# GEOLOCATION BASED PUBLIC INFORMATION SYSTEM

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**Executive Summary**

Democracy is a method of governance based on choice. Best choices are well informed. The governments have a lot of information to share, but information broadcast has inherent cost. Traditional mediums are focused, but costly, while modern internet based channels (social networks) are too diffused. The Idea is to create a dedicated and focused social network for governments.

Across the world, democratic governments have proved themselves to be well evolved and stable systems. They are working with the people, and for the people. The policy formulation and implementation can be improved manifold by persistent communication between people and government institutions (at all levels). Today, there is a huge gap between government policies and actual ground implementation. Communication can fill this gap significantly.

People will follow places and get feeds from government organisations serving that region. Most of the government institutions are placed geographically to serve the region, the data/information they generate is primarily concerned with that region. The system will improve communication in three ways:

1. <u>Official Operational Information and Data</u>: Parse all the open data and information, make it ready for all the computational operations (like search, categorization, tagging, annotations, etc.), thus improving the quality of open information.
2. <u>Government Institutions to People</u>: Broadcast urgent information to people as per location, requirement, preferences.
3. <u>People to Government Institutions</u>: Open communication with government institutions. (it will be like a post that other people as well as entire hierarchy of government organisation can see).

The system will be available to people as a web application, mobile application, SMS (pull and push), and IVRS.

The results we expect are as follows:

1. Information generated in offices of government institutions will be open, easily accessible and suitable for computational operations like search, annotations etc.
2. Government institutions can communicate with people of their choice of demographics and communicate at the individual level.
3. All individuals are aware of the latest policies and implementation status of governing organisations and contribute towards implementing/improvising them for everyone.
4. People can quickly share feedback, suggestions, grievances, etc., with concerned and capable officials.

**The Problem(s)**

> *...as we know, there are known knowns; there are things we know we know. We also know there are known unknowns; that is to say we know there are some things we do not know. But there are also unknown unknowns – the ones we don't know we don't know. And if one looks throughout the history of our country and other free countries, it is the latter category that tend to be the difficult one.*

Donald Rumsfeld

Throughout the world, democracy has proved to be a stable and reliable method of governance. 'For the people, by the people' has enabled everyone to be part of the governance process. This choice-driven method of governance has empowered the masses with which we can decide the right direction and the best medium. But, the power to choose assumes ability to differentiate. We can differentiate when we know. Hence, information is essential.

Many of us confuse Government with politicians. Politicians make policies. While it is a very important step, it is not the complete journey. These policies are implemented through different government departments. Each department implements a certain set of policies to the geography it serves. These departments have a strict hierarchy in place with defined power invested at different levels. There is a flow of command from top to bottom. Information in any form flows both up and down the structure.

The government departments cannot work in isolation. They need to interact with the people they are serving. Often this is a crucial step in the entire implementation process.

Like, in the mission to eradicate polio from India, the Health Ministry needed to reach out to people to make sure every child gets the oral vaccination for polio. Communication was such a crucial step that they had to involve the top Bollywood actors to convince people. They used every popular medium to reach out to the masses. The end result was India became polio free nation.

The communication between Government Organisations and governed citizens is critical in many cases, while also helpful in almost every scenario. Consistent, complete and effective communication can not only empower citizens to get the most out of democratic systems, but also help the government departments in implementation.

What information is needed to be shared and how can it be shared are among the most challenging problems of governance. Traditional mediums like newspapers, radio, television, mass addresses have limitations like limited bandwidth and high setup cost. To keep them sustainable and many times profitable, the content is chosen based on its appeal to masses. People prefer entertainment over information. So if government needs citizens to be informed

about something, government has to reach out to them instead of expecting people to reach out for the information.

With the rise of internet, websites gave government organisations a chance to place information within reach of the people. The information can be updated as per need. These websites generally don't reach out, but are available to anyone who needs information. But to maintain these websites, government organisations need people with high technical knowledge. This technical barrier disables many information creators from sharing information. Also, keeping these sites up and available has a cost which varies with traffic.

Social networks have changed this situation. These online systems have made sharing information easy for anyone with basic knowledge of computers. They are often free to use and information is accessible to interested audience in real time.

