Live Location Tracker

Software Requirements Specification

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Contents

1. Abstract

The main purpose of this web application is to provide the user with a very smooth and enjoyable real-time location tracking experience. The system utilizes the GPS module of NodeMCU to obtain the device's current location and transmits it to a remote server via Wi-Fi connectivity. The server then renders the location on a map in real-time, allowing the user to track the device's movement. The tracker kit can be purchased by the user, which will enable them to access the real-time location of the device. The app is designed for businesses looking to optimize their fleet operations and for individuals seeking to keep track of their personal assets.

2. Project End User

The end users of a live location tracker project can vary depending on the specific application and industry. Some examples of end users of a live location tracker project include:

- Parents who use the tracker to monitor the location of their children for safety and peace of mind.
- Businesses that use the tracker to monitor the location of their valuable assets such as equipment or tools.
- Individuals who use the tracker to monitor the location of their personal assets such as cars or bicycles.

Overall, the end users of a live location tracker project are those who need to monitor and track the location of their assets, whether they are vehicles, people, or equipment, in real-time and make decisions based on that information.

3. Module

3.1 Home Page

The application starts with the Homepage and this page gives the user an overview of what the application is about. At the top-right of the homepage application, you can see the "login/sign-up" tabs for both user and admin. The homepage also allows the user to directly Track the kit using UID without login.

3.2 Login/Signup

So now the user and admin can login from the single login page itself, based on the role existing in database, it will redirect to respective dashboard. Now if the user already has an account, they can directly login. Otherwise, they will have to create an account by signing up. After verification user data will stored in database for further login process.

3.3 Buy NodeMCU Kit

Logged in users are able to buy or order the kit for tracker purposes. At the time of ordering the kit, user can give some information's like address, Kit name, Kit UID, access password, WIFI SSID and WIFI Password for the kit. At the end of process user need to make required payment for the kit and shipment. After payment done, user requested details will store in database and it can be accessed by admin only.

3.4 Track Kit

Once a user can buy the kit and setup correctly, it will automatically detect and connect given WIFI SSID to share the live location. Users can easily view the kit live location through the webpage using kit UID.

3.5 Admin

This module in the Live Location Tracker system empowers administrators with comprehensive control and management capabilities. Admins can access the admin dashboard, a secured and private interface, to oversee and maintain various aspects of the system. This module enables admins to manage user accounts, handle bookings, edit and update product pricing.

4. Functional Requirements

4.1 Login/Signup

To buy the product(s), the user should either have an account or create one. The user can login/sign-up from the registration page. Now if the user already has an account, they can directly login. Otherwise, they will need to create an account by signing up.

4.2 Buy NodeMCU Kit

After login users are able to buy or order the kit for tracker purposes. At the time of ordering the kit, the user can give some information like address, kit name, WI-FI SSID and WI-FI Password for the kit.

4.3 NodeMCU

NodeMCU is a low-cost open source IoT platform. NodeMCU is an open-source LUA based firmware developed for the ESP8266 WIFI chip. NodeMCU Dev Kit/board consist of ESP8266 WIFI enabled chip.

5. Non – Functional Requirements

5.1 Security

The user Information's cannot be share with anyone.no users can access the admin id and can't able to login as an admin without the special key. The users Password and personal information should not access by any other users.

5.2 Portability

User can easily access the website at anywhere in the particular region. User can access the web page in various screen size.

5.3 Performance

The performance of the application is user friendly. There is no overlap between the desktop and mobile users, it can easily adapt based on the screen resolution. The customer should have a very smooth experience.

6. High-Level Design

- ✓ High level design of the system has all the main modules of the system. It has the modules like

- ✓ • Architecture: - The system shall follow a client-server architecture, where the client side includes the user interfaces (UI) accessible via web browsers or mobile devices, and the server-side handles the application logic and database operations.

- ✓ • Components: - I. Client-Side: The client-side shall consist of the user interfaces for user registration, login, category selection, package booking, and user profile management. ii. Server-Side: The server-side shall include the application logic, handling user authentication, booking confirmation, payment processing, and communication with the database. iii. Database: The system shall utilize a relational database to store user data, booking information, and package details.

