Prospectus

PowerShare: An Application to Enable Direct Interaction Between Politicians and Constituencies

(Technical Report)

Smart Cities and Storytelling: Study of Acceptance of Crowd-Sourced Storytelling Application Across Diverse Communities

(STS Research Paper)

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General Introduction/Executive Summary of Technical and STS

The concept of community is held dear to many, and has been since the dawn of time. Humans move to where there is nothing, and create one united identity based upon themselves and their interactions. More concretely, community is based on membership, influence, fulfillment of needs, and shared emotional connections (McMillan and Chavis, 1986). These community members then strive to bolster these pillars of community by engaging in politics and promoting innovation from within.

My technical topic aims to bridge the gap between the constituent and his or her politician. Myself and my teammates elected to work with James Powers to build his vision of a system which allows a politician to interact with his or her community directly through viewing and acting on a set of citizen-proposed goals. These goals can be voted on by fellow citizens, so that the proposed goal that the community feels is most important is filtered to the top. From there, a politician can interact with his community through actions like electing policy goals to work on, breaking the goal down into a number of subgoals, and marking goals as completed. This application has the potential to sidestep the sometimes slow pace of bureaucracy, allowing politicians to see what is important to their constituencies at any given time, no guesswork involved.

My STS topic involves creating "smarter" cities by enabling citizens to inform themselves about the history of their own surroundings. The group aims to achieve this through developing an application that allows these citizens to mark physical locations with their personal stories. Importantly, this will help bring light to the stories of more oppressed or underrepresented communities within a city. Whether important or insignificant, sharing stories helps give these people a voice, allowing their experiences to shape political decisions, public opinion, and the overall sense of city-wide community as a whole. As Klaebe, Foth, Burgess, and Bilandzic (2007) posit, "the stories re-mediate 'public' history in subtle, associative ways: they connect representations of storytellers' present 'selves' with personal memories of the past" (p. 6). My individual research within the topic aims to identify how we can account for developing an application that can be equally adopted across the diversity of communities we encounter.

Technical Topic

Introduction

Currently, there are a limited number of channels available through which elected officials and their constituents can communicate with each other. Some more informal ones include social media, such as Instagram, Facebook, or Twitter. However, since hundreds of users can comment on a post or tweet by an elected official, individual comments can easily go unnoticed; therefore,

this is rarely an effective means for either group to engage in communication. More traditional ways of contacting representatives include emails, phone calls, and town hall meetings. Emails and phone calls often are handled by a representative's staff, who may not always provide the most authentic response to the constituent. Town hall meetings, on the other hand, are a more reliable way for voters to directly communicate their needs to their representative face-to-face, but these events are not held frequently. In addition, town halls are limited by those who have the interest, time and availability to attend them.

The real-time nature of this solution points to a digital-focused path, but social media platforms, as explained earlier, are generally insufficient due to their lack of political specificity. One existing digital tool that is more politically focused is the digital application Countable (www.countable.us), which allows users to "get clear, concise summaries of bills going through Congress, see what others think, then take action." To accomplish this, the application is divided into two feeds: an opinion feed, which consists of opinion pieces written by users, and a bill feed, which shows a dashboard of bills recently drafted by Congress. Both feeds implement a social network format, in which users can vote and comment on elements of each feed. Though promising, this application ultimately has several shortcomings. First, it does not provide a new channel by which representatives and constituents can communicate; constituents still would have to email or video message their representatives. Next, the social-network format of the site, which enables users to comment on each other's posts and opinions, may be irrelevant to a representative trying to find the most important goals to pursue for their community. As a result, this application does not satisfy necessary high-level requirements, as explained below.

System Design

A solution to this problem would need to achieve a set of high-level goals. First, voters need to communicate quickly and intuitively with their representative in a way that will ensure that their voice is heard. At the same time, elected officials need a way to easily determine the needs of the community in real time without becoming overwhelmed by a large volume of constituent feedback. To achieve this level of communication, simplicity is key. The solution would need to provide a direct interface for these two groups to exchange ideas effectively.

The design of the PowerShare app is focused on creating an intuitive, straightforward user experience. First, the user creates their account, specifying their name, address, and email address. Their information would then be cross-checked against voter registration records to ensure validity, and then sorted into their respective communities. For instance, a voter in Charlottesville, VA who creates an account would be placed into the Charlottesville city community and the VA-5 district community (among others). After logging in, the voter would be able to view and navigate to each community. Each community consists of a list of constituent-submitted goals which other constituents can vote for, as well as a function that allows users to create new goals. Representatives logging in to the application would be able to

view all communities, as well as each individual goal. They would also be able to upload information to each goal (such as completion status and media/associated files) and comment on the goal's progress or any hurdles they may face in trying to accomplish that goal. By maintaining a real-time line of communication that is convenient for both constituents and their representatives, constituents can more easily judge how well their representative is meeting their needs.

