IT5106 - Software Development Project

Project Proposal

Academic Year 2023

Candidate Details

Index No: 2000687

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Supervisor/Advisor Details

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Note: Any deviation of the final project from the project described in this proposal should be explained by the candidate in the final Project Report.

Project Details

1. Title of Project:

Web-Based National Park Management System for YALA NATIONAL PARK

2. Name and address of client (ONLY if applicable):

3. Brief Introduction:

Yala National Park is an enchanting sanctuary located in the southeastern corner of Sri Lanka, which had been designated in 1938. It is Sri Lanka's biodiversity hotspot and it's a natural wonder that attract adventurers, wildlife enthusiasts, and nature lovers. Yala has been a home for remarkable assortment of mammals, birds and reptiles. Yala National Park is being worked in the ecotourism and animal conservation industries. In Sri Lanka National Park Service (NPS) has safari vehicle bookings, bungalow reservation, tour reservation.

A national park management system's primary goal is to guarantee the efficient preservation and long-term administration of a nation's national parks and is to offer a sustainable and pleasurable visitor experience, especially from the standpoint of tourism. The organization has been faced a number of challenges in managing the above operations due to manual process. Hence in order for the organization to stay at the top, it needs to increase its efficiency.

4. Motivation for project:

Currently, the organization handles the processes mentioned above manually and paper-based approaches. A manual National Park Management System, relying on traditional, paper-based processes and limited technology, can have several drawbacks that may impact efficiency, accuracy, and overall effectiveness of the system.

The following is a list of some of the problems the organization has encountered.

- Errors might happen and duplicate data entering can happen with paper records.
- Staff members often find it difficult to obtain information instantly because physical records are frequently restricted to particular areas.
- Paperwork and manual processes can be time-consuming and inefficient.
- Delays and miscommunications may occur.
- Physical records are vulnerable to loss and damage.
- Difficulties in managing visitor information, reservation, and providing up-to-date information.
- Cannot control the disturbance from visitors to animals by arriving to the same hotspot since there is no tracking method.
- Difficulties regarding real-time availability checking of vehicles and bungalows.
- It is not feasible to track the real-time location of vehicles designated for trips.

- Difficulty in scheduling a vehicle to tour and assigning a driver and guide.
- There is no automated process to indicate the number of vehicles needed according to the number of seats available in a vehicle when the visitor inserts the number of visitors.
- Difficulties in doing additional payment if the time exceeds of a tour than the visitor has mentioned to the management.

The success of the organization has been limited by the factors listed above, therefore the author has suggested employing a web-based approach for dealing with these problems. So, a web-based National Park Management System provides numerous advantages offers over traditional manual system. And also using a web-based application is much easier to users and staff.

5. Project Objectives

The objectives that follow are expected to be accomplished when the proposed project is executed.

- Improves the efficiency of day-to-day park operations.
- Enable real-time access to data for staff.
- Manage visitor activities effectively. (Interactive maps and online vehicle booking and bungalow reservation systems enhance the enjoyable and interesting guest experience.)
- Enhance wildlife observation and promote effective conservation initiatives since there is a tracking method.
- Implements secure data storage.
- Avoids the disturbance from visitors to animals by embedding a tracking method which is a map provided along the system.
- Allows for easy expansion and updates.
- Improves communication.
- Reduce costs associated with manual processes.

6. Scope of proposed project:

The following modules need to be undertaken to achieve the above project objectives.

- **Staff Management**

  Employee Information Database (Store and manage employee profiles with details), Attendance Tracking (Implement a system to monitor staff attendance, including check-in and check-out times.), Employee Feedback (Allow employees to provide feedback, suggestions, and complaints through the system.)

- **Visitor Management**

  Visitor Registration (Enable easy and quick registration of visitors), Check-in and Check-out (Track the entry and exit of visitors to the park.), Interactive Maps (All the vehicles which are In the hotspots will be indicated, all the hotspots will be shown, helps visitors navigate the park easily.), Visitor Feedback (Collect feedback from visitors regarding their experience.)

