

# **Towards an Enabling Framework for eDemocracy through the Integration of Citizen Participation along the Spatial Dimension Using Free and Open Source Technologies**

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## ***Abstract***

*The concept of eDemocracy goes beyond that of eGovernment by allowing more direct citizen participation in decision making, permitting citizens a greater influence on policy outcomes. Getting more people involved results in better decisions, better transparency and an increase in people's confidence on the elected government. The key commodity in an eDemocracy is information. This information has to be structured and made accessible at the proper level of abstraction to the correct set of people- from the president down to each individual citizen.*

*In this paper, we identify that the use of the spatial dimension in the generation, processing, integration, and dissemination of information relating to eDemocracy in a transparent web based community portal leads to a robust design for an enabling framework for eDemocracy. We describe the key issues such as citizen identification within the system while allowing anonymity on occasion to protect the sources of sensitive information, and the need to cater for the potentially conflicting aspirations of the elected policy makers, officials and citizens. We conclude with a self evaluation of the proposed strategy in terms of eventual mainstream adoption.*

## **1. Introduction**

eDemocracy is the utilization of information and communication technologies for enhancing a country's democratic processes and empowering its citizens. It supplements the eGovernment activities by involving citizens more directly in decision making processes. This allows for each individual citizen to exert a greater influence on policy outcomes. This increased citizen participation leads to better decisions, improved transparency and accountability at all levels of government and administration thus consequently raising people's confidence on the elected representatives and the government as a whole.

### **1.1 Role of information in eDemocracy**

Our society has embraced information technology at all levels. The tools and infrastructure for mass dissemination of information have come a very long way since the invention of the printing press up to today's Web 2.0 technologies.

eDemocracy is dependent on the citizen's ability to access and generate information relevant to the governance of the country. This information comes in many forms such as citizen opinion on various

policy issues, their appraisal of the elected policy makers, and expressions of their needs and demands. In order to facilitate a successful eDemocracy, all of this information has to be structured and made accessible at the proper level of abstraction to the correct set of people- from the president through the many layers of bureaucracy down to each individual citizen.

An interesting observation on the nature of this information is that almost all of it is location based. For example, any item of information about a citizen would include the address of her place of residence or her place of work, each of which has a unique location on the ground. Any information about any form of development project will be associated with the location(s) in which the project work takes place. Most government processes, such as maintaining the transportation, water, electricity, and other service infrastructures are location centered. Consequently, almost all information a government work with is location oriented. Additionally, the government- at least the administrative parts of it- is structured based on location. Planning and control decisions and activities as well as authority and responsibility is passed down (and feedback is passed up) from the central government to the smallest unit of local government. Therefore, the responsibility of a given decision maker or administrator in the government and the scope of interest of a given citizen is location centric.

Therefore, it is logical for the spatial dimension to be used in the collection, integration and dissemination of information pertaining to facilitating eDemocracy. Our approach for the utilization of this interesting and promising relationship between eDemocracy and the spatial dimension is to build an eDemocracy framework around our parallel research project, Praja GIS- a web-

based collaborative system for creating and validating spatial feature data by common people. The latter was originally motivated by the need for the availability of low-cost, up-to-date spatial data for use in national development. Praja GIS is described in detail in [1]. The approach presented in the paper fits nicely into this situation because of its extensive use of the spatial dimension in a wiki like collaborative environment for the capture and integration of eDemocracy information.

## **2 Facilitating eDemocracy**

Democracy in its essence is about governance by the people, and eDemocracy makes it possible to involve the people in the process of governance at an unprecedented level.

Some of the eDemocracy applications include enabling citizen awareness followed by online pre-voting on proposed legislation, and citizen feedback on the performance of elected representatives.

### **2.1 Challenges**

A major issue that needs to be addressed in eDemocracy is citizen identification. This is a mandatory requirement for meaningful participation in most eDemocracy activities such as all forms of citizen-to-government transactions and opinion feedback. Citizens need to be reliably authenticated by the eDemocracy tools but must be granted a degree of privacy while participating on online discussion forums. In many instances, anonymous input needs to be allowed while at the same time giving authenticated participants priority status.

Another major issue- perhaps the primary challenge that needs to be overcome by the eDemocracy advocates- is that of catering fairly and successfully to the

potentially conflicting aspirations of all the various stakeholders in the political process. These include political parties, individual politicians, and trade unions which are some of the agencies by which the representation of common people in the political process is affected. Another class of stakeholder are the media agencies who have the power to manipulate the political process through its direct reach to the citizens.

## 2.2 Current status

Implementations of eDemocracy is still in its infancy and usually involves the use of the Internet as the primary enabling medium, often supported by other paper and electronic media such as the telephone and TV. eDemocracy is rapidly gaining acceptance in many countries such as Switzerland [3] and England [4]. We find that the infrastructure needed for facilitating eDemocracy is already in place while the tools and application frameworks are gradually being developed. However, a comprehensive globally accepted enabling framework for eDemocracy is yet to emerge.