System Requirements

Gathering system requirements is an essential part of any programming project. It allows the programming team to know exactly what they are building, and the customer to tell exactly what they expect from the product. Furthermore, each requirement is broken up into its own individual story, which allows individual members of a team to work on small parts and pieces that then go on to form a collective unified project. As the programming team does this they can keep track of their progress and make sure that they are meeting their deadlines.

Minimum

STORIES	PTS.
As a USER, I should be able to **submit a goal** to a community that I am part of such that any other member of the community can see it and vote on it after review.	8
As a USER, I should be able to **create a verified account** with my name, email, and physical address so that I can access the app.	8
As a USER, I should be able to **search goals** in my community so that I can find relevant goals to vote on.	5
As a USER, I should be able to **view goals** such that I can see a list of their authors, supporters, sub goals, approval status, completion status, media associated with goal.	5
As a USER, I should be able to **vote on one goal** in each community that I am part of	3
As a USER, I should be able to **receive notifications** on goals that I have voted for.	5
As a USER, I should be able to **view and edit my account settings**, so that I can manage things like login information, notifications, and other general settings.	8
As a USER, I should be able to **navigate between a home page and a community page, as well as a community page and a goal page**, with one action.	3
As a USER, I should be able to **view a dashboard** of all communities I am a member of, so that I can choose which community to view goals for.	2
As a USER, I should be able to **view contact information for both Powershare and my community representative** so that I can get in touch if needed.	2

As a USER, I should be **added to all relevant communities** after creating an account with my home address.	8
As a CUSTOMER, **I should be able to do everything a USER can**.	3
As a CUSTOMER of a specific community, I should be able to **respond to a goal with feedback**	5
As a CUSTOMER of a specific community, I should be able to **add sub-goals** to a goal	8
As a CUSTOMER, I should be able to **search goals in communities of which I am not a member**, by keyword.	5
As a CUSTOMER, I should be able to **upload media** to any goal in my community.	13
As a CUSTOMER, I should **receive notifications** (Android / iOS push notifications) for the following: A new user joins community, a new goal is created, a goal is edited, goal ranking changes, a completion date is approaching.	5
As a CUSTOMER, I should be able to **designate a goal as complete**.	3
As a USER, I should be **automatically assigned** to my relevant communities based on address upon account creation so that I can vote on the issues relevant to my communities.	8
As a USER, I should be able to login into my account.	8

Desired

STORIES	**PTS.**
As an ADMIN, I should be able to **approve membership** for members into the community (*Should this be automated through checking voter registration records*?)	13
As an ADMIN, I should be able to **view user statistics**.	13
As an ADMIN, I should be able to **search through a list of communities** by geographic location.	5
As an ADMIN, I should be able to **view a dashboard** which includes the above inbox and list of communities.	8

Optional

STORIES	PTS.
As a USER, I should be able to log out from inactivity after 15 minutes to increase security.	5
As a USER, I should be able to follow goals that I have neither voted for nor created.	8
As a USER, I should have the option to be sent push notifications about followed goals.	3
As a USER, I should have the option to be sent notifications by email and/or SMS.	5
As a CUSTOMER, I should have the option to tag/label goals by category/topic and search for them by the label.	8
As a USER, I should be able to sign into the app with my fingerprint/faceID.	8

STS Topic

Introduction

What happens when a community is erased? This can happen in many ways, but the outcome is always the same: the culture of this community becomes a relic known only to those who care enough to remember. The highlights can be curated by historians or well-intentioned citizens, but the unique identity that this group once had is gone forever, sealed off from the remaining communities inside of a given town or city. This lack of historical literacy can cripple the foundation of a given community over time.

The advent of the "smart city" movement brings with it an important opportunity to address these concerns. Many developments associated with smart cities are technological, like Internet of Things (IoT) devices, sensors, and the use of analytics in more areas than ever before. However, taking the people affected by these new technologies into consideration is paramount. Without users having knowledge of their fellow community members' lived experiences, any new city-wide technologies are at a greater risk for misuse. Thus, to be truly engaged in the history of one's city, a citizen must have access to stories told by people from different communities within it. Informed citizens will learn from both positive and negative aspects of their city's history as told by their fellow citizens. This will allow for equitable innovation, more guided community efforts, sharpened sense of identity on a city-wide level, and, importantly, for the remembrance of these "invisible" communities that have been trod upon and in some cases destroyed.

To facilitate this inter-community level of storytelling, my group has decided to research the efficacy of developing an application which allows users to share their stories at specific locations throughout a city, in this case Charlottesville, Virginia. As with any technology implementation, the user base must be taken into consideration. This is especially apparent with

this project, as it involves spanning many different groups of citizens. For this reason, my research objective is to understand the way in which digital platforms can be utilized as a strategy of community storytelling. More specifically, I want to look into the efficacy of existing social media platforms as storytelling mediums. Are these enough to accomplish the deepening of historical literacy within a community? Also, how does socioeconomic status factor into these platform considerations?

