrate the raw content into curated threads for publishing in the future. As Figure 1 shows, the team discussed how *Aago* could assist with the organization of raw media content into a more logical thread to improve the representation and publication of the content (in one or more story threads).

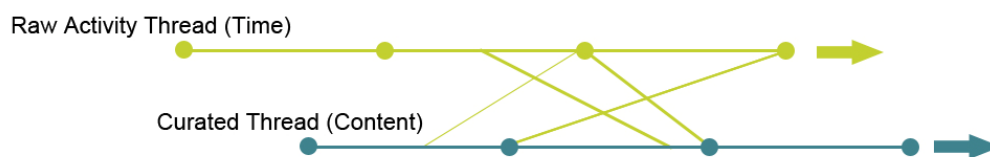


Figure 1. Curating a Raw Activity Thread

Based on the team’s conceptual design work in conjunction with examining existing content distribution platforms like Twitter and Facebook, the first prototype visualization was created as shown in Figure 2.



Figure 2. Initial Prototype Visualization

The final product was envisioned as a portable, quick, and youth-friendly digital application, integrated in an existing mobile platform (or smart-phone). Audubon Dougherty in her dissertation, *New Medium, New Practice: civic production in live-streaming mobile video*, introduces the mobile phone as a powerful video production tool that facilitates active civic engagement and discussion among a range of media makers and audiences (Dougherty 2010). *Aago* shares similar goals to encourage active engagement within and beyond the product design and citizen media community. It needed to support both rapid capture and subsequent media curation for efficient means of production that would engage designers /media makers and their audiences past the producer’s social circle. Despite their limited screen size, mobile devices today are equipped with complex functionalities and user-friendly interfaces that support ubiquitous and cross-platform computing. Therefore, the team concluded that *Aago* could be best served on a mobile platform.

* *Week 1* and *Week 2* in the research documentation summarize and illustrate the discussion above.

User and Task Analysis

The next stage of research required close analysis of users in contextual settings of everyday design and media production. The MIT Networked Cultures and Participatory Media course, taught by the team advisor Dr. Nitin Sawhney, was offered during the spring semester and served as the team’s main user focus group. The MIT course was a studio-based class that required narrative/visual updates about individual student projects on a web-based blog². The updated blog posts were frequently examined to draw out patterns of representation and usage in the production process. Figure 3 displays a sample storyboard generated from a student’s post about her design process for a innovative project she began to conceptualize during the course.

² <http://tacticaldesign.mit.edu>

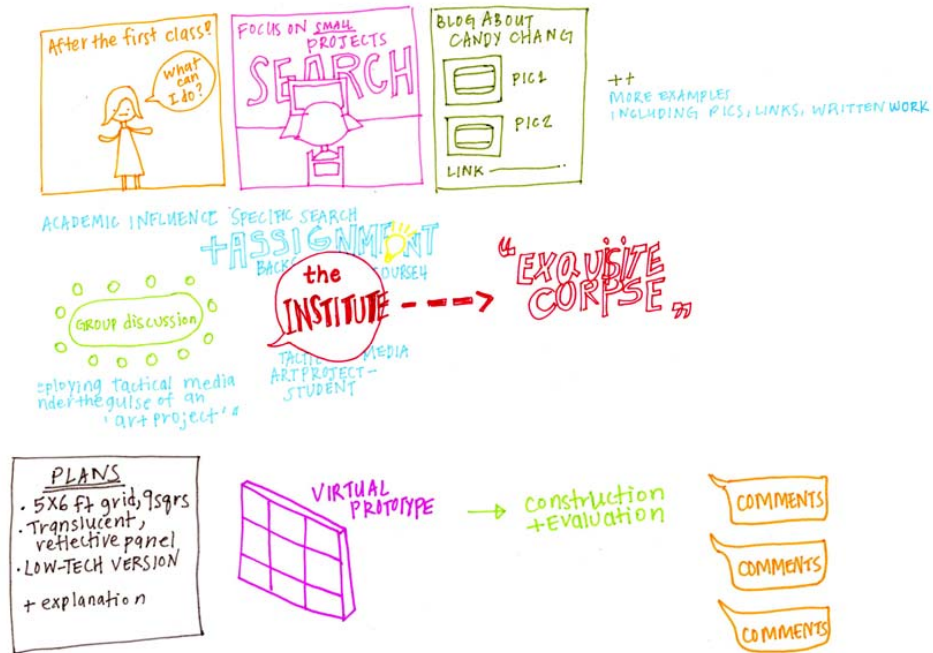


Figure 3. Storyboard for design of project installation

Close observation in a contextual setting allowed the team to narrow down and specify certain tasks that were more vital to the application’s functions. We learned that the production process often involved broad research stemming from personal interests. Students were eager to make posts and start discussions about content that reflected their design tastes, but these forms of raw content often exhibited little direct ties to the end product outcome. The team realized the importance of curatorial assistance that would not only help the designer to effectively organize her thoughts but also improve the narrative of the published content.