Social networks have made low cost, consistent, complete and effective communication a possibility. Anyone can share information with people interested in it. But this power has eventually become a limitation. The information overload from everywhere has made attention and focus an asset. The seconds of users attention being is sold as a commodity in advertising business. The competition is fierce and the cost of gaining attention is rising.

Hence, there is a huge communication gap between governments & citizens, and there is no cost-efficient well-designed system to meet the needs of government organizations.

**Theory of Change**

The opportunity of change is developing a system that can connect hierarchically structured governments with huge and unstructured citizens. The system should be able to provide structured information and dispense it out to the masses, and, at the same time gather feedback, responses, ideas etc. from citizens, derive comprehensive actionable conclusions from them for the government organisations to work with.

Corruption is a huge problem in developing nations. If operational information is not only easily accessible, but also reaching out to interested people, corruption can be reduced significantly. Such transparency will increase the efficiency of the governing system, establish trust of the people into the governments and ensure active participation.

Such system will enable people to connect to the issues around them. Through mutual collaboration they can find out ways to contribute towards resolution of the these issues. Citizens will also come to know the implementation information of policies and plans of the government. Such engagement can help sincere authorities with getting assistance from their subjects towards their common objectives. This will make 'for the people by the people' a living reality.

An information-driven interlinked society that is well aware of its own state will be able to exercise their choices better. They will be able to know their capabilities and set realistic goals for themselves. Based on these goals, they will be able to elect better representatives to their respective policy making assemblies. The policy making will have a greater say of the people. Increased participation in implementation and monitoring will give the people leverage to get better laws passed from law making institutions of their country.

Use Cases and User Experience

## Citizens:

- To the citizens, the system will be available in the form of web application, mobile application and IVRS system.
- Make account on the system by providing some information (Name, mobile number, email address, gender, followed locations, password etc.). They can access their account on web address or via mobile application.
- Get information feed and notifications based on their followed location and personal information.
- Access any publicly available information about any location in their country.
- Add information in any context. The information will go through a validation process and will be rated accordingly.
- Access information from all contexts of government organisations. Easy access to information like, geographical location, phone numbers, online presence, timelines and updates on the active public projects, upcoming public projects. Easy navigation of information related to completed projects.
- Raise and support issues related to services provided by government organisations.
- Collaborate towards development direction of the platform.

## Government Organisations:

- Select the group of people based on one or many criteria (like location, demographics or policy implementation status or engagement etc.)
- Share information with selected group of people.
- Track engagement in shared information or raised issue.
- Receive filled forms with information of service seekers.
- Get inputs from officials within organisation before sharing it with public.
- Gather missing pieces of information through quick surveys (3 questions survey)
- Gather detailed information through targeted surveys.
- Boosted posts. Share information with everyone in the region.
- Collaborate towards simplifying official information for the layman.
- Analytics based on user data gathered by the system. Decision making support module.
- Easy collaboration and knowledge sharing with other organisations on the system.

Example Usage Situations

**Share information on rising crime in the region:**
There is a sudden rise in certain crime, police expects some kind of gang involved. For now people need to know what precautions should be taken.

**Rising disease:**
Suddenly many people from one region are getting admitted in hospital. They have similar symptoms. People need to know what care should they take to avoid this disease. Health authorities need to know what might have caused such a situation.

**Natural Calamities:**
Alert for sudden natural calamities like change in of course of cyclones, flash floods, cloud bursts etc. Timely awareness can save many lives.

**Crime Investigation:**
People within a region can provide valuable information towards resolving a criminal case. Sharing face of a criminal for identification is one scenario where our system can help.

**Vaccination Programs:**
Targeted campaigns towards vaccinating people of certain age group.

**Not so alarming alerts:**
Traffic updates, scheduled cuts in supply of water, electricity etc.

**Status of government projects:**
User can follow the major infrastructure projects in your region, get updates on what is latest with them. Access the entire timeline online.

**Local administration discussions:**
Local organisations like village governments (Gram Panchayats in India), resident welfare associations etc. have a low budget and small audience. Our system can be a reliable channel for communication and collaboration for them.

