

# Mobile Computing Project

## Car Management App

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## Project Idea Description:

The Car Management App is a mobile application designed to manage user vehicle information, control features, and monitor driver behavior. It allows users to add cars using Vehicle Identification Numbers (VINs), and provides admin-restricted features for managing user profiles and driver data. The app enhances vehicle security and driver safety through real-time updates, notifications, and customizable driver privileges.

## Features:

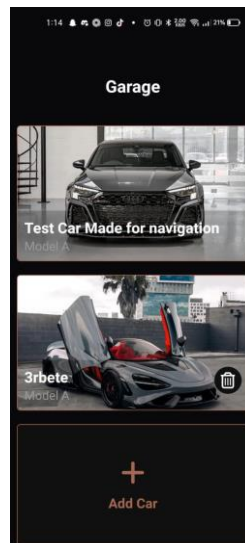
1. VIN-based Vehicle Registration: Users input a 17-character VIN to add a car, with optional name and image upload (from gallery or camera). If no image is provided, the app assigns one based on the car model (A, B, or C).
2. Car Status Display: Real-time status updates and notifications.
3. User Profile and Notifications: Personalized interface with a notification section and profile access to view privileges.
4. Garage Management: View all registered cars with options to select a car or add a new one.
5. Admin Access: Restricted access for admins to modify driver privileges with email/password authentication.
6. Driver Management: Track and manage driver privileges (driving duration, speed limit, max speed, aggressive driving, drowsiness, focus) for users.
7. Local Storage: Successfully added cars are stored in the phone's local storage.

## Pipeline: App Screens and Interactions:

### App Screens:

#### 1. my\_cars.js (Garage Screen):

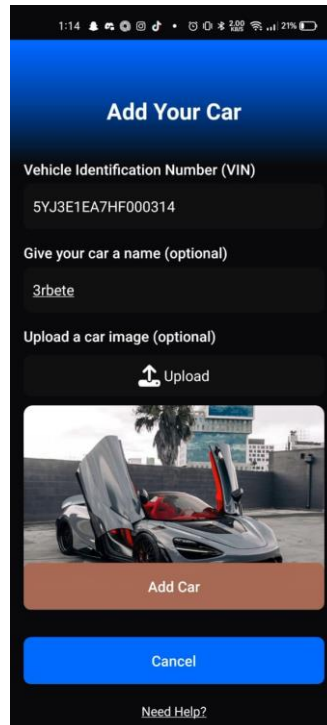
- Displays all cars added by the user.
- Users can select a car to navigate to the HomeScreen.js or choose to add a new car, leading to add\_new\_car.js.



#### 2. add\_new\_car.js (Add New Car Screen):

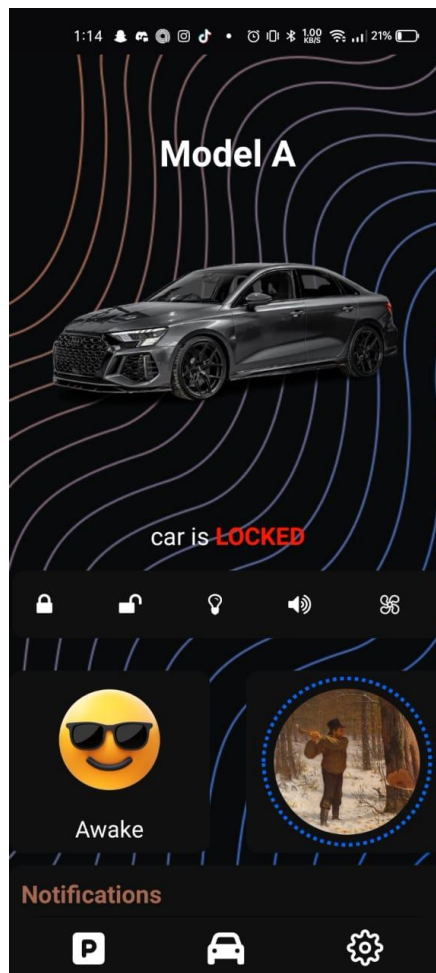
- Users input a 17-character VIN to activate the "Add Car" button.
- Optional fields: car name and image upload (gallery or camera).
- If no image is uploaded, the app assigns an image based on the car model (A, B, or C).
- The app searches the database for the VIN:

- If found, the car is added to the garage and local storage, showing a "Vehicle Added Successfully" message.
- If not found, an alert displays "Vehicle Not Found."