The team identified rapid note-taking, media capture and tagging information as *Aago’s* core functions. Rapid note-taking is necessary for productive brainstorming and follows the natural pattern of how media makers at the early stage of production generate an idea. Researchers Lynn Wilcox, Bill Schilit, and Nitin Sawhney (while at Fuji-Xerox) in their publication, *Dynamite: A Dynamically Organized Ink and Audio Notebook*, discuss how the activity of tagging special information using hand gestures enhances search and detection of associations to written and captured audio content within an electronic tablet (Wilcox 1997). Marking, or tagging, can help designers group and consolidate a range of useful information within rapidly collected or captured textual or digital media content. The organized content may later serve to be informative as a useful reference during the design process, and even turn into the final design product itself. Tagging information creates a bridge between content generated during informal brainstorming sessions to the actual production process that creates a story about the designer’s making of the product.

* *Week 3* and *Week 4* in the research documentation summarize and illustrate the discussion above.

System Modeling and Process Design

Once the team had identified the prospective users and defined a list of core functions, we proceeded to design and model practical solutions to initiate implementation. Concept modeling defines the visual abstraction of the solution and the scope of the application system (Kames 2011). This stage was necessary for the team to determine the scope of the interface and estimate the complexity of the system's interaction design and proposed functionality. Two concept models were designed to showcase and test different design solutions – Design A is shown in Figure 4 and Design B is shown in Figure 5. Design A focused on aligning the individual database of user content with the social database of group content to promote active collaboration at the earlier stages of production, while Design B preferred individual content organization on the mobile device prior to collaboration and organization of group content in a limited access web interface. The two models helped the team advance from conceptualizing to visualizing the system infrastructure.

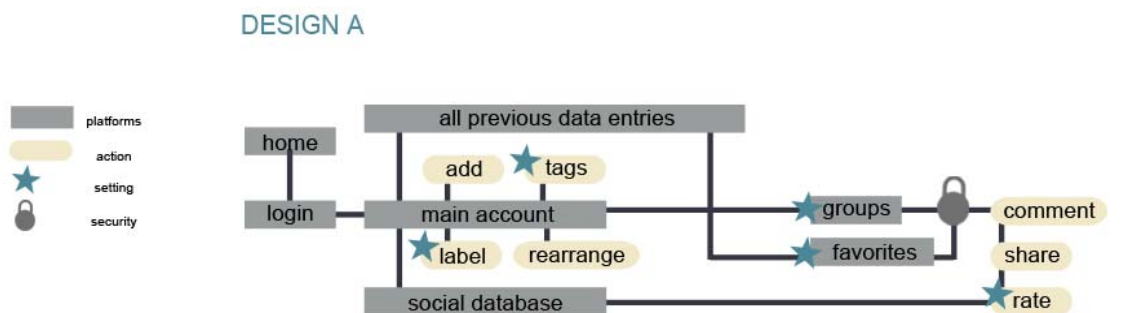


Figure 4. System Model for Design A: Synchronous Collaboration for Media Production

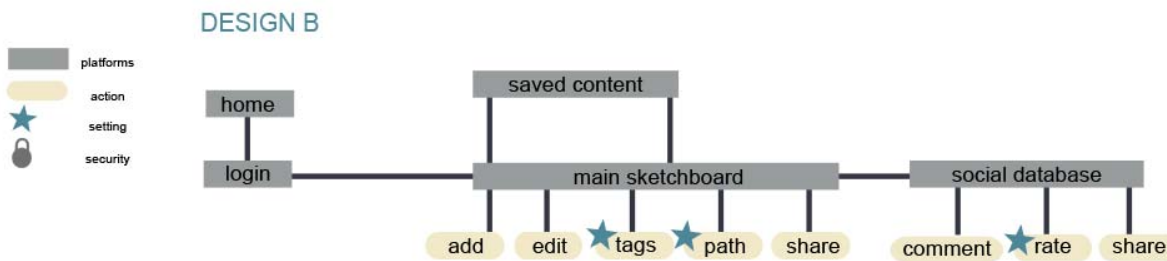


Figure 5. System Modeling Design B: Asynchronous Collaboration for Media Production

