Sri Lanka Institute of Information Technology

Consulting Company System

Project Proposal

Information Technology Project (IT2080)

2021

ITP2021_WD_B1_G14

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Content

1. INTRODUCTION

"RAVANA Engineering Consultants Pvt. Limited" is a multi-disciplinary consulting company established in 2010 by the renewable energy founder, Dr. Priyantha Dilleep Wijesooriya. The company provides a range of services in energy and sustainable development sector covering both conventional and renewable energy systems, as well as energy management, environmental assessment, carbon offsetting, carbon sequestration activities, deign of tender designs, and technical (feasibility) report development for local and foreign clients.

Figure 1.1 Company Logo

1.1 Problem Specification

After few discussions with Head Consultant in this company we have identified some of the problems and difficulties they are facing without having a web application, so the main points are

- Consulting companies need a strong online presence due to the highly local and global competitive market expected in the post-Covid 19 era. This is not fully developed
- State the recognition through forecasting previous project records
- Challenges to provide clients with the opportunity to give feedbacks about the services of the company.
- Challenges to connect with clients in difficult situations for example during and after Covid 19 situations
- Challenges to store data.
- Challenges to update data in a continuous manner.

1.2 Solutions Outline

- Local and global Clients can be connected easily with the company through the website through Google and other networks.
- Maintain a database to store data and keep it up to date.
- Manage the finance with update daily income and outcomes, and handle a monthly profit chart
- Customers are able to connect with the company very easily.

1.3 Key Benefits

- This proposed system is effective, reduces time consumption and cost to the end- users.
- Easy to use and fast to implement – Clients and the management can use this system very easily.
- Higher security – Systems security system is very high.
- Easy to access the system from anywhere, through any e-device.
- Assists in checking appointments of project proposals from clients
- User friendly – All the users can use this system very easily.

2. System Overview

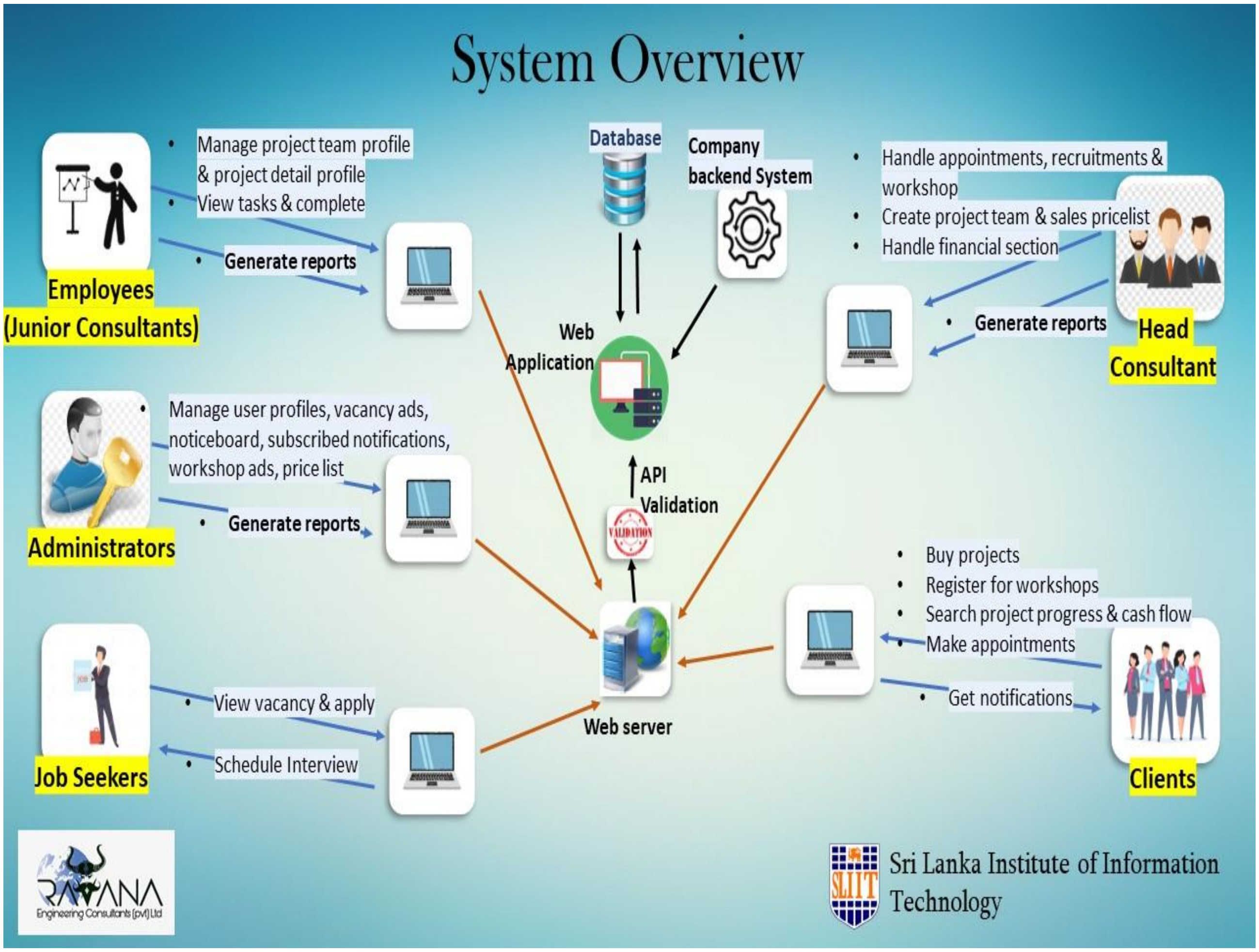


Figure 2.1 System overview

This diagram depicts an overview of the RAVANA engineering consultants (pvt) Ltd which has suggested to the company by our team. As shown in figure 2.1 there are about 4 main users and another one user. They are Head Consultant, Clients, Administrators, Employees and Job seekers.

Client come to the Web app, view company previous projects. It helps client to take a clear idea about company. After that client makes an appointment with Head Consultant. Then head consultant schedule a meeting with client and discuss about client's project.

After the discussion, accept or ignore the project is over to head consultant. If head consultant accepts that, he sends those new client details to the administrator. Administrator creates new user profile and send ID and password to the relevant client.

Head consultant creates Project team profile and assign tasks. Employees complete those tasks and update details in Project details profile. Client can search and check their project progress and cash flow by using project id and password.

