

Team 16

NGO Information Management Suite 1.0

Technical Proposal

Overview:

This document consists of the technical proposal for NIMS by Team 16 as part of software engineering course project.

A basic technical proposal listing down the problem and the proposed approach to providing a solution have been laid out here.

Intended Audience:

Mentor/s

Developers

Revision History:

Version	Primary Author(s)	Description of Version	Reviewed By	Date Completed
2.0	Aakash	Formatting changes		16 Mar 2012
1.0	Anshul, Lalit, Megha	First Draft	Aakash	15 Jan 2012

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1. Introduction

1.1. Origin of Problem

One of the biggest operational challenges faced by organizations today is information management. No matter what your organization does, you can't operate without collecting, storing, sharing, and archiving information. While it is an obvious choice for corporate organisations to employ high-tech equipment and software for their information management it's not the case for NGOs reason being lack of resources as well as trained workforce to handle computers and related tools most of times. The problem with pen/ pencil - paper type of data recording is its archiving, sharing and quick analysis. Each NGO tends to maintain a social map of their various centres and their progress in terms of the on-going projects, which they make on a paper. Thus there is a strong need of reliable, long lasting, computer base data recording and management tool for any NGO. A platform that would provide basic statistical analysis on NGO's work data as well layout accurate social maps for the same is required by the NGOs.

1.2. Technical Relevance

If certain assumptions are made (realistically) we can justify the technological relevance of the proposed 2 part system. The telecom boom in India and that each day more and more feature phones, which have already reached almost every corner of India, are being replaced by more advanced and GPS enabled phones, enables us to think of a design which would be easily accessible through them. Thus an android application seemed to be an obvious choice for cost-effectiveness and user friendliness with the advent of the Government of India sponsored android tablet and other cheap android phones. A computer which would work as a centralised server becomes essential for a non-profit as the amount of data they have to deal with is considerably large is available in case of many NGOs in the country. Another thing which is important here is that most of the NGOs do not work independently, there is a man-made network that they are a part of which consists of other NGOs (with similar or related interests); thus in order to keep up with each other's activities and help activate exchange and access to each other's information they should have a database with a user-friendly GUI front end, which would update itself at real time.

1.3. National Status

A lot of productive work is being done by the NGOs but not archived in a manner that can be later used or referred to. Furthermore even the NGOs themselves face difficulty in self-evaluating themselves and the coordinators. Social Maps chalked out are inaccurate and don't serve any major purpose beyond letting the coordinator get

acquainted with his/her area; people statistics, collection of data and mapping it at real time (rather than periodically) for easy view-ability has not been done so far. From what we have discovered is that most of the NGOs, especially those which work for the de-notified and notified tribes of the remote parts of the country (one of which we are going to serve as our prospective client), record their work and information on paper and pass it on from person to person; the social maps are drawn roughly on paper with an estimation and coordinators feed in the information centrally every month after going personally to the central office located in a city area. This way of working has been accepted as a norm and since none of the NGOs expect or ask for better (because of a lot of constraints like money or absence of required skills) it seems that hardly any work has been done on it by the government or any other software developers. Most of the existent software helps them either manages their finances and donations or the data they receive on pen-paper at the end of each month; there is no real time updating and interactive; and most importantly all this software are intended for corporate organizations and thus a need of a more NGO oriented platform that we intend to provide.

2. Objectives

We aim to develop a web based information management system that takes care of the basic needs of cataloguing their work, evaluating the NGO's and its employee(and community)'s performance and aid in creating social maps of the population and the areas in which the NGO operates. The IMS will be equipped with several relevant statistical analysis capabilities. The IMS is going to consist of 2 parts (both software and hardware wise):

1. Client application (which will be with the coordinators) for easy data collection and update as well feeding geospatial data about various points of interest for laying out social maps.
2. Server application (at main centre of the NGO) for database management and analysis of the collected data about the communities as well rendering social maps from geospatial data fed from the coordinators.