Later when both design models were translated into interaction sequences and mockups for users to try out, Design B was deemed as a more practical solution considering the small interaction space of the mobile device and the problem of overcomplicating the application design for users. The two interaction sequences are visualized in Figure 6 and Figure 7. While the design in Figure 6 supports multiple functions including a separate page for social design/curation of media content, the editing tools crowd out the interface and take away from the sort of simplicity of user experience, often expected on mobile platforms. The design in Figure 7 supports minimal functionality centered on the process of individual production and creates an intuitive and approachable interaction framework.

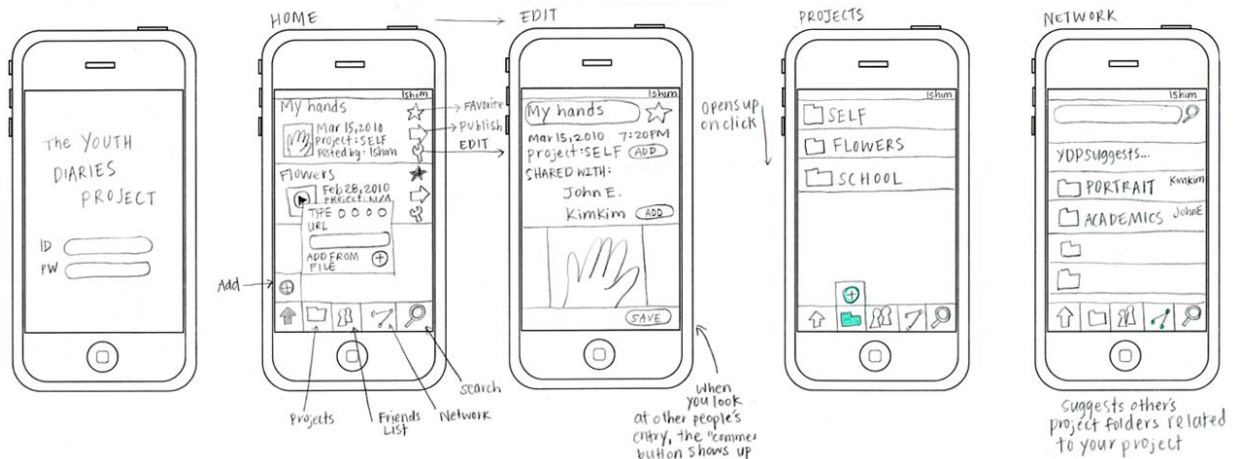


Figure 6. Visualizing Interaction Sequence for System Model A

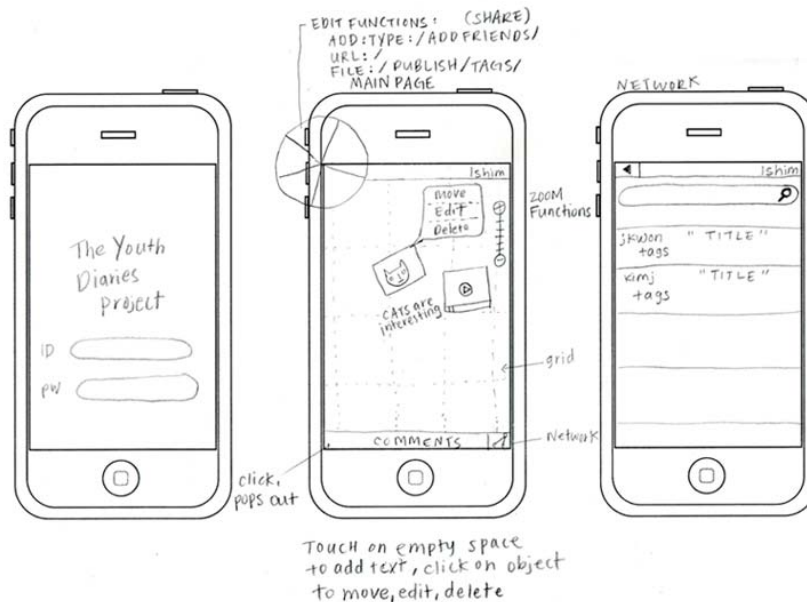


Figure 7. Visualizing Interaction Sequence for System Model B

* Week 5 in the research documentation summarizes and illustrates the discussion above.

