Supporting Debates over Citizen Initiatives

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Abstract

Popular/citizen initiatives provide a way for the inclusion of constitutional or statutory proposals on the ballot (e.g., at an election) if enough signatures are collected in support of the proposal. Once citizens are enabled to digitally sign such initiatives remotely, the next challenge will be to provide support for verified eligible citizens to debate on running initiatives. Intelligent ways of structuring information for easy access and cooperation is a major research interest in computer science, with results like WWW, Semantic Web, Forums, Blogs, Slashdot. We propose here a new interaction paradigm for debates in the setting where participants are verified for eligibility and have equal weight. The estimation of the popular support for proposed initiatives and emerging comments (justifications) forms a basis (and a by-product) of such debates. The idea central to our approach (akin to Slashdot) is to use voting for visibility and visibility for voting. A novelty lies in the generalization of this concept to a second layer, namely to initiatives (articles). To defend users for spam and distasteful language, we propose a scalable solution based on a collaborative filtering paradigm. The technique also helps authors to write texts that are acceptable for the users, and can find application for forums in general. This paradigm can find additional applications in supporting debates of shareholders for decision making, as well as for debates of working groups and committees, or for the administration of other entities like towns and counties. An implementation of the system is available.

1 Introduction

Popular/citizen initiatives provide a way for the inclusion of constitutional or statutory proposals on the ballot (e.g., at an election) if enough signatures are collected in support of the proposal [5, 8, 11, 6, 1]. Once citizens are enabled to digitally sign such initiatives remotely, the next challenge will be to provide support for verified eligible citizens to debate on running initiatives. Intelligent ways of structuring information for easy access and cooperation is a major research interest in computer science, with results like WWW, Semantic Web, Forums, Blogs, Slashdot. We propose here a new interaction paradigm for debates in the setting where participants are verified for eligibility and have equal weight. The estimation of the popular support for proposed initiatives and emerging comments (justifications) forms a basis (and a by-product) of such debates. This paradigm can find additional applications in supporting debates of shareholders for decision making, as well as for debates of working groups and committees, or for the administration of other entities like towns and counties.

In general, when an initiative starts it can theoretically contain spam or distasteful language that can hurt readers. A challenge is to enable viewers to choose filters to protect themselves from texts that they find offensive or, in general, that do not interest them. Such filters are available in most mail agents. We propose a method for collaborating filtering, which promises to scale with the system. The idea can prove useful for forums in general.

2 Background

The desired properties for popular initiative systems are various, to mention accuracy or one of many possible levels of privacy [4, 2, 12, 15]. We plan to approach popular initiatives with technologies that relate to those studied for electronic elections. There exists extensive research into secure electronic election systems (e-voting) [9, 3, 10]. Several desirable properties of such systems that have been identified and analyzed include: *Accuracy, Democracy, Universal Convenience, Scalability, Mobility, Flexibility, Verifiability*, and *Privacy*. Currently there exists no election protocol to simultaneously offer the highest levels of all of these. Web-based electronic voting procedures were used with improved participation of masses in pilot projects in Geneva and in UK. This improvement in participation was experienced despite the fact that the electronic voting system was rather simple and offering only a reduced amount of privacy (the same as the already existing

voting procedure by mail). However, the project SERVE developed by the defense department of US was abandoned in 2004 for reasons inherent to the Internet (denial-of-service, Man in the middle, and virus attacks). In [13] we argue that remote public initiatives (e-referendums) will encounter much more success than e-voting.

Following is a list with the classical definitions for the desired properties of a voting system:

- **Accuracy** A system is accurate if *it is not possible* for a vote to be altered, *it is not possible* for a validated vote to be excluded, and *it is not possible* for an invalid vote to be counted in the final tally.
- **Democracy** A system is democratic if it *permits* only eligible voters to vote and it *ensures* that each eligible voter can vote, but only once.
- **Privacy** A system is private if neither election authorities nor anyone else can link any ballot to the voter who cast it and no voter can prove that he or she voted in a particular way (also called receipt-free or non-coercible voting).
- **Verifiability** A system is verifiable if anyone can verify that all votes have been counted correctly. A weaker form of verifiability which we still find acceptable is when a system allows voters to verify their own votes and correct any mistakes they might find without sacrificing privacy. Even weaker forms are, when mistakes may be pointed out but not corrected or when mistakes are detected by party/administration representatives, not individual voters.
- **Convenience** A system is convenient if it allows voters to cast votes quickly, in one session, and with minimal equipment or special skills.
- **Scalability** A system is scalable if it can be used with many voters and votes.
- **Flexible** A system is flexible if it allows a variety of ballot question formats, including open ended questions.
- **Mobility** A system is mobile if there are no restrictions on the location from which a voter can cast a vote.

