Basic Details of the Team and Problem Statement

Ministry/Organization Name/Student Innovation:
Govt of Himachal Pradesh

PS Code:1382

Problem Statement Title: Real Time Vehicle Tracking System

Team Name: HimTrakers

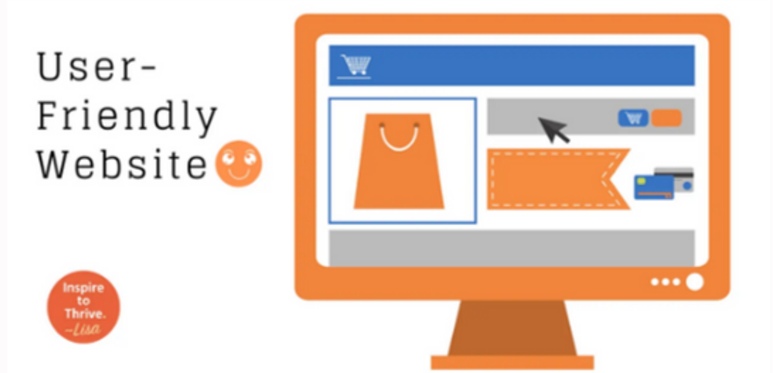
Team Leader Name: Nihir jain

Institute Code (AISHE): C25173

Institute Name: Poornima College of Engineering

Theme Name: Smart Vehicle

Content



Solution

1.User Friendly Website

Creating a user-friendly website for your project is essential to ensure that passengers can easily access and use the real-time transportation information you're providing.

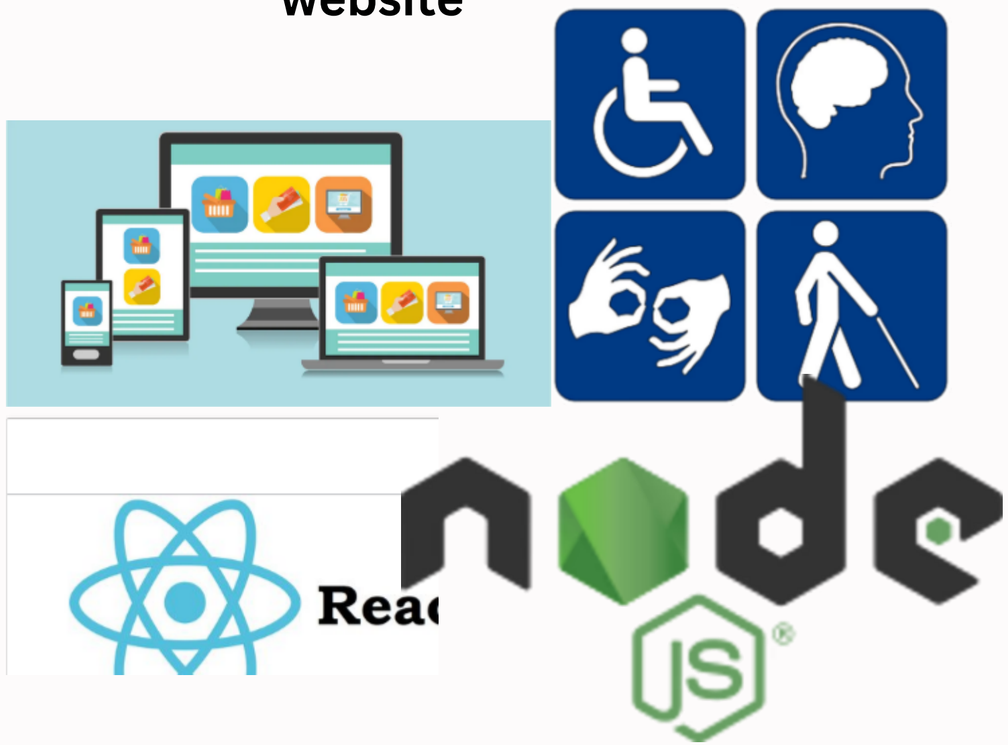
To make website interactive we will use JavaScript and React.js

For backend we will use node.js

For user data we will use database management system

Totally Responsive website which we will use made using Tailwind css and react.js.

