Sri Lanka Institute of Information Technology

Information Technology Project

Year 2, Semester 2 - 2024

Project Charter

Title of the Project :	Tea Estate Management System for Bio Tea Factory	
Campus & Batch :	Malabe Weekday Batch 2.2	Group No: ITP24R_B2_08
Development Technology :	MERN (Database - MongoDB, Front end - React.js, Back end - Node.js and Express.js)	

Description of the Project:

The client for the Tea Estate Management System is Bio Tea Factory located in Haputale, Sri Lanka. Currently reliant on manual processes and basic tools like Microsoft Excel, the factory manages inventory, workforce, and financial data.

The solution aims to significantly enhance operational efficiency within tea estates by replacing manual processes with a fully automated, integrated application. The system will consolidate all data into a digital platform, ensuring accessibility and enabling efficient data management and retrieval.

Bio Tea Factory has faced challenges with scalability and efficiency due to manual tracking methods. These challenges include delays in accessing critical inventory data, leading to disruptions in production schedules and occasional inventory shortages. Issues related to data accuracy and transparency in operational reporting further underscore the need for a centralized system capable of streamlining data management and ensuring compliance with industry standards.

Our objective is to automate and integrate inventory and workforce management processes to enhance productivity and improve decision-making capabilities. The main problems addressed include manual data handling, decentralized information, and inefficiencies in inventory management using outdated file-based systems and basic technological tools.

Implementing the Tea Estate Management System is essential for Bio Tea Factory to modernize operations, boost efficiency, and sustain competitiveness in the competitive tea industry. This solution will optimize resource management practices and support sustainable growth initiatives.

Details of the Group Members: *(Provide the details of the group leader in the first row)*

	Name with Initials (Surname first)	Registration Number	Contact Phone Number	Email
1.	DE SILVA R K D H	IT22001252	0775444310	it22001252@my.sliit.lk
2.	PIYARATNE U A D T	IT22088550	0715532796	it22088550@my.sliit.lk
3.	HERATH D M S T	IT22639776	0703741107	it22639776@my.sliit.lk
4.	VIVIPEM L B R V	IT22639844	0712108907	it22639844@my.sliit.lk
5.	JANUKSHAN S	IT22635266	0767268555	it22635266@my.sliit.lk
6.	RANDENIYA A A S L B R P W R C	IT22236500	0778667140	it22236500@my.sliit.lk
7.	MIHISARANI A K S	IT22175366	0761897883	it22175366@my.sliit.lk
8.	ASATH M M	IT22633422	0770664182	it22633422@my.sliit.lk

List of Functions Developed by the Group Members:

	Name with Initials	Description of the Function
1.	DE SILVA R K D H	Employee Management The Employee Management System (EMS) enhances HR efficiency by streamlining employee-related tasks. Managed by the HR manager, it offers several key features: **Employee Database Management** maintains detailed employee records, manages accounts, searches details, and generates reports. **Recruitment Management** manages job postings, application reception, and applicant tracking. **Attendance and Leave Management** tracks leaves, allows employees to request leaves, and enables managers to approve or reject requests. **Salary Calculation** calculates monthly salaries and allowances based on designation and performance. These functionalities help improve the overall administrative efficiency of the HR department.
2.	PIYARATNE U A D T	Inventory Management The Inventory Management component **manages all essential inventories** for tea production and factory operations. It **tracks raw tea after quality assurance and processed tea after production**, where the tea is categorized based on type. It also **manages daily factory utilities and large stocks** such as fuel and fertilizer. They are allocated to specific usage areas within the factory and **consumption rates are tracked** against production schedules to ensure adequate supply levels are maintained.The system **sets reorder points** based on consumption patterns and lead times. When an item's inventory level reaches the reorder point a **purchase requisition is generated** for factory utilities. For large stocks, when levels drop below predetermined thresholds, **automated notifications are sent to designated supplier managers**. Additionally, data from the inventory management system is aggregated and analyzed to **create graphical representations** to visualize inventory trends and consumption patterns over time. The system also supports **dynamic report generation** and the **creation, search and viewing, updating and deletion** of inventory items.
3.	HERATH D M S T	Transport Management The Transport Management section helps Distribution Managers **schedule and manage deliveries automatically** within the estate, covering order transportation, s**upplies transportation**, and harvest transportation. The **vehicle management** includes; adding new trucks, checking their condition, and assigning drivers. For **order transportation**, the system automatically **schedules pickups based on order size, assigns trucks**, and **notifies clients** about pickup and delivery times, including truck and driver details, with **rescheduling option** for delays. **Harvest transportation** is scheduled daily, **assigning tractors to routes based on availability**. The **route management** section will allow the Distribution Managers to handle and manage routes. The system also includes search options to find trucks, check daily workloads and history, and generate reports.
4.	VIVIPEM L B R V	Supply Management Supplier Management involves managing suppliers that provide fuel, fertilizer, and chemicals. Functions such as **adding new suppliers, updating, deleting, and searching suppliers** are included. Additionally, the inventory is maintained with an **automated supply scheduling option** given to the supplier handling manager. If the inventory is full, the scheduled supply load will be delayed until the next available slot. When the inventory management requests a supply, the **necessary suppliers are contacted** to fill up the inventory according to the requests. **Addition of new supply loads** and **keeping records of suppliers and supplies** are also included, as well as a **report-generating option**.