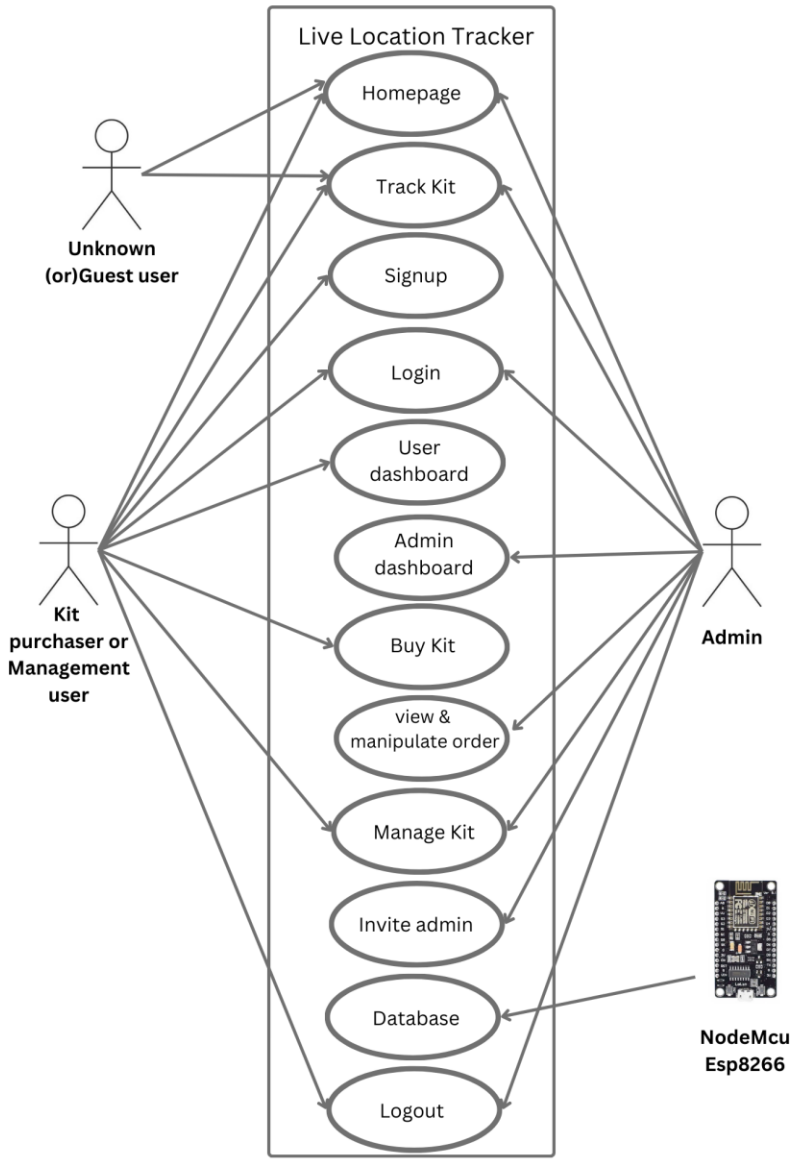
- ✓ • Admin Dashboard: - The admin dashboard shall be a secure web application accessible only to authorized administrators. It shall have a separate login credentials for admin authentication. The admin dashboard shall provide functionalities for managing user accounts, reviewing and confirming bookings, and updating package details and pricing.