## 3 An enabling framework

Any framework for supporting eDemocracy has to consider the issues discussed in the previous section. What we present in this section is how we attempt to solve some of those key issues on our ongoing research.

### 3.1 Architecture

Governance is essentially information centric. Successful government depends on the availability of correct information at the correct time to the right people.

However, often this is easier said than done. We find that many decisions of far reaching consequence have been based upon

outdated or incorrect information. As mentioned before, what we propose is that the people who are directly affected by these decisions participate in this information providing phase. This is illustrated in fig. 1.

Both citizens and decision makers are collaborating on a common forum. Citizen input/feedback is instantly available to the policy maker. Citizens use the system's web interface to enter various types of informational entries that are useful for the government in their decision making processes. Often these entries represent problems that citizens need their government to address and solve.

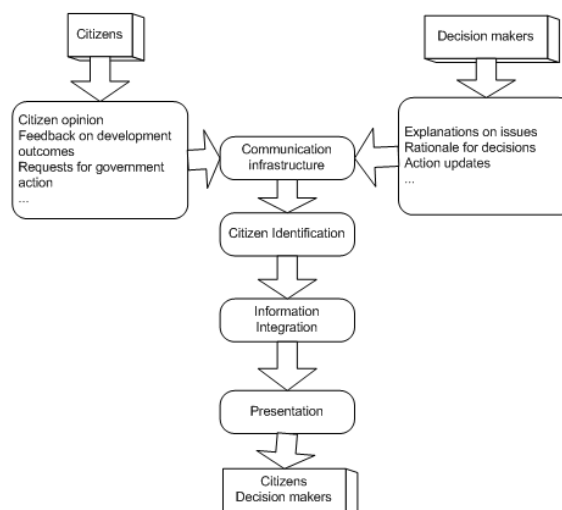


Figure 1 eDemocracy related information flow

A simple example of a citizen information entry that must be put to the attention of the relevant government authority is illustrated in fig. 2.

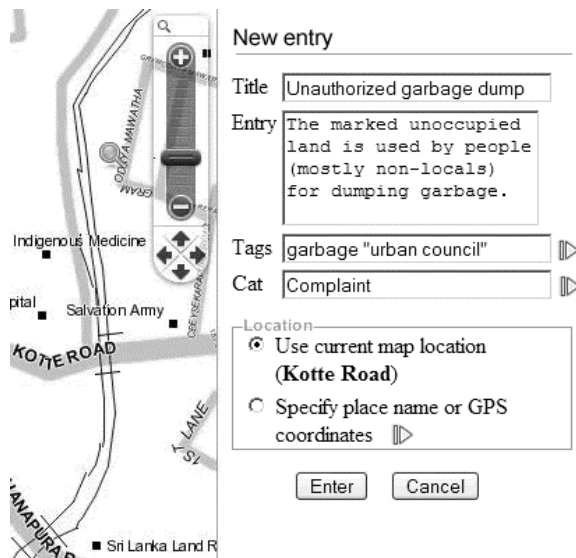


Figure 2. A citizen making a complaint

The information entry interface is location based. Using the integrated web map browser, the citizen has already navigated to the location on which she wants to make an entry on.

The entry is tagged and categorized according to the ontology of terms and concepts used by the citizens and government of the particular country. In the example of fig. 2, the entry is a complaint directed to the local urban council.

Later on, the individual responsible for taking action against this type of issue can use the system to view all outstanding complaints for which she is responsible for and to make a response for the complaint.

### 3.2 Citizen Identification

Since this is an open system, we have both authenticated and non- authenticated users. Although input from non- authenticated users is accepted, the eDemocracy operations available to them are limited and their input in operations such as “citizen complaints” are given a lesser weight and are clearly

identified as that coming from an anonymous citizen.

The national identity card number is used as the primary method of identification. On initial registration with the system, the user is verified based on the additional identification material that is provided by her and the citizen information already maintained by the government.

### 3.3 Technical Details

The communication infrastructure consists of all forms of Internet access such as dial-up, broadband, mobile phones, and Internet Cafes.

The system is implemented as a web application that uses open source technologies in all its application layers. This is especially important in a developing country like Sri Lanka as the implementation costs can be maintained at a very low level. The initial development effort uses PHP as the server side scripting technology and an AJAX user interface.

At the back-end, a relational database with spatial extensions is used. The spatial capabilities of the system are derived from Praja GIS, which in turn is based on the MapGuide Open Source geospatial processing framework.

### 4 Conclusion

The enabling framework for eDemocracy described in this paper is part of an ongoing applied research work at the University of Colombo, School of Computing. Our research direction in this effort is based on the inherent spatial nature of eDemocracy information and the intuitive appeal people have for such spatially structured information. We expect that the

use of free and open source technologies in all layers of development and the focus on open citizen participation will go a long way towards the frameworks eventual mainstream adaptation.

### **Acknowledgment**

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