5.	JANUKSHAN S	Field and Harvest Management The Field and Harvest Management encompasses comprehensive functions such as **Field Management** that adds new tea fields and assigns labor to each field and **manages fertilizer schedules.** **Daily Harvest Recording records quantities of manually categorized tea leaves** by quality grade and updates inventory. **Overtime Calculation calculates employee overtime rates** based on extra tea leaves harvested. **Performance Analysis tracks employee performance and division-based metrics** using visual representations such as graphs. Also **Timely Reporting** includes **generating timely reports, including notifications** to field management for action if a large proportion of poor or diseased leaves are harvested, prompting fertilizer management interventions like **changing scheduled fertilizer levels.**
6.	RANDENIYA A.A.S.L.B.R.P.W.R.C	Sales and Order Management The Sales and Order Management section empowers tea estate managers to streamline buyer interactions and optimize sales processes. The sales manager **manages orders** and sales. The manager **hosts auction meetings with buyer**s, where they can **accept or decline orders**. Once an order is accepted, an **invoice is promptly sent** to the selected buyer. The pick up of the particular order is also assigned. **Dynamic pricing adjustments are supported**. **Inventory is automatically updated** in response to orders placed. Managers can **visualize sales history** through graphical representations. They can **generate detailed reports** on sales dynamically and have the flexibility to **view sales data** by filtering on specific criteria.
7.	MIHISARANI A K S	Product Management The Product management system assists with all buyer-related tasks and enhances the efficiency of purchasing products. The system allows for **creating a product overview** using inventory reports. If any modifications are needed, **products can be updated or deleted**. This system is utilized by the sales and order departments to **facilitate meetings and send quotations.** The buyer needs to register with the system initially. Once registered, they can **search and view product details**, **participate in tea auctions,** and manage their purchasing activities. During the meetings, **buyers are selected** and the **prices are finalized**. After that, the **quotations are sent** by the order manager to the chosen buyer and stored in the buyer's profile. Buyers can **accept quotations, track orders in real-time**, and **view their complete order history**. Users can also **generate detailed reports** on their order history.
8.	ASATH M M	Maintenance and Repair Management This section manages all maintenance and repair activities within the estate. Workers & Drivers **can log or request for repair for specific machines or vehicles** detailing the issue and its location. Maintenance managers can then **assign these tasks** to appropriate staff members and **set priority levels.**The system **tracks the progress of each maintenance task** from initiation to completion. Additionally, users can **schedule routine maintenance checks** and maintain a history of all completed repairs. The check is an overall check that derives details from the machine maintenance. The system also supports **generating monthly reports** on maintenance activities, identifying recurring issues for analysis. Maintenance manager can **search for specific maintenance tasks or repairs** by date, issue type, machine type, machine id or location.The system **maintains records of machinery** in the factory including the history of maintenance and repairs.Additionally, it **predicts the next service date by predefined data**. The machines will have the machine name, id, type and the store location for its reference. Also the system **keeps record for all the vehicles and machines separately.** that includes data of the vehicle/machines data, service records, assigned workers ect.