For Accessibility we use semantic tags in whole website . Due to semantic tags person with Disability also use the website



Solution

2.GPS TRACKING

We will use the Geolocation API, which is built into modern web browsers. This API allows you to retrieve the user's and buses geographic position (latitude and longitude) using JavaScript.

1. CHECK FOR GEOLOCATION SUPPORT:

2. GET THE USER'S LOCATION:

3.CONTINUOUSLY TRACK USER LOCATION

3.Map Integration

For map will use Google Map Javascript API . And Then track the location of the user that we find from GPS Tracking

4.Real-time Info Regarding Buses in Himachal Pradesh

Getting real-time information regarding buses in Himachal Pradesh typically involves collaborating with relevant transportation authorities, agencies, or service providers that offer such data.
And If we don’t Have the permission then we will also use API of Red Bus.

After Getting data of buses . We will Track the location of bus using geolocation Api.

5.Feedback and Improvement

In which User and Driver gives the feedback and also tells us About what Type of improvement They want to see.

Real Time Tracking

Implementing real-time tracking between users and buses in your project involves several components, including GPS tracking, data communication, and user interface development.

1. GPS Tracking on Buses:

Gps Tracking Using Geolocation Api

2. Data Collection and Storage:

Set up a database to store real-time location data from buses. This data should include latitude, longitude, timestamp, and a unique bus identifier.

3. User Location Retrieval:

User Location Tracking Using Geolocation APII

4. Calculate Proximity:

Periodically calculate the distance between the user's location and the locations of nearby buses using geographical distance calculation formulas (e.g., Haversine formula).

5. Data Communication:

Establish a communication channel (e.g., RESTful APIs, WebSocket) between the user's device (mobile app or web app) and your server to facilitate real-time data exchange.

6. Real-Time Updates

Continuously send real-time bus location updates to the user's device through the established communication channel.

7. Map Integration

Integrate mapping services (e.g., Google Maps, Mapbox) into your user interface to visualize bus locations and routes.

With the Help of database in which user and bus location is stored we put that location in google map api Then vehicle tracking is Complete

Flow Chart

Real Time Tracking

GPS Tracking on Buses

Data Collection and Storage

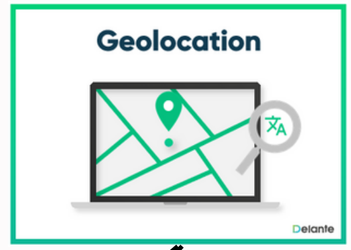
User Location Retrieval

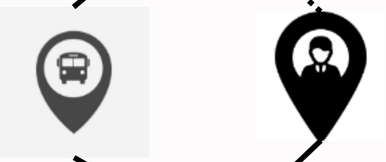
Calculate Proximity

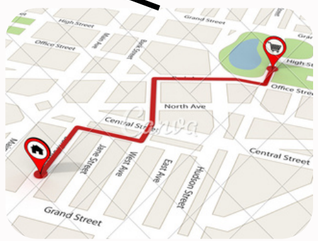
Google Map Api

Real-Time Updates

Map Integration







AIM and Important Pointers

The proposed solution aims to develop a user-friendly and robust smart transportation system for Himachal Pradesh, focusing on real- time vehicle tracking, estimated arrival times, and sustainability information for buses.

- **ENHANCING PUBLIC TRANSPORTATION EFFICIENCY**
- INCREASING CONVENIENCE
- **IMPROVING USER EXPERIENCE:**
- **PROMOTING SUSTAINABILITY**

Team Member Details

Team Leader Name: Nihir Jain
Branch (BTech):Stream (CSE(R)): Year (I):
Team Member 1 Name: Anshul Soni
Branch (BTech):Stream (CSE(R)): Year (I):
Team Member 2 Name: Priyanshi Jain
Branch (BTech):Stream (CSE(R)): Year (I):
Team Member 3 Name: Harsh Gupta
Branch (BTech):Stream (CSE(R)): Year (I):
Team Member 4 Name: Heeral Jain
Branch (BTech):Stream (CSE(R)): Year (I):