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ECO CHARGER

► THE FUTURE OF TRANSPORTATION



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departamento de eletrónica,
telecomunicações e informática

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OUR TEAM



TOMÁS BRÁS
PRODUCT OWNER



AFONSO FERREIRA
TEAM LEADER
DEVOPS MASTER

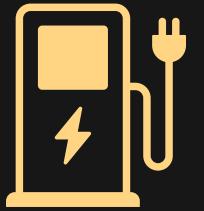


RICARDO ANTUNES
QA ENGINEER

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EPICS

Management of Charging
Stations and Charging Points



Management of Charging Results

Integration with
Third-Party Services

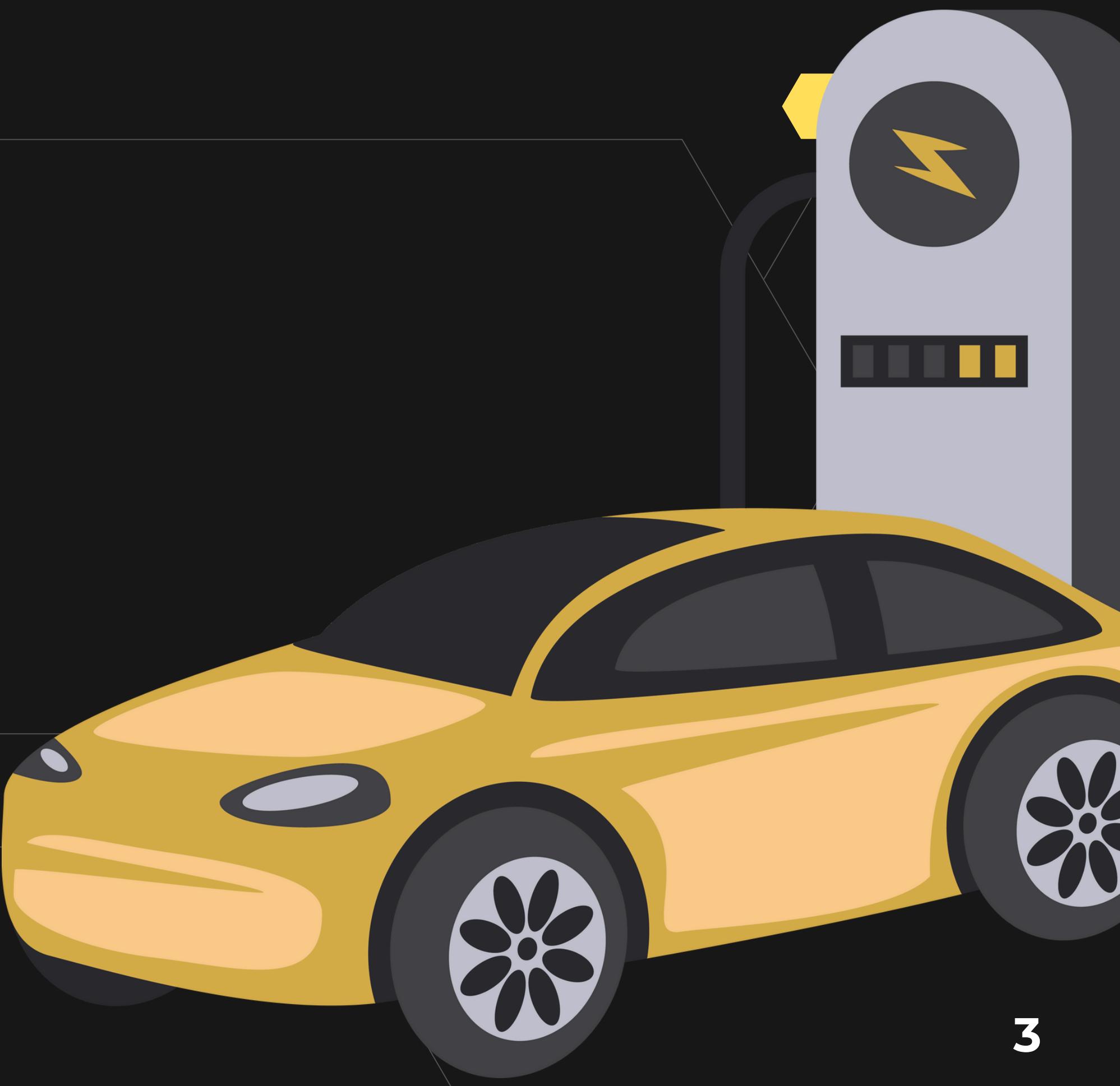


Management of App Users

Management of Payments



Management of Charging
Point Reservations





Home

EcoCharger

Team

Epics

Use Cases

Organization

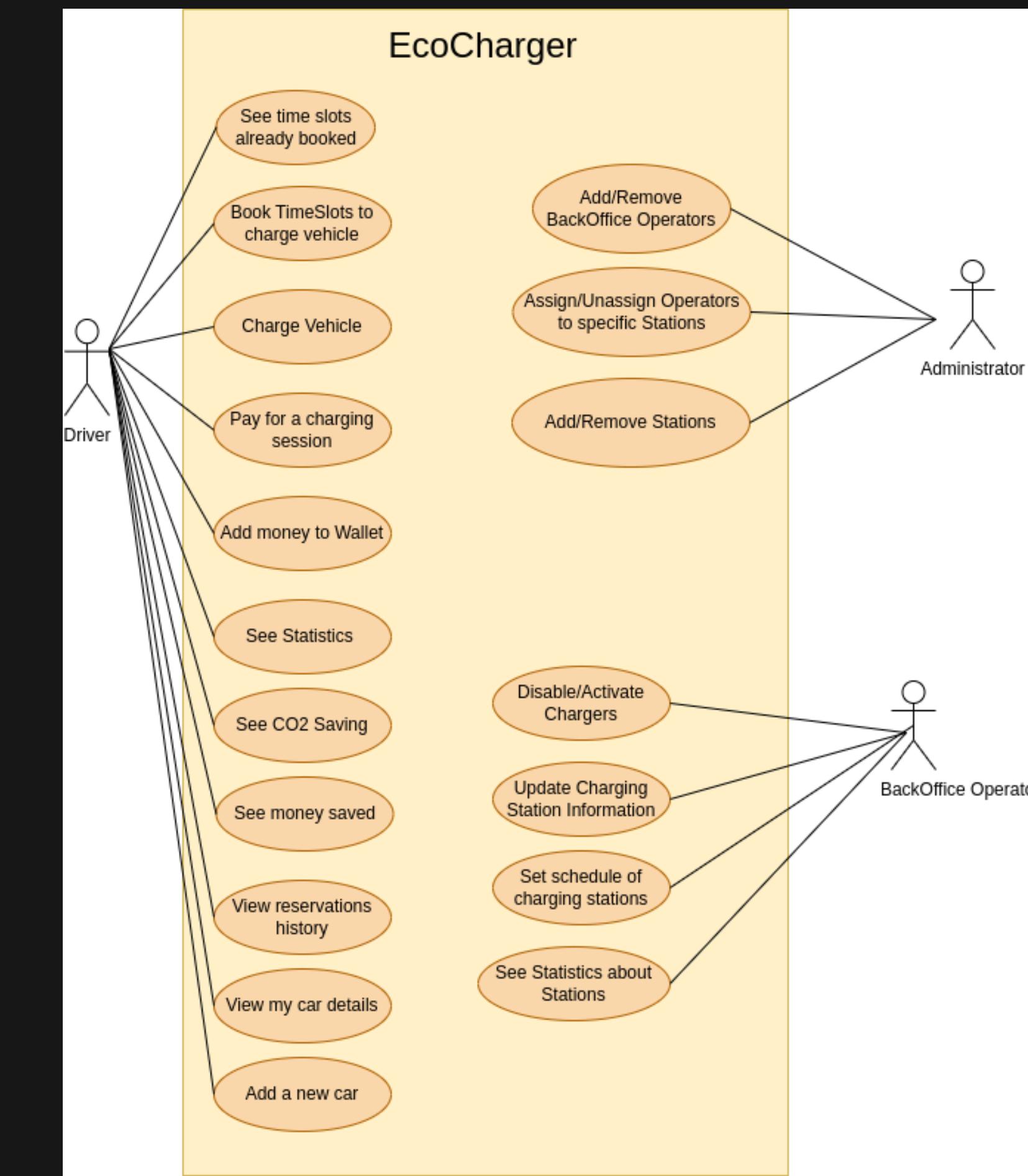
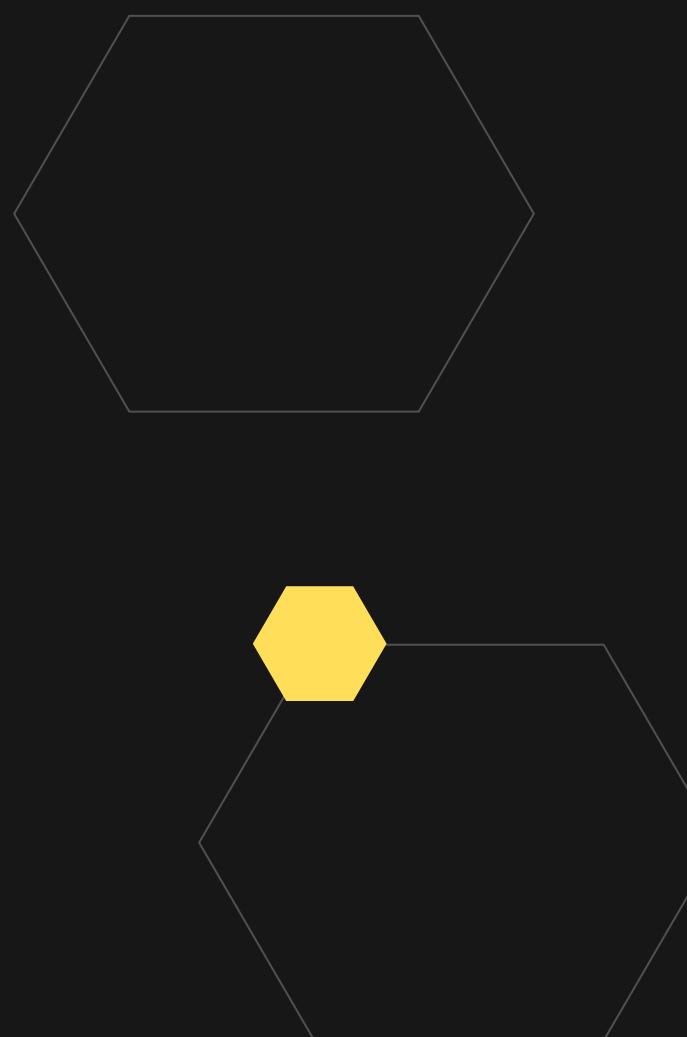
Architecture

CI/CD

TimeLine

Demo

USE CASES



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PERSONAS



AGOSTINHO ROCHA

CHARGING STATION OPERATOR



LUÍSA LARANJEIRO

CLIENT/DRIVER



DAVID RODRIGUES

ADMINISTRATOR



► **USER STORY**

As a BackOffice Operator, I want to edit information related to a charging station and charging points,
so that clients always have access to up-to-date information about charging stations and charging points.

► **ACCEPTANCE CRITERIA**

- **Given** a BackOffice Operator wants to update information about a charging station in the application
- **When** the BackOffice Operator edits information regarding that charging station through a form in the application
- **Then** the system immediately updates the information and the updated information becomes available to all users.

CHARGING STATION OPERATOR

...



► USER STORY

As a Driver, I want to see a map with all charging stations and their charging points,
so that I can choose a suitable station near my location to charge my car.

► ACCEPTANCE CRITERIA

- **Given** a Driver wants to see charging stations on the map to select a charging point to charge their car,
- **When** the driver opens the application, they can see the available charging stations near their location.
- **Then**, when they choose one of them, the system shows the available charging points at that station.

CLIENT/DRIVER

...



► **USER STORY**

As an Administrator, I want to add charging stations,
so that I can make the new available charging stations available to
the users.

► **ACCEPTANCE CRITERIA**

- **Given** an Administrator has access to the charging stations list
- **When** the Administrator fills out the form to add a new charging station with its availability information
- **Then** the new station should be added to the list and become immediately available to users.

ADMINISTRATOR

...