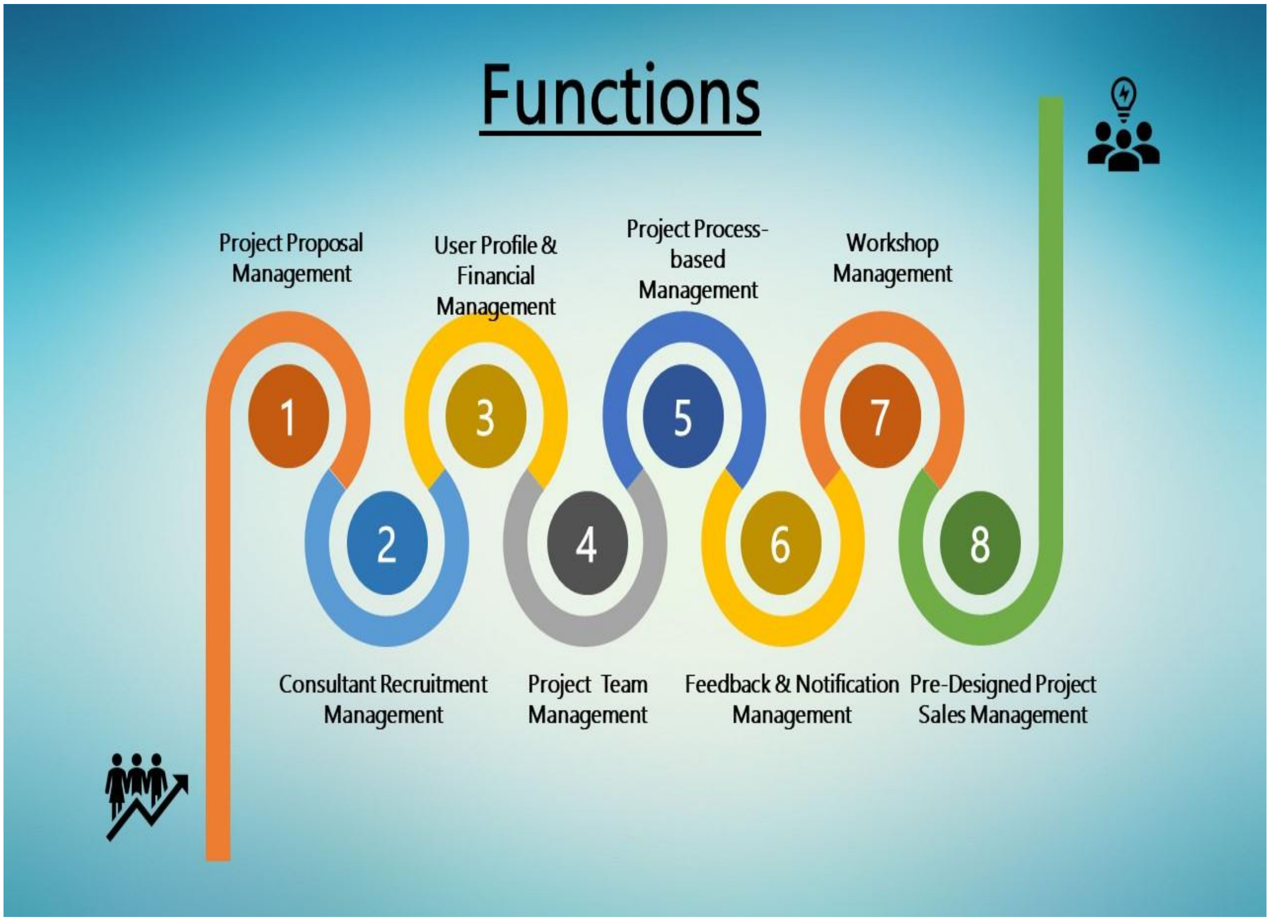
And head consultant handles financial section of the company.

Job seekers can view vacancy advertisements and apply for jobs. Head consultant interviews them and select suitable employees. After the selection, head consultant sends those details to the administrator. Administrator creates new employee profiles and send IDs and passwords to them.

Administrator handle user profiles, vacancy ads, notice board, subscribed peoples' notifications, workshop ads and price list. Then he generates those reports.

In this system, our team has planned to incorporate one database with the application server.

3. Functions


Functions
Project Proposal Management
User Profile & Financial Management
Project Process-based Management
Workshop Management
1
2
3
4
5
6
7
8
Consultant Recruitment Management
Project Team Management
Feedback & Notification Management
Pre-Designed Project Sales Management

3.1 Project Proposal Managment

Figure 3.1 Project Proposal Management

There are three main characters in this management system. If they are Administrator, Client and Head Consultant. First of all, the client comes to our website and looks at our pre projects and gets some an idea. Then the client makes an appointment made appointment will be send to the head consultant. Then, it is displayed an appointment on the head consultant page at the appropriate location. The new appointment that appears here is shown in the relevant section called "New Appointments". If the head consultant accepts to the new appointment head consultant confirms it and sends a message to the relevant client. The head consultant and client decided a date and time to discuss further details about the project relevant to the client.

Then, it is up to the head consultant to decide whether or not to carry out this project. Because, this is the client needs the project as soon as possible, but only after deciding whether the head consultant has enough time to spend on the project that it needs to complete it properly. However, the head consultant can properly complete the project within that period.

So, failure to do will result in cancellation of the appointment by the head consultant. After that the head consultant prepare a report that includes all the details of the project and all the information of the client who owns it, as decided and accepted. Then, the client information report is created, it is sent to the system administrator.

Through this function,

- •The client can make an appointment.
- •Head Consultant can view client appointments.
- •Head Consultant can create a meeting schedule.
- •Head Consultant can update a meeting schedule.
- •Head Consultant can Ignore (delete) client appointments.
- •Head consultant can generate report in details of the accepted clients.