7. Low-Level Design

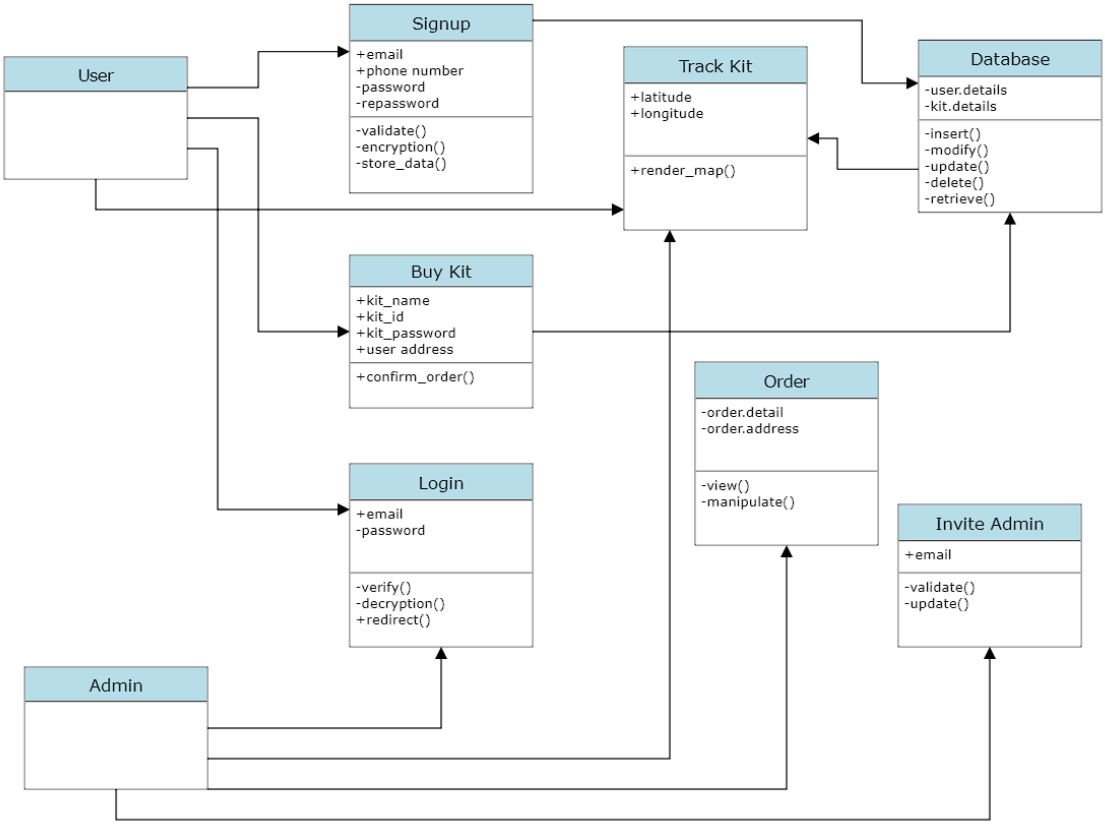
- ✓ Low level design describes all the internal and subsystem process. In this process, some of the modules have a sub system or maybe they do not have it. So, what are the process are going to work in this system are all explained in the low-level design.

- ✓ User Registration: - The user registration form shall capture the user's username, mobile number, Gmail email ID, and password. The backend shall validate the uniqueness of the Gmail email ID and enforce password complexity requirements. Upon successful registration, user data shall be stored securely in the database.