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ORGANIZATION



Backlog



Communication



Code Repository



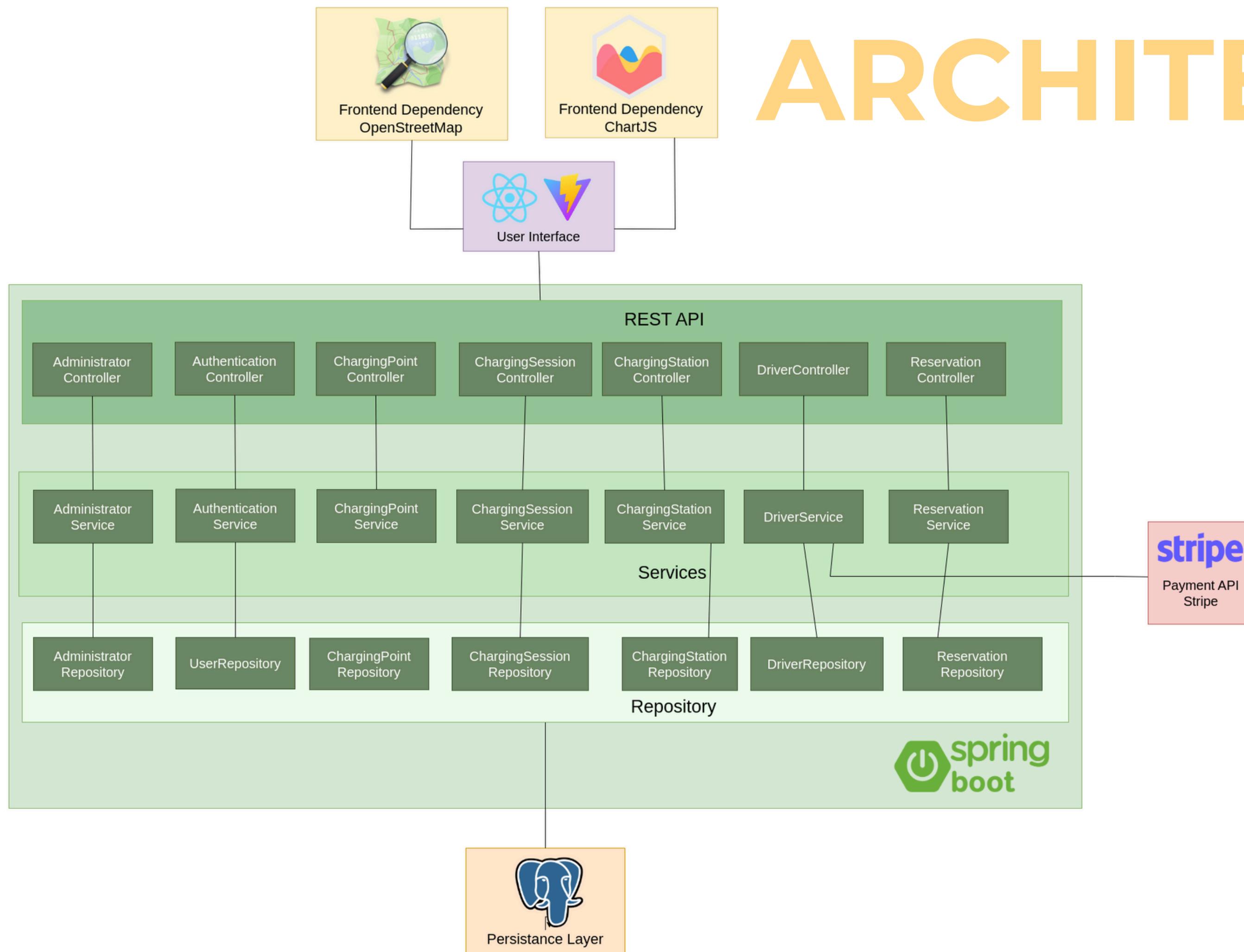
Reports And Minutes



GitHub Actions

Test Automation

ARCHITECTURE



JIRA XRAY

Projetos / EcoCharger - TQS / ET-26 / ET-34

As a Driver, I want to register my car in the application so that I can use it at charging stations and receive accurate insights about energy usage, CO₂ savings, and cost efficiency.

+ Add Apps

Descrição

- Given a Driver wants to register their vehicle for use in charging sessions,
- When they log into the app and navigate to the "My Vehicles" section and fill out the form with the capacity, energy efficiency),
- Then the vehicle is saved to their profile and becomes available for selection during the charging

Child work items

Type	Chave	Resumo	Prioridade
ET-192	Create Car Model		Medium
ET-193	Associate Car with Driver model		Medium
ET-194	Add endpoints to add / edit / remove cars from a driver		Medium
ET-195	Create frontend page for vehicle list		Medium
ET-196	Add button & modal in vehicle page so that user can add vehicles		Medium
ET-197	Add table of cars where user can see the vehicle name, make and have a button to see details or delete the car		Medium
ET-198	Add page where car details are specified: name, make,		Medium

Test Coverage

Add Tests Execute ...

Analysis & Scope

Scope: Latest Final Status OK

Status	Key	Summary	Test Status
NOT STARTED	ET-324	Get Driver By ID	PASSED
NOT STARTED	ET-325	Add Car To Driver	PASSED
NOT STARTED	ET-326	Remove Car From Driver Car Not Found	PASSED
NOT STARTED	ET-327	Update Driver	PASSED
NOT STARTED	ET-328	Remove Car From Driver	PASSED
NOT STARTED	ET-329	Delete Driver	PASSED
NOT STARTED	ET-330	Edit a car in a driver	PASSED
NOT STARTED	ET-331	Get All Drivers	PASSED
NOT STARTED	ET-332	Update Driver Not Found	PASSED
NOT STARTED	ET-333	Add Car To Driver Not Found	PASSED

Prev 1 2 Next

PEER REVIEW

Ricardo-Alexandre-Antunes commented 2 weeks ago * edited Member ...

Description

Registration functionality implemented

Checklist:

- I have performed a self-review of my code
- I have commented my code only when needed, particularly in hard-to-understand areas
- I have made corresponding changes to the documentation
- My changes generate no new warnings/don't affect other functionalities

Related Issue

[ET-52](#)

Link to the issue:

Motivation and Context

Closes [ET-52](#)

This PR implements registration into the website, needed for users to create accounts

How Has This Been Tested?

Tests ran:

- 5 Controller Unit Tests
- 5 Service Unit Tests
- 5 Scenarios

I also did exploratory testing



Copilot AI reviewed 2 weeks ago View reviewed changes

Copilot AI left a comment Contributor ...

Pull Request Overview

Implements user registration end-to-end, adding the frontend form and wiring it into React Router, extending the backend service/controller to handle `register`, and providing unit and functional tests.

- Add `RegisterPage` component and link from `LoginPage`, update routing in `App.jsx`
- Introduce `register` method in `AuthenticationService` and endpoint in `AuthenticationController` with input validation and JWT issuance
- Cover registration scenarios with unit tests, controller tests, and Cucumber feature/step definitions; update security config for CSRF and authorization

Reviewed Changes

Copilot reviewed 18 out of 18 changed files in this pull request and generated 6 comments.

- ▶ Show a summary per file
- ▶ Comments suppressed due to low confidence (2)

File	Status	Action
<code>frontend/src/pages/LoginPage.jsx</code>	Show resolved	Show resolved
<code>backend/src/main/java/pt/ua/tqs/ecocharger/ecocharger/controller/AuthenticationController.java</code>	Outdated	Show resolved
<code>backend/src/main/java/pt/ua/tqs/ecocharger/ecocharger/controller/AuthenticationController.java</code>	Outdated	Show resolved
<code>backend/src/main/java/pt/ua/tqs/ecocharger/ecocharger/service/AuthenticationServiceImpl.java</code>	Outdated	Show resolved
<code>backend/src/test/java/pt/ua/tqs/ecocharger/ecocharger/functional/steps/RegistrationSteps.java</code>	Outdated	Show resolved