**Government needs certain information:**
Government officials can conduct short in-post surveys or detailed surveys to get a better on ground picture.

**Job Opportunities:**
Updates on openings in government organisations based on user's qualification and subscription to such information.

**Easy Forms:**

Government organisations often need information from citizens for different services (like driving licence, marriage certificate, passport etc.). They get such information through forms. Filling forms is one of the most redundant activities. User will get all forms on our system with their information auto filled in it. Any extra information added to new form will be saved for future purpose.

**Graphical analytics on people's activity data:**
To get a better view of the engagement and impact of any governance activity. Can help with decision making towards better implementation plans and policy formulation.

**Share examples of good governance and public administration:**
Share the best examples of good governance and public administration. This will help building credibility and setting higher achievable standards for the democratic administration system.

**Objectives of the Solution**

The proposed system named Qbila (means tribe in hindi) is a geolocation based public information system. Its purpose is to become an information sharing platform for people and organizations serving a specific geography. Governments all across the world fit into this definition, and they are the primary focus of the system as well. NGOs and other social organizations can also be served by this system.

The system will gather and dispense public information from government organizations. Since all government organizations serve geographic areas, the information generated by them is mostly in context of respective location and relevant to people living in that area. System will gather information

We will use latest and widely used web and mobile based technological solutions to enable easy and quick interactions between governed and governing. All information and interactions will be public.

**System Participants.** the system will have following participants
1. governed or citizen
2. governing or government organizations.

**Types of Communication**
1. Citizen to citizen
2. Citizen to government organization
3. Government organization to citizen
4. Government organization to government organisation

**Context of information sharing.** To keep the information flow focused, we need to limit and moderate the context of information sharing. Information shared on our system should belong to one of the following categories:

1. Requirements and expectations of government organizations
2. State of policy implementation.
3. Issues or events in the location.
4. Official documents.
5. Operational information.


## Challenges

**Non-cooperation from government organisations.** Our system can work best in collaboration with government. There can be some workarounds but non-cooperation will limit the potential of the system.

The absence of a medium that could reach out to people with **relevant operational information**, has left a big unknown in citizens awareness. Popular mediums all full of general and populist information. Lot of such **information is redundant in multiple sources**. Bias towards profits or certain ideology adds to the unknown.

**The attention span of people is decreasing**. As people are using more gadgets and consuming more content with higher emotional and thought influencers, the normal non-entertaining aspects are becoming harder to focus on. The content that we will be serving should be able to gain attention through value, ease and if possible engagement.

**Lack of education and illiteracy** is the biggest challenge towards creating any information technology system. Since ICT systems assume educated users, they are of little direct help to such people.

**Language barrier** disables a significant number of people from getting benefits even from available information, especially in countries with multiple official languages. Like in India, the union government has accepted English and Hindi as official languages while state governments are free to choose their own official language. So there are 18 official languages in India. Majority of information on internet is in English. This limits non-english web users from getting information. While it will take time before we have a reliable Multilanguage translation solution, present public information systems are not supporting even the critical information in multiple languages.

**Poor user experience** is another problem. Developing a website has inherent cost. Maintaining it adds to the costs. On the other hand, the user experience is evolving at a really fast pace. Government's websites are finding it hard to keep up with the changing technological and experiential expectations. Many websites are still very 2000ish. Searching and filtering are still absent from many government sites. So even if information is

somewhere on the site, finding it is a challenge in itself. On our platform, the important information from government organisations will be available through consistent user experience. Being a single platform serving all the organisations, just maintaining our system will maintain good experience for seekers of any government organisation's information.

**Limited capability of knowing and acting.** People cannot act or react on every issue. There is a limit to it. We know some things better than the much larger unknown. In a system needing active participation this can be both, a problem and an opportunity. Delegation and moderation can help here.

**Role of policy makers in such system.** What if they see it as a threat to their own role? If through this system, people can represent themselves what is the role of representatives? The power they draw from non-resolution of issues will be lost and their role may limit to policy making. This can be very good for the society, but will those who are into politics for the power participate or sabotage, is something to be seen.

