Speculative Activist Technologies

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Abstract
This paper explores the specific needs activists have of the technologies they use to manage their operations and promote their causes. To begin this exploration, we conducted two critical making workshops with participants who self-identified as activists and used craft materials — such as cardboard, color markers, pipe cleaners, etc.—to create speculative technologies to find commonalities across different forms of activist work, be it technological, organizational, or procedural. The needs and concerns expressed in the workshops were articulated through the participants' designs; they materialized their critiques, reflections, and explorations through their crafted prototypes. These prototypes point to opportunities for creating new design interventions to address the challenges and needs unique to activist organizations. The work suggests the need for more value-sensitivity and context-appropriateness in the design of interactive systems.
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1 Introduction

What would it mean to design technologies for activists or those who campaign for radical social change? How might the objectives of design in this context differ from already existing consumer technology, such as cars, personal computers, and mobile phones? What functionalities would be most important to activists and what types of new interactions would activists imagine if given the opportunity? This paper explores the specific needs that activists have of the technologies they use to manage their operations and promote their causes.

Activist organizations are defined here as formal groups that enact direct, confrontational action– such as protests or strikes– in order to advance their particular political or social agendas. These groups are often political in nature and take aim at changing (rather than collaborating with) institutions. They work with little, if any, institutional support and thus operate with minimal support from foundations, public grants, or fundraising cycles (Goecks, et al., 2008). As a class of organization, activist groups share many features with non-profit social-service groups: both utilize a mostly volunteer workforce with high turnover (Harrison, et al.; Le Dantec and Edwards, 2008; McPhail, et al., 1998); they often employ people motivated by social justice issues or principled political positions but who lack specific technical expertise (Merkel, et al., 2007; Merkel, et al., 2004); and they must work with donated, aging, and obsolete technology (Voida, et al., 2011; Le Dantec and Edwards, 2008; Le Dantec and Edwards, 2010). Beyond these similarities, however, activist groups must operate under additional constraints in order to respond quickly to situations that arise within their communities of concern: for activist organizations, work is often urgent, unpredictable, and spontaneous as they stage public interventions and seek to raise awareness of the issues for which they are fighting. These conditions – having a controversial position in society, enacting ad hoc

action, and relying on limited resources – offer unique challenges for which it is difficult to prepare (Hirsch, 2009). The impact of these conditions on the design and use of technology for and in activism has been understudied and we argue that design interventions can help develop infrastructures that address the particular kinds of unforeseeable issues that arise specifically within the context of activist organizations.

To begin an exploration of design for activism-specific technology, we conducted two critical making workshops with participants who self-identified as activists (Ratto, 2011; Cohn, et al., 2010; Sanders and Stappers, 2008; Hirsch, 2009). One workshop was done with a local housing justice organization, Occupy Our Homes Atlanta (OOHA), during which members imagined their use of technology during a typical "action," referring to radical practices specific to the organization, such as courthouse protests or home liberations (described later in this paper). The second workshop was hosted at the Allied Media Conference and included participants from various organizations around the U.S. who discussed less radical methods of activist work, such as skillshare workshops or education outreach campaigns. In both workshops, participants used craft materials—such as cardboard, color markers, pipe cleaners, etc.—to create speculative technologies, which is a way to imagine alternative, provocative solutions to present problems. The workshops were designed around a number of prompts to encourage conversation in hopes of finding commonalities across forms of activist work, be it technological, organizational, or procedural. The needs and concerns expressed in the workshops were articulated through participants' designs; they materialized their critiques, reflections, and explorations of mobile and social technologies through their crafted prototypes. The collected reflections from the two workshops lead three key areas that should be considered in the design of future technology aimed at supporting activist organizations.

2 Method

We explicitly draw on Ratto's critical making model in which design workshops are structured around participants lived experiences and where material production based on those experiences is recognized as a form of knowledge production (Cohn, et al., 2010). There are three stages to critical making that scaffold participant's framing, creation, and reflection on the issue (Ratto, 2011): the first step involves the compilation of concepts and ideas that can be explored through making, or the act of material production. The second invites workshop participants to design and create prototypes that explore those concepts, the third and final stage is an iterative exploration of the alternatives embodied in the speculative prototypes. In the case of the speculative activist workshops we developed, the experiences of the participants informed critical perspectives of current power dynamics and structures in technology production, reflection on how those structures specifically impacted activist activities, and how technologies can be incorporated into existing radical practices to address common activist concerns and issues.