3.2 Consultant Recruitment Management

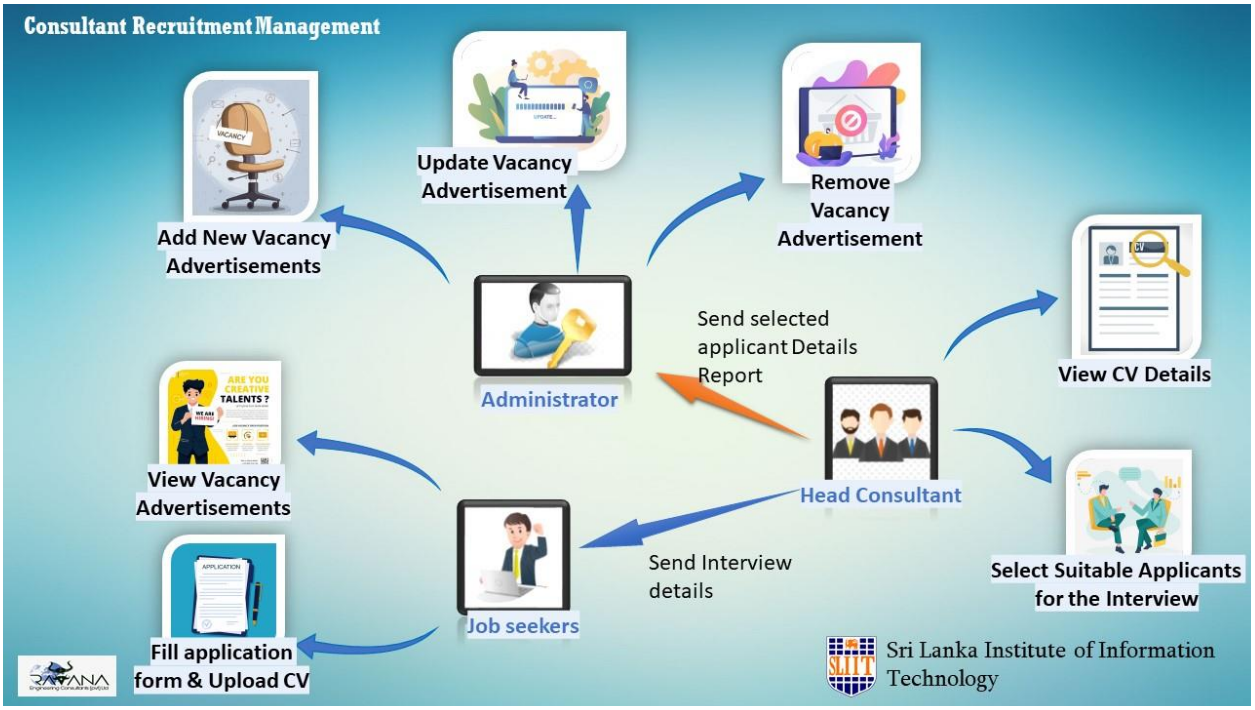


Figure 3.2 Consultant Recruitment Management

In this company, there is a requirement to hire suitable and qualified persons as junior consultants. Under consultant recruitment management , the company needs to advertise about their available vacancies. Administrator has to publish the advertisements with the required qualifications. And also, the administrator can update the details of the advertisements when head consultant announced. Once the vacancies are filled, administrator can remove those advertisements.

The interested parties can apply for a job via filling an application form. Also, they have to send their CVs through online. It is head consultant's duty to select suitable applicants with required qualifications for the interview. Then, head consultant needs to manage interview sessions and send those details to the selected applicants via emails. Then the selected applicants have to face an interview. Those who pass the interview, can join with the company as junior consultants.

Furthermore, head consultant should generate selected applicants' details report weekly. It should be sent to the administrator for creating user profiles. These are the main areas will be handled under admin of the consultant recruitment management head consultant and job seekers.

Through this function,

•Administrator can add new vacancy advertisements.

•Administrator can update the details of the advertisements.

•Administrator can remove the vacancy advertisements.

•Job seekers can view the vacancy advertisements.

•Head consultant can retrieve the applicants' details.

•Head consultant can generate selected applicants' details report weekly.

3.3 User Profile Management

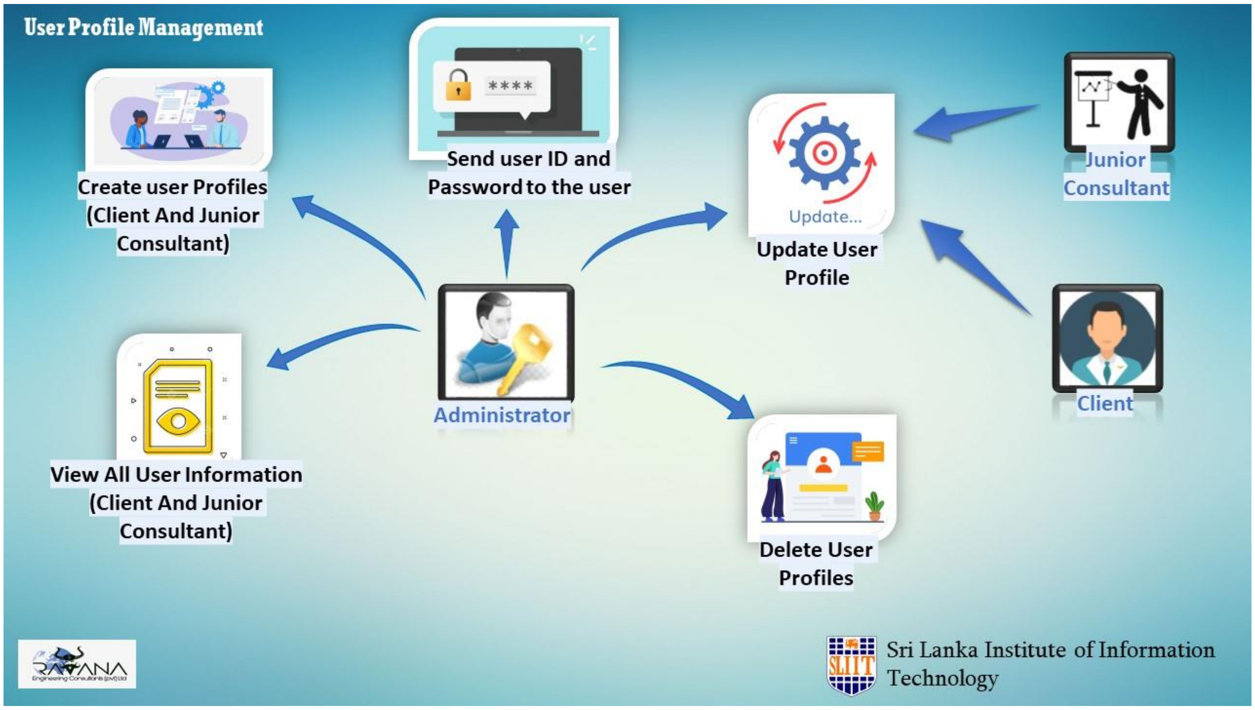


Figure 3.3.1 User Profile Management

This function maintains all the user profiles (junior consultant, client) in the system. In this system, administrator can view the user information sent by the head consultant. After that admin will create a new user profile using the information which were provided. The information includes user's (client/junior consultant) name, age, email, phone number etc. Afterwards, then admin send user Id and password to the relevant user. After being registered to the system, users can view and update their profiles and as for the administrator, he can update, retrieve, and delete all user details at any time.