**The form of the system.** What should be the form of meeting point of strict hierarchical system and a mass of people having flat equal duties and equal rights? The methods of communication are different. People have informal ways of communication. While on the other hand the government organisations have strict and defined communication protocols. Though people do adhere to a level of respect towards the government officials, but that is more of an unwritten code of respect. We will need to ensure that a certain communication protocols are followed. The context communication should be served and it should be easy & efficient for officials to understand citizen's point of view. So, while freedom of speech of the citizens should be honoured, focus on information being shared must be maintained.

**The metrics for the system.** How can we measure the performance of the system? This is very crucial for effective decision making on sustenance and growth of the system. Also, since we are developing it as a 'transparent open community' system, we need to figure out ways to put things in front of contributors and help them understand the state of the system in minimal effort.

**Metrics for the participants.** People understand numbers better. In today's ICT driven world, trust can be built quickly by numbers and ratings. What should be the method of judgement of the participating organisations? On what standards should we rate the government organisations and how will we do it? How will that impact their engagement with the system?

**Directing the action after information.** Ok, we gave information, what next. What should be the boundaries of our system? How can the user proceed onwards?

Creating a **user experience** that is easy enough to use even for new users, and sophisticated enough to effectively deliver any kind of information.

**Dealing with the unseen situations.** The limited communication has been a status quo for almost the all known history of many places. How will the situation change? We can predict, but we cannot be sure.

**System Components and Their Roles**

**<u>Geolocation Platform:</u>**
Governments serve geographic regions. The data generated by government organisations have a region linked to them. Every information unit/person/government organisation on the system will be linked to one or many geographic region(s) or location(s). Geographic platform is the module to which all users, government organisations, issues, information etc will be linked, making it the integral part of the system.

**<u>Multi role authorization module:</u>**
Different Users of the system will have different roles (government officials or citizens or both). The access to information and features are based on the roles. The multi role authorization system will ensure the easy and secure access to the system features and information allocated (or available) to them.

**<u>User management</u>:**
The system depends heavily on the uniqueness of every user. To ensure this, we can place an identity verification threshold for full featured usage. User should provide a government identity backed to make sure there is a unique person behind the present account on the system.

**<u>Citizen's Data</u>:**
At its full capacity the system will be a huge rising pile of information. To get what is suitable for an individual, he/she will have to create his her profile and add information to it. Citizens already give such information to different government departments at different points in their lives. On our system, this information will generate customized information feed meant to serve the needs of the citizen at suitable times in his/her life cycle.

Name

Date of birth

Marital status

Occupation

Education
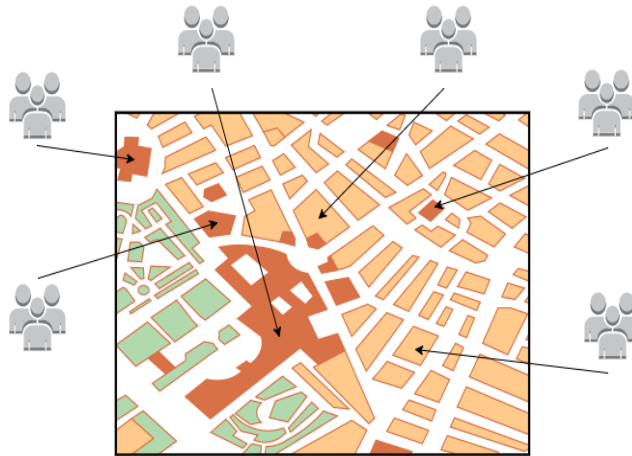
*People follow a specific location*

**Organisations Data:**

From the policy to the implementation in specific region, all government tasks are divided among officials. This division is based on speciality and geography served. The resulting structure is operational hierarchy with divided executive powers to be exercised in different geographic regions. This whole data will be used in many ways by the system.
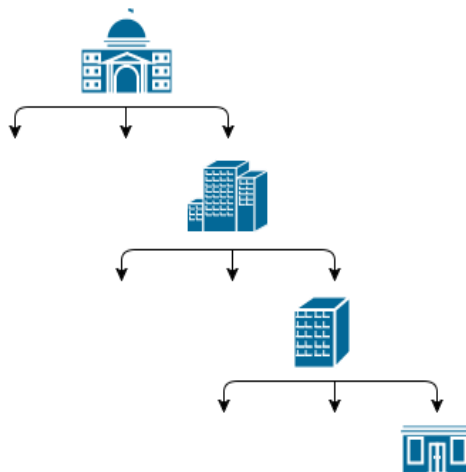