3 Workshop Structure

The goal of the speculative activist workshops was to engage participants from our two sites in conversations to interrogate their current uses of various technologies and to better articulate how they would like to use technology in future activist work. We accomplished this by structuring the workshop around three distinct activities, each corresponding to the three stages of critical making: we began with a discussion activity that prompted participants to reflect on the different ways technology was used during protest activities; we then structured a crafting design activity that built on themes from the discussion; finally, we reflected throughout the workshop on the alternatives—both those that already exist and those that might be speculated through design.

During the discussion activity, participants spoke about activities they considered part of their activist work. These conversations broadly focused on what technologies were used and in what way (e.g. using social media to broadcast messages to different audiences). In the OOHA workshop, participants were split into groups of three and asked to describe how they used information technology at different points

during a protest action (before, during, and after). In order to scaffold the discussion of how they worked with different technologies, OOHA workshop participants were given a set of cards with either an action or an object: the object cards included things like family, Instagram, organizers, poster, and GPS; the action cards included actions like connect, edit, share, call, create, and open. Participants were also given blank cards and were told that they could write in any action or object they felt was missing. The card prompts were not included in the discussion portion of the AMC workshop because there was a greater degree of digital literacy in the AMC group so less scaffolding was needed: participants in the AMC workshop were media practitioners, who were more fluent in technological jargon and had a more nuanced understanding of the subtleties, affordances, and differences of various digital platforms. The AMC conversation was still anchored by actions and objects to help better articulate the interactions between activists and technology. By discussing the results as a group, workshop participants became more familiar with their use of technology within the context of their operations to be better able to redesign them.

The first discussion activity laid the foundation for the second activity where we asked participants to create prototypes that explored the issues, concerns, and concepts that arose from the previous discussion. A variety of crafting supplies were available for participants to prototype with, such as pipe cleaners, craft paper, scissors, sticky notes, crayons, cardboard, hot glue guns, markers, and (as requested by one participant) googly eyes. The prototypes were not meant to be technically accurate, functional, or even necessarily plausible; they were intended to empower participants to further explore their conceptualization of how technologies might be designed to aid their activism. Throughout the design activity we worked to avoid leading participants with specific ideas or values, instead using the materials and discussion from the first session to help guide and direct participants through the process. Throughout these two activities, we encouraged participants to be imaginative and creative with their prototypes, aiming for pie-in-the-sky ideas that addressed particular issues or topics that came up. At the end of the workshop, when participants explained their prototype and how it worked, we were able to explore alternate futures where in which a key concern or issue was resolved or shown in a new light. The workshops led us to formulate key research questions: How might low-fidelity prototyping materials and activities instigate critical and speculative ideas about technology design? What are the commonalities among envisioned alternate designs with regards to activist values and how might those be addressed by context-sensitive technology design?

4 Related Work

Critical design workshops operate in an existing ecology of community-focused work and technology-supported action research (Björgvinsson, et al., 2010; Merkel, et al., 2007; Merkel, et al. 2004). Within this body of literature, several studies have shown the complex relationship non-profit and community-based organizations have with ICTs (Le Dantec and Edwards, 2008; Le Dantec and Edwards, 2010). For example, Voida et al.'s study of service organizations specifically focuses on the use of "homebrew databases", which are the ad hoc mixture of information organization technologies (e.g. spreadsheets) due to limited technical capacity and high staff turnover (Voida, et al., 2011). These organizational structures rely on volunteer efforts, not unlike activist organizations, though to a lesser extent. Voida et al.'s work looks at how this 'make do' structure functions through the lens of information management, which is a necessary task for an efficient and functional organization, but plays a larger role in activist circles where the immediacy and urgent nature of the work makes knowledge management that much more crucial to the strength, cohesiveness, and often survival of the organization (Hirsch, 2009; Kuznetsov, et al., 2011). Information management (e.g. storing records, accessing data, or managing contacts), is complicated due to the specialized and specific knowledge often required across multiple levels of a non-profit organization (NPO); this is exacerbated in activist groups because volunteers also come into the organization with varied training backgrounds. Because of these knowledge discrepancies, information transfer is all the more crucial in establishing a coherent and communicative organization. Carlisle's framework emphasizes the transferring

of knowledge across boundaries, many of which often extend beyond an activist organization's concerns (e.g. political, legal, economic) (Carlisle, 2004; Le Dantec and Edwards, 2010). The question is not just limited to how to effectively transfer specialized information within a group, but how to proceduralize this transfer to adapt to the high volunteer turnover rate. The shift in focus from a single organization to multiple organizations is a crucial one that Le Dantec writes about, particular in public sectors. Both activist and public sector work often requires collaboration among multiple entities; the work of Le Dantec and Edwards elucidates the subtleties of these relationships through the interplay of power dynamics, influence, and scale (Le Dantec and Edwards, 2010).