- **Driver Management**

  Driver Information Database (Store and manage drivers' personal details), Assign for a visit (Assign drivers to specific tours.)

- **Guide Management**

  Guide Information Database (Store and manage guides' personal details), Assign for a visit (Assign guides to specific tours.)

- **Vehicle Management**

  Vehicle Information Database (Maintain a comprehensive database of all park vehicles), Maintenance Management - 1. Maintenance History Tracking (Keep a detailed record of each vehicle's maintenance history)
  2. Automated Maintenance Alerts (Set up automated alerts for upcoming maintenance tasks based on mileage, engine hours, or time intervals.),
  Driver Assignment (Assign drivers to specific vehicles.)

- **Reservation Management**

  User Registration and Profiles (Allow visitors to register and build profiles so they can handle their bookings), Reservation and Booking System (Provide an easy online platform for visitors to make reservations for tours and bungalows.), Availability Updates (Display real-time availability for bungalows and vehicles.), Reservation Confirmation (Send confirmation emails or messages to visitors upon successful reservation.), Cancellation and Refund Policy (Provide a process for visitors to cancel reservations and initiate refunds when applicable.)

- **Payment Management**

  Payment Methods (Support various payment methods, including credit/debit cards.), Payment Confirmation (Send visitors automated confirmation emails after payments have been successfully completed.)

- **Tracking Management**

  GPS Integration (Use GPS technology to track the location of vehicles and hotspots), Mobile App Tracking (Allow visitors to explore the park.)

- **Feedback / Review Management**

  Visitor Feedback (Provide a user-friendly interface for visitors to submit feedback and reviews about their experience.), Rating and Review (Implement a rating system like star ratings.), Photo and Video Uploads (Allow visitors to upload photos or videos as part of their feedback.)

7. Critical functionalities for project:

- Implement tracking features within the system to allow visitors to explore the park.
- Integrate an automate system to indicate the number of vehicles needed to the tour according to the number of seats available in a vehicle whenever a visitor inserts the number of visitors.
- Controls the disturbance from visitors to the animals while indicating the vehicles which will be in the hotspots through the map then a driver can avoid going for hotspots where many vehicles have arrived.
- Visitors can select a time slot for the tour, whenever if the time exceeds automatically an additional payment will be added.
- In bungalow reservation visitors can select number of rooms and room types according to their preference.
- Send automated confirmation emails to visitors upon successful completion of payments while including relevant details about the transaction and reservations.

8. Itemized list of deliverables of the system:

Note: Deliverables are items that you would deliver to the client at the end of the project.

- Completed system with the database
- User manual
- System manual and training support

9. A project plan using Gantt chart (include the work involved in system development as well as writing the Final Project Report):