Literature Review

Existing literature shows that social media can be used to share stories and shape public opinion on certain subjects. "Social media are spaces of storytelling as millions of stories representing multiple identities, realities and brands are circulating within them, influencing values and perceptions." (Lund, Cohen, & Scarles, 2018). While this is a great feature for businesses, I believe that the personal or commercial brand-building aspect of story-sharing on existing social media is a detriment to the goal of community unity we are trying to achieve. Ideally, an application centered around presenting nothing but historical context to the user will overcome this. While we want to encourage participation and ownership of lived experiences, doing so to promote one's self or one's business is not an intended takeaway.

It is also important to consider how new technologies are adopted in Charlottesville and similar areas. This will help give a sense of how we should introduce our application once it is ready. Andrew Mondschein et al. handle this aspect by meeting directly with neighborhood associations and community members to gauge familiarity with the subject and seek permission to begin their research. Despite some initial pushback and after alleviating concerns, only with the permission of these leaders did Mondschein and his team proceed with their study (Mondschein et al., 2019). This is a strategy to deployment that would be useful to our group in order to have full cooperation and higher rates of adoption. However, the permission from community leaders may not automatically ensure the successful adoption of the application by its members. To help adoption once the application has been deployed, Hall and Khan argue that ensuring that other community members are using the application is a good way to grow the user base as a whole. This "network effect" is especially relevant to crowdsourcing applications where the content richness, and thus "the benefit of the application", is directly proportional to active users (Hall & Khan, 2003, p.6). In our context, this will mean starting with larger initial user groups, or engaging multiple target communities at once to encourage sustained usage.

Design of the application itself is another factor that the group must consider moving forward. When approaching diverse neighborhood groups as has been discussed thus far, we need to be cognizant of how different designs are perceived. Laura Forlano and Anijo Mathew approach this by engaging their community in design workshops. They structured each workshop into sections: one for contextualizing the discussion within the neighborhood, one to elicit the values from the present community members and connect them to the design, one for prototyping, and one for presentation (Forlano & Mathew, 2014). As outside actors, we as the research team cannot claim

to know how best to achieve our goal in the context of a given community. I believe that adhering to an openly community-centered approach such as that of Mondschein et al. and Forlano & Mathew will create an application best situated to all users across multiple neighborhoods. This is necessary to achieve the ultimate goal of cross-community collaboration through storytelling; if the application is not accepted across all communities, these stories cannot reach their intended audiences.

Frameworks and Methods

An initial barrier to community outreach with this research process is our position as university students. Many community members see this as the university using them as test subjects in an experiment, or another short-lived attempt at change for a research article and nothing more. In some Charlottesville neighborhoods, community members described using technology like sensors as an effort to spy on them, or to further injustice (Mondschein, Zhang, & El Khafif, 2019). Moreso, some community members perceive university students as larger-than-life figures. This difference in perceived status from the point of view of community members can undermine efforts to empower them (Nieusma & Riley, 2010). In any of these situations, it is important to ensure that we as the research team achieve our goals by using the strengths that exist within the community first. This is the main facet of the STS framework we plan to use to engage the community, called asset-based community development. Approaching development in this way helps promote equity across the diverse neighborhoods, very important to the goals of our application (Mathie & Cunningham, 2002). Additionally, in order to help develop a sense of trust with the communities, I plan to use participatory observation methods while collecting any data in the future of the project.

Conclusion & Future Work

In conclusion, this prospectus outlines my technical thesis, STS thesis, and my individual research proponent of that STS thesis. Within the context of my individual research goal, literature was presented which largely points toward interacting with the community in a hands-on fashion from design to deployment. This is in line with the asset-based framework we employed to think about the project initially. The remaining work to accomplish for my portion of the project will need to be data collection, hands-on prototyping, and more community outreach. Personally, I need to look more into the socioeconomic makeup of Charlottesville to be able to expand upon that aspect of the research question I have framed with this prospectus.

A good way to do this would be through my interview subject, Tom Gillette. I interviewed Tom this semester to gain a cursory understanding of an average Charlottesville citizen's perception of smart cities. He proved an insightful source, sharing things like his support for using technologies like smartphones for the greater good, facial recognition systems to achieve justice for crimes, and his recognition of community engagement as giving value to social projects. Tom works as manager of the Virginia Career Works Center in Charlottesville, where he assists people

from diverse backgrounds in employment-related endeavors. With Tom's permission, engaging with community members at his work could be a valuable source of data regarding perception of our project from a wide range of ages, backgrounds, and socioeconomic statuses. This engagement could include listening to peoples' stories, their opinions on our plan thus far, and anything else they would like to offer. Direct, participatory engagement like this helps extract empathy from data, which implicitly decides the potential effectiveness of the application the group is proposing.

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