alof2004 previously approved these changes 2 weeks ago View reviewed changes

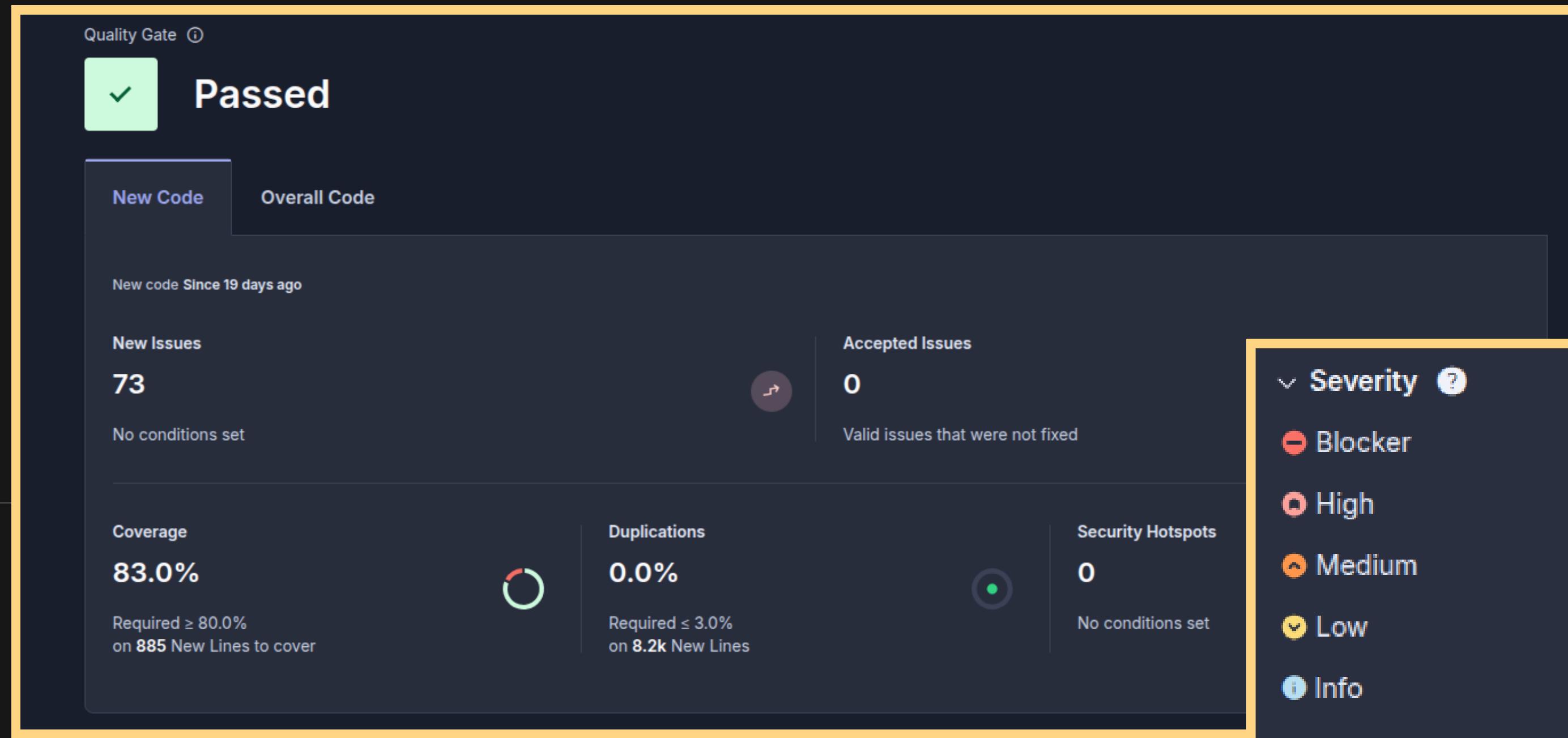
alof2004 left a comment Member ...

Code looks ok but i would like to see a screenshot the next time

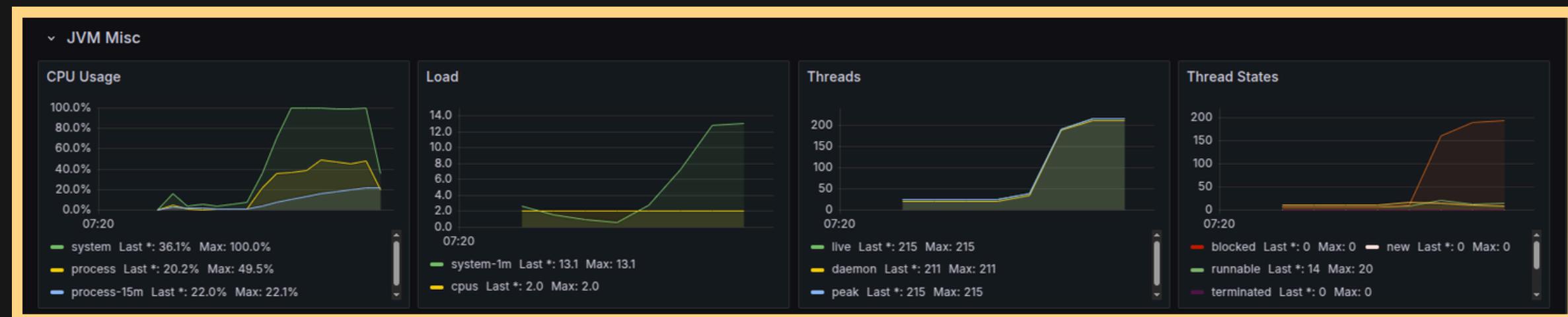
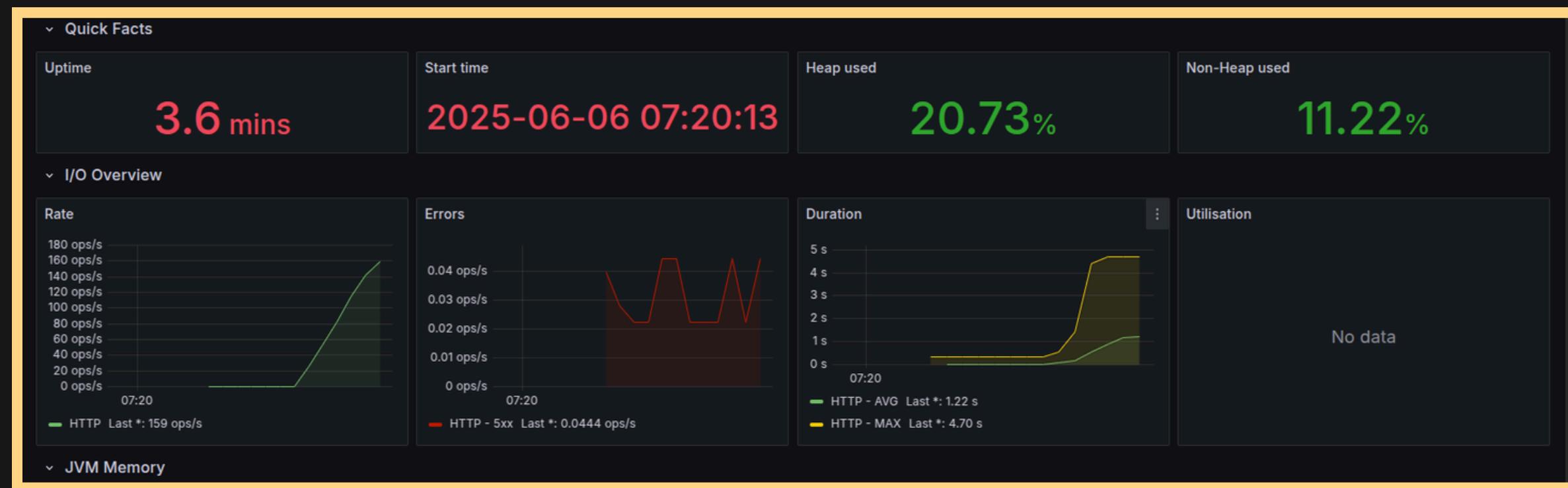
Ricardo-Alexandre-Antunes dismissed alof2004's stale review via [bz02c0e](#) 2 weeks ago

