PROJECT PROPOSAL ON

PROJECT   MONITORING SYSTEM

(Web Based Application for Monitoring the Works   & its
Proper Documentation)

Proposed by:
Kerala Land Development Corporation Ltd

Introduction

KLDC is involved in various civil projects including constructions and renovation. Many prestigious projects like Enhancement of State Bio-control Labs at Mannuthy, Construction of Tissue Culture Labs at Waynad, Malappuram & Ernakulam, Creation of Integrated Supply Chain for Fruits and Vegetables in Kerala (for SHM), Container Model outlets for Horticrops besides many conventional projects in RIDF, RKVY, RKI etc are being implemented by the Corporation. Currently we are using manual methods for monitoring the progress and quality of these projects which is time-consuming and prone to errors. So it is necessitated a software solution that efficiently monitor and manage our projects. This project will bring digitally enabled, real time and interactive modes for monitoring the works executed by the corporation and will also provide better documentation of the projects. The application will also consider stake holders of our projects which includes Department of Agriculture, VFPCK, Horticrop, SHM etc.. to get a real time analysis of the progress of works they have assigned to KLDC. Documentation and geo-tagging of works is also an integral part of the this project. So general public/farming could also a potential beneficiaries of this project.

Scope

A web based software application to monitor the progress of various construction & maintenance of agriculture infrastructure projects executed by the Corporation throughout the state. The intension is to bring digitally enabled, real-time and interactive modes of tracking the projects. This will lead a sea change in the performance of the Corporation and will make the Corporation a much more responsive, transparent, and performance-oriented organization. Geo-tagging and Documentation is also an integral part of the project.

Objectives

The broad objectives of the project are:

- Streamline project management and scheduling
- Real-time monitoring of project progress and quality

- Efficient communication and collaboration among Staff
- Comprehensive project documentation and reporting
- Timely submission of claims and progress reports
- Better visibility of project status to all categories of users according to privilege roles.

Background and context of the Project

Presently the Corporation is doing most of the project tracking and monitoring in manual manner because of this the efficiency and accuracy is less. A centralized data depositary of all project related matters needs to avail and its proper documentation is need of the hour. Considering these yardsticks a comprehensive project tracking system and monitoring system is inevitable. The Corporation also explored currently available leading Project Management Softwares like MS Project, Coconstruct, Esub, FieldWire etc.. but all of these are mainly oriented towards building works and these softwares mainly focussed on internal team work to speed up a firm's work schedule. Considering the nature of works of the KLDC, we need a more custom based application. Also since the ultimate beneficiaries of our project are the farming community and we are accountable to the Department our projects should also be documented properly to provide access to all stake holders. So geo-tagging and documentation is also need to be integrated to the Project Monitoring Application.

The Proposed System

Project Monitoring System consists of three major components

- Project Monitoring System Web portal
- Project Documentation and Geo-tagging
- Mobile App for Data collection from the field

Core Utilities to be Included

> ## Intelligent Interactive Dashboards for project progress analysis and decision support.

Intelligent Interactive Dashboard can provide implementing officers and management with a powerful tool for monitoring project progress, identifying issues, and making data-driven decisions that lead to better project outcomes.This allows engineers and management to quickly identify trends, patterns, and outliers, and to drill down into the data to uncover root causes of issues or opportunities for improvement. The dash board will provide information of ongoing projects, completed projects, delayed projects, scheme wise progress indicators.

> ## Central repository of projects and related documents.

This can include project plans, schedules, status reports, meeting minutes, and other relevant documents. Having a central depository for project documents is important because it ensures that all team members have access to the most up-to-date information, and helps to keep everyone on the same page. It can also make it easier to track changes and revisions to project documents over time.

> ## Estimation of Project Cost and Timeline.

Estimating project cost and timeline is a critical aspect of project planning. Accurate cost and timeline estimates can help ensure that the project is completed on time and within budget.Break the project down into smaller tasks and activities and identifying the dependencies between tasks and estimate the duration of each task is also proposed in the Software application.

> ## Project Milestone Monitoring and Notification on delay.

Milestones are key events or deliverables that mark important stages in the project and help track progress towards project completion.The dashboard will

display the status of each milestone and any associated tasks or dependencies.

> **Physical Progress Monitoring using Geotagged Photographs and Videos.**

Physical progress monitoring using geo tagged photographs and videos is a powerful tool for the management to track progress on construction and infrastructure projects. Geo tagged photographs and videos provide an accurate and visual record of the physical progress of the project, which can be used to identify issues and make informed decisions. By using geo tagged photographs and videos for physical progress monitoring, project managers/implementing officers can get a more accurate and detailed view of the progress of the project. This can help identify issues early on and make informed decisions to ensure the project stays on track.