While manual popular initiative systems offer very little guarantees of some of these issues (specially un-coercibility, privacy, convenience), we will show how they can be improved by our method.

Some Web forums use scoring and allow a larger range of grading choices. Currently, they typically allow scoring of comments rather than scoring articles. A larger set of numbers were used in the past on *SlashDot* [14] and on

Kuro5hin [7] with scores -1 to 5, etc. SlashDot now uses string scores: Terrible, Bad, Neutral, Positive, Good, and Excellent. However, it was noted in [7] that the variety of grades is often used for steering rather than for fair evaluation, namely encouraging some users to give higher/lower weights to their score for compensating others' scores. Also evaluators had different weights and could not be strictly identified, allowing people to score a comment several times.

3 Proposed Interaction Paradigm

3.1 Desired Properties

The minimal desirable properties for consideration of a support/rejection evaluation technique are: *accuracy, democracy, convenience, scalability, mobility.* We offer *flexibility* independently from the grading/tallying procedure. However we also plan to offer acceptable *verifiability* and *privacy.* These priorities come from our intention to conform as much as possible to traditional expectations of popular initiative systems.

Note that current methods for popular initiatives offer very limited guarantees of *privacy* (not all citizens are allowed to inspect the lists of signatures and, in some countries, the access to the signature lists after the qualification is very restricted — which also require citizens to trust the authority for the count). Current methods for popular initiatives offer only limited *democracy* (i.e. not all people are guaranteed an opportunity to evaluate each popular initiative) and *verification* is also difficult (i.e. not everybody can ask and recount the validity of the signatures). Therefore the type of system we propose will also improve democratic characteristics in the evaluation methodology for popular initiatives, specially by allowing more eligible citizens to sign. Everybody has access to the Internet via the public library infrastructure. Moreover, when a group of constituents do not want to use the Internet for some reasons, they can be identified and let to sign via the classic techniques. An improved guarantee of*privacy* can also be proposed given the new framework [13].

3.2 System Usage

While our paradigm is coherent with regular popular initiatives, a few features for non-legally-binding interactions are added to improve the civic discourse. To improve scoring of comments attached to initiatives we propose to stress their intent by revealing if the authors/supporters have signed

the corresponding initiative. To make things clear, when a comment is submitted the author is asked to state his current position by either signing the initiative (a *pass* signature), or explicitly delaying to sign (a *fail* or a *borderline* signature). This improves the truth incentiveness of the debate in the sense that it discourages political comments trying to please some or all parties without having substance. We describe privacy concerns and solutions elsewhere.

Another relevant application is to help bootstrap the initiative processes: matchmaking to help citizens reach the threshold required by state constitutions for starting the signature gathering (7, 20, or more initial signatures, function of the state/country). Our paradigm of interaction can be used here, where proposals accumulating this first threshold of support are subject to the legally established procedure of the corresponding state and upon success are transferred to the signature gathering stage.

3.3 Example

Following is an example illustrating the usage of the proposed system in our main application, state citizen initiatives. To illustrate the functionality of our system, we use an example of statutory initiative for the State of Florida.

Let citizen Alice have a new initiative: *"Citizens should be allowed to withdraw their signatures for citizen initiatives!"*. To promote this idea she initiates the following process.

1. Alice formulates the proposal: *"A citizen is allowed to withdraw his/her signature for a citizen initiative."* Alice surfs the Web to the Citizen Initiative Website of the state of Florida, opens the submission module for initiatives, and types in her proposal. Simultaneously, Alice can specify a comment justifying the initiative: *"Citizens may change their mind after learning more information"* (see Figure 1).

2. Alice submits the proposal using the web application, and her locally stored credentials are used for completing the task (also verifying her eligibility). The proposed idea is published on the website together with a *pass* signature, referencing Alice's comment. The initiative has score 1 (number of supporting signatures). The new proposal appears at the top of the list of new proposals and also appears at the bottom of a second list of proposals, ordered by the number/ratio of positive signatures received in the prior week (however that listing does not offer any visibility to this proposal).