The concept of community is not an unproblematic one as there are multiple different dynamics and relationships that are encapsulated by 'community' where multiple and varied publics, interests, and social and cultural practices must coexist (DiSalvo, et al., 2010; Ribes and Finholt, 2008). It is not just the organizational structure that is in flux, but the opinions, concerns, and values of its members, as well. Community-based research is political in its connections to local entities (e.g. government, community stakeholders), but it is also internally political as it cannot—and should not—be assumed that the members of a single organization are homogenous and unvaried (Le Dantec, et al., 2011; Le Dantec and Edwards, 2008).

In this context, the workshops described in this paper are ways of addressing these challenges as potential opportunities for expression and discourse (DiSalvo, et al., 2008). Activist work is contestational, both within an organization and outside it. In looking at and discussing how technology is used in activist practices, these design interventions provide a space for participants to express their concerns and desires and to create arguments that are not present in existing technological paradigms. The ways that workshop participants talked about technology became a way to make visible values and practices shared among different activist organizations and stakeholders, such as designers, academics, and technologists more broadly.

5 Participants

The workshops were held with two distinct groups of activists. The first group was a local activist organization that focuses on housing justice in the city of [redacted]; the second was a mixed group of activists attending the Allied Media Conference (AMC is an annual conference in the U.S. for media practitioners and social activists). These two groups offered different views and on-the-ground perspectives for how technology figured into their work and how they might further use new forms of digital and social technologies to promote their work and their causes.

Two of the authors have been involved with OOHA, our first site, since August 2012. Our involvement with the organization has been built around extensive ethnographic fieldwork based on participant observation (Dombrowski, et al., 2012): we have been included in retreats, canvassing, weekly meetings, and have worked in different administrative capacities (e.g., note taking, data entry); we also attended major actions, such as marches, court auctions, and press events and have become more involved in an educational campaign by helping build a data visualization tool, and creating and documenting internal procedures. OOHA emphasizes non-violent direct action strategies to confront and engage with larger institutions that play roles in housing issues, like banks and local government. Direct action is typically targeted at a resident's individual housing struggle, known as a "campaign," which can take the form of demand letter deliveries to relevant stakeholders (e.g. demanding a loan modification from bank officials), protests at local home auctions (to dissuade potential investors from purchasing foreclosed homes), or home liberations (where a resident ignores the official eviction notice and remains in their home).

Our second site, the AMC workshop, had participants from diverse backgrounds who were asked to briefly speak about their experiences as activists. A trio of participants were in the same organization and all did work focused on young Muslim women and photography, using photography lessons as a way

to encourage the women to articulate their experiences of being Muslim in a contemporary western city. Another participant also did work with young adults: hailing from Brooklyn, she was part of an organization that ran after-school art programs. These participants shared similar uses of digital platforms, such as Dropbox for collecting visual resources (photographs, etc.) and social media (Facebook, Twitter) for broadcasting upcoming events. They were also fairly familiar with the platforms that their respective student groups used, understanding how different affordances correspond to particular kinds of uses (e.g. Instagram is popular among students, but not useful for communicating textual information).

6 Prototype Themes

Our inductive qualitative analysis revealed several thematic patterns that emerged from the artifacts and participant discussion produced from both workshops. We will focus on the themes of subverting authority, contingent communication, and sustainability because they demonstrate the unique challenges faced by activist organizations. The themes were directly informed by events that participants had experienced in the past and reflected concerns that were specific to an organization's activities. What the inventions made salient was that activist work is not just considered as a political act, but also situated, physical, and corporeal: the materiality of activism is something that was deeply considered.

6.1 Subverting Authority

Given that many OOHA actions are confrontational, it was unsurprising that subverting authority was a theme that emerged from that group's prototypes. However, we found that this theme was also present in prototypes from the AMC workshop; subversive strategies are not necessarily limited to direct action and can be demonstrated through other means. Participants expressed a variety of disruption tactics, which we've categorized into avoidance, resistance, and aggression. Avoidance tactics are more passive and are directed towards minimizing interactions with authorities. This could manifest itself as a reaction, like escaping encroaching authorities, or as a preventative measure.