ET-52 removed code smells pointed out by SonarCloud fc63740

SONAR CLOUD



LOAD TESTS



CI/CD

CI

Test Backend Build

Enforce Frontend
Styling Rules

SonarCloud Review

Automatic Selenium
Tests

Automatically Format
Backend Code



CD

Update code on production

Deployment when pushed to
the 'master' branch

Missing the staging flow

...

DEVELOPMENT PIPELINE

ET-24 / ET-21

As an Administrator I want to remove charging stations so that I can remove nonexistent or unavailable charging stations from the website

+ Add Apps

Description
As an Administrator, I want to remove charging stations, so that I can remove nonexistent or unavailable charging stations from the website.

Acceptance Criteria:

- Given an Administrator has access to the charging stations list
- When the Administrator chooses to remove a charging station through the management form or interface
- Then the selected station should be removed from the list and no longer available to users.

Subtasks

T...	Key	Summary	P...	A...	Status
ET-414	Create an endpoint to remove a Charging Station	=	CONCLUDED		
ET-423	Swagger documentation for all controllers.	=	CONCLUDED		
ET-424	UI interface in React for removing Charging Stations	=	CONCLUDED		
ET-425	Service implementation	=	CONCLUDED		

Linked work items

is tested by

ET-383 Successfully delete a charging station	NOT STARTED
ET-387 Fail to delete charging station: admin not ...	NOT STARTED

Concluded ✓ Done 4

Details

Assignee: TomásBrás
Labels: None
Parent: ET-24 Management of Charging S
Due date: None
Team: None
Start date: None
Fix versions: None
Sprint: Sprint 5
Story point estimate: 1
Development: 1 branch
Create commit
1 pull request
4 builds
Reporter: Afonso Ferreira
Automation: Rule executions
Created May 12, 2025 at 9:31 PM
Updated 26 seconds ago
Configure

✓ Quality Gate passed

Issues
✓ 0 New issues
@ 0 Accepted issues

Measures
✓ 0 Security Hotspots
✓ 92.9% Coverage on New Code
✓ 0.0% Duplication on New Code

[See analysis details on SonarQube Cloud](#)

Conversation 3 Commits 6 Checks 0 Files changed 15

Marshmallow1119 commented 4 hours ago

Description

Charging Station Details

- City: Aveiro
- Address: Rua Doutor Alberto Soares Machado, 3000-146 Aveiro
- Country: Portugal
- Country Code: PT
- Latitude: 40.643751
- Longitude: -8.648611

Charging Points

Add Charging Point
Edit
Remove

Related Issue
Link to the issue: <https://ua-deti-alof.atlassian.net/jira/software/projects/ET/boards/2?selectedIssue=ET-21>

Reviewers
Copilot
At least 1 approving review is required to merge this pull request.
Still in progress? Convert to draft

Assignees
Marshmallow1119

Labels
None yet

Projects
None yet

Milestone
No milestone

Development
Successfully merging this pull request may close these issues.
None yet

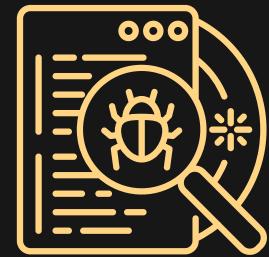
Notifications
Customize
Unsubscribe
You're receiving notifications because you authored

Your branches

Branch	Updated	Check status	Behind	Ahead	Pull request
ET-21-As-an-Administrator-I-want-to-remove-charging-stations-so-that-I-can...	4 hours ago	82 6	#42	...	



QA STACK



...



Testing Strategy

Unit Tests: JUnit, Mockito

Integration Tests: Spring Boot Test, MockMvc
RestAssuredMockMvc

Functional Tests: Selenium +
Cucumber(BDD)

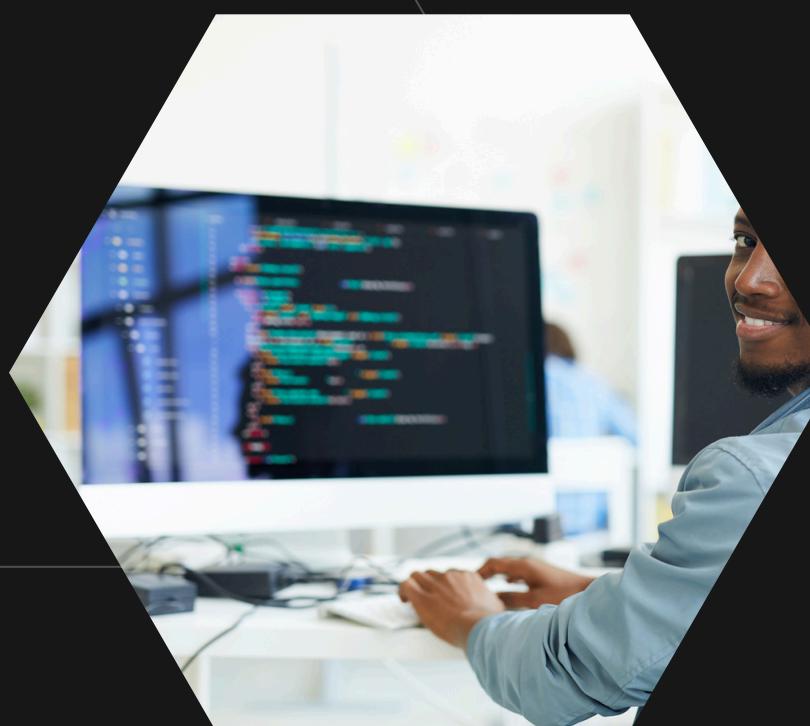
Test Automation Tools

CI/CD: GitHub Actions for test automation on PRs

Test Reporting: JaCoCo integrated into Maven

Linting: ESLint / Google Java Stylet

Code Quality: SonarQube



API DOCUMENTATION

The screenshot shows the EcoCharger API documentation interface. At the top, there's a navigation bar with links: Home, EcoCharger, Team, Epics, UserStories, Organization, Architecture, Pipeline, and TimeLine. The Pipeline link is highlighted in yellow, indicating the current section.