Through this function,

•The administrator can create a profile.

•Clients, junior consultants can view their profiles.

•Clients, junior consultants can update their profiles.

•Administrator can update user details.

•Administrator can retrieve user details.

•Administrator can remove user profile.

3.3 Financial Management

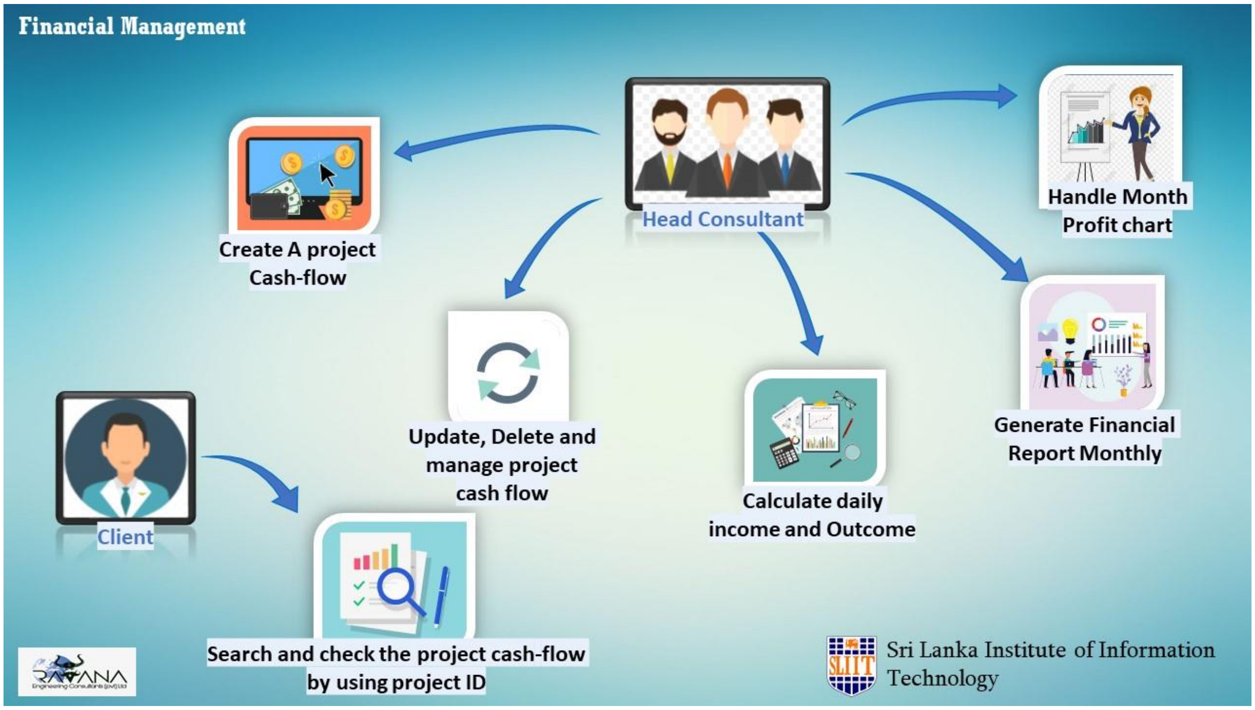


Figure 3.3.1 Financial Management

This function maintains all the financial aspects in the company. Through the system Head Consultant is able to calculate daily income and outcome, handle monthly profit chart and he can create a new project cash-flow for each project and published it and he can update, retrieve, and delete project cash-flow at any time. So, the client can search and check the project cash-flow by using project id. In monthly head consultant generate financial report.

Through this function,

- Head Consultant can create project cash-flow.
- Clients can view project cash-flow.
- Head Consultant can update project cash-flow.
- Head Consultant can retrieve project cash-flow.
- Head Consultant can remove project cash-flow.
- Head Consultant can generate monthly financial report.

