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QUICKSTART SYSTEM REQUIREMENTS DOCUMENT

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Introduction - VH

The purpose of this document is to show the structure and inside processes of the QuickStart application. In this document there is a description of all actions that are performed in the application, diagram of the app classes, the diagrams or the main uses of the QuickStart app and the detailed step-by-step diagram for each of the uses.

Description Model - DH

User Inputs:

- Login credentials (email/password and or biometric).
- Car selection
- Controls On/Off car, lock/unlock doors, change climate temperature
- Schedule start ups
- Timer set for how long a car can Idle for

Car Inputs:

- Collects fuel level, engine status and error codes data.
- Climate status and lock/unlock confirmation.
- Connectivity status of the car.

Car Outputs:

- **Car Status**: status on/off, lock status, climate status
- Displays the fuel level and if to low notifies the user and maintenance reports
- Starting the car remotely through the app either though a schedule start up time on the calendar
- When a car is selected it updated to default
- Confirmation Visuals for actions
- Error is removed from Home screen when viewed
- Car is Idling for longer then the set time to Idle it turns of automatically and send notification to user
- Notifies the user of error codes and descriptions

Processes:

- **Authentication & Authorization**:
    - Securely verify users via email/password, 2FA, or biometrics.
    - Validate access to selected vehicles.
- **Vehicle Communication**:

    - Vehicle communication is encrypted and secure.
    - Receive data from the Car in real-time.
- **Multi-Vehicle Management**:
    - A user can register, nickname, and manage multiple vehicles under one account.
    - Ensure vehicle-specific commands(e.g Scheduling or climate control) is applied to the car the user selected and data is not mixed up.
- **Status Feedback**:
    - Will give a visual or update a process to tell the user their command was successful.
- **Data Logging**:
    - Track error history
    - Preferences
    - Stores error codes and schedule data
    - Car Data User Data

Performance:

- **Response Time**:
    - User inputs receive feedback in 1-5 seconds
- **Availability**:
    - Uptime is advertised as 95% yearly.
    - Systems can handle thousands of users at once without noticeable lagging.
- **Scalability**:
    - Systems are read in case of an influx of hundreds of thousands of new users and vehicles.
    - Optimize cloud infrastructure and manage if there is increasing load.
    - IaaS models

Security Requirements

- **Data Encryption**:
    - Use end-to-end encryption for all communication between app, QuickStart device, and servers.
    - Encrypts user and car data using AES-256.
- **Authentication**:
    - Require secure login password that has to be 1p characters long that uses capitals, numbers and symbols.
    - Offer optional 2FA and biometric login(FaceID).
- **Access Control**:
    - Users can only control vehicles linked to their account.
- **Audit Log**:
    - Collects logs of all actions of important actions and logs device information and IP address
- **Physical Security:**

    - Once a QuickStart device is connected to an account it is linked to that account and can not connect to another account
    - Users must make sure to unlink QuickStart devices though the app inorder to linkable or bring it to a dealership.
- **Connection:**
    - **Uses a hash to ensure integrity and authentication validate the connection**

Class Diagram - VH

Please see the attached file. (VH - UML QuickStart.pdf)

Use Case Diagram - JD

Please see the attached file. (JD - QuickStart Use Case Diagram.vsdx)

Use Case Scenarios - JD

Please see the attached file. (JD - QuickSTart Use Case Scenarios.xlsx)

System Sequence Charts - DR

Please see the attached file. (DR - QuickStart System Sequence Charts.vsdx)