Name	Start Date	End Date	Duration
Initialization and Preliminary Study	Nov 10, 2023	Nov 11, 2023	2 days
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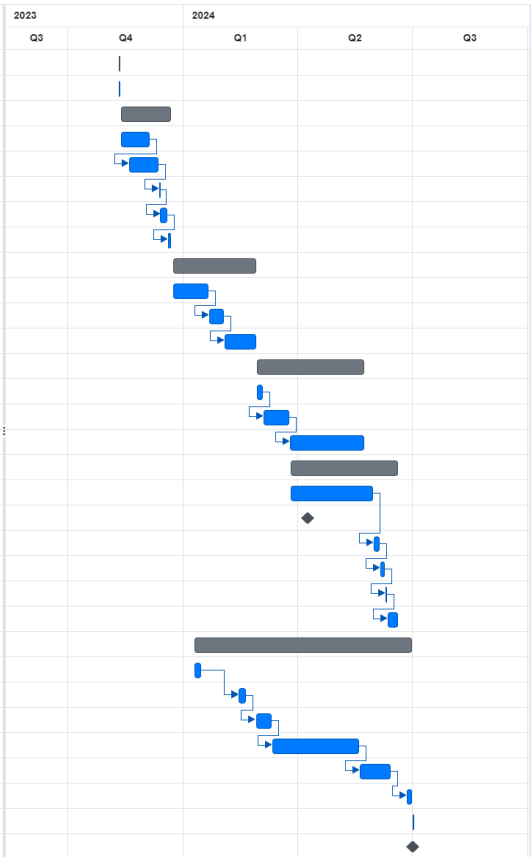
Analysis	Nov 12, 2023	Dec 21, 2023	40 days
Requirement Gathering	Nov 12, 2023	Dec 04, 2023	23 days
Analyze User and System requirements	Nov 18, 2023	Dec 11, 2023	24 days
Feasibility Study	Dec 12, 2023	Dec 12, 2023	1 day
Define user and system requirements	Dec 13, 2023	Dec 18, 2023	6 days
Prepare System Requirement Specifications	Dec 19, 2023	Dec 21, 2023	3 days
Design	Dec 23, 2023	Feb 27, 2024	67 days
System Design	Dec 23, 2023	Jan 20, 2024	29 days
Database Design	Jan 21, 2024	Feb 01, 2024	12 days
User Interface Design	Feb 02, 2024	Feb 27, 2024	26 days
Development	Feb 28, 2024	May 23, 2024	86 days
Database Development	Feb 28, 2024	Mar 03, 2024	5 days
User Interface Development	Mar 04, 2024	Mar 24, 2024	21 days
Back-end Development	Mar 25, 2024	May 23, 2024	60 days
Deployment and Testing	Mar 26, 2024	Jun 19, 2024	86 days
Unit Testing	Mar 26, 2024	May 30, 2024	66 days
Interim Report Submission	Apr 08, 2024	Apr 08, 2024	0 days
Integration Testing	May 31, 2024	Jun 04, 2024	5 days
System Testing	Jun 05, 2024	Jun 08, 2024	4 days
System Deployment	Jun 09, 2024	Jun 10, 2024	2 days
User Acceptance Testing	Jun 11, 2024	Jun 19, 2024	9 days
Writing the Dissertation	Jan 09, 2024	Jun 30, 2024	174 days
Begin the Dissertation Introduction	Jan 09, 2024	Jan 14, 2024	6 days
Writing details of the Analyze Phase	Feb 13, 2024	Feb 19, 2024	7 days
Writing details about the Design	Feb 27, 2024	Mar 10, 2024	13 days
Writing details about Implementation	Mar 11, 2024	May 19, 2024	70 days
Writing details about Evaluation	May 20, 2024	Jun 13, 2024	25 days
Finalize and Review Dissertation	Jun 26, 2024	Jun 30, 2024	5 days
Submit Dissertation	Jul 01, 2024	Jul 01, 2024	1 day
Submit Dissertation	Jul 01, 2024	Jul 01, 2024	0 days



10. Resource requirements for project (e.g., hardware, software, …):

Software Requirements

- Development:
  - Microsoft Windows 11 Operating System
  - NetBeans Integrated Development Environment 8.2
  - XAMPP software bundle 64bit
    - Web Scripting -PHP 8.1.0
    - Database Management System -MySQL
    - Testing Server -Apache
  - Web browsers (Google Chrome, Mozilla Firefox)
- Deployment:
  - Microsoft Windows 11 Operating System
  - Google Chrome Web Browser
- Documentation:
  - Microsoft Word 2021
  - Visual Paradigm for UML
  - Microsoft Visio

Hardware Requirements

- Server
  - Hosting Space: 5GB
- Client
  - 11th Gen Intel(R) Core (TM) i7-1165G7 @ 2.80GHz 2.80 GHz
  - 8GB RAM
  - 512 GB SSD and 2TB HDD

11. Proposed way of self-evaluating the success of your system:

The proposed system:

- Enables real time access to data for staff.
- Allows for online reservations.
- Provides a centralized platform for tracking.
- Reduce the need for manual paper work.
- Provides automated systems to calculate the number of vehicles according to the inserted number of visitors and to add an additional payment if the inserted time slot exceeds of a tour.