IMPROVING THE ACCESSIBILITY OF INFORMED VOTING: A USER INTERFACE DESIGN FOR CITIZEN ENGAGEMENT WITH LOCAL GOVERNMENT

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This project accomplished a goal that I never dreamed could be attainable when I began this journey. I attribute its success to three factors. The first factor was the extraordinary ability of my advisor, Dr. Katherine Fu, to keep me on track and to encourage me to keep going. The second factor was the creative mind of my committee professor, Herb Velásquez, who continually pushed me to innovate and was the one who taught me the user-centered design process. The third factor was the dedication and ingenuity of the 37 user testers who volunteered their time to develop the output of this project just as much as I did through 6 rounds of user testing. These individuals had an impact at every step of the process and I could not have completed this project without their efforts.
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“It is the duty of every citizen according to his best capabilities to give validity to his convictions in political affairs.”

- Albert Einstein
INTRODUCTION

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THE MOTIVATION

This section describes a personal experience that I had on November 8th, 2016 which provided me the initial motivation to pursue this project.
For State Representative in the General Assembly From 65th District
(Vote for One)
☐ GORDON ROLLE, JR. Republican
☐ SHARON BEASLEY-TEAGUE (Incumbent) Democrat
Write-in

For State Representative in the General Assembly From 80th District
(Vote for One)
☐ MEAGAN HANSON Republican
☐ TAYLOR BENNETT (Incumbent) Democrat
Write-in

For State Representative in the General Assembly From 95th District
(Vote for One)
☐ SCOTT HILTON Republican
Write-in

For District Attorney of the Atlanta Judicial Circuit
(Vote for One)
☐ PAUL HOWARD, JR. (Incumbent) Democrat
Write-in

For Clerk of Superior Court
(Vote for One)
☐ LEWIS L. PITTMAN

For Tax Commissioner
(Vote for One)
☐ ARTHUR E. FERDINAND (Incumbent) Democrat
Write-in

For Surveyor
(Vote for One)
☐ WILLIAM DANIEL III (Incumbent) Republican
☐ ARNAUD D. HUGUET Democrat
Write-in

For Solicitor-General of State Court of Fulton County
(Vote for One)
☐ KEITH GAMMAGE Democrat
Write-in

For Fulton County Commissioner From District No. 2
(Vote for One)
☐ BOB ELLIS (Incumbent) Republican
Write-in

For Fulton County Commissioner From District No. 4
(Vote for One)
☐ JOAN P. GARNER (Incumbent) Democrat
Write-in

For Fulton County Soil and Water Conservation District Supervisor
(Vote for Two)
☐ PRESTON D. MASON (Incumbent)
Write-in
☐ ALAN O. TONEY (Incumbent)
Write-in

PROPOSED CONSTITUTIONAL AMENDMENTS

- 1 -
Provides greater flexibility and state accountability to fix failing schools through increasing community involvement.
Senate Resolution No. 287
Act No. 309
Ga. L. 2015, p. 1498
"Shall the Constitution of Georgia be amended to allow the state to intervene in chronically failing public schools in order to improve student performance?"
☐ YES
☐ NO

- 2 -
Authorizes penalties for sexual exploitation and assessments on adult entertainment to fund child victims’ services.
Senate Resolution No. 7
Act No. 306
Ga. L. 2015, p. 1497
"Shall the Constitution of Georgia be amended to allow additional penalties for

Sample
On November 8th, 2016
I was prepared for 1 out of 67 questions on my voting ballot

In the first section of the ballot, there were a total of 43 individuals running against one or more contenders for elected positions. In the second section, there were 14 local and state bills up for contention. A bit of post-voting research revealed that some of the referenda were summaries of bills that were up to 13 pages long. How do citizens represent themselves when they have been given an opportunity to make their government work better for them? I knew immediately that this was the design problem that I had been looking for.

If this is Senate Resolution No. 287, what are the other 286 resolutions?

On November 8th, 2016, I not only realized that I had not represented myself to the best of my ability on the ballot, but also that I had let 286+ Georgia Senate decisions slip past me without my knowledge. I did not expect myself to track everything my local government did, but this one bill had the power to affect the lives of every student and parent in the state. How do citizens keep track of and voice their opinion on government decisions that affect them, but do not show up on the ballot? These two issues are the focus of the Master’s project.
MARKET RESEARCH

This research sought to identify every solution designed to help U.S. citizen’s make informed decisions on local ballot referenda, ballot elections, and non-ballot bills.
Every identified solution dealt with federal races, but it was noticed that a majority of them implemented a quiz style interaction. These quizzes generally contained multiple choice questions regarding policy positions. By completing the quiz, the solution would be able to tell the user which candidate may represent them the best. However, these quizzes may only be useful when the compared candidates have enough differing policy positions. Many candidates on the November 8th ballot had very little information about their policies.

This research identifies solutions within the public and private sector, which seek to enhance informed citizen participation in local government. The only solution that begins to touch on local government is the website Countable. However, Countable only features local legislation from three cities—New York, San Francisco and Washington D.C. The website has authors who fill out the sections on what a particular bill is, its impact, cost, etc. In addition, Countable tags the bills by topic and show the for-and-against user comments on the bill.