3.4 Project Team Management

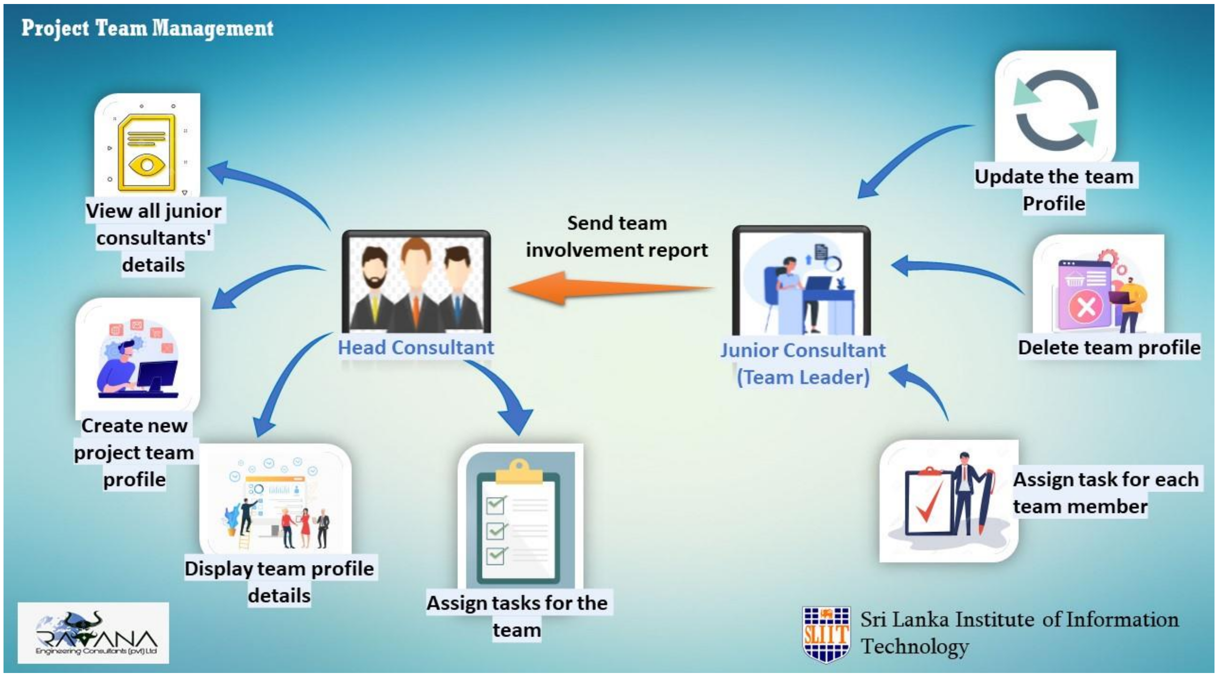


Figure 3.4 Project Team Management

This function manages (create, read and update) the team member profiles for each project. In this system, the head consultant can view the junior consultants' user profiles. After that he creates new project team profile for each project by categorizing junior consultants using their qualifications. Afterwards the team profile details will be displayed. After being created the team profiles, the head consultant assigns tasks for each team. The head consultant appoints a junior consultant as the team leader and the team leader assigns tasks for each team member. Team leader can update the team member profile and he delete the team profile after submitting the project. Every month end, team leader creates a report including the team member involvement to the project and send it to the head consultant.

Through this function,

- The head consultant can create team member profiles.
- The head consultant can assign tasks for the project team.
- Team leader can assign tasks for the team members.
- Team leader can update the profile.
- Team leader can delete the profile.
- Team leader can generate the team member involvement report monthly.

3.5 Project Process-based Management

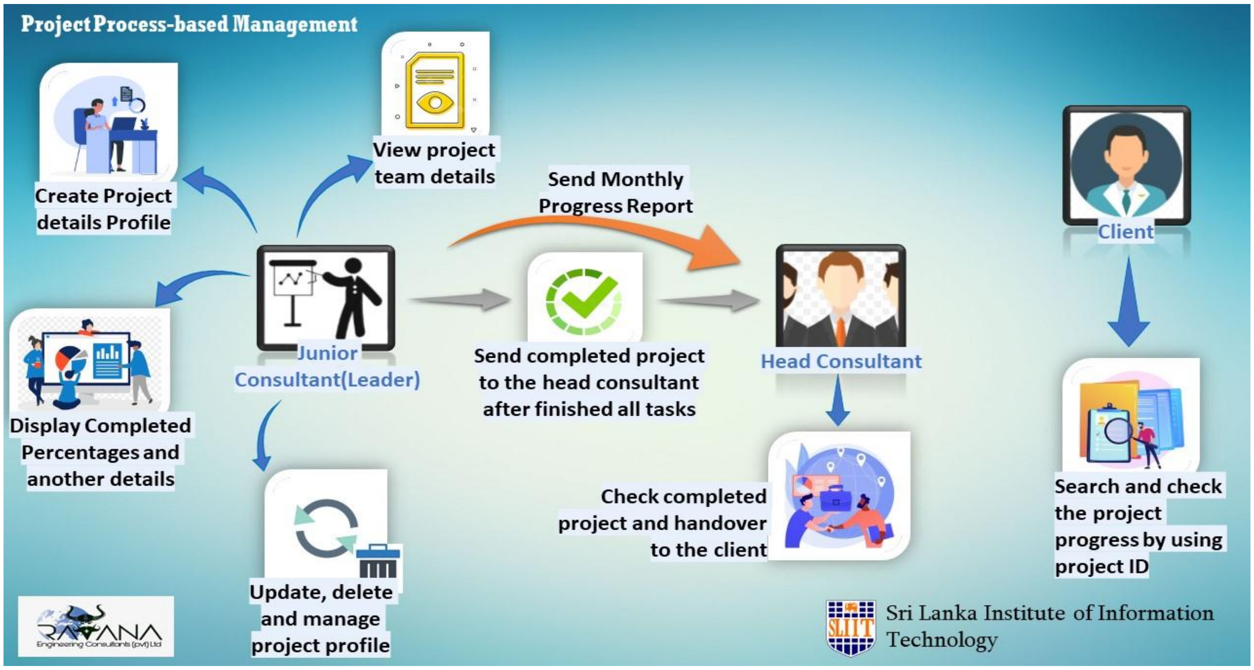


Figure 3.5 Project Process-based Management

"Ravana Engineering Consultants (pvt) Ltd" is a consultanting company with a significant customer base and high reputation. Therefore, using this function we can satisfy clients during the implementation of their project. Because anytime, anywhere client can search and check the project progress and cash-flow by using their project ID.

Leader of the Junior consultant team views project team details profile which is created by head consultant in previous mentioned function. After that, leader creates Project Details Profile and displays all tasks and other details. When employees completed their tasks, leader of the team, updates details of tasks. Because of that, client can check their project progress by using their ID.

Leader of the team, sends monthly progress report to the head consultant. After completed all tasks of the project, leader sends completed project to the head consultant and he check project report and handover it to the relevant client. Through this fuction,

- Leader of the junior conslutant team creates Project Details Profile.
- Leader can update tasks details in the profile.
- Leader can view Details profile.
- Client can search and view Details profile.
- Leader sends completed project to the head conslutant after completed all tasks.
- Leader deletes profile after hand-over project to the client.
- Leader generates progress report monthly.