8. Use Case Diagram

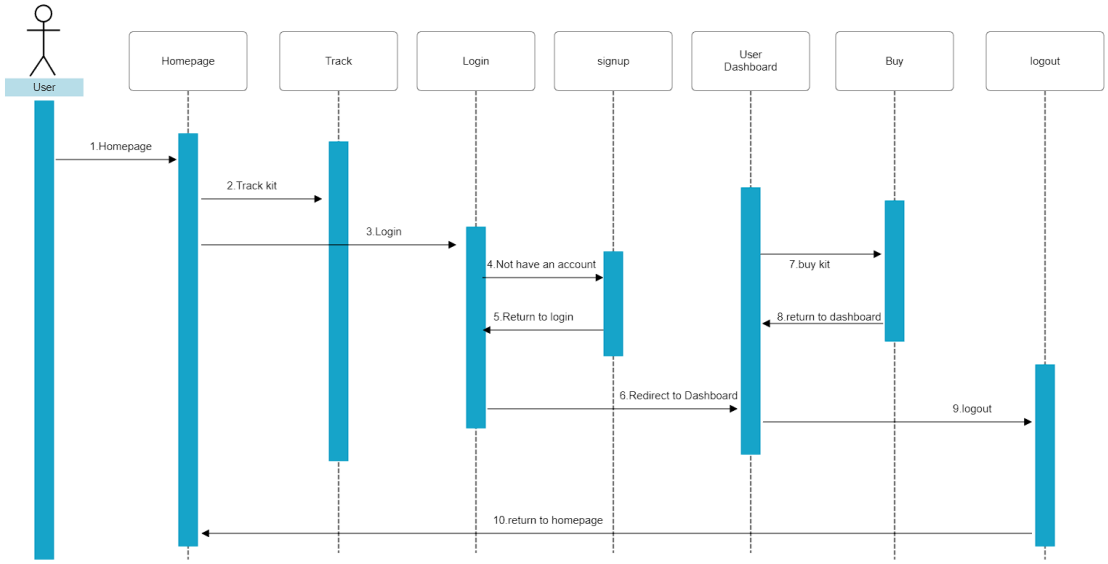


9. Class Diagram

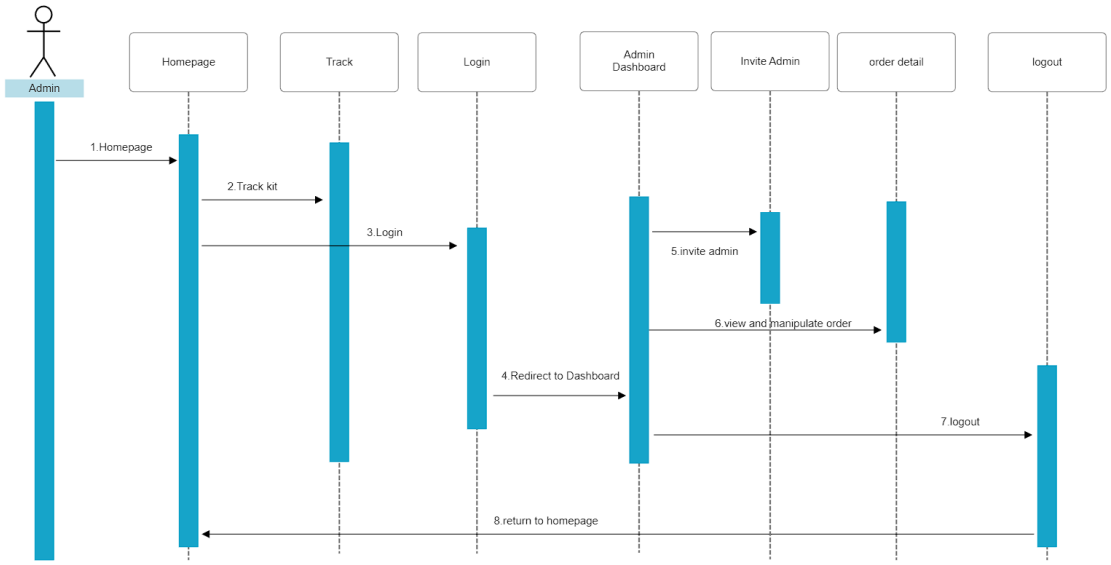


10. Sequence Diagram

User

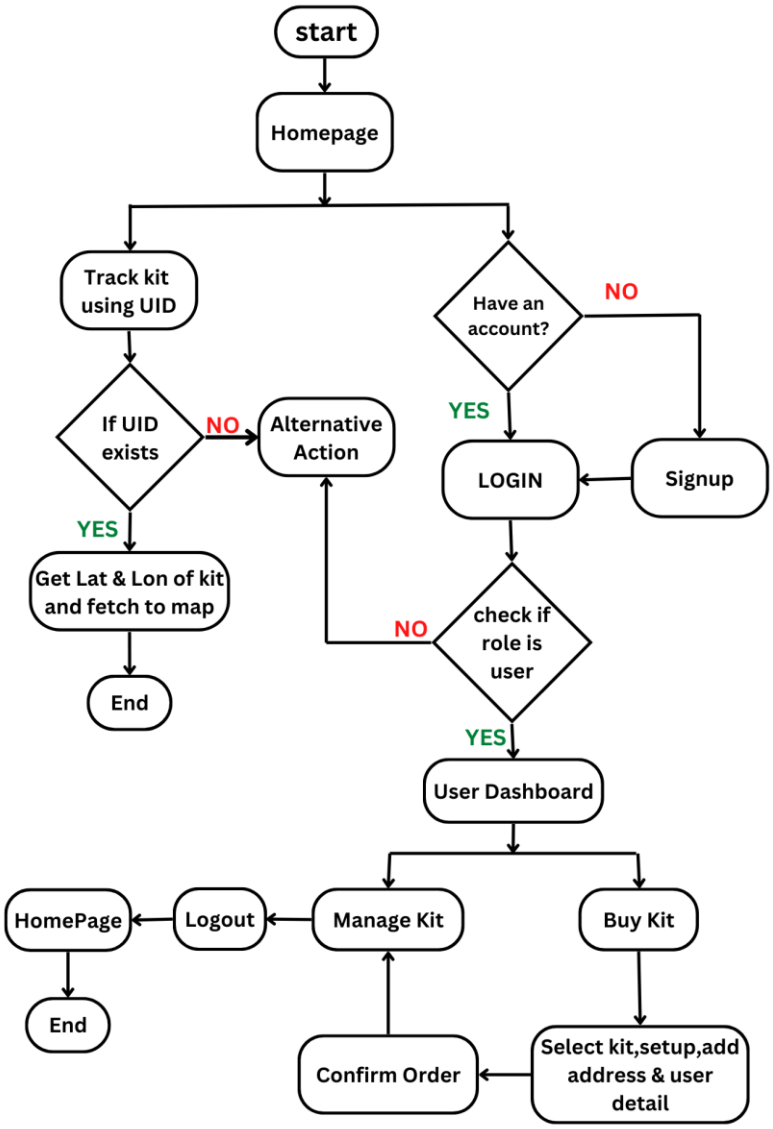


Admin