There is no solution that helps citizens make local election decisions.

Current solutions focus on the federal government, only one addresses local issues.
There is no solution that helps citizens make decisions on local bills up for vote

Some of the referenda had articles written about them, breaking down the pros and cons of the bill, however, these resources did not exist for all the 14 referenda on the ballot. In addition, some of the written articles clearly displayed a bias towards one side or the other, which added the necessity to check the source if one were to use these articles to make a decision. The only objective source of information on the referendum were the bills themselves, which were easy to find, but difficult to comprehend.

There is no solution that helps citizens track local bills that are relevant to them

This research defines a “relevant” bill is one that relates to an individual’s demographic, profession, and interests. For example, if an individual was interested in tracking Georgia bills related to higher education, they may use the search provided by the Georgia General Assembly. However, a user is only able to search one committee at a time, searching for “higher education” results in unrelated bills, and there is no way to set up alerts on specific search filters. As a result, there would be no simple way for this individual to carry out their task.
OPPORTUNITY AREAS

Social

Economic
State of the economy, shifts in consumer spending, and levels of disposable income.

Technology
Evaluation of existing technology and development of emerging technology.

An incentive motivates an individual to perform an action

This project seeks to develop a solution that motivates the citizens of the U.S. to perform the action of citizen engagement. The presented set factors analysis [1] was carried out to identify what barriers may currently exist for a citizen who seeks to take such an action. This is done so that the end solution can be designed to empower users to hurdle existing obstacles.

An opportunity is created when there is a need left unaddressed

In order to utilize established methods to design for an undefined solution, the project output is treated as a product, and a product design approach is taken. The SET factors analysis utilizes a Product Opportunity Model [1] to identify barriers that may exist for users by treating them as “opportunities” for designing a superior product to compete in the current market.

SOCIAL FACTORS

Social factors focus on social interaction and cultural influences including, work patterns, health issues, political environments, and entertainment.
Citizen engagement may not be perceived as relevant for solving basic human needs

Maslow's Hierarchy of Needs (left) states that human priorities start from the bottom up. “We need such basic fulfillments as shelter, food, and interpersonal connection before we can engage in other activities like citizen engagement” [2]. Citizen engagement may never be irrelevant for many, however “for digital natives, the motivation to participate originates from peer relationships and a quest for self-actualization [...] to fulfill an intrinsic need; not to fulfill the traditional notion of citizen engagement as a civic duty” [2].

Citizens may lack the information and accountability to give useful feedback

The process of how a bill becomes a law within the state of California (left), represent some of the sources of compromise that are required for passing legislation. “Citizens often have a limited view of [...] the realities of the local government, including budgetary and technological constraints, political issues, and planning agendas”[2]. In many cases, it might be impossible for citizen engagement to provide any value. “Also [citizens] don’t always consider the greater good, just their long-term needs”[2].

[2] ICMA.org | 2015 | goo.gl/o9m9nD
[3] leginfo.ca.gov | 2016 | goo.gl/duYqO0
Participating in citizen engagement may not fit into the instant gratification culture

Accepting delayed gratification may be necessary for citizen engagement. “To delay gratification [...] for the good of the group (often required in democratic decision making) depends [...] on the belief that in the long run the group will also make you better off” [4]. However, this mindset may be at odds with current norms. “In a world of real-time [...] feedback, people seldom see the outcomes of [...] the democratic process. The lack of visible outcomes [...] demeans the time and effort [...] dedicated” [2].

Felon and voter discrimination may reduce engagement amongst minorities

The United States has the highest incarceration rate in the world, they jail an uneven number of minorities, and they are one of the only nations that strip their felons of the right to vote [5]. In addition, minority populations face longer than average voting lines during elections. This is because the districts with large minority populations have a lower than the average ratio of polling machines and workers per citizen [6]. Discrimination such as this reduces minorities from participating as their needs have been chronically unmet.

[2] ICMA.org | 2015 | goo.gl/o9m9nD
[5] SentencingProject.org | 2013 | goo.gl/7qVJHK
ECONOMIC FACTORS

Economic factors focus the sources and availability of money for new and improved products.
External funding sources can shift the solution’s focus away from user needs

Any external funding source could intentionally or unknowingly try to shift the solution’s focus away from the true needs of the users. “Most funding agencies have a mission or goals they hope to accomplish, and the desire to further them is the reason they offer money” [7]. The purpose of the solution is to be nonpartisan. It is also critical “to avoid spending large amounts of time following up on inappropriate sources that have different goals” [7]. A clear statement of goals is required if such funding is pursued.