3.6 Feedback Management

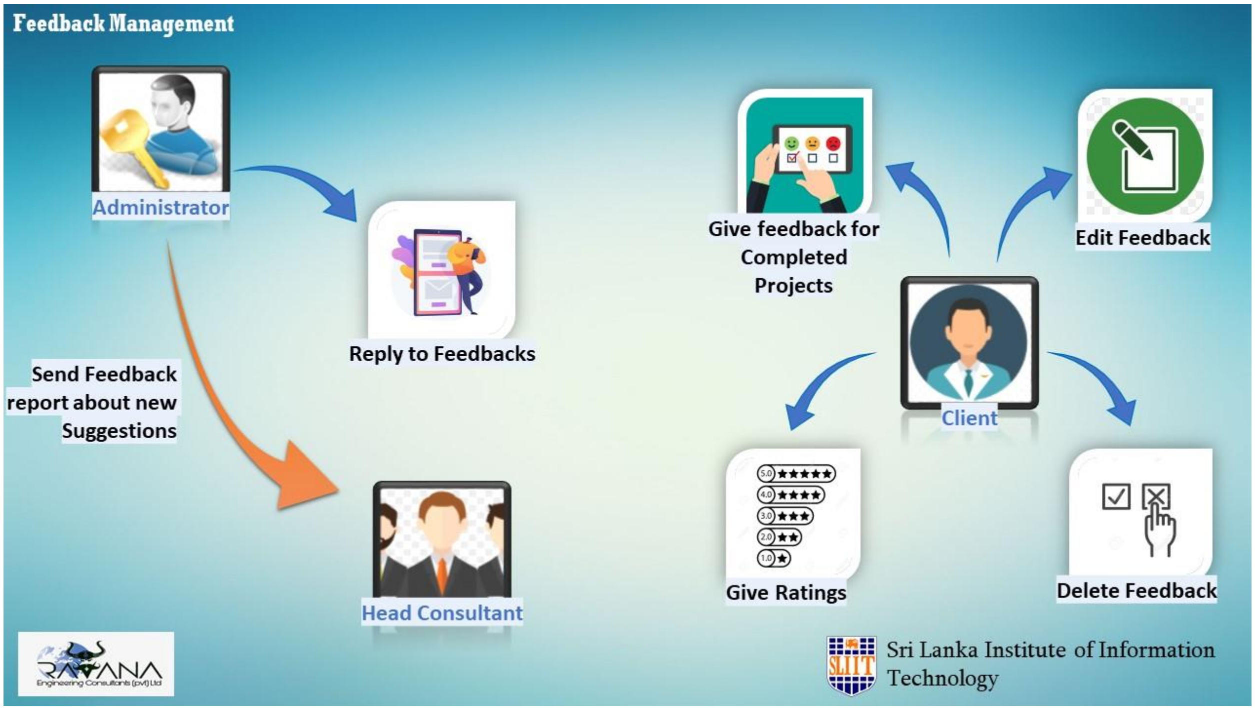


Figure 3.6.1 Feedback Management

Under this function clients can give feedbacks for completed projects. If client wants to update his feedback, he can edit it and if he wants to delete his feedback, he can delete it. And also, system provides a rating system.

The administrator replies to feedbacks and by that, he can get an idea about how clients think about our projects. After he creating a feedback report about new suggestions. Finally, he sends it to the head consultant.

•Clients can give ratings and feedbacks.

•Administrator can view ratings and feedbacks.

•Clients can update their feedback messages.

•Clients can delete their feedback messages.

•Administrator can generate a report about new suggestions.

3.6 Notification Management

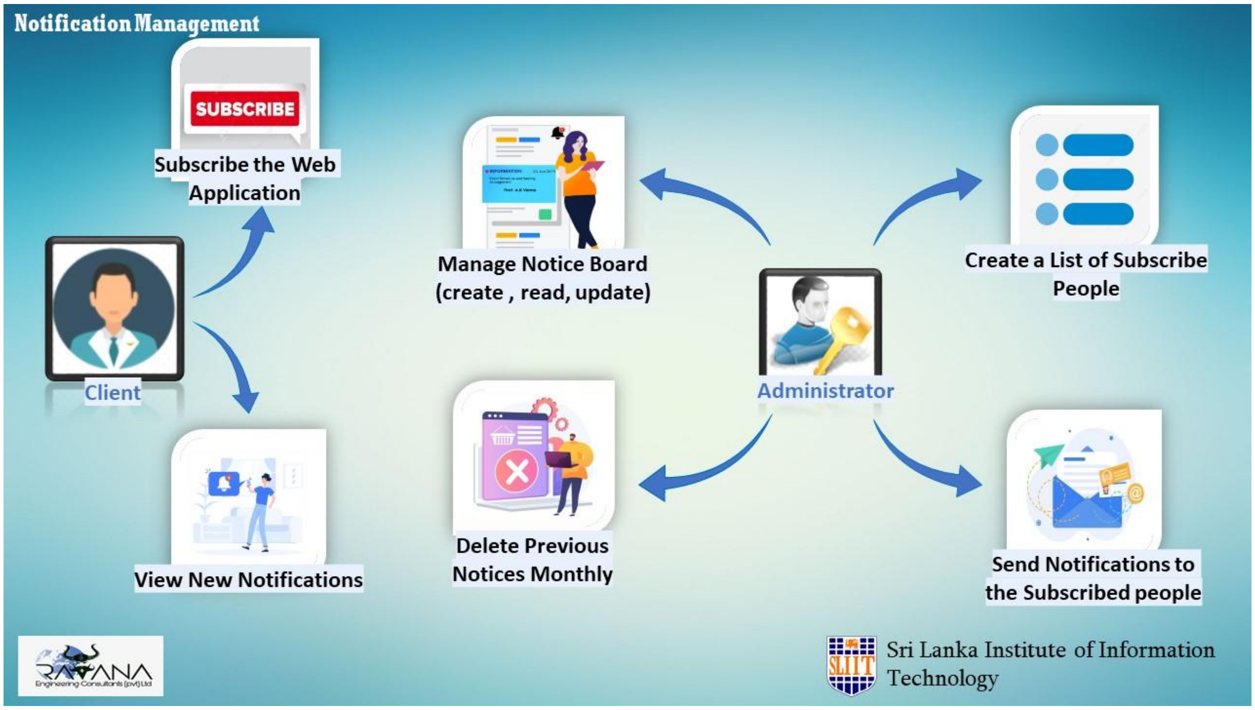


Figure 3.6.1 Notification Management

In this function, we decided to create a subscribe button in our web application. So, clients can subscribe the web application. And also, they can include their emails and phone numbers. Then the administrator creating a list of subscribe people and send latest notifications to their emails and mobile phones. By that, clients can get new notices about their projects and our company. Also, the administrator manages (create, read and update) the noticeboard and delete previous notices monthly.

•Administrator can create noticeboard.

•Administrator can view notices.

•Administrator can update noticeboard.

•Administrator can delete previous messages monthly.

•Clients can view notices.