The main title is "API DOCUMENTATION" in large, bold, yellow letters. Below it, the sub-section "Charging Points" is displayed, with the subtitle "Endpoints for managing charging points".

The "Charging Points" section lists several endpoints:

- PUT** /api/v1/points/{id} Update an existing charging point
- DELETE** /api/v1/points/{id} Delete a charging point by its ID
- GET** /api/v1/points Get all charging points
- POST** /api/v1/points Create a new charging point
- GET** /api/v1/points/{id}/active-session Get active session for a charging point
- GET** /api/v1/points/station/{stationId} Get charging points by station ID
- GET** /api/v1/points/available Get available charging points in a station

Below this, there's a section titled "Drivers" with the subtitle "Operations related to drivers and their cars". It lists three endpoints:

- GET** /api/v1/driver/{id} Get driver by ID
- PUT** /api/v1/driver/{id} Update a driver by ID
- DELETE** /api/v1/driver/{id} Delete a driver by ID

On the right side of the page, there's a detailed view of the "PUT /api/v1/points/{id}" endpoint. It shows the operation title "Update an existing charging point", a description "Updates the details of a charging point identified by its ID", and a "Parameters" table:

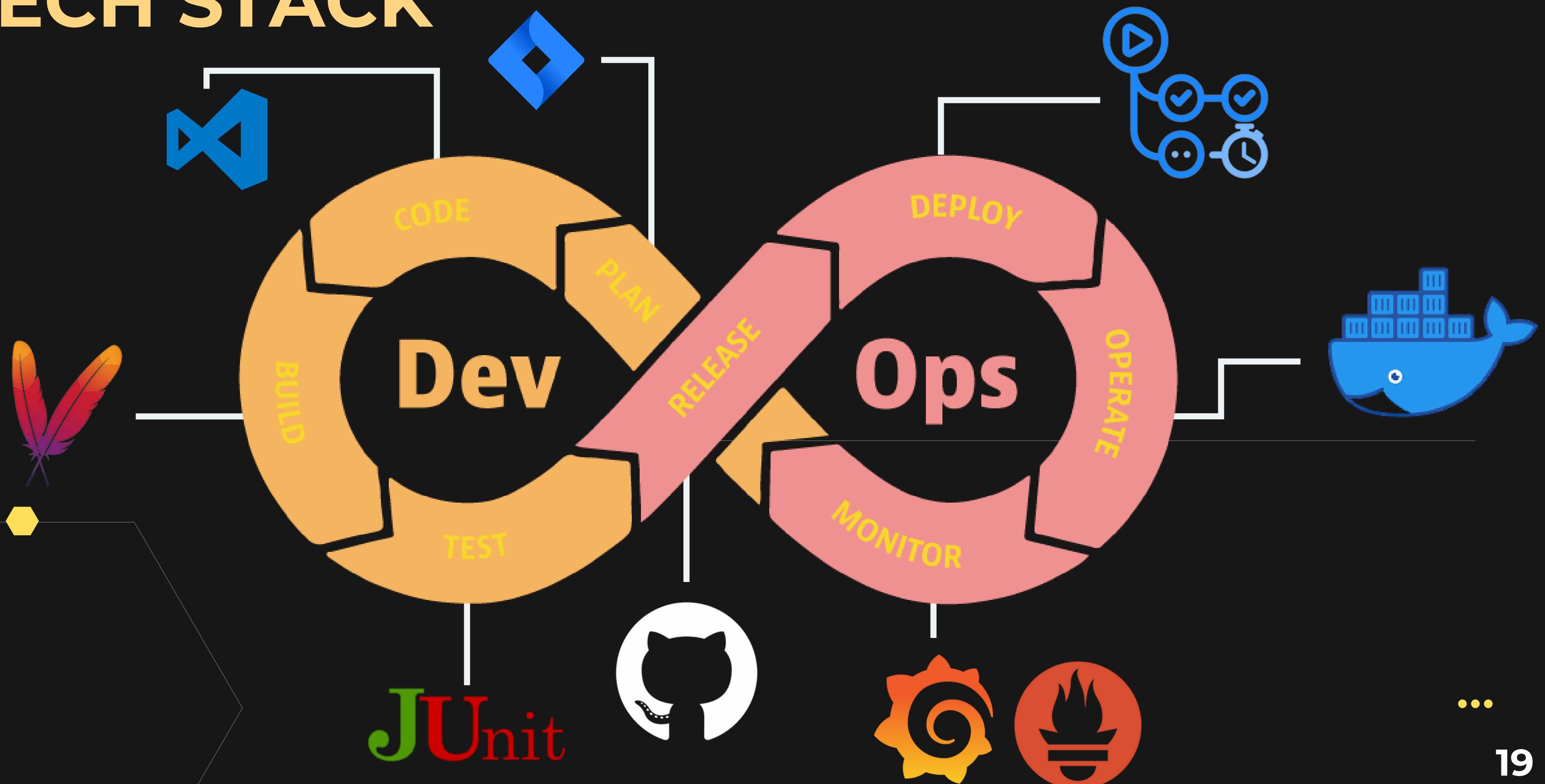
Name	Description
id * required	integer(\$int64) ID of the charging point to update (path)

Below the parameters, there's a "Request body" section with the requirement "required" and a dropdown menu set to "application/json". A "Try it out" button is also present. The "Request body" example shows a JSON schema:

```
{  
  "id": 0,  
  "available": true,  
  "brand": "string",  
  "connectors": [  
    {  
      "id": 0,  
      "connectorType": "string",  
      "ratedPowerW": 0,  
      "voltageV": 0,  
      "currentA": 0,  
      "currentType": "string"  
    }  
  ],  
  "pricePerKWh": 0,  
  "pricePerMinute": 0,  
  "chargingRateKWhPerMinute": 0  
}
```

At the bottom of the page, there are three small yellow dots followed by the number "18", likely indicating the page number or a total count.

TECH STACK



SELF-REFLECTION

...

GOOD

- Strictly implemented mechanisms to develop clean and correct code
- Had exposure to many different kinds of technologies and integrated them together
- Attempted to mimic what the environment on a real company would have

BAD

- This approach to SW development hugely decreases our effectiveness in terms of productiveness
- Still hard to balance delivering in time and securing tested and clean code
- Implemented less US than what we would like
- Group of 3 wasn't a good idea
- Missing staging flow

THOUGHTS

- Some of the tools we used are more effective used in long term (such as Grafana monitoring)
- Jira can sometimes be more of an annoyance than helpful
- This subject proved to be vital for our future as SW developers as quality in software is vital
- Gave us new perspective that Software Development isn't just the functionalities

INTERESTING THINGS WE DID:

...