Low-Fidelity Paper Prototype and User Testing

The first low-fidelity prototype (with an intentionally unrefined design) was constructed using paper mockups. Using a mockup application design software called Balsamiq³, three basic tasks were illustrated through a logical sequence of interaction. For example, Figure 8 displays a sequence of one solution for moving a media object into an activity space. The illustration would foresee how users approach the task and helps them physically perform a function in the application. Paper prototyping for

³ <http://balsamiq.com>

mobile applications is extremely helpful in assessing both the layout and functional usability of the User Interface (UI). By visualizing every step of the process, the UI designer can cater to detailed parts of the interface and detect possible challenges users encounter with using the application.

TASK3. move the "shoes" object into the "Clothing" folder



Figure 8. Paper Prototype for Task 3

The three scenarios were prepared using the size of a real iPhone/iPod device to enhance familiarity; several students from Wellesley College were selected for the mockup user testing. Before introducing the prototypes, every user was given an introduction to the *Aago* project and the rationale behind the particular method of user testing. The project was at its early stage of front-end design, and the team wanted to collect user feedback on whether the given tasks seemed intuitive in terms of usability and design before programming the software functionality. The user was given a piece of paper with the three tasks written down and the starting page of the application. When the user would physically make a gesture to click on a button or an area of the application, the next sequential interaction page would be provided to her, and she would proceed to fulfill the task on this paper mockup.



Figure 9. User testing conducted using paper prototypes

The user pool included students both familiar and unfamiliar with the iPhone/iPod platform. Those with little experience with such devices, on average took more time to finish the three tasks. They frequently asked about the functions of the standard buttons and were more hesitant to continue on their own. Overall, the user testing was quite successful, and the participants were open to making suggestions and sharing some of the difficulties they encountered. One of the common critiques was made about the design of the edit button. The edit button would originally highlight all the editable areas on the interface and users would then identify a specific area within the highlighted space to rename or edit titles. However, the two-step structure confused the users and confirmed that the highlighting served as an unnecessary extra step and did not provide sufficient feedback. Some users suggested setting up prompts for feedback. Another noticeable problem was in the obscure hierarchy of folders and

application panes. Observations and comments from the first user testing provided helpful suggestions for improvement.

* *Week 8* in the research documentation summarizes and illustrates the discussion above.

Front-End User Interface Design

The first semester of research concluded with detailed visualization of the user interface design. The interface and subsequent information architecture was improved based on feedback from users and research participants. The new design is comprised of the most important screens for the application including the main diary page and the media object page as shown in Figure 10. The set of designs summarizes the look and layout of the application and visualizes its core functions. The interface opens with a “My Diary” page, which acts an open space for all raw threads of random media content captured or collected by the user. The page offers both list and tile views that display the title and upload date of each media object. The user may select any media objects to enter into the full view mode, which specifies attributes such as the object’s location in Story threads or Activity spaces.



Figure 10. Main Page and Media Object Page of the Front-End UI in Development

The *Aago* application offers three main functions: create media object (audio, picture, video or text), store objects into activity spaces, and create a story thread with media objects across all activity spaces. The design currently focuses on individual activity and excludes functions for sharing, publishing, and social networking (which may be extended into the web-based publication platform). The visual design shows significant improvement; with a limited color palette the look of the user interface is clean, simple, and appealing to teens. The text space is minimized and more attention is given to large images, which makes for a more appealing layout and an efficient use of the limited space on a mobile device.

The next logical step would be to create another set of paper or digital prototypes to test the impact of the visual improvement and simplified functions.

* *Week 9* in the research documentation displays the full set of UI design.

Future Work

The research continues over the summer and fall with specific milestones. The project team will grow to include additional MIT students to create more complex working prototypes of the mobile application using the XCode iOS development framework. With a working prototype, the group will prepare to set up focus groups to evaluate the application in real-world settings. The team will select and consult with local youth communities and support their projects with the *Aago* application to observe the system's practicality and usability with teens specified in the user analysis. In addition, the team will continue to consult with design experts from the MIT Media Lab. Such expert review participants should remain consistent for detailed comments and observation on the research progress (Schneiderman 2010). The team has made extensive progress in the conceptual design and information architecture over the past semester and is now keen to engage with actual youth user communities for feedback, participatory design and evaluation.

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