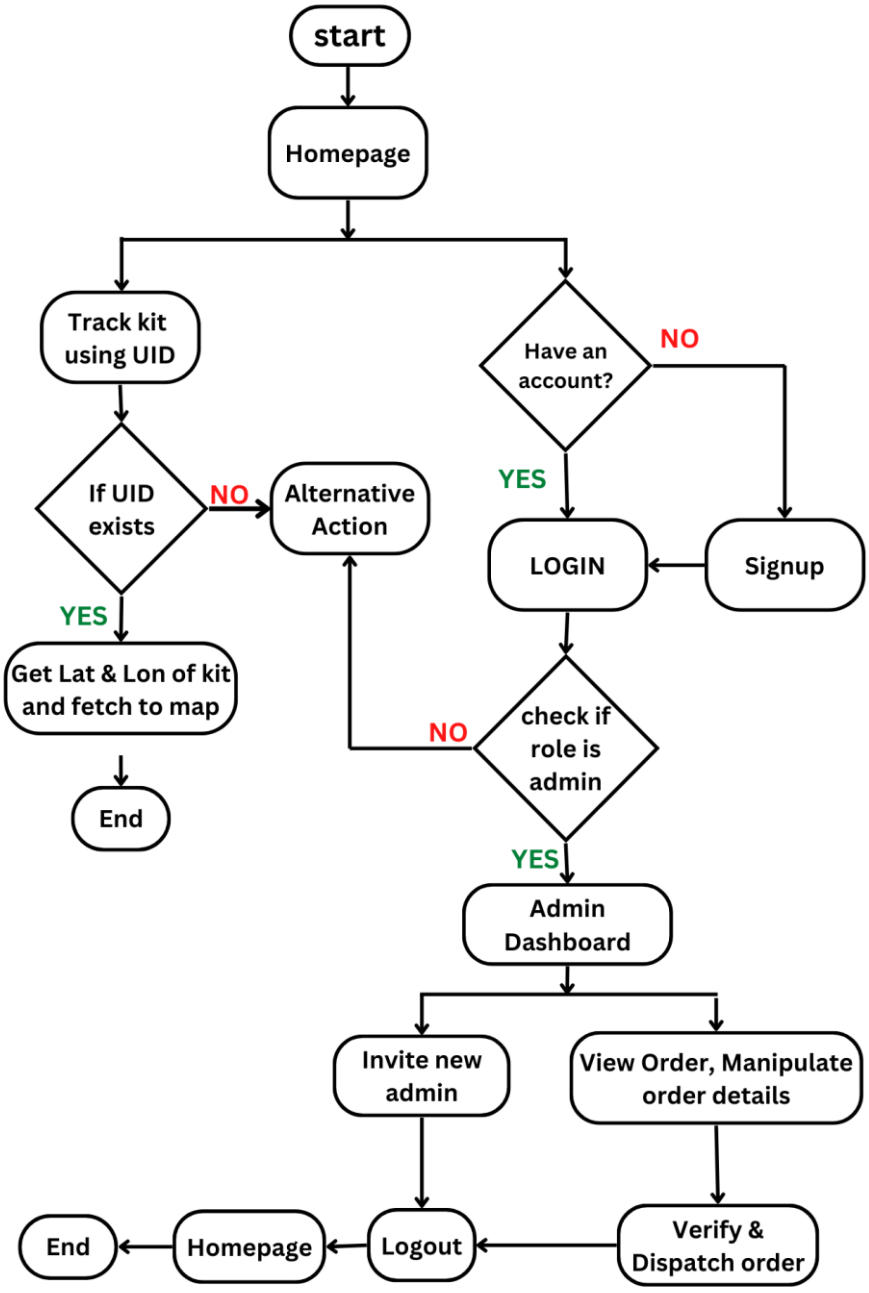


11. Flow chart

User

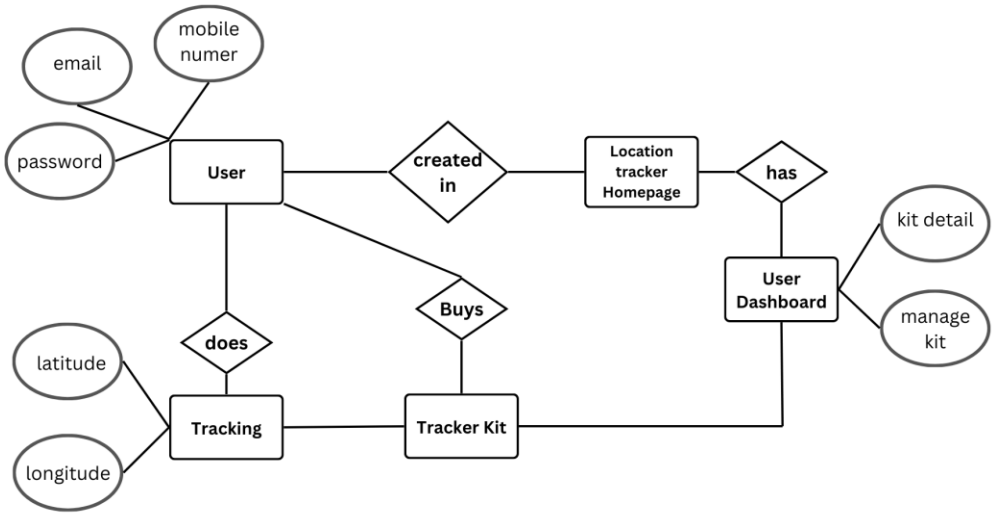


Admin


start
Homepage
Track kit using UID
Have an account?
NO
If UID exists
NO
Alternative Action
YES
LOGIN
Signup
YES
Get Lat & Lon of kit and fetch to map
NO
check if role is admin
End
YES
Admin Dashboard
Invite new admin
View Order, Manipulate order details
End
Homepage
Logout
Verify & Dispatch order

12. Entity Relationship (ER)

User



Admin