Establishing a nonprofit and / or relying on crowdfunding have significant risks involved

To remain nonpartisan, establishing a nonprofit around the final design could be a potential solution. However, it may not be feasible considering the resources required. “Creating a nonprofit organization takes time, effort, and money. Because a nonprofit organization is a legal entity under federal, state, and local laws, the use of an attorney, accountant, or other professional may well prove necessary” [8]. Another option may be to rely on crowd funding options to sustain the final design. However, this option requires sustained user interest and a willingness to donate.
GOVERNMENT GRANTS

An individual entity has the lowest probability of finding a relevant government grant

If the final design is developed by an individual entity, government funding may be vital to the design’s survival. However, On 01/05/17, the number of grants available, on grants.gov, to individuals was 2 orders of magnitude lower than the average number of grants available for all other categories. On that day, 1,207 grants were available for public colleges, 1,193 for nonprofits, and 32 for individuals [9]. It may be difficult to pursue the final design as an individual entity, as they have the lowest probability of finding a relevant government grant.

A majority of government grants are targeted towards a very specific audience

Many government grants will only fund a specific type of organization, which is doing work in a specific research area, seeking to address the needs of a specific population. For example, the U.S. Social Innovation Fund only gives grants to nonprofits seeking to enhance economic opportunity, healthy futures, and youth development within low income communities [10]. To obtain government grant funding, it may be better if the final design targets the needs of a specific audience, rather than targeting the needs of the U.S. population as a whole.

TECHNOLOGY FACTORS

Technology factors focus on the direct and imagined results of new technologies as well as the acceptance of new technologies.
Because of the policies that were instituted by the Obama administration, innovators may be encouraged to develop digital solutions for citizen engagement related issues. Two notable policies were to make machine-readable data the new default for government information and to make troves of government data accessible to the public via data.gov [11]. These policies, amongst many others, encourage innovators to make digital solutions. However, these digital solutions may not address the needs of countless citizens.

The Internet has allowed false and based information to become more accessible

It is possible that many of the user interactions with the final design could be biased by false information as “news cycles and social media can perpetuate negative perceptions with ongoing news stories” [2]. In addition, there is a risk that a web-based design solution may paint a false picture of user needs as “online platform [...] sentiments can be easily manipulated to create the illusion of widespread support or disagreement” [2]. This is a reality of the status quo that needs to be navigated carefully if a meaningful design solution is to be created.

The Obama administration fostered digital solutions, which may not address citizen needs

Because of the policies that were instituted by the Obama administration, innovators may be encouraged to develop digital solutions for citizen engagement related issues. Two notable policies were to make machine-readable data the new default for government information and to make troves of government data accessible to the public via data.gov [11]. These policies, amongst many others, encourage innovators to make digital solutions. However, these digital solutions may not address the needs of countless citizens.

[2] ICMA.org | 2015 | goo.gl/o9m9nD
Citizen engagement primarily occurs offline, but social media is changing this trend

A majority of U.S. citizens prefer offline methods of engagement. “39% of adults recently contacted a government official [...] via offline methods. [...] 34% did those things via online methods” [12]. However, online engagement is on the rise because of the 18 - 24 age demographic. This group uses social networking sites for citizen engagement more than any other medium [12]. Online citizen engagement may grow in the future, but an online only solution may alienate much of the current majority.

A majority of low-income and undereducated citizens may be alienated by a digital solution

Any digital solution for citizen engagement may disproportionately alienate lower-income and undereducated populations. “Class differences, especially those related to educational attainment, are prominent in political engagement of all kinds, whether that activity takes place offline [or] online” [12]. Despite the popularity of social media, it seems that “the college-educated are significantly more likely than those with a high school education to take part in nearly every SNS-related behavior” [12]. Digital engagement is not seeing even growth.
STAKEHOLDER ANALYSIS

This analysis sought to map out the level of citizen engagement amongst different voter demographics, then to select a group with the highest opportunity potential.
STAKEHOLDER MAPPING

VOTER POWER BY DEMOGRAPHIC

POPULATION THAT DID NOT VOTE
STAKEHOLDER ANALYSIS

Citizens aged 18 to 29 may be the least likely to participate in citizen engagement

My design approach is to identify the users who are the least likely to adopt a solution, and select them as the target users for the development of that solution. The assumption is that by designing a product that works for the users with the most needs, the final product may work for all users. Citizens aged 18 to 29 have the lowest voter turnout percentage in the nation [13]. This demographic was selected as the target user group, with the assumption that a low voter turnout indicates the existence of unaddressed user needs.

College students might be the best target user group to study for the proposed design

College students, aged 18 to 29, of any ethnicity were selected as the final target user group for a few reasons. The study assumes that a majority of the 103 million individuals from the college demographic who did not vote in 2014, are part of this study group [13]. The potential value is that addressing the unmet needs of this group would have a high impact. Also, since this study will be carried out in a college setting, these users will be easily accessible.

“Never doubt that a small group of thoughtful, committed citizens can change the world: Indeed, it’s the only thing that ever has.”