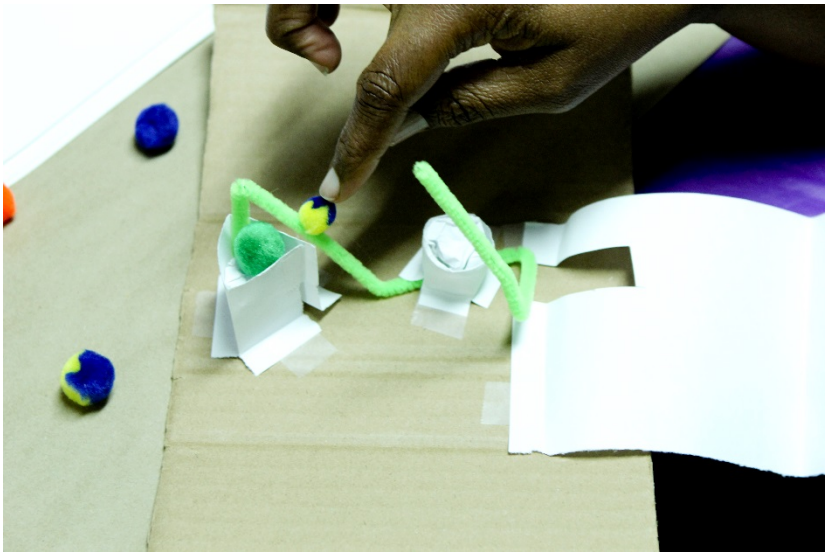

Figure 1: The participant points out the aquaponic system contained in each Aquaponic Indoor Restroom, which would be the only thing visible to police in order to disguise the resting activist inside.

6.1.1 Avoidance

One OOHA prototype called the Aquaponic Indoor Restroom demonstrated preventative avoidance. The participant explained that the Restroom was designed as a comfort space for activists to rest and nourish

themselves, containing a bed, toilet, and sustainable garden powered by rooftop solar panels. However, only the garden would be visible from the outside, disguising the resting activist inside. Avoidance was built into the design by obscuring the activist's location, which in turn allowed them to evade the authorities.

Avoidance tactics were also present at the AMC workshop: the Turtle Con-tent was a tent where activists could gather during an action to regroup and discuss strategy, which used "magical future technology" to teleport and physically evade authorities that had discovered its location. The concept of avoidance was not necessarily limited to physical confrontations, however; it was also a way to prevent access to privileged information. This was best demonstrated through the Analog Torrent prototype, which imitated the torrenting digital distribution model by using the decentralization of information as an avoidance tactic. The Analog Torrent had color coded 'receiving stations' and pompoms. A pompom represented a single message and its color corresponded with the color of its receiving station. The pompoms were broken up to travel along different paths of a 'web' to be re-formed into the entire original message at its destination receiving station. If a single portion of the message was intercepted by authorities somewhere along the web, then the entirety of its contents would not be revealed.

6.1.2 Resistance

In contrast to avoidance methods, resistance methods could be seen as more of a reaction against authorities, though this does not necessarily entail direct action. The Geographic Hashtag prototype from the AMC workshop was an example of this: symbols were either looped or tied to physical structures. The symbols corresponded to different messages, which were only known to Geographic Hashtag users, thus marking physical locations with a particular meaning. The participant explained a use case for a specific kind of Hashtag where the bracelet contained an eye symbol on it, indicating that there was bullying in the area. The 'authority' in this context is not an institutional one, but other entities also acting as forces threatening to evade. The bully Hashtags were a direct reaction to an ongoing hostile situation and, as explained by the participant, warned others to keep a watchful eye out in case they needed to intervene, thus operating as a community resistance united against an acknowledged aggressor. This logic was also found in another context through an OOHA example called Furniture Freeze.

Figure 2: The participant adjusts the blanket on a resident occupying a home during a home liberation. When active, the prototype would freeze furniture in place, preventing forcible eviction.

The Furniture Freeze prototype was a small diorama of a living room with a button on the wall. When pressed, the button would freeze furniture and objects in place to disrupt the eviction process. The designer pointed out that this technology is specifically for a home liberation action such that it would allow activists

to stall for time in order to build a blockade and gather support from other members and allies. During a home liberation, there is the constant threat that authorities will forcibly remove residents from their homes, as well as their belongings, which Furniture Freeze directly opposes.