At some point during the development we found that some functional tests were failing on the CI pipeline and passing locally



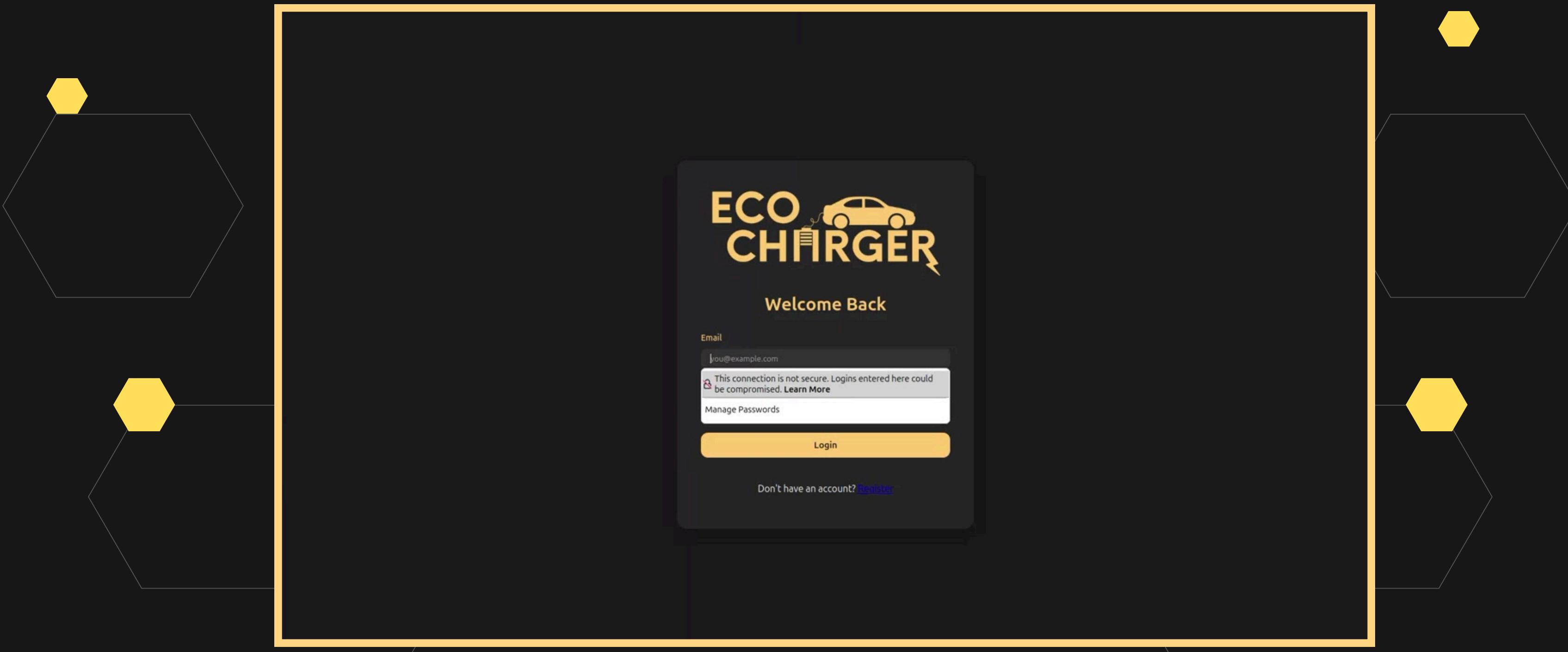
We ended up having to **take screenshots** and save them to analyse after the pipeline failed to see what was missing and be able to debug faster



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DEMO

SEE CHARGING STATIONS AND MAKE A RESERVATION



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DEMO

GENERATE OTP CODE AND START THE CHARGING PROCESS

ECO CHARGER

- Map
- Charging Stations
- Reservations
- Vehicles

Profile

Logout

Balance: €50.00

Charge Balance

My Reservations

EDP

Status: TO_BE_USED

Start: 06/06/2025, 10:45:00

End: 06/06/2025, 11:00:00

Price per kWh: €0.23

kWh per minute: 0.37

Location: Largo do Rossio, 3800-246 Aveiro, Aveiro

Generate Start Code

EDP

Status: TO_BE_USED

Start: 06/06/2025, 11:30:00

End: 06/06/2025, 11:45:00

Price per kWh: €0.23

kWh per minute: 0.37

Location: Praça Marquês de Pombal, Aveiro

Generate Start Code

Galp electric

Status: TO_BE_USED

Start: 06/06/2025, 10:45:00

End: 06/06/2025, 11:00:00

Price per kWh: €0.28

kWh per minute: 0.37

Location: Cais da Fonte Nova, 3810-200 Aveiro, Aveiro

Start Charging

Enter OTP Code:

0 2 7 6 8 4

Validate OTP

Select Vehicle:

Choose your vehicle

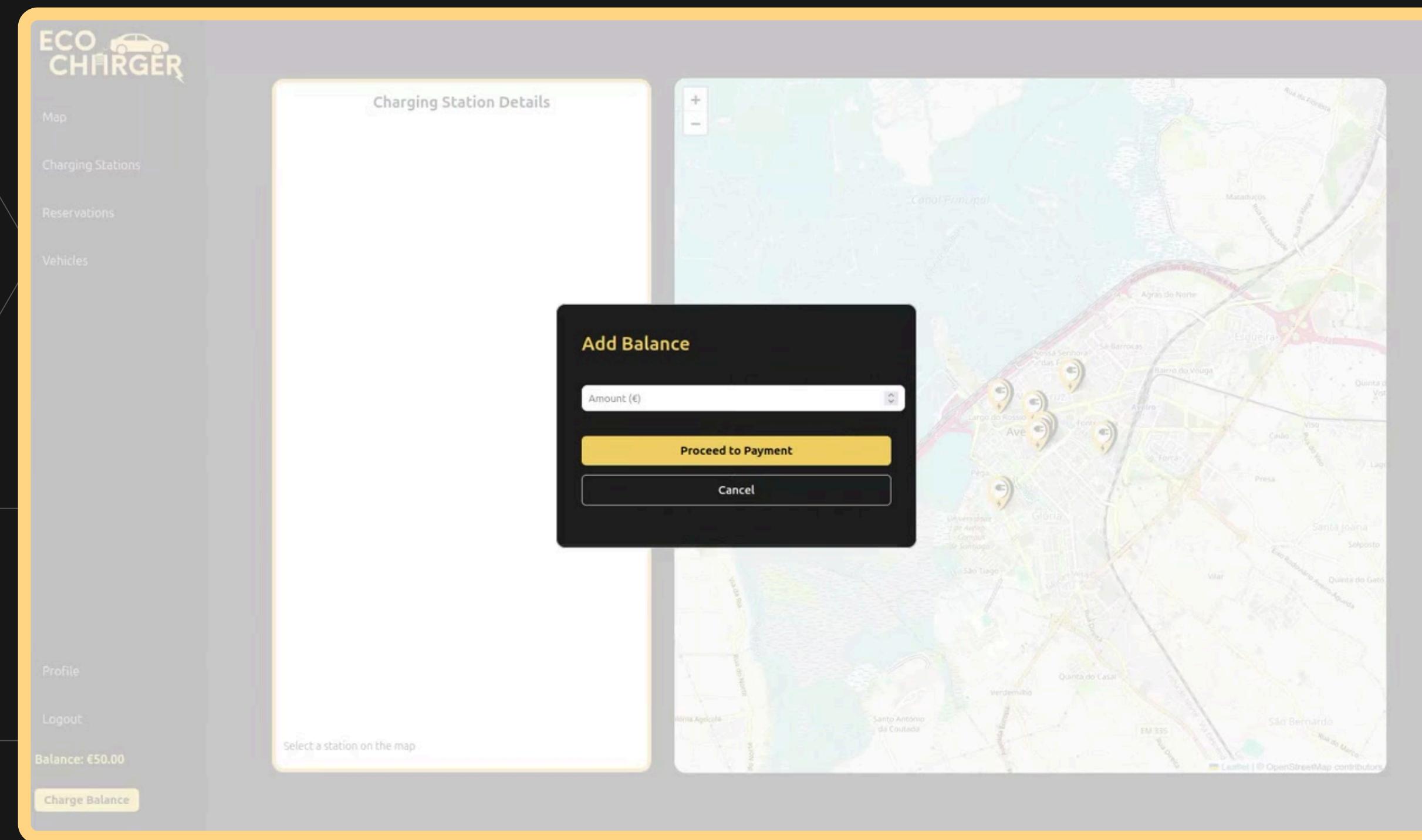
Tesla Model 3 (ID: 1)