- Margaret Mead
NEEDFINDING

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VOTING ON BILLS

This section describes the methodology and insights from the first and second needfinding phases, carried out with seven user testers.
### THE BALLOT

| - 3 - | Metropolitan Atlanta Rapid Transit Authority (MARTA) Sales and Use Tax Referendum  
(Vote for One) |
<table>
<thead>
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<tbody>
<tr>
<td>Reforms and re-establishes the Judicial Qualifications Commission and provides for its composition, governance, and powers.</td>
<td></td>
</tr>
</tbody>
</table>
| House Resolution No. 1113  
Act No. 537  
Ga. L. 2016, p. 896 |
| "Shall the Constitution of Georgia be amended so as to abolish the existing Judicial Qualifications Commission; require the General Assembly to create and provide by general law for the composition, manner of appointment, and governance of a new Judicial Qualifications Commission, with such commission having the power to discipline, remove, and cause involuntary retirement of judges; require the Judicial Qualifications Commission to have procedures that provide for due process of law and review by the Supreme Court of its advisory opinions; and allow the Judicial Qualifications Commission to be open to the public in some manner?" |
| ○ YES  
○ NO |

| - 4 - | Creation of the City of South Fulton in Fulton County  
(Vote for One) |
<table>
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<tbody>
<tr>
<td>Dedicates revenue from existing taxes on fireworks to trauma care, fire services, and public safety.</td>
<td></td>
</tr>
<tr>
<td>Senate Resolution No. 558</td>
<td></td>
</tr>
</tbody>
</table>
| ☐ YES  
☐ NO |

| SPECIAL ELECTION  
CITY OF COLLEGE PARK |
| - | - |
| New Noise Insulation Standards  
(Vote for One) |
| Should Congress direct the Federal Aviation Administration to develop a new noise exposure measure that accurately gauges the increased annoyance caused by changes to flight patterns being introduced nationally, and authorize federal funding for new noise insulation for those residences measured to be significantly impacted, regardless of whether those residences were previously insulated for aircraft noise? |
| ☐ YES  
☐ NO |
THE REACTION

Users tried to make their own ballot decisions early, but they all leaned on external opinions

The first phase of the needfinding session sought determine how prepared users were for their vote on November 8th 2016. At first, all the users attempted to prepare by themselves, but none of them avoided external bias. Some users reached out to others because they were unclear, others did so in a social context out of curiosity. However, all the users seem to regret in some sense that they did not eliminate external bias. Some users felt that these external opinions guided their vote, others felt that it simply reinforced their decisions.

Users were not fully prepared for the ballot and some made votes they later regretted

The second phase of the needfinding session sought to understand the user experience of voting. None of the users were fully prepared for their vote. It seemed that the sample ballot was not accurate, so even the users who had prepared early had to make guesses. Unknown elections were voted on down party lines, but everyone found unknown bill questions to be difficult to answer. Many users realized after voting, that they made the wrong selection on some of the unknown bills because the bill summaries had biased or unclear wording.
This section describes the methodology and insights from the third needfinding phase, carried out with seven user testers.
THE BILL

SENATE BILL 133

By: Senators Miller of the 49th, Tippins of the 37th, Jeffares of the 17th, Sims of the 12th, Beach of the 21st and others

AS PASSED

A BILL TO BE ENTITLED
AN ACT

To amend Chapter 14 of Title 20 of the Official Code of Georgia Annotated, relating to the Education Coordinating Council, so as to provide for the establishment of the Opportunity School District; to provide for definitions; to authorize the Opportunity School District to assume the supervision of public elementary and secondary schools that are qualifying; to provide for a superintendent for the district; to provide criteria; to provide for rating of schools; to provide for intervention models; to provide for opportunity schools seeking state charter school status; to provide for successful opportunity schools to exit state supervision; to provide for funding; to provide for applicability; to provide for support services and flexibility for schools on warning, schools on probation, and qualifying schools that are not selected; to repeal a provision relating to appropriate levels of intervention for failing schools; to provide for conforming amendments; to provide for related matters; to provide for contingent effectiveness; to provide for automatic repeal under certain conditions; to repeal conflicting laws; and for other purposes.

BE IT ENACTED BY THE GENERAL ASSEMBLY OF GEORGIA:

SECTION 1.

Chapter 14 of Title 20 of the Official Code of Georgia Annotated, relating to the Education Coordinating Council, is amended by adding a new article to read as follows:

*ARTICLE 3
Users provided actionable feedback by underlining sentences that they liked and disliked

In the third phase of needfinding, users were asked to summarize the raw text of a bill. I noticed that as users read the bill, they would underline certain sentences and voice their approval or disapproval of that sentence. Every user disapproved of a certain paragraph of the bill, and some mentioned that if that section was not in there, they would have supported the bill. This type of feedback was significantly more actionable than a blanket “yes” or “no”. I realized that this was the type of feedback I wanted a final solution to encourage.

Users imagined a digital version of the full text that incorporated their usability solutions

In the process of reading and providing feedback on a full bill, users identified multiple usability issues. However, when users were asked what their ideal design solution would be, they called for an interactive, digital version of the full bill text rather than more accessible summaries. During the time of this research, fake news had become a dominant societal issue. It is possible that the combination of this sentiment and the biased bill summaries on the November 8th voting ballot, had an influence on the user response to interacting with the raw text of a bill.
DESIGN OPPORTUNITY

This section describes the design problem that was identified through needfinding, the opportunity that exists to solve the problem, and my personal approach.
THE OPPORTUNITY

The U.S. is behind most other democracies in voter turnout percentage. The U.S. is 31st among 35 leading democratic countries for federal voter turnout percentage [14]. In the U.S., turnout in local elections is even lower than federal. For example, in mayoral elections across America’s 30 largest cities, 46.7 percent of registered voters over the age of 65 turned out to vote. Voters aged 18 to 34 had a turnout of 9 percent [15].