*Hierarchy within government*

The hierarchical information can be used for authority precedence on any issue. Higher place in hierarchy is often linked with monitoring and policy formulation roles with larger area under coverage.
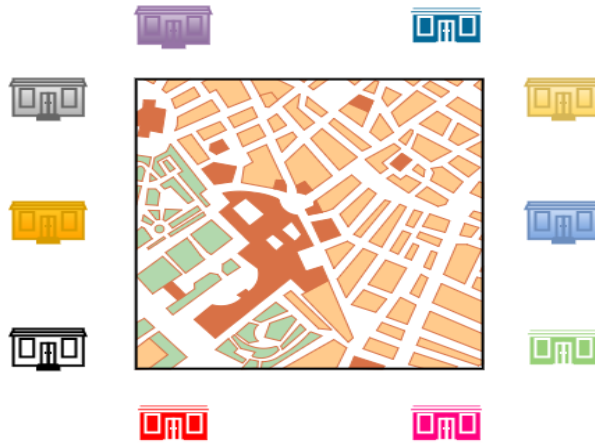
*Many government departments serve a region through local offices*

For any single region, many government departments provide their services through local offices. This information, along with who are working in these offices can enable creating a good progress and performance tracking system.
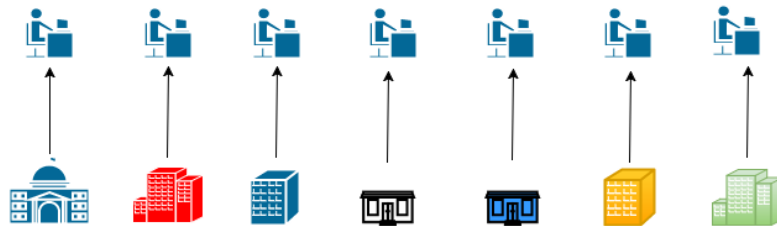


*Government officials working at different levels in different departments*

All these three make the vital government database of the system.
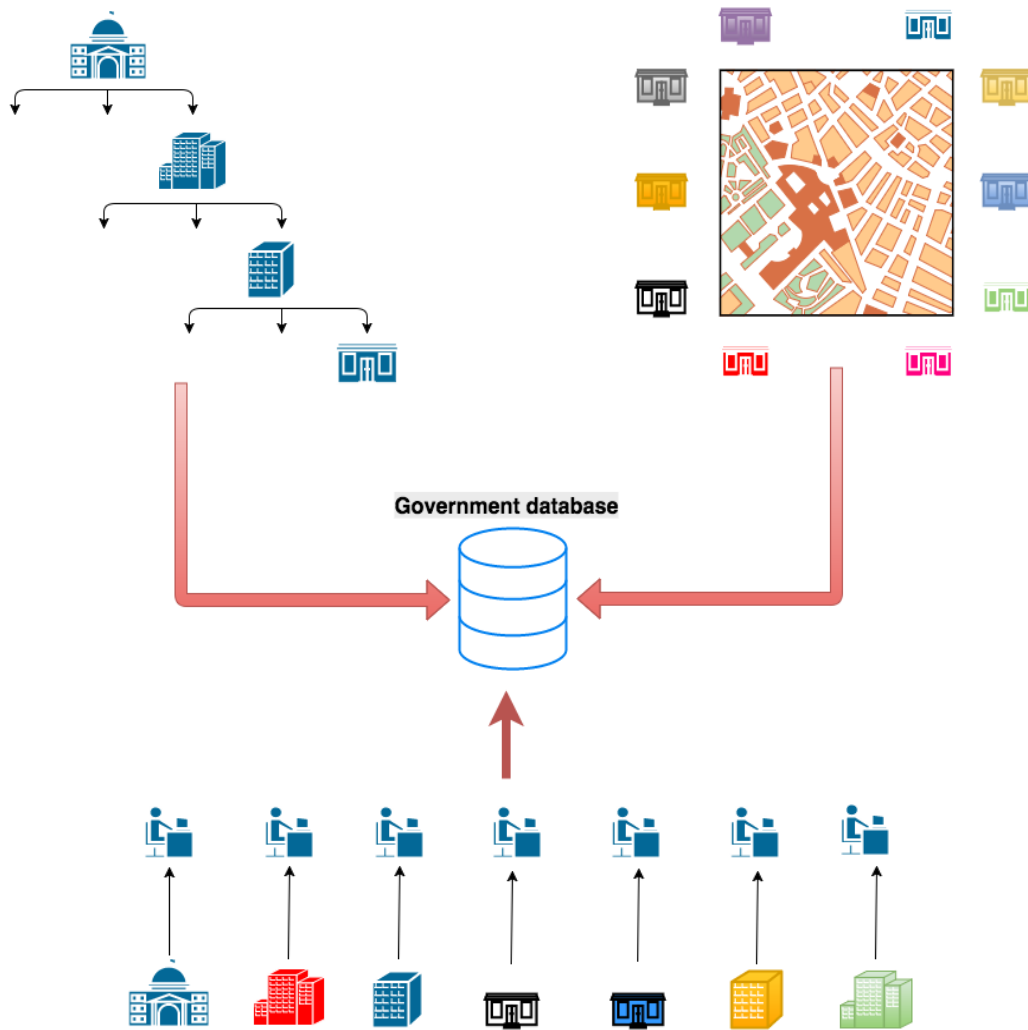
**Configurability based on laws and organisational structure:**