6.1.3 Aggression

Due to the confrontational nature of direct action, there is also the possibility for aggressive reactions to authority. These are not necessarily intentional, but can arise as a result of the circumstances of a particular situation. There was only one prototype that intentionally worked aggression into its design and it emerged from the OOHA workshop. Bionic Dogs had two cardboard silhouettes of robot dogs that were trained to attack different authorities. The participant focused on police officers and bank officials. The latter target is an interesting one insofar as bank officials are rarely, if ever, in the role of the direct aggressor. Actions that involve bankers are initiated by OOHA members, such as marches or rallies, and these actions are consistently framed as peaceful and non-violent. Bionic Dogs is an example of radical activist politics that are specific to an individual and diverge from that of the organization. It is in this vein that we can read these prototypes as metaphors for the varied perspectives and strategies within activist organizations. Even though members can be united behind a similar cause, they often have varying goals and even more disparate methods for meeting those ends.

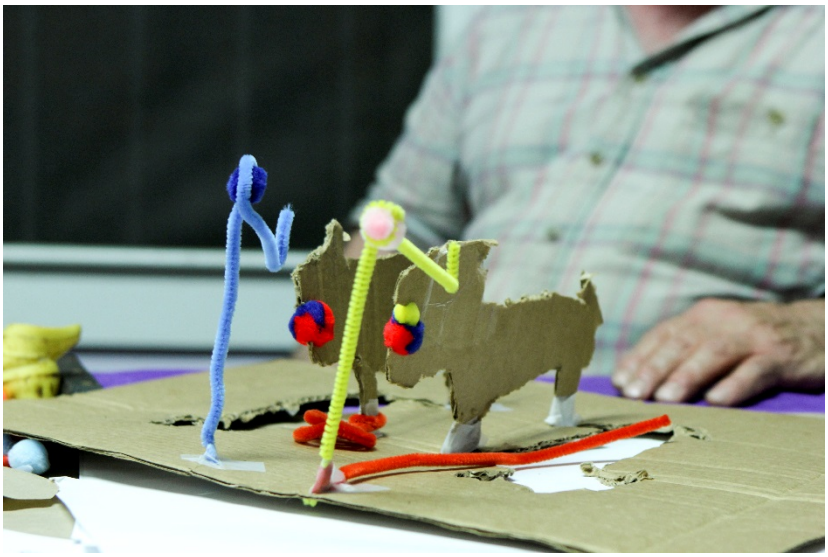

Figure 3: Each Bionic Dog breed is trained to attack a different authority.

6.2 Contingent Communication

Due to the unpredictable and spontaneous nature of activist work, it is difficult to fully prepare, or even properly anticipate, the challenges that may arise. Often, a crisis will emerge that requires immediate action from a group's members. In this context, communication is contingent on the status of the action: a crisis will require more urgent means of communication than a member meeting. With these prototypes, the emphasis was on access control, ensuring private communication to members and allies were not intercepted, as well as urgency, to manage communication priority and calls for participation.

6.2.1 Access Control

One primary communication concern between both workshops was access: how do activists restrict access such that information remains private while still delivering a message to those privy to it? In the earlier Analog Torrent example, this was done through a physical web that distributed and decentralized a message to protect its contents from potential interceptors. This was also conveyed through color coordination: the

participant explained that each color represented a different form of social media. The prototype focused on inclusive access by ensuring that the same message could be delivered to individuals regardless of which form of communication they used. Blue pompoms, for example, represented Facebook communication, while orange pompoms delivered tweets. An OOHA prototype approached this issue through a focus exclusive access: the Robot Bird is an airborne device with a built-in projector to deliver messages: "it's a good way to get the word out, what's going on, and look at this really messed up thing the cops are doing right now." The participant explained that the Robot Bird had chameleon properties, which helped restrict access to the message that was only intended for a specific audience.

Figure 4: The prototype has both a brick pattern and a leafy green pattern to demonstrate its chameleon-like properties.