My hypothesis is that local legislation is the highest impact citizen touchpoint. An intuitive digital solution for reading and providing feedback on local legislation could make preparing for referenda decisions before voting much easier. The solution could also make it easier to provide feedback on local bills. A user’s feedback history could also be used to determine which candidates best align with a citizen’s views, making it easier to elect representatives.

The problem is that there are no current solutions that help citizens make informed voting decisions for local government bills and elections.

A design opportunity exists to make citizen engagement and informed voting more accessible by improving the usability of government bills.

[14] pewresearch.org | 2016 | goo.gl/XGSLss
[15] Pdx.edu | 2016 | goo.gl/ijc5Q4
Market research indicates that the proposed design solution space may be uncharted

Market research was unable to find any designed solutions within the space of local government that seek to help citizen’s make informed decisions on ballot referenda, ballot elections, and non-ballot bills. There are some designed solutions at the federal level, but there seems to be no prior art for addressing ballot referenda, ballot elections, and non-ballot bill decision making all at the same time. This research may be the first showcase of how such a system might work.

My approach will be to utilize user-centered design processes to create a solution

The research process will begin with a round of needfinding, whereby the target users will identify what issues users have with the status quo and what solutions they would like to see. Needfinding data will directly influence the design of a first prototype. This prototype will be tested with users and their feedback will inform the creation of a second prototype. This prototype will be evaluated by usability experts to create a final prototype, which will then be usability tested against the status quo.
“There is a certain enthusiasm in liberty that makes human nature rise above itself.”

- Alexander Hamilton
DESIGN

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CARD SORTING

This section describes the methodology and insights from a user-centered design process called open card sorting, carried out with ten user testers.
WHAT WAS GIVEN

<table>
<thead>
<tr>
<th>Pages</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Settings</td>
<td>&gt;</td>
</tr>
<tr>
<td>Bill Info</td>
<td></td>
</tr>
<tr>
<td>User Interactions</td>
<td></td>
</tr>
<tr>
<td>User Insights</td>
<td></td>
</tr>
</tbody>
</table>
Needfinding insights were broken into website features, which users sorted to build their ideal website.

Needfinding insights were broken down into six categories: Pages, Settings, Bill Info, User Interactions, and User Insights. Ten users, then conducted six open card sorts each, using features from one category, numbers, arrows, blanks, and a pen. Open card sorting is a user-centered design method where users are asked to group a set of cards into categories of their choosing. The task was to create a website flow for displaying local legislation, capturing user feedback, and displaying user insights.

Common patterns emerged among user sorts and a final website architecture was built.

The user’s card sorts were populated into an Excel spreadsheet that measured how often each card appeared in a specific category. The Excel sheet has a page per theme with the names of the cards in the first column and the names of the groups on the first row. Anytime a card appeared in a group, the intersection cell was given the value 1. Every additional appearance, increased the value of the cell by 1. Eventually, common patterns emerged and a final website architecture was built.
PROTOTYPE 1
Created using Adobe XD. Tested using first-click testing and expert reviews.
Users wanted a splash screen that provided value even without a login

This page was designed to serve as an open access tool that generates a downloadable calendar of every election a visitor is eligible for, based on their street address. The street address is used to identify who their elected officials are. Then the election date and term limit of each official are then used to make a rough estimation of every eligible vote.

Testers wanted a splash page that clearly indicated what the website could do

First-click testers and expert evaluations revealed that the splash page did not clearly indicate what all a user could expect to do on the full website. In addition, users got a general sense of the calendar tool, but had difficulty understanding the map. Once the tool was explained, post-testing, users indicated that they would highly value such a feature.
Users wanted a home page that allowed them to access bills and news.

This page was designed to be a dashboard of user relevant bills and news updates. Both fields start in a default state, but the settings icon for the news cards and the bill filters allow a user to personalize their dashboard as they see fit. During the needfinding personalization was a common usability solution that users mentioned during needfinding.

Testers wanted a home page that communicates the value of reading a bill.

First-click testers and expert evaluators liked the news feed on the left, but they were overwhelmed by the legislation list on the right. Even with the customizable filters, testers imagined that it would be difficult for them to find a bill that they were interested in. Even if they did find one, the testers did not know what would motivate them to take the time to read it and send feedback on it.
Users wanted an objective summary of the bill using existing language

Testers wanted a simpler interface that cut down on added features

This page is designed to crowd-source the summary of a bill. A user can indicate their reaction to bill sentences by highlighting the sentence and tagging it with a reaction and comment. The system then takes the most highlighted sentences and pre-highlights them, in addition to providing those sentences in bullet point form as the bill summary.