3.7 Workshop Management

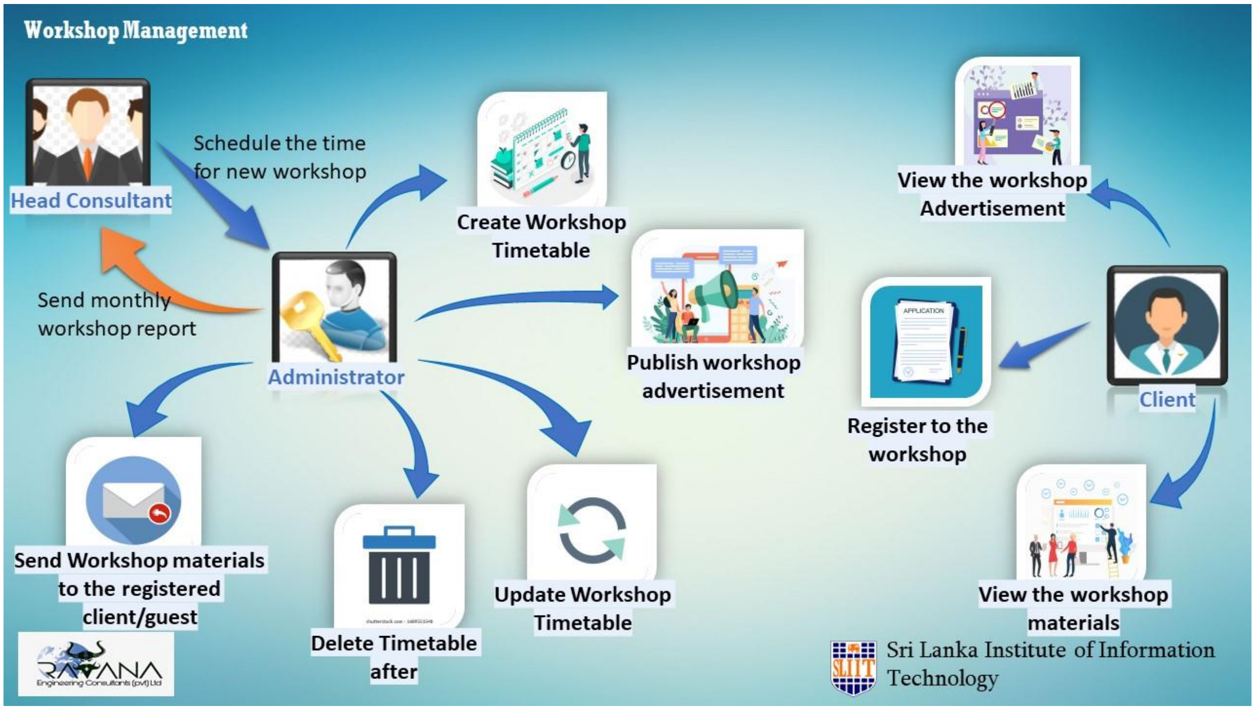


Figure 3.7 Workshop Management

The main purpose of this function is scheduling the workshops and publish them on notice board. The head consultant can schedule the time for new workshops and send it to the administrator. Then the administrator view the schedule. After that administrator create workshop timetable according to the schedule and publish it on notice board. Administrator can update workshop timetable and also delete the timetable after the workshop.

Administrator publish workshop advertisements on notice board. Then after the client/ guest who visit the notice board able to view the advertisements. The interested clients / guest can register to the workshop. After that administrator send workshop study materials to registered client/guest. Then the registered client / guest can view the study materials.

It is a duty of administrator to generate monthly workshop report and send it to the head consultant.

Through this function,

- Administrator can create the timetable for workshop.
- Administrator can update the timetable.
- Administrator can delete the timetables after the workshops.
- Administrator can publish the workshop advertisement on notice board.

•Administrator can generate monthly workshop reports.

•Administrator can send study materials to registered client.

•Client can view the workshop advertisements.

•Clients can register to the workshop.

•Clients can view the study materials.

3.8 Pre-Designed Projects Sales Management

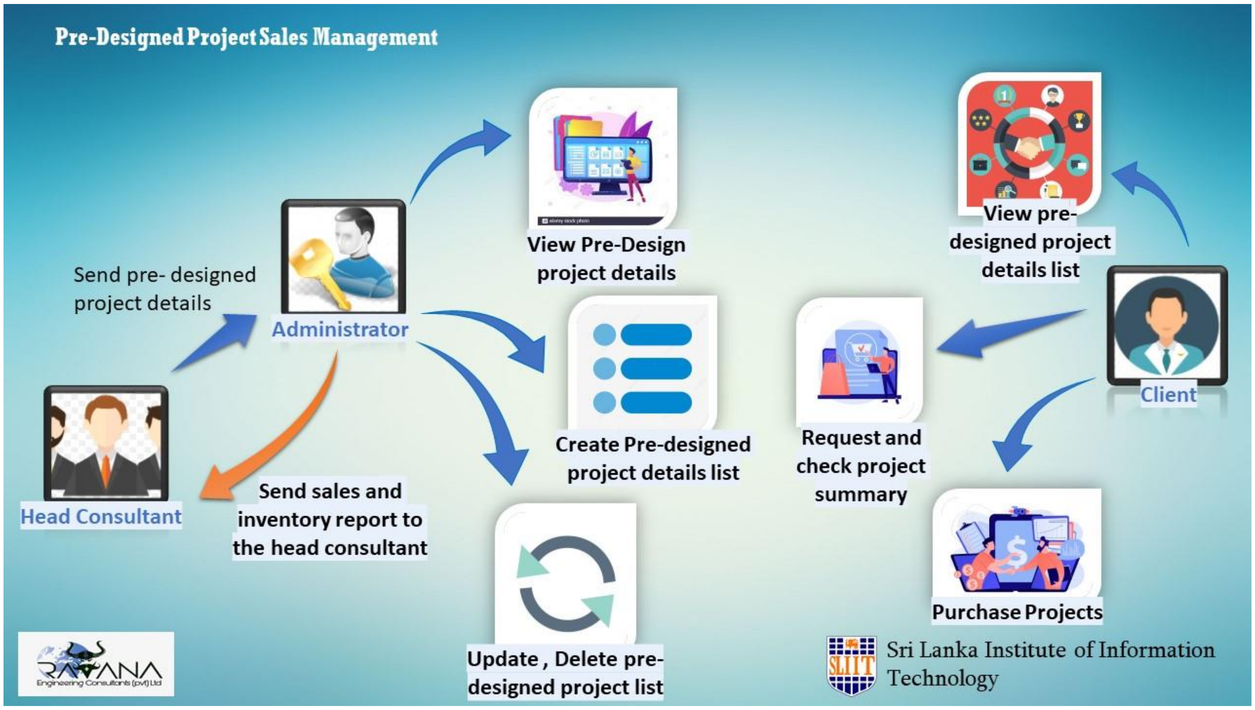


Figure 3.8 Pre-Designed Projects Sales Management

Firstly head consultant sends pre-designed project details to the administrator. Then Administrator views the pre-designed project details. After that admin will create the pre-designed project details list. He can update and delete the project list.

When a client searching our web application. He can view Pre-designed project list. So, if he wants, he can request to check the project summary. Client can purchase the projects as if he prefers. After he purchase, the project system will display an invoice and send it to the client.