3. Project Outcomes

Properly and automatically maintained database of various activities and statistics of various projects under the NGO

Since archival of coordinator's work data is being ensured, especially in case of social mapping where a new/different coordinator may replace the old coordinator and start working where the old coordinator left. Under the current pen-paper method chances are that the new coordinator might not understand the previously deployed coordinators' maps

The social map will provide detailed information which could then be put up on the public website if need be

Real-time updates of data on the server through easy to use android application by the coordinator

Faster and accurate analysis of incoming data as well as ease of access of available data due to usage of a database management system, querying mechanisms and visual representation of data

Accurate mapping of project locations to curate social maps for the NGO

Due to real-time integrated social mapping, any local information of the interior parts can be customized to be fed into a larger used maps (primarily open street maps) and help a wider range of population(along with the new coordinators) know the remote locations and amenities available there. (e.g.: a medical centre or a local school plotted by a symbol and a name on the NGO social map which can go global.)

4. Methodology

The project will be implemented both on the client side (NGO coordinator) as well as on the server side (NGO office). The NGO coordinator (client side) will be provided with an application running on an android platform which will enable him/her to provide information of the area in real time to the NGO. The application will also provide the exact location of the coordinator to the NGO which would help in social mapping. At the server side, in order to create an efficient information management system for a NGO, a basic CMS will be required. This will allow the administrator to manage content, navigation of the website as well as cataloguing the work.

5. Project Scope

5.1. Present Scope

Develop an android based application to facilitate a NGO coordinator to transmit local area information to the NGO office in real time, without sending personally any location details (auto-detect by GPS).

Develop an information management system for a NGO to help it in cataloguing its work in an efficient manner.

5.2. Future Scope

The NGO information suite will cater to a NGO working for a particular cause (tribal NGOs for now). With time and the client's feedback we intend to make a general product which can provide an information management system for NGOs working for different causes. We can then integrate and connect various NGO's of the nation for better results and more beneficial social activity.

Integrating the android application and website to have various regional languages to facilitate rural coordinators and NGO's

6. Assumptions

- The NGO coordinator will be provided with an android phone.
- Coordinator knows Basic English and proficient enough to use a mobile phone.
- The phone is enabled with GPS facility.
- The villages that the coordinators visit have internet connectivity (at least at some time, to transfer data to NGO main server)
- The NGO office has an administrator who can customize the website as per the needs of the NGO.
- The area where the NGO's office is located has internet connectivity.
- The website (IMS) will be in English.
- The server that NGO uses to host the website, is capable of handling the data (not possible on freely available server spaces)
- In some later point in time, more NGOs will deploy this system to make the information reception fast and data maintenance easy and it will be a more useful product.

7. Dependencies and Expectations

7.1. Dependencies

- The NGO (our client) is dependent on our NGO Management Suite for the following reasons and needs:
- To get data fast and in real time for remote locations where coordinators collect information, so that long written reports, which are submitted after months, by coordinators can be done away with.
- To easily manage data and have proper storage without maintaining large manual registers.
- To be able to do analysis from received data automatically and visualize it easily on social maps. (by using GPS on Android)
- To have a user friendly website to give access to information of NGO to people around on the web.
- To have a customizable website that caters to NGO needs (like type of information needed by specifically tribal NGO's).
- To be able to check coordinator performance, by analyzing the data he/she has collected in a particular time, and the various projects he/she worked on.
- To see the progress of NGO, there will be project timeline, which gives them a clear idea of projects going on in various stages and places.

7.2. Expectations

There is certain information we as developers will need for developing a web interface and a coordinator application. The following are the same:

- They provide all information about the kind of data they collect from tribal people, to incorporate in the android application.
- The features that can help the coordinators, function easily with the application should be told.
- If the NGO, can tell the kind of design and pattern needed on the IMS on the server and coordinator application, it would be better.
- The kind of analysis and processing they do on the collected data.
- The kind of social mapping they do for various regions, which can help them easily visualize the currently hand written data.
- The features they need on website should be clearly told during interviews and coordinator interaction.
- The amount of data they have to handle should be told so as to maintain the server hardware.
- They should allow us to test the application with their people.