6.2.2 Urgency

In addition to the content of a message, both workshops drew out and emphasized the issue of urgency: information needs to be communicated quickly and directly to a large audience who is distributed throughout a geographic space. Two designs—the Constant Card and the Bam! Button—addressed this issue in similar ways. The former was created at the AMC workshop and was a piece of construction paper slightly larger than a business card. The participant explained that in her work with students, there are often different disconnects in the mode of communication between students and faculty, parents and students, and parents and faculty. Communication takes place through various means: Twitter, Facebook, SMS, etc. The Constant Contact card displays messages specific to that particular organization so that students, faculty, and parents all have a consistent channel of communication. Urgency is demonstrated through access: card holders will receive an urgent message immediately, rather than experiencing delay by having to check multiple social networks or other channels. The OOHA prototype, the Bam! Button, sends messages through multiple channels simultaneously to reach its audience as quickly as possible: "just one button—bam!—and it set the sequence off and we didn't have to worry about a phone tree malfunctioning or whatever." During group discussion at the OOHA workshop, participants acknowledged that internal communication is an effective way to maintain and strengthen membership ties, but too much communication could risk information overload or volunteer burnout. The Bam! Button offers multiple priority levels so that prototypes could communicate both time-sensitive and low-impact messages. This ensures that organizational members are not consistently bombarded with messages and can manage their participation without feeling like they are on call for the organization at all times.

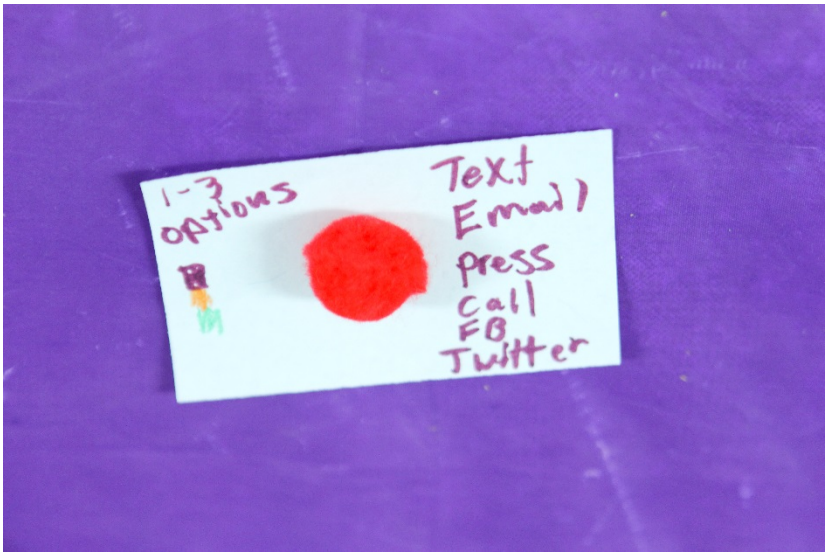

Figure 5: The Bam! Button user can select a priority level before sending a message to an organization's members.

6.3 Sustainability

We drew out different interpretations of what it means to maintain the momentum of a movement. We interpreted three different categories of sustainability: environmental, organizational, and personal. Issues around environmental sustainability follow an expected arch where participants were sensitive to the resources used and the waste produced through their work. The notion of stamina is a useful way to frame concerns in organizational and personal sustainability where maintaining momentum and emotional connection to the issues and to the individuals became a clear challenge.

6.3.1 Environmental Sustainability

Environmental sustainability was present in many prototypes, which included renewable resources or self-sustaining ecosystems as a way of minimizing resource consumption. The OOHA Aquaponic Indoor Restroom was not only powered by solar panels, but also had a closed loop system where water and nutrients from the toilet were used to sustain the garden. Prototypes from the AMC workshop were similarly built around environmental sustainability: both the Turtle Con-tent and the Constant Contact card powered themselves through renewable sources, using wind turbines and solar panels, respectively.

6.3.2 Organizational Sustainability

Organizational sustainability is more about maintaining the momentum of the entire group after an action or, alternatively, about regaining the momentum if a particular action or campaign does not reach an ideal conclusion. The main way that this takes place is through communication: if members are not kept up-to-date with campaign updates, then this could lead to member disengagement. The Bam! Button and the Robot Bird both address this, as discussed above. A third OOHA prototype, Insect Media, is a robotic insect that carries messages around the city to be delivered to members at home. The different colored pompoms represent different priority levels and different kinds of required action. This prototype highlights the diversity of organizational messages as well as the various roles that are required within a single organization. While some Insect Media messages are calls to action, some are member updates or deliver tasks that need to be completed. Not every member needs to be a home liberator; an organization is maintained through multiple roles performing different tasks simultaneously.