During card sorting, many users placed specific bill information above the text on the bill page and included a checkpoint question feature within the bill text. Both of these features seemed to be superfluous to first-click testers and they seemed to detract from the user experience. However, the highlighting interaction for bill feedback was validated as an intuitive feature.
Users wanted to send bill feedback within the interface

This page was designed to streamline the process of sending effective citizen feedback. The interface will automatically identify the contact information of relevant bill stakeholders, pull the name and street address of the user, format the feedback into a template, and allow the user to send the feedback in the medium they prefer (email/call/fax).

Testers wanted to preview and edit the feedback that would be sent

First-click testers found the flow of this page to be intuitive. However, they wanted more information. Users wanted a full preview of their comments before selecting which ones to send. They wanted a preview of the email, fax, or call, to be sent, with the ability to edit any section. Users also wanted to see the names of the individuals to whom their feedback would be sent.
Users wanted their bill feedback to provide insight on ballot selections

This page was designed to be an interactive voting ballot that utilizes user activity to identify how well a candidate represents a user. Since voting records are public information, a users’ “voting record” on the interface can be compared to the voting record of ballot candidates to create a scorecard. This encourages voting based on issues rather than political party.

Testers wanted more detail on how the scorecards were created

First-click testers felt that the scorecard numbers would be difficult to trust. They felt that certain issues needed to be weighted, as they could be “make or break” stances for them. However, users generally supported the ability to compare issues based on user feedback. In addition, they supported the vote scheduling features offered on the left.
Users wanted to know which causes and organizations to support

This page was designed to be a user insight dashboard that displayed the user’s voting record and generated suggested content based on that. The goal of the page was to allow users to easily identify and support the causes and organizations that are fighting for them. To ensure transparency, the page clearly displays which comments the system used to make each suggestion.

Testers wanted a simpler page for suggestions or just to eliminate it

First-click testers appreciated the opportunity to identify causes they may support. However, they indicated that it was not a critical feature. Most users considered the features offered on this page to be good, but they felt like the system was “trying to do too much”. Users advised that I should place this feature at the lowest priority for development.
EXPERT REVIEWS

This section describes the insights from a user-centered design process called expert reviews, carried out with 7 user testers.
THE LEGISLATIVE PROCESS

A Georgia state senator breaks down what a citizen should ask for at each legislative step

This particular senator was very supportive of the prototype and appreciated that it took a nonpartisan approach. However, he felt that it was critical that users submit actionable feedback based on where a particular bill is in the legislative process. The table to the left showcases what citizens should ultimately ask at each step in the process of Georgia’s House and Senate legislatures. In addition, the senator was concerned that the scorecard system may harm the election chances of new politicians that have no voting record.

An attorney explains why citizens should only reach out to their representatives

This particular attorney was extremely excited about the prototype and believed it could have a huge impact on citizen engagement. She went on to explain how a citizen could take any bill, know exactly who to contact and how much power he/she has over them. The guide is shown on the left, but the critical point, is that elected representatives are only obligated to listen to feedback from the citizens they represent. So if a citizen’s direct representative is not one of the contacts in the guide, then he/she has no power over the bill.
This particular county commissioner liked the prototype, but she wanted me to include county and city bills. She explained that all U.S. Citizens have multiple representatives from the city to the federal level. Each of these reps. are responsible for a set number of people and the larger the number that is, the smaller the influence any one citizen has over that rep.’s decisions. As a result, citizens have significantly more power over city, county, and district reps. She also showed me how Fulton County notifies their public of what they will vote on next.

A usability expert re-frames the interface as a means to interact with your representatives

While looking at the list of bills on the dashboard of prototype 1, a usability expert posed this question to me during an expert evaluation, “Why should I care to read HB 280, even if it is on the top of my list?” I said that she should read it because that bill is currently within the Judiciary committee of the House, and if she lived in this area then she has a House representative that is on that committee. Meaning that as a citizen, she has the direct power to kill, pass, or modify that bill. Her response was, “Well then, your website needs to tell me that!”
FINAL DESIGN

Created using Adobe XD. Tested with a usability test against the status quo.
**TASK 1** Find a single state bill that is relevant to the PERSONA and is also controlled by one of YOUR state representatives.

1. The user arrives at the landing page

2. The user inputs his/her street address
PERSONA

Is registered to vote at YOUR street address, a student, lives in student housing, interested in topics regarding education reform.

3. The user inputs his/her lifestyle and demographic information

4. As the user fills in his/her profile, the number of bills that affect him/her changes
**TASK 1** Find a single state bill that is relevant to the PERSONA and is also controlled by one of YOUR state representatives.

5. The user is then able to view the bills he/she can control

6. The user clicks “Next” to see the another suggested bill that he/she can influence
PERSONA Is registered to vote at YOUR street address, a student, lives in student housing, interested in topics regarding education reform.

7. The user clicks “View & Submit Feedback” to view the bill text
TASK 1

Find a single state bill that is relevant to the PERSONA and is also controlled by one of YOUR state representatives.

How long did the task take to complete?

minutes : seconds

How actionable was your feedback?

actionable

unusable

How easy would it be to review a 2nd bill?

easy
difficult
PERSONA

Is registered to vote at YOUR street address, a student, lives in student housing, interested in topics regarding education reform.

n = 20
**TASK 2**  
Send actionable feedback on that bill to the individual(s) with the power to affect its outcome.