> **Financial Progress Monitoring**

Integrated fund management can help to monitor financial progress, keep track of expenses, and ensure that funds are being used effectively. This will ensure accurate financial progress of works execute by the Corporation

> **GIS based Project Progress Monitoring and Analysis.**

GIS uses spatial data to analyze and visualize project progress, which can be used to make informed decisions and improve project outcomes.Use the GIS map to analyze project progress include comparing the current state of the project to the project timeline, identifying areas where progress is lagging behind, or identifying areas where work is not up to standard.

> **Integrated Document Management System.**

The benefits of an integrated document management system include increased efficiency, improved collaboration, enhanced security, and better regulatory compliance. By implementing an integrated document management system, the corporation can streamline workflows, reduce costs, and improve productivity.

Technology Architecture

State of the art web technology tools and systems confirming to Services Oriented Architecture has to be used in implementing the system. The open standard databases technologies has to be used to integrate future requirements and make the system more flexible. The entire application should be developed by using open source technology tools in accordance with the Govt. IT policy.

Roles and Responsibilities of the selected firm

1. Design, development and configuration of interactive response system
2. Design and development of Web/Mobile application
3. Interface design- Customization of forms for required apps
4. Design and development of Functions/tools of functions/tools/queries and reports
5. Testing and validations
6. Server hosting and management (at State Data Center)
7. Capacity building in use/management of the application

Implementation & Support

The designed application can be hosted in State Data Centre if available and allowable otherwise can be hosted in a rented sever. Project duration will be of maximum 6 moths and support for further customization should be provided for at least one year from date of rolling out the system.

Project Deliverables

1. System Requirement Specification Report (SRS)
2. Data Flow Diagram (DFD) and Data Structures
3. Design Architecture
4. User Manual
5. Source code

Conclusion

A web and mobile-based software application to monitor the progress of various construction & maintenance projects executed by the Corporation will bring digitally enabled, real-time and interactive modes of tracking projects. This will increase performance of the Corporation and will make the Corporation a much more responsive, transparent, and performance-oriented organization. Different stake holders can access the progress of their works assigned to the Corporation can direct for corrective measurements also. The farmer community of the State will also beneficial of the project they can see the documentation of the works through this project.

Enclosure : A detailed module wise synopsis of the project

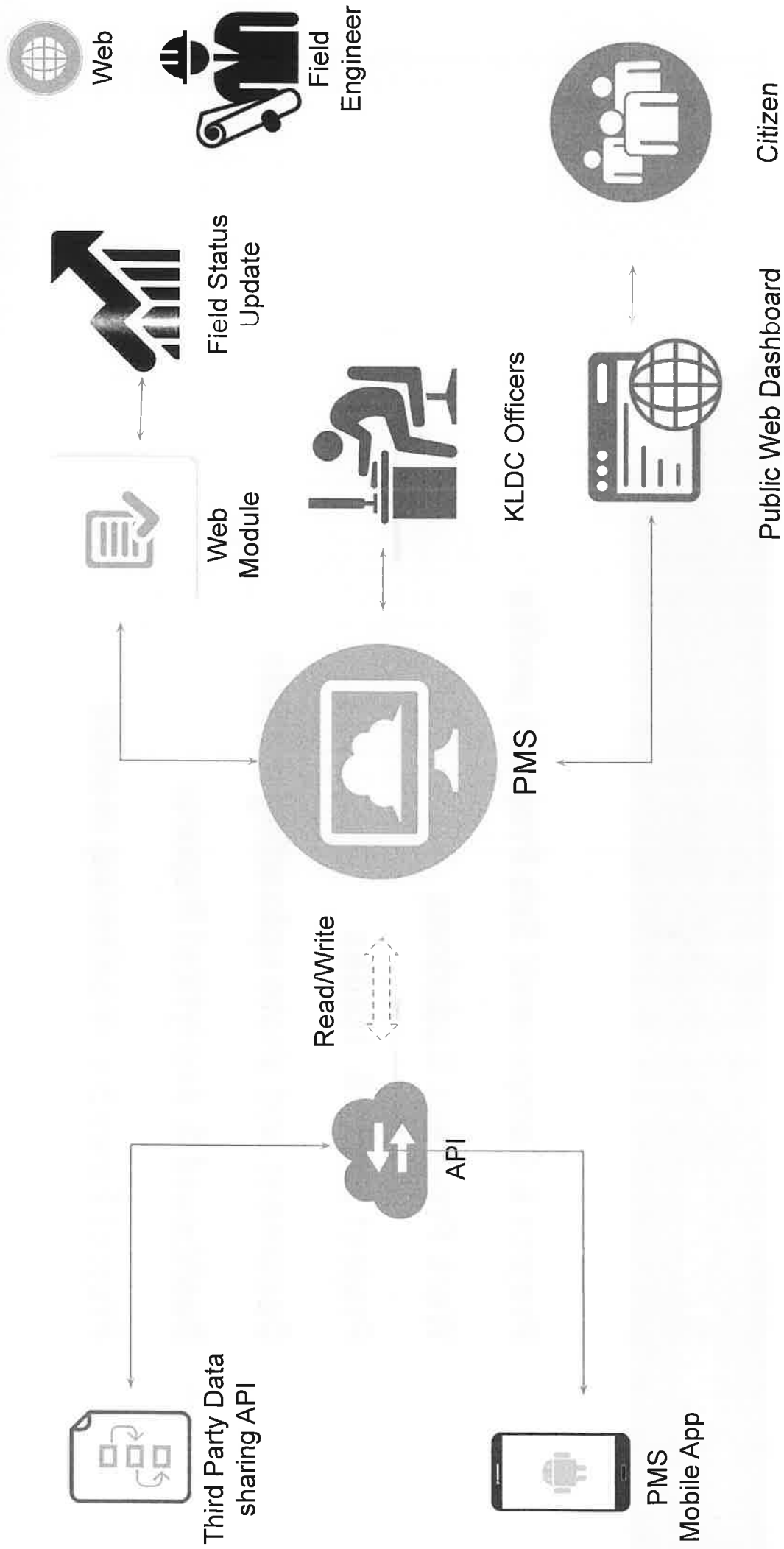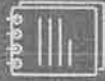# Web & Mobile based project monitoring system for KLDC