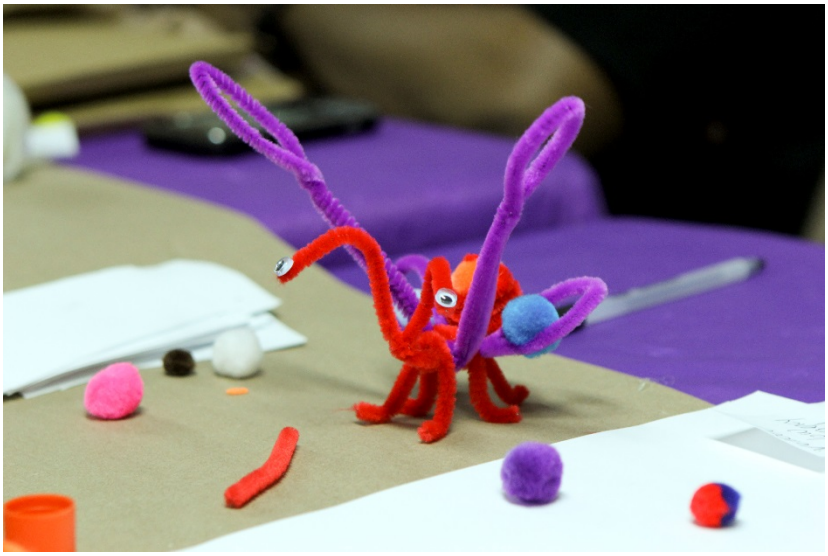

Figure 6: The different colored pompoms represent different types of messages or different calls to action to accommodate the different roles people play within the same organization.

An AMC prototype also echoed the importance of internal communication among members. Three participants grouped together to create Ignorance Glasses. It was inspired by Muslim djinn, which are only visible to people based on particular behavioral traits. For example, especially greedy people will be able to see greedy djinn, or evil spirits. This conditionality was built into the design of Ignorance Glasses: the wearer is able to see the biases and prejudices of the person they are looking at. By wearing the Glasses, members of an organization are able to better understand and empathize with each other, thus creating deeper bonds to strengthen the group as a whole. Organizational sustainability, through this prototype, is maintained through the interpersonal relationships within the group, building trust and respect in order to support a more unified and united membership.

Figure 7: Ignorance Glasses develop empathy and help others see the prejudices and biases that might impede organizational trust.

6.3.3 Personal Sustainability

Issues of the emotional or mental are categorized as questions of personal sustainability. During an action, for example, self-sustaining systems can minimize resource consumption, but does not necessarily address corporeal durability: how does an individual remain physically and mentally sound during an action that could last a number of hours, if not days? This spans a number of issues including nourishment, personal comfort, and mental stability. The inventions highlighted the importance of individual activists being healthy and physically capable of lasting an action. This concern arises due to the unpredictable and often volatile nature of actions; certain kinds of infrastructure that are taken for granted in non-activist contexts, such as electricity or running water, are rarely available in protest spaces. Beyond this, it is even more difficult to try and plan for an action to exist in a space where these facilities are accessible and available. The Aquaponic Indoor Restroom offers a bed for recovery and comfort, as well as a toilet, which addresses the very personal (and relevant) issue of human waste. An OOHA prototype called the Portable Sustainable Toilet offered a collapsible personal toilet made of recyclable materials. The cardboard model included a toilet bowl, seat, and lid, as well as a built-in toilet paper roll holder. A biodegradable bag was attached, as seen in Figure X, which could then be disposed of nearby. The participant highlighted privacy and convenience so that an individual activist could be comfortable and healthy without a dependence on pre-existing infrastructure.

Figure 8: The Portable Sustainable Toilet is made entirely of recyclable materials (the participant asked us to pretend the plastic bag was biodegradable).

Personal stamina, while directly relevant, is not limited to direct actions or outdoor events. An AMC prototype, the Activist Apron, featured a number of different pockets with different organizational flyers and materials contained within them. While the participant did not physically build her prototype, she described the main feature of the Apron is the ability to hand it off to another activist, thus sharing the

labor. When occupying a particular role in an organization, it can be difficult if there are not any other members who can do the same work, which can lead to personal stress and anxiety. The Activist Apron demonstrated how the distribution of work can help ensure the mental and emotional stability of individual members in order to help them continue their contributions to a larger movement.

7 Discussion

The themes reflected shared challenges and concerns across activist organizations and strategies for how to address them. The exploratory alternatives revealed both the benefits and the shortcomings of increased technology use in activist work. Participants' experiences were crucial in providing insight into the different kinds of shortcomings or limitations of consumer technology or platforms. It also extended beyond some of the more traditional or higher concept notions of 'problems' in activism work—such as funding, technology access, and technology education—to offer perspective into questions that are only raised through the more minute, day-to-day activities.