8. Requirements

8.1. Hardware

The project would require a basic android device (with inbuilt GPS) and a personal computer with any operating system that can run a firefox/IE/chrome browser. The android device would be required for NGO coordinators and personal computer for the NGO to access the server side interface. The interface will have to be hosted on a web server provided commercially.

8.2. Software

The project would require an Eclipse IDE to build the Android app later tested on the Android Emulator plugin within Eclipse, PHP for server side programming, MySQL to maintain and manage database at server side, WAMP/LAMP server to provide a local server for running and testing PHP scripts at sever side and open street maps and JQuery plugins like craftman to implement the social mapping feature and displaying data graphically respectively.

9. Timeline and Planning

Planning is a very crucial component of any project work. Here is the need for it and how we plan to proceed on work throughout the coming months for the same.

The project requires a huge effort during the requirement analysis phase. It is necessary to understand the present system prevailing. We have to understand how the present system works and why is there a need for a system that our team is proposing. Different requirements of various NGOs have to be keenly studied and understood after which a proper project based on the requirements can be made. The designing and implementation phase requires an equal or rather greater effort.

We as a team propose to devote: Each member gives 13 hours/week.

Hence our team will give around 117 hours/ week to complete this project.

S.no	Tasks	Proposed Deadline
1.	Finalizing a project idea	12 Jan 2012

2.	Need of the project, feasibility analysis, Proposal	15 Jan 2012
3.	Planning for the work to be done in course of project - Project Plan	18 Jan 2012
4.	Collecting user requirements in detail - Requirement documents	27 Jan 2012
5.	Revising feasibility as per requirements	29 Jan 2012
6.	SRS, Test Plan (for future)	12 Feb 2012
7.	User Manual v1	15 Feb 2012
8.	System and Database design	20 Feb 2012
9.	Coding of individual modules	12 March 2012
10.	Integrating the modules	26 March 2012
11.	Testing and final changes (User manual v2)	4 April 2012
12.	Alpha and Beta Testing	8 April 2012

Table 1: - Tasks and their Proposed Deadlines

10. Deliverables

- An android application for data entry and location tracking for all coordinators of the NGO
- A server to store information sent by coordinators from the android mobile phone/android tablet hosted at NGO centre or provided by a web hosting service

11. Budgeting

The project requires: -

- The coordinators to be equipped with an android based mobile or tablet devices for sending information to the server which the NGO can access
- A basic computer in the NGO Centre will also be needed.
- An initial investment to host the database and server interface will also be required
- Some amount for project testing in real field.

Product	Approximate budget
Reliance 3G Tab or Pantel Tpad_ws704c	Rs. 12000/Rs 13500
Desktop/Laptop (Windows OS, Net facility-1 year)	Rs. 30,000
Hosting Website	Rs. 200 /month
Testing and Verification	Rs. 3000
TOTAL PROJECT COST	Rs. 12000/Rs 13500 x No.of coordinators + Rs. 200 x No.of months the project is deployed + Rs. 33,000

Table 2: - Expected Budget

12. Potential Challenges

12.1. Technical Challenges:

- The kind of input data coordinators take (data formats- numbers, text) and how they analyze it.
- Integrate android application with web server
- Implement social maps using open street maps et al

12.2. Social Challenges:

- Understanding the needs of the NGO
- As per NGO interaction, we found that most of the coordinators have not even cleared 10th grade. So the android based application must be available in a language understood by the coordinator as well which may be Hindi, Gujarati or any other local language.

13. Coordinating Team

S.no	Team Member	Team Role
1.	Prof. Asim Banerjee	Project Mentor
2.	Aakash Solanki	Team Leader
3.	Anshul Agrawal	Software development
4.	Megha Tak	Software development/ Documentation
5.	Lalit Agarwal	Software development
6.	Palashi Vaghela	Software development/ Documentation
7.	Surbhi Agrawal	Software development/ Documentation
8.	Jesal Janani	Software development/ Documentation
9.	Parth Manvar	Software development
10.	Jatan Patel	Software development

Table 3: - Coordinating Team and Individual Roles