SRS FOR PRELIMINARY REPORT

Submitted to MMMUT, Gorakhpur

24.03.2022

—

Submitted by:

Softpro India Computer Technologies P Limited

Overview

Create a digital portal that can be used to create the preliminary report for construction projects that can be submitted for initial approval to central government bodies.

Goals

1. To create a portal that helps in digitizing the preliminary report generation for construction projects.

2. Cost estimation and base layouts of projects can be setup using the portal.

3. Various attributes that are associated with the type of project can be attached with project configuration.

4. Provide a design engine that works close to AutoCAD features, initial architectural design can be setup using the portal.

Problems Solving

1. Reducing the manual overhead involved in report creation.
2. Remove manual review of initial report and cost estimations by providing generic rules.

Vision

Digital portal solves the problem of manual review / setup. Currently everything is based on human query where errors are bound to occur.

Our vision is to provide one stop solution that helps in creating / verifying the report on portal through pre-defined set of rules.

Project Modules

Login Screen:

System users can securely login to the portal using the provided email and password.

User Authentication:

Portal will be role-based authentication. We can set up multiple users with different roles varying from creating reports, updating master data, approving reports before submitting. This way we can create / setup different departments with their respective access.

User Management

Create and manage a list of users that can access the portal with individual roles.

Project Type Management

Initially we'll include creating office building / hostel project types.

More types will be included with progress.

Master Data Management (Project Type Attributes)

This section will include management / setup of all the attributes that are associated with the respective project type. Eg: for hostel buildings, attributes will contain rooms, washroom, gallery, stairs, balcony, lights, amenities etc. Each attribute will contain its own setup of dimensions and cost associated.

Cost Management (Project Type Attributes)

This section will include management / setup of initial cost and minimum dimensions (based on attributes), these dimensions will be validated when creating the report and cost will be estimated and included with the initial report when generating for the final project.

Tax and Charges Setup

We'll have sections to set up taxes and charges applicable on various stages of project estimation. We will be porting the initial data provided to the digital portal.

Log Management

This section will maintain a list of logs for all the projects that were created with respective attributes. It'll be easier to track the progress and review the history of projects submitted.

Reports

The list of reports as needed, like projects created in a week / month / year & Cost of projects submitting yearly / monthly / weekly.

Settings

Settings to manage, authentication algorithm, create / send reminders for pending projects.

Project Creation

This section will derive the workflow for creating the project:

- Define project Type (list to be fetched from master data)
- Define dimensions and location of plot that will be used for construction.
- Land contouring depth will be fetched with Google API.
- Based on Project Type select additional attributes
    - Include Road construction
    - Include Boundary wall construction
    - Include Rain Water Harvesting
    - Include Septic Tank
- Add any additional cost involved
    - Extra plinth area coverage cost
    - Cost for providing stronger foundation
    - Electricity connection
    - Water supply and sewerage work
- Define number of floors involved in the project
- Include attributes with every floor, i.e. no of rooms, dining area, balconies, amenities. This list will be derived from master data pre populated during the setup.
- System will automatically validate if selected attributes can be added on the floor or project.
- A design system will be available as an alternative to drag and drop the respective items on canvas to setup the initial architectural design (TBD) for every floor.
- Reports in PDF format can be generated for every stage of the project

- Once an initial project is created and submitted, it can be marked as completed to avoid any further updates.
- Project status will contain Draft, Submitted, Approved, Rejected, and Canceled.

Challenges Observed

All Master Data Setup

List is yet to be created. This list will define all the attributes of master data that will be imported into the system like allowed project types, additional options available while creating the project. These needs more detailed analysis and will be finalized during the initial 2 months of project.

Design System

Per current review, there are not a lot of open / paid libraries available that give us the ability to create architectural designs on websites, and at this point we're not sure how flexible we can make a design engine. It will require initial 4 months of work to reach a comfortable level to commit on the possibilities.

As an alternative we're proposing to have a web UI with checkboxes and dropdown that can be used for every floor, where user can select all the amenities / rooms / gallery / roof height / etc. using a web form. **This approach will not include generation of any architectural repor**t but a summary of all the things that are included (cost and estimate wise).

Land Contouring

Per current review, google provides paid APIs to calculate the elevation on land, it will need some additional research to assure the data provided from API can be used in application for cost estimation.

Tech Specification

Backend

Laravel, PHP, MySQL

Frontend

HTML, CSS, ReactJS

Hardware Specification & Server Configuration

Application will be hosted on server and database provided by client. It will clients' responsibility to keep the server running and secure the SSH / FTP access.

System Interface and 3rd Party Libraries

We may use 3rd party libraries (open source - properly licensed) to speed up the development process for backend and frontend.

Configuration and Devops

We will provide the client with initial user credentials to test the application and report any feedback and bugs.