7.1 Design Inspirations

Many of the prototypes also suggested a focus on internal organizational action. Many conversations position technology use in activist work as reactive: a group will use media to directly challenge mainstream media, whether through content (e.g. culture-jamming), access (e.g. hacking), or production (e.g. indymedia) (Lievrouw, 2006). However, many of the workshop discussions resulted in prototypes or platforms that encouraged greater participation from its group members directed towards other members. Devices that were concerned with communication were not framed around the disruption of mainstream media outlets; sustainability prototypes did not siphon energy from existing infrastructure, but cultivated its own. Authorities existed on a legal level, but most of the prototypes avoided confrontation on a media or digital level. One interpretation could be that activist design should privilege self-sustenance or autonomy as ideals, rather than developing in tandem with or in competition against corporate or mainstream designs or practices. Designing for organizational autonomy would emphasize features that minimally rely on existing infrastructure (e.g. solar power for renewable energy) and empower members to participate to different degrees (e.g. support roles or frontline disruptors). This kind of design allows activist groups to best prepare for the unique and contextualized challenges and crises that are specific to each organization's work.

7.2 Design Installations

In anticipation of the workshops, we anticipated technology use to be largely infrastructural, like the use of cloud services to share organizational knowledge. While this did appear in discussions, the prototypes were overwhelmingly integrated into activist practices. Consider the Bam! Button: its use is designed to be in situ, distributing messages as the need arises. A more infrastructural design might have instead offered a database of scripts or canned messages to deliver. The emphasis behind the design is not to set a better foundation for activist work or necessarily to document the results of a particular action or meeting, but rather the prototypes are themselves forms of direct action. This is not to say that documentation or preparation is not integral to the success of an activist group, but the prototypes focused on supporting action as it was happening. The prototypes acknowledged the tenuousness of direct action, like gathering participants or sustaining energy. No matter how much preparation or foundation is implemented through activist work, actions are still spontaneous, unpredictable, and volatile and design should focus on how to better embrace and support that instability. By incorporating technology into direct actions, the hope is to harness the digital affordances of existing platforms (like network connectivity and mobility) to address whatever shortcomings arise 'in the moment.'

7.3 Design Incriminations

Many of the prototypes and workshop conversations acknowledged an insider status without much further critical reflection. There are staff, group members, residents, students, etc. who are all 'inside' the organization. Similarly, there are 'outsiders' to the group, be they antagonistic entities like banks, government officials, or police officers, or simply those who are not members. This binary does not account for varying and often fluid levels of participation both within and outside an activist group. Consider who the Robot Bird might deliver to, or who the Cop Watcher watches. Which entities are privy to receive updates about an organization? What are the different 'levels' of updates that might be delivered? Similarly, who or what does the Cop Watcher consider an authority? Will there be alerts for locally organized community watch groups as well as police officers? The insider/outsider dynamic is less dichotomous in practice and offers a number of considerations when designing for 'the group.' In attempts to strengthen internal relationships, there is the risk that a design will alienate those who are on the edges of the membership. Because activist work can be contestational and hostile towards perceived threats from outsiders, it is all the more crucial to interrogate what constitutes a 'member' or 'insider' in order to avoid re-directing that hostility internally.

8 Future Work

The discussions and subsequent prototypes underscore the importance of context: even though platforms or technologies are used in similar ways across multiple activist groups, there is a degree of adaptability and flexibility that needs to be considered. The context is provided through participants' experiences: their activist work was enacted and embodied in a particular time and place and their prototype designs reflect those specific experiences. Literature discussing technology use in activist organizations already acknowledges the importance of context: Saeed, Rohde, and Wulf discuss mailing list usage that can deliver more general information to members, but could be more useful with recommendation algorithms to better distribute more specific knowledge to members with more particular kinds of expertise (Saeed, Rohde, Wulf, 2011). We contend that design interventions for activist organizations need to be informed by the specific work that they do. Because activists participate in different ways—from support roles to communication coordination to civic obedience—these varied experiences require contingent and adaptable designs. Vines, et al. argue for designs that afford multiple forms of engagement within a single project; this avoids privileging a single type of participation and creates a richer and more inviting environment for participant contribution (Vines, et al., 2013). Experiences are a means of sense-making, where activists develop deeper understandings of their work and the work of other members within the same group (Leong, et al., 2010). The sense-making came out through workshop discussions of imagined prototypes; participants did not aim to find the 'ideal' solution to a common problem, but rather discussed the benefits and consequences of different alternatives. Further critical reflection on the specificities of each activist group's practices, processes, and preferences can better determine what kind of design will be more conducive to their work.

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