PMS Features

- Project & Component(Sub Project) profile

- Work Progress Updations

- Project alerts & Issues

- Document and photo uploading module

- Dashboard & Analytical Reports

- Project Financial monitoring module

Architecture of the PMS

Web

Field Engineer

Field Status Update

Web Module

KLDC Officers

Public Web Dashboard

Citizen

PMS

Read/Write

API

Third Party Data sharing API

PMS Mobile App

PMS Features

- Project Officer Management
- Project Schedule management
- Project Review module
- Public Web Portal
- Mobile app for Project Progress Updation

Project & Sub Project Profile

Project,Components details

1

Project Profile Details

Main Project

- AS Amount, AS Number & Date
- Project Coverage details like District, Constituency
- Funding Agency
- Project Geo locations Details
- Other Project Details

Project Profile Details

Package Profile (Sub work)

- TS Amount, TS Number & Date
- Work Awarded Amount, date & Number
- Work Agreement Executed date
- Expected date of completion and scheduled date of Completion
- Work Office Mapping
- Project Components updations
- Other Sub Project Details

2

Project Work Breakdown Structure

Physical Work Implementation plan

Work Breakdown Structure

- Project Scheduling
- Sub Project divided into Milestones
- Create plan based on the tender condition and time ine
- Comparison based on the actual and planned progress
- Graphical representation generated based on the progress

3

Progress Updation

Project progress updation

Project Progress Status Updation

- ## Project Physical Progress updation

  Component wise progress status

  Progress status with photograph and GIS location data

  Tag project work related to any critical issues

- ## Project Financial Progress updation

  Detailed project financials updation

  Comparison with physical progress

  Bill Requested ,Bill Release details

4

Document & Photo Module

Uploading Document and Photos

Uploading Document and Photos

Photo Uploading

- Upload work progress photograph related to project milestones
- Connect the photograph with project components and progress %

Document Uploading

- Upload all project related document
- Visible only at officers user role

5

Dashboard & Analytical Reports

Detailed project analysis

Report Generation Module

- Dashboard generated based on the user roles

- Drill Down facility

- Various types of filtering like progress ,district wise,constituency etc

- Export Facility for PDF and Excel

- Graphical and tabular reports

6

Contractor Management

Contractor Profile Management

Contractor Profile Management Module

- Contractor Profile Enrollment
- Contractor renewal module
- Contractor Login Module
  - Work Monitoring
  - Bills status monitoring

7

Bill Monitoring

Bill Seniority Monitoring

- Bill submitted date capture
- Bill Amount, date and tag related projects
- Link to the completed works
- Bill amount transferred to contractor date and no capture

8

Issues & Alert Module

Work related issue management

Issues & Alerts Management

- ## Issues creation & resolution module

  - Physical Work Related
  - Legal Issues
  - Bill Related issues

- ## Issue Escalation & Tag issue to project or Component

- ## Alerts Module

9

Public Web Portal

public web listing

Public Web Portal

Public Web Portal

- List all work related information to public

- List work related progress details , photograph and graphical reports

- Search facility based on District or work

10

Mobile app for field officers

Geo location capture mobile app for officers

Mobile app for officers

Officer Mobile application

- List all work based on the office
- List all sub project related to the officer
- Work progress updation module
- Geo location capture facility
- Multiple field photo capture facility