Architecture

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0.1 Proposed System

The proposed system features a client-server architecture, so it is divided into two parts: a frontend app for smartphones, which allows the users to use the service, and a backend system wich deals with all the operations and coordinates them. The backend also interact with the cars, that can be seen as a third part of the system.

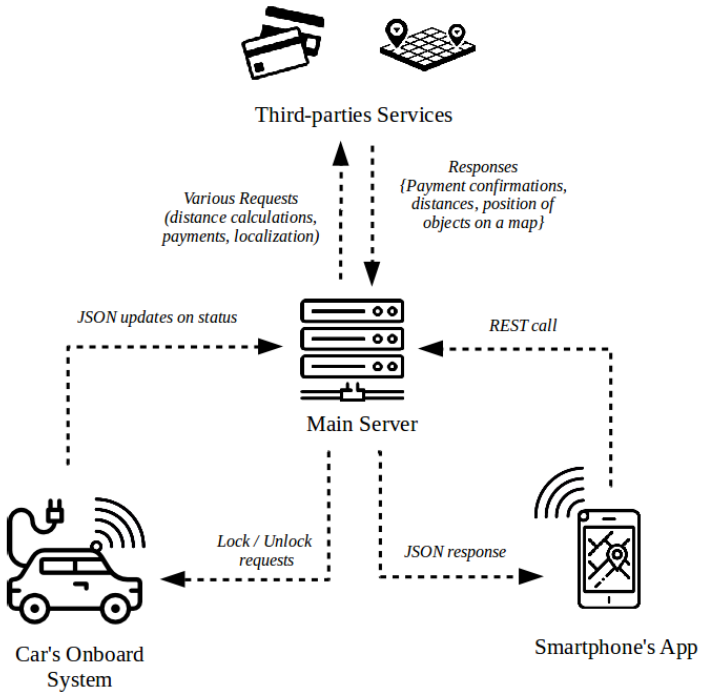

Figure 1: Description of the proposed system.

App Frontend

The frontend is a thin app that relies on the smartphone's internet connections in order to work. Almost no operations can be performed with the app alone: all transactions are sent to the main server first, then processed and the result sent back to the app.

The app can be classified as a thin client.

Centralized Backend

The backend is the core of the system. Being able to process a lot of parallel operations, it can deal with all the requests coming from che clients ina reasonable amount of time

(see Non Functionals Requirements). The backend is based on an MVC architecture and a REST API.

Car's Onboard system

The cars are equipped with an onboard system that monitors the status of the car, its location, and can send all the necessary informations to the main server. There won't be direct interactions between the car and the user's app.

1 Specific Requirements

In this section we are going to illustrate the specific requirement of PowerEnJoy .

We analyze the goals that the application should fullfill, then moving on functional and not functional requirements.

1.1 Goals

1.2 Domain Properties

1.3 Definitions, acronyms, abbreviations

GPS : Global Positioning System is a global navigation satellite system (GNSS) that provides location and time information in all weather conditions, anywhere on or near the Earth where there is an unobstructed line of sight to four or more GPS satellites.

Frontend

Backend

2 Scenarios and Use Cases

2.1 Scenarios

2.2 Use Cases

3 Alloy Model

4 Hours