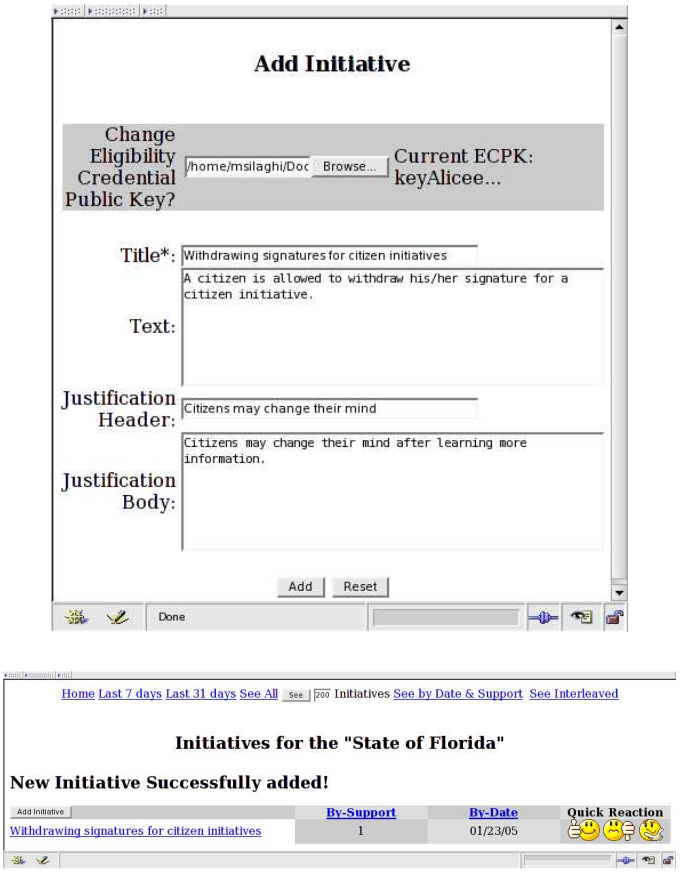

Figure 1: Alice starts an initiative with a comment.

3. Another Florida citizen, Bob, sees it. He likes the idea and its explanatory comment and supports it with a *pass* signature. Bob likes and references Alice's comment, which is scored 2 (number of positive signatures referring it, see Figure 2).

4. A third Florida citizen, Carol, does not like the idea and submits a *fail* signature with a comment showing what she perceives as a weaknesses of Alice's proposal: *"It is expensive to withdraw the manually cast signatures"*. Carol's comment is shown separately in a list of failing comments for Alice's initiative and is threaded (i.e., linked) to Alice's comment. Following the *Have better idea?* link (see Figures 3, 4) Carol submits a competing initiative that is threaded to Alice's ini-

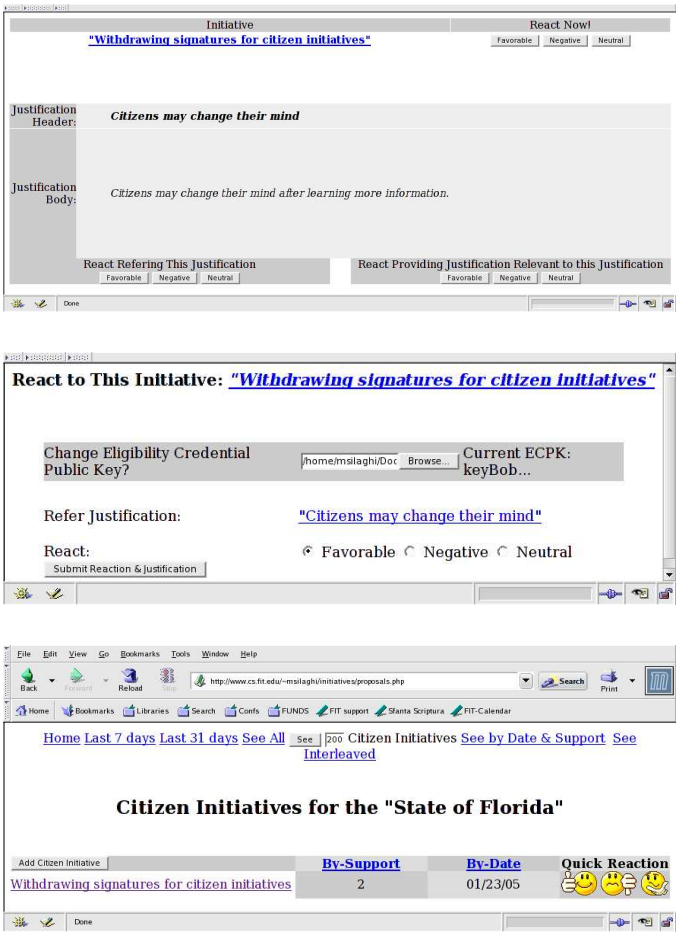

Figure 2: Bob supports the initiative.