1. The user clicks the down arrow to go to the next page

2. The user clicks on a popular highlight
ACTIONS

Type out why you disagree with a particular line of this bill, then tell your representative to amend that line via a fax message.

3. The user indicates that he/she disagrees with the highlighted section

4. The user indicates that he/she would like to attach a note to the highlighted section
**TASK 2**  Send actionable feedback on that bill to the individual(s) with the power to affect its outcome.

5. The user is prompted to type his/her note

6. The user attaches his/her note to the highlighted section
7. The user indicates that he/she is ready to draft feedback on the full bill

8. The user selects what action he/she would like his/her representative to take
**TASK 2** Send actionable feedback on that bill to the individual(s) with the power to affect its outcome.

9. The user selects the bill sections that should be taken action upon

10. The user is prompted to draft a personal story, using objective data when possible
11. The user submits his/her personal story

12. The user indicates that he/she is ready to send his/her bill feedback
**TASK 2**  
Send actionable feedback on that bill to the individual(s) with the power to affect its outcome.

13. The user indicates that he/she would like to send all of his/her feedback

14. The user indicates that he/she would like to send his/her feedback via fax
15. The user sends his/her feedback to all representatives

16. The user has sent his/her feedback and unlocked the elections feature
TASK 2

Send actionable feedback on that bill to the individual(s) with the power to affect its outcome.

How long did the task take to complete?

minutes : seconds

How actionable was your feedback?

actionable  unusable

How easy would it be to review a 2nd bill?

easy  difficult
**ACTIONS**

Type out why you disagree with a particular line of this bill, then tell your representative to amend that line via a fax message.

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**Status Quo**

**Final Design**

- **n = 20**

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**n = 20**

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**Final Design**

- **Status Quo**

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**Final Design**

- **Status Quo**

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**Final Design**

- **Status Quo**

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**Final Design**

- **Status Quo**
**TASK 3**  
Find the date of the next election YOU are eligible for and set a reminder for YOURSELF to go vote in that election.

1. The user selects what day he/she will vote

2. The user inputs what time he/she will vote
3. The user selects his/her polling location

4. The user indicates that he/she would like to receive an email reminder to vote
**TASK 3**

Find the date of the next election YOU are eligible for and set a reminder for YOURSELF to go vote in that election.

---

How long did the task take to complete?

<table>
<thead>
<tr>
<th>minutes : seconds</th>
</tr>
</thead>
</table>

How easy was it to find needed information?

- easy
- difficult

How likely is it that you will vote?

- likely
- unlikely
PERSONA

YOU are available on March 24th at 3:30 PM

n = 20

Final Design

Status Quo

Final Design

Status Quo

Final Design

Status Quo

Final Design

Status Quo

Final Design

Status Quo

Final Design

Status Quo

Final Design

Status Quo
**TASK 4** Find the ballot for the next election the PERSONA is eligible for, research the candidates on the first election on the ballot, and determine whom you may vote for.

1. The user opens the voting record of “Bruce Sharkar”

2. The user opens the voting record of “Charlie Mako”
3. The user opens the voting record of “Anchor Hammond”

4. The user makes his/her voting decision based on the voting records
TASK 4

Find the ballot for the next election the PERSONA is eligible for, research the candidates on the first election on the ballot, and determine whom you may vote for.

How long did the task take to complete?

minutes : seconds

green easy

difficult red

How easy was it to find needed information?

How confident do you feel in your selection?
PERSONA

YOU live at: 3400 New Heritage Dr, Alpharetta, GA

\[ n = 20 \]

Final Design

Status Quo

Final Design

Status Quo

Final Design

Status Quo

Final Design

Status Quo
“Democracy cannot succeed unless those who express their choice are prepared to choose wisely.”

- Franklin D. Roosevelt
CONCLUSION

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KEY FEATURES

This section identifies the four key features of the final design and explains how their development was tied to user research insight.
Experts said that users should only reach out to their representatives during expert evaluations. An Attorney described how representatives address the letters that they receive in the mail. “If your letter doesn’t have an address, they’ll throw it out. If the address isn’t within their district, out. If the address is within their district, but it’s on a bill that they don’t control, out.” This landing page is designed to ensure that a user will only be able to interact with bills that they can control. By determining which bills a user has power over, in addition to which ones are relevant to them, the system seeks to only provide information that is actionable. Not only does this benefit the user, but it also benefits the representatives. Having these two pieces of information guarantees that a user will never send feedback to the wrong person.
Needfinding indicated that users wanted objective bill summaries.

During needfinding, a user tester looked at the bill and said, “For a longer bill I would have asked you, where are the highlights?” This quote communicated that simply knowing the most important lines of the bill would be a sufficient summary. To accomplish this in an unbiased fashion, the system takes the sentences most commented on by users and pre-highlights them.

The website crowdsources the bill summary by tracking user highlights.