Nissan Leaf (ID: 2)

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DEMO

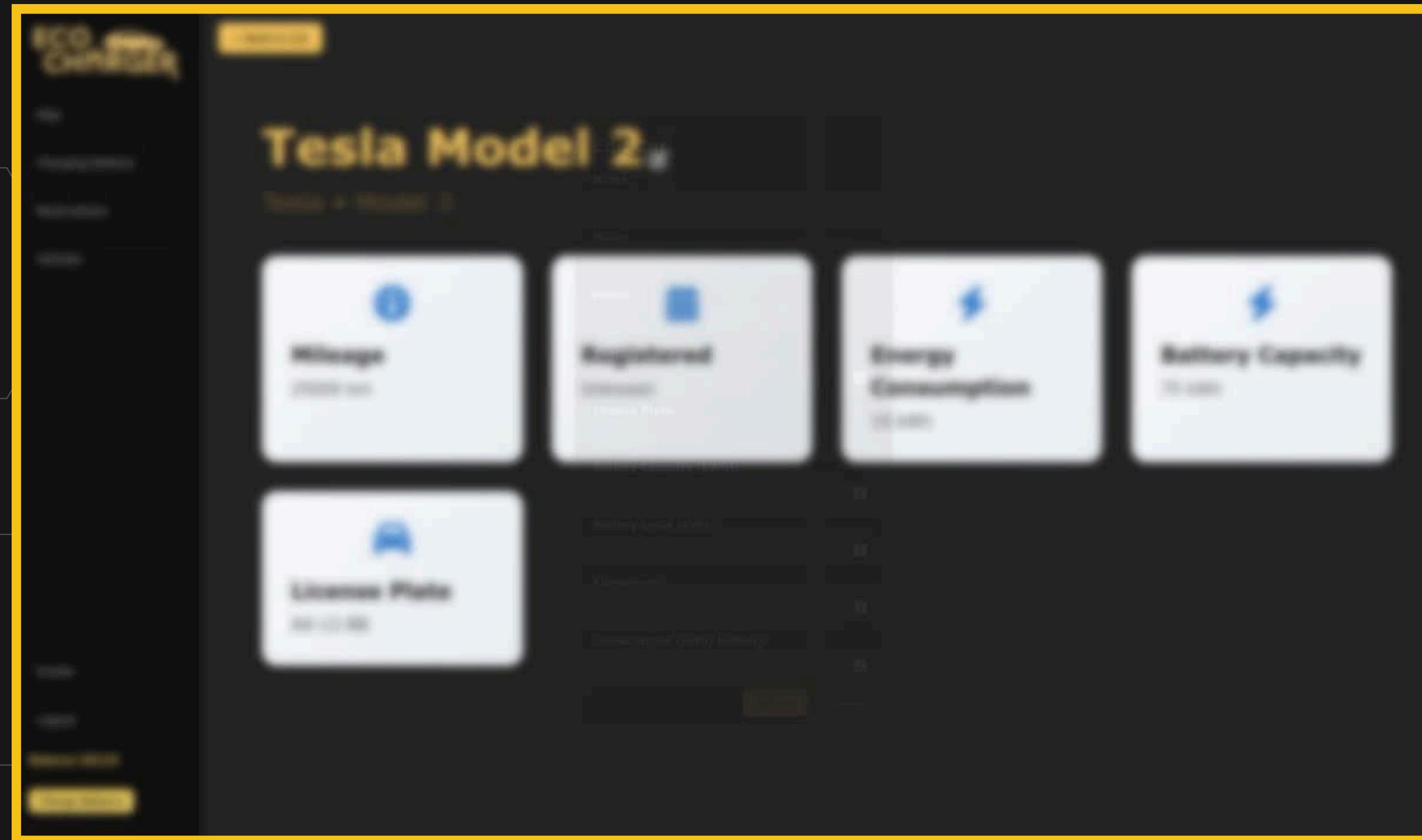
ADDING BALANCE TO MY ACCOUNT



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DEMO

MANAGE CARS



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DEMO

ADD CHARGING STATION

The screenshot shows a dark-themed software interface for managing charging stations. A modal window titled "Add a complete Charging Point" is open in the center. The form includes fields for "Brand" (set to "Bosch"), "Price per kWh (€)" (set to "21"), and "Price per Minute (€)" (set to "21"). Under the "Connectors" section, there is a dropdown for "Select connector type" and a table for defining power parameters: "Voltage (V)", "Current (A)", and "Select current type". A green "Add connector" button is visible. At the bottom of the modal, a message box displays an error: "Error saving point. Please try again." Below the modal, there are "Save" and "Cancel" buttons. The background shows a blurred view of the EcoCharger interface with various menu items like "Dashboard", "Charging Points", "Charging Stations", etc.



DEMO

EcoCharger

Team

Epics

UserStories

Organization

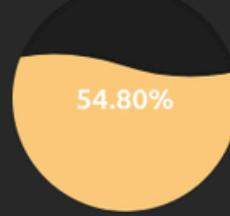
Architecture

CI/CD

TimeLine

Demo

CHECK CHARGING STATUS



54.80%

Charging Slot #7

- Car: Tesla Model 3
- Battery: 54.80%
- Energy: 1.10 kWh
- Duration: 3 min
- Cost: €0.37

 End Charging

Comparison with a Ford Raptor

Tesla Model 3 autonomy: 7.33km's
Ford Raptor liters needed: 1.01L
Price of fuel needed: 1.67€
Difference: 1.3€

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THANK YOU



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