tiative: *"Citizens are allowed to withdraw their signatures for citizen initiatives, if they sign electronically."*

5. David likes Alice's initiative and signs it submitting a *pass* signature with a comment that answers Carol's critique: *"Democracy and fairness are priceless! Any citizen may change his/her mind after learning more information"*. His comment appears after Alice's comment since so far it is referred to by only one signature. However, Carol's comment is also associated with a link threading it toward David's comment. Other comments answering Carol will be added to Carol's

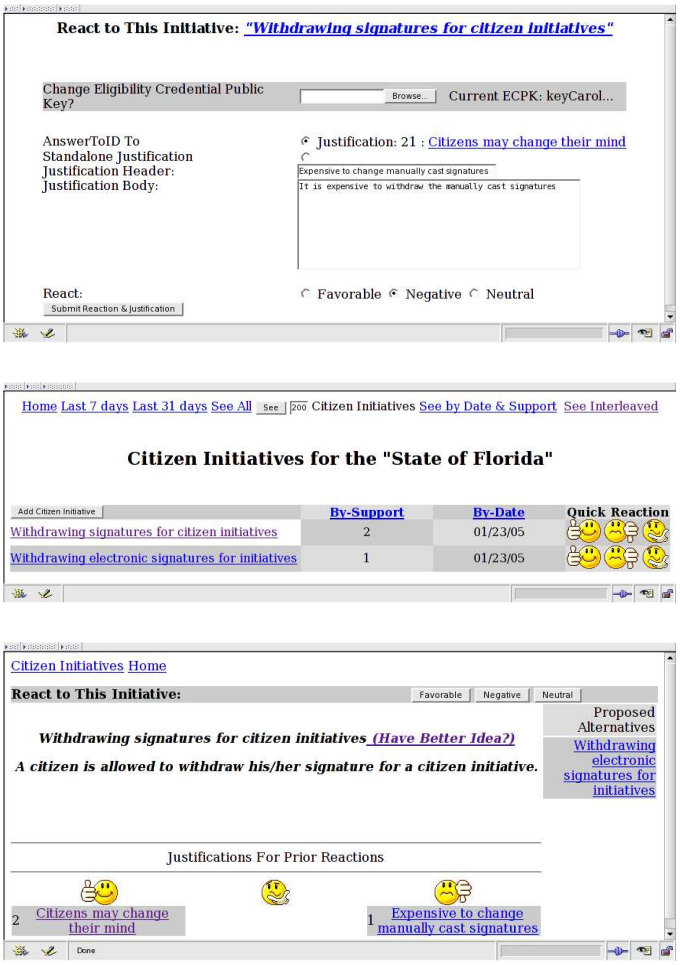

Figure 3: Carol starts a competing initiative.

comment sorted by their type, *pass*/*fail*, and ordered by the number of signatures referring them (see Figure 4).

6. If Alice returns and reads the continuation of the discussion, she can abandon her own initial comment and support David's more complete comment for her signature. David's comment score will be increased, placing his comment before Alice's initial comment, referred to now only by Bob – Figure 4).