The website is able to generate objective summaries of bill text by creating an intuitive interaction for users to identify which bill sentences that are the most important to them. The most highlighted sentences of a bill, then act as the summary and can be viewed in a bullet list form. This allows the website to generate bill summaries that are unbiased.
Usability testers found it difficult to identify their next eligible election

When usability testers tried to find the next election that they would be eligible for in the status quo, they had an 80% failure rate. One of the main ideals of the website, is to allow citizens to prepare early for an election. However, if users are not even able to determine when their next election is, it seems improbable that they would prepare for it early.

The website generates a personal voting calendar for the user

The proposed solution approaches elections in a different way to solve this problem. So, what is an election? An election is when a citizen reelects or replaces one of their representatives. By determining who the representatives of a citizen are, using their street address, then identifying when each of their terms end, the website is able to make a rough approximation of every voting date a user is eligible for.
Usability testers found it difficult to pick between two election candidates

When usability testers tried to determine which candidate they might support in an election, 60% of users either found it difficult or very difficult to find the information they needed. One of the main ideals of the website, is to allow citizens to make informed voting decisions, and these results clearly indicate that the currently available information on election candidates is insufficient.

Users are able to elect candidates based on issues

As users submit their feedback on bills, the website begins to build up a voting history for the user. When a candidate is announced for an election, the website allows the user to see which candidate aligns better with their voting history. This allows users to make better informed voting decisions, by identifying candidate information that is relevant to the user’s views.
The next feature to be designed, is the ability for the users of the system to run for election themselves. This feature seeks to change how elections work in the U.S.
RUN FOR ELECTION

City of Atlanta: Mayor

- Bruce Sharkar
- Charlie Mako
- Anchor Hammond

**Anchor Hammond’s Votes**

- SB 28 - Vote for
  
  “I visited 30 childcare centers, they all want to test ASAP. Amending could delay funding.”

**Your Votes**

- SB 28 - Vote to amend
  
  “The date needs to be earlier than this June 30th 2019”
During expert reviews, a state senator mentioned that “the scorecard system may harm the election chances of new politicians that have no voting record.” So how does one make an informed decision on a ballot candidate who has no voting record? The website could communicate the town hall schedule of a candidate, and encourage users to meet them in person, but it is almost impossible to make an objective assessment.

The scorecard system, currently, would only work for those who already have a voting record.

The next step is to allow the users of the system to run for election.

If a user of the system decides to run for an election, it is possible that their voting record would be far more detailed than any other candidate running. This makes it much easier for the users of the website, and for other citizens, to determine if this candidate’s views align with their own. This feature has the potential to give rise to candidates across the nation that could be elected without any money, power, or influence, but purely based on their views on issues.
NEXT STEPS

This section is a look at what has been accomplished and what is required to allow the design to come to life in the future.
Reviewing the problem I addressed, the opportunity I identified, and my approach

There are no current solutions to help citizen’s make informed voting decisions for local government bills and elections. On November 8th 2016, I was unable to represent myself because of this problem. I identified an opportunity to make citizen engagement and informed voting more accessible by improving the usability of government bills. My approach was to create a solution for those with the lowest voter turnout in the nation, using a user-centered design process.

Reviewing the potential benefits that this design hold for citizens and representatives

For citizens, the main benefits of this website are the ability to identify which government bills they have influence over with just a street address, the ability to find the next election they are eligible for with just a street address, and the ability to give feedback on a bill without having to search for whom to send it to. For representatives, the main benefits of this website are the ability to know which lines of a bill their constituents agree and disagree with and the potential for a reduction in the amount of irrelevant feedback sent to them.
I hypothesize that citizen adoption will depend on the relevancy of the bills suggested. If a majority of the suggested bills does not match the user’s interest, I suspect that they will not use the website. I hypothesize that representative adoption will depend on the responsiveness of feedback. If a representative gets a flood of feedback the day that they sponsor a bill, I suspect that they will be far more likely to act on it than if the feedback arrives days after a relevant event.

A note to future developers about the core ideal of the website and where to begin

I believe that this design is effective because it remains completely nonpartisan. The summaries are not generated by people, none of the representative’s names have “Democrat” or “Republican” next to them, there is no red and blue, etc. It is critical that future developers maintain this, or the value of the design becomes compromised. As for where to begin, I believe that developing the feature which lets users know when their next eligible election is, would act as the best initial platform.
As a reflection on the project, specifically on the process that was implemented, I believe that the quality of the design output is directly related to the strict adherence to the user-centered design process. My users identified the opportunity, they developed the website architecture, they changed the interface design, and they even came up with the ideas that ended up becoming the key features. My role as a designer, was simply to translate my users’ designs into artifacts that could then be re-tested. The process was a continuous cycle of design and validation, which resulted in a final interface that displayed significant usability improvements in comparison to the status quo.
“Let us not seek to fix the blame for the past, let us accept our own responsibility for the future”

- John F. Kennedy
IMPROVING THE ACCESSIBILITY OF INFORMED VOTING: A USER INTERFACE DESIGN FOR CITIZEN ENGAGEMENT WITH LOCAL GOVERNMENT

Master of Industrial Project by Chandan Hebbal

Advisor: Dr. Katherine K. Fu

2017

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