Finally, after sell the pre-designed projects, the administrator sends sales and inventory report to the head consultant and it generate manually.

Through this function,

- Head consultant can send pre-designed project details to administrator.
- Administrator can view pre-designed project details.
- Admin can create pre-designed project list.
- Admin can update and delete the project list.
- Client can view Pre-designed project list.

•Client can request to check the pre-Designed project summary.

•Client can purchase the projects.

•System will display an invoice and send it to the client.

•The administrator sends sales and inventory report to the head consultant.

4. Tools and Technologies

We are using the MERN stack to develop our web application. It consists of MongoDB, ExpressJS, ReactJS, and NodeJS.

☐MongoDB

•This is the database program that we use for the web application.

•A document-oriented, No-SQL database used to store the application data.

☐ExpressJS

•Express is the most popular web application framework which uses NodeJS.

•This is the server-side web framework.

•It is used to build the backend of the web application using NodeJS functions and structures.

☐ReactJS

•This is the client-side JavaScript framework.

•It is used to build the frontend that develop dynamic and interactive user interfaces on the web application efficiently.

☐NodeJS

•This is the JavaScript runtime environment.

•It is used to run JavaScript on a machine rather than in a browser.

☐Visual Studio Code

•Visual studio code is a free code editor.

•Visual studio code is the IDE that we use to develop the web application.

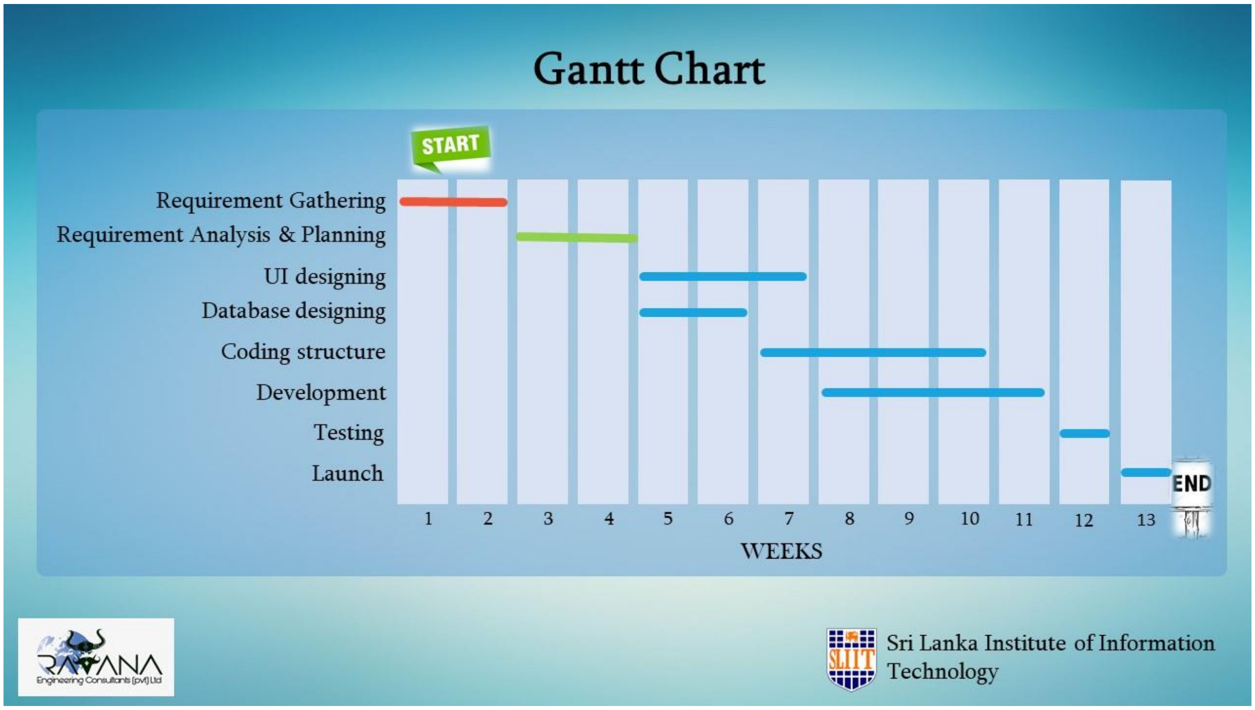
☐GitHub

•GitHub is a Git repository hosting service.

•This is an easy solution when the project team members are not in the same physical location.

•It can easily be used as a collaboration platform among coders and can be used to build complex systems.

5. Gantt Chart



This Gantt chart describes the project management plan in our project. It shows the work which we do over the relevant time periods. According to our project management plan, the total project duration is about 13 weeks. In this chart, the red line shows the completed tasks up to now. The green line shows the tasks that we have already started. The blue lines show the tasks that we hope to do. Requirements gathering has been completed successfully and project planning is being done this period. We hope to reach the end of our project within the 13th week.

6. Work Distribution

Name & IT number	Work Distribution
Adhihetty C.D - IT20133672	**User Profile & Financial Management** • User interfaces development • Back-end development • Implementing the related create, update, retrieve and delete functions. • Database connection • Generating the report
Perera M.P.M - IT20133818	**Project Process-based Management** • User interfaces development • Back-end development • Implementing the related create, update, retrieve and delete functions. • Database connection • Generating the report
Kapukotuwa S.A.A.H - IT20139544	**Workshop Management** • User interfaces development • Back-end development • Implementing the related create, update, retrieve and delete functions. • Database connection • Generating the report
Almeda P.P.K - IT20137632	**Project Proposal Management** • User interfaces development • Back-end development • Implementing the related create, update, retrieve and delete functions. • Database connection • Generating the report
Gunasekara A.M.P.P - IT20135966	**Consultant Recruitment Management** • User interfaces development • Back-end development • Implementing the related create, update, retrieve and delete functions. • Database connection • Generating the report

Ekanayake E.M.V.Y - IT20138868	**Project Team Management** • User interfaces development • Back-end development • Implementing the related create, update, retrieve and delete functions. • Database connection • Generating the report
Wijenayake R.A.E - IT20133122	**Pre-Designed Project Sales Management** • User interfaces development • Back-end development • Implementing the related create, update, retrieve and delete functions. • Database connection • Generating the report
Suriyawatta M.A.D.G.A - IT20135652	**Feedback & Notification Management** • User interfaces development • Back-end development • Implementing the related create, update, retrieve and delete functions. • Database connection • Generating the report