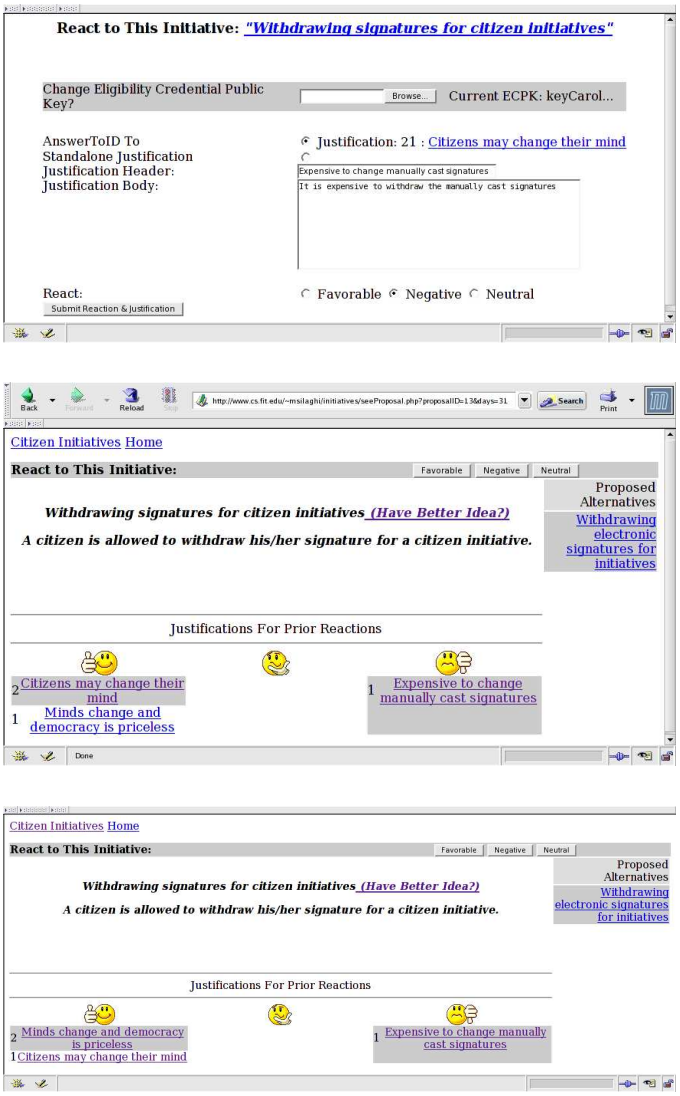

Figure 4: David comments and Alice changes.

3.4 Discussion

Three types of signatures are supported: *pass*, *fail*, and *borderline*. While *fail* and *borderline* signatures have no legal effect and no equivalent in current initiative systems, they help commenters to clarify their position and in our implementation help to check that each user has equal weight in scor-

ing comments and initiatives. It is also an incentive to correctly classify one's comment: A positive comment means that the author really signed the initiative and a negative one means that the author really did not sign it. The difference between *fail* and *borderline* signatures is less important and is meant to better convey the impact. In particular, *borderline* signature allows a citizen to add his/her unique comment without either signing or undermining the initiative. As it can be noticed from the example, our system allows participants to submit/confirm at most one comment in association with their signature. The limit is set as part of an ongoing experiment searching ways to minimize the verbosity and to help focus the debates on fewer, more complete and better written comments.

3.4.1 Collaborating Filtering

Most current citizen initiatives reach the public for gathering signatures without elaborate official examination as soon as the first threshold of requires signers is reached (7 signatures in Switzerland or somewhat more in other countries/states). In some countries a simple test of vulgarity of used language is made, while in some US states, the title of the initiative is negotiated by a governmental committee to ensure that it fits the content. Detailed examinations of the constitutionality of an initiative is done only after gathering the required number of signatures for qualifying it to the ballot. Actually, some initiatives succeed to gather the required number of signatures just to discover that the text was unconstitutional (e.g., did not address a single issue, singled out a subregion of the state, conflicted with international treaties or federal constitutions).

For this case, readers are allowed to set filters that they define (like for emails). These filters can be volunteered to the RCI, and an author can learn that his submission hurts (and will not be seen) by a certain percentage of the users. The author can query the database of filters and therefore can be informed about the rules he/she is conflicting with. An author interested in the visibility of his input is then interested in working around to make his text acceptable to a larger percentage of the population, leading to better written debates. While spammers can also learn to improve their attacks, we hope that the citizens will be sufficiently fast in answering, specially since they are helped by the limits put on the allowed number of submission of initiatives while no such limit will exist on the submitted filters. A process of voting on filters defines a default filter that will be used when a user does not specify his filtering desires manually. The idea can prove useful for forums in general.

4 Conclusion

Here we propose an interaction paradigm for debates on citizen initiatives when participants can be verified for eligibility. Ways of structuring information for easy access and cooperation is a major research interest in computer science (WWW, Semantic Web, Forums). An idea central to our approach (akin to Slashdot [14]) is to use voting for visibility and visibility for voting. A novelty lies in the generalization of this concept to a second layer, namely to initiatives (articles). Our scoring methodology exploits the fact that participants can be given equal weight as a by-product of the eligibility verification. To defend users for spam and distasteful language, we propose a scalable solution based on a collaborative filtering paradigm. The technique will also be useful in helping authors to write texts that are acceptable for the users, and can prove useful for forums in general. An implementation of the system described above is available at http://tibles.cs.fit.edu/initiatives.

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