Different countries have different laws and different organisational structure. Since the system is supporting communication needs of government organisations, it should be configurable according to the needs of the law of the land.

**Content Control:**

Users will moderate the content to ensure it adds value to its context. To avoid unsuitable content, we depend on the user reviews. Users can report content, which will then be reviewed. Gibberish content will be filtered out through automation.

**Recommendation Engine**:

Based on user's activity and information in the system, the recommendation engine will pick information units that might interest them.

Recommendation Engine

All Available Information

User's information and usage data

recommended information
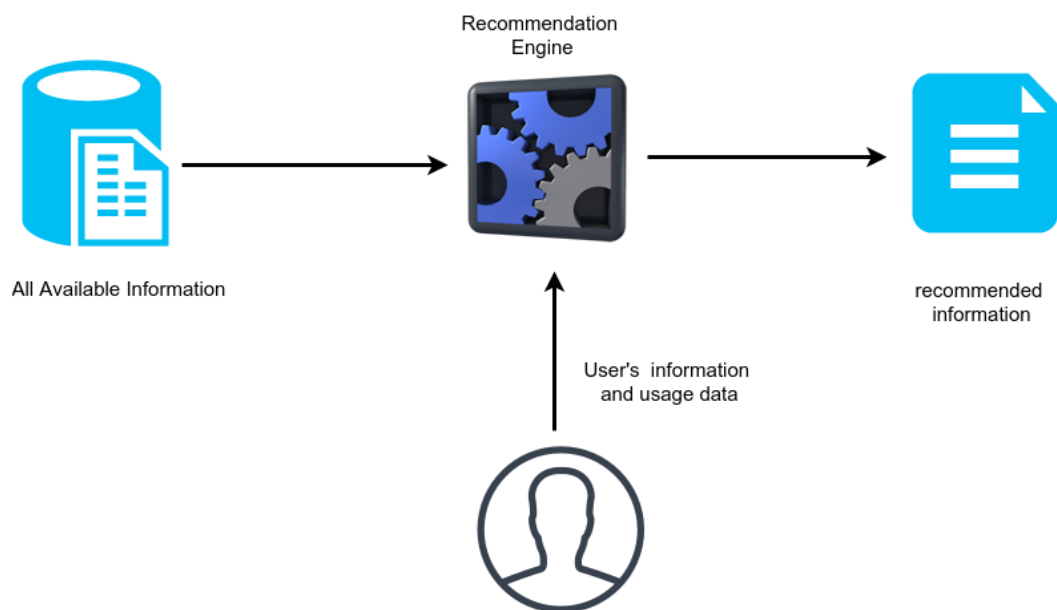
### Client Applications For Multiple Platforms:

The system will have multiple client applications for different operating systems. For desktops we will have a web based application. For mobile OS like android, iPhone and windows we will have mobile applications. All these applications will interact with same backend system through APIs and REST.