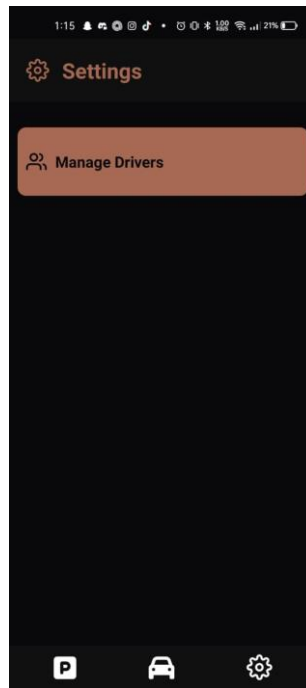
### 3. HomeScreen.js (Home Page):

- Includes a notification section.
- Users can click their profile picture to view their privileges (driving duration, speed limit, etc.).
- Bottom bar navigation: Garage (my\_cars.js), Home (HomeScreen.js), Settings (settings.js).



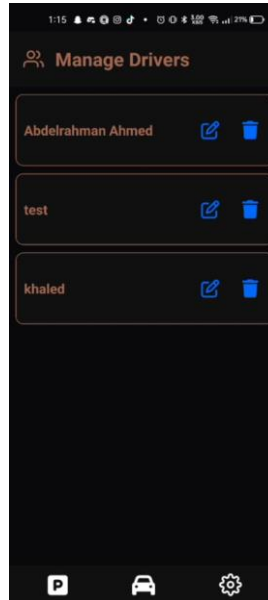
#### 4. settings.js (Settings Screen):

- Includes a "Manage Drivers" option.



## 5. vehicleDrivers.js (Manage Drivers Screen):

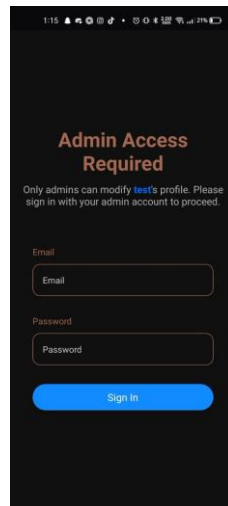
- Lists all drivers' names with access to the vehicle, with options to edit privileges, delete, or show it.
- Requires admin access to modify privileges.



## 6. SignIn.js (Admin Access Screen):

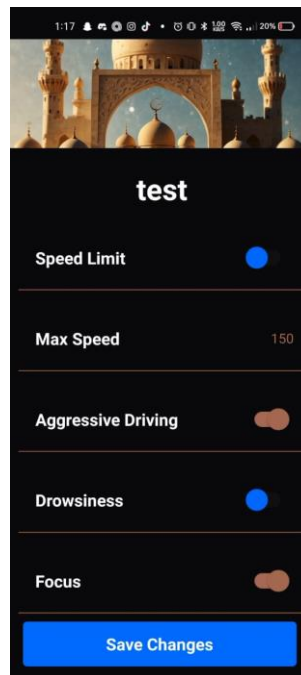
- Admin inputs email and password to gain access.
- If credentials are correct, the admin can modify driver privileges or delete drivers.





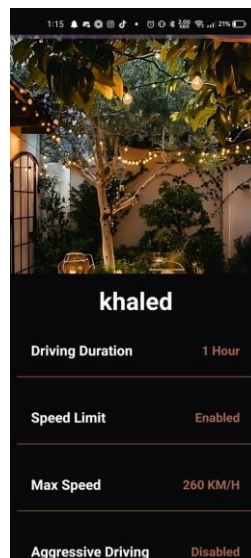
## 7. editUserDataScreen.js:

- Displays privileges for a selected driver:
  - Driving Duration: e.g., 1 Hour
  - Speed Limit: Enabled/Disabled
  - Max Speed: e.g., 260 KM/H
  - Aggressive Driving: Enabled/Disabled
  - Drowsiness: Enabled/Disabled
  - Focus: Enabled/Disabled
- Admin can edit these settings after authentication.



## 8. user\_profile.js:

- Users can view their own privileges by clicking their profile picture from the HomeScreen.



## Interactions:

- From the Garage Screen, users select a car to go to the Home Page or choose to add a new car, navigating to the Add New Car Screen.
- In the Add New Car Screen, a valid 17-character VIN enables the "Add Car" button. The app searches the database, adds the car if found, stores it locally, or shows an error if not found.
- On the Home Page, view notifications and access their privileges via the profile picture.
- From Settings, users access Manage Drivers, which requires admin authentication to edit/delete driver privileges.
- After admin login, the Driver Privileges Screen allows modifications to settings like speed limits and behavior tracking.