### Office facing modules e.g. file indexing module:

The system will be extensible for developing applications on it. Every application must provide solution to some real problem. One such solution can be indexing of the official documents. Communication with citizens should not appear as one more tasks on the list of officials. It should fit into what they are already doing. By indexing the metadata of all official files, we can simplify document management, browsing and sharing.

### Curated content:

Policy language tends to be very specific and technical, making it sometimes incomprehensible to common people. Curated content will be centred on creating awareness around the policy. Content can be text, video, info graphic or audio. Objective is to simplify the technicalities and enable common people to be a part of the discussion.

### Open community modules:

We are transparent and open from the core. People can contribute code, access system information and have a say on the direction of development. For continuous collaboration with the people and ensure transparency within the system.

### Real time content delivery module:

To ensure information is distributed within moments after it is created.

**Categorizer:**
The information entering the system is categorized based on static values (like location, department, section, office, policy, target demographics) and dynamic values (active citizens, implementation status etc. based on situation and requirements).

**User behavior tracking:**
Required for engagement analytics and improving user experience.

**Analytics:**
Graphically display citizen engagement on information and results of policy or implementation on the people.

**Issues priority stacks and collective intelligence module:**
To bring attention of both people and authorities, issues of the region will be put in a priority stack. The most pressing issue (most upvoted issue) will be on the top.
Discussions can be opened around any issue. Objective of discussion is getting the best collective understanding. The objective of this module is combining the power of human intelligence with processing power of computer, to derive a collective intelligence that is better than any individual or computer system.

**Translation engines:**
In many nations there are more than one language. If we can create multiple language support automate or simplify conversion of document in one language to. Since government documents are more structured with greater focus on clarity, chances of success are higher here in comparison to normal conversational usage of languages opens information to more people.

**OCR (optical character recognition):**
Many digital documents are scanned copies of physical documents. Being in image format, they are not computation friendly. OCR will help us convert these documents into text and then make them available for computational operations.


**Implementation Plans & Present Status**

The system will give information through web, mobile and IVRS platforms. It can connect governments to people over wide ranges of demographics. We are developing it as a platform, making it easily extensible by other stakeholders as well.

Presently, we are based in India. The system is in prototype stage. We were selected as one of the top 20 projects from all over India and are undergoing startup acceleration program of the Innovate for Digital India Program. This program is collaboration between Intel, IIM

Ahmedabad, UC Berkeley, Department of Science and Technology, Government of India and Department of Electronics and Information Technology, Government of India.

We are working towards initiating a pilot run in November 2015. Our present approach is to automate document centric processes of the organisations so that accessing documents is easier for us while sharing it is easier for them. While governments have allocated budgets for digital information infrastructure, they are unable to make them self-sustainable. So when the funds dry out, the projects get stagnant. We can create an economy around government information, reduce setup cost for government, and charge government for the services.

While we are working towards transparency, not everyone might be in its favour. Individuals who are gaining from absence of information or misinformation might oppose this. They cannot confront this directly. The mostly used approach is over-reaction on a valid conflict point, avoiding any negotiation on it, use valid conflict point is the poster while tactically pressurize decision makers towards their wishes.

Work around is transparency and confidence of the people. If people on higher positions of hierarchy are ready to work with us, their directives to subordinates will be our greatest asset.

In case we do not get any cooperation, we can still improve the state of in-public information and use laws of land (like Right to Information in India) to bring more information in public attention.

As the society is becoming more interdependent, efficiency and performance of governance towards solving social problems is becoming more and more important. Today, in democratic systems, people participation is both essential and possible, more than ever. Being designed for governments, our system can be a medium for continuous, consistent and effective communication between governments and citizens, which in present times is undeniably important.

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