

The background features a dark blue to teal gradient with a white hexagonal grid pattern. Several white line-art icons of cars are placed within some of the hexagons, connected by thin white lines, suggesting a network or data flow.

# iKer

Carpooling Service  
Service Engineering 2019/2020  
Computer and Telematics Engineering  
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## Why iKer?

Have you ever wanted to go to a football match but had no car?  
Have you ever been lost on a endless festival's parking lot without no parking spot in sight?  
Have you ever got stuck on a traffic line after a concert when all you wanted was to get home after hours jumping around?

## What's iKer?

iKer is a service that allows users to group up and go to events on a shared car ('carpooling').

The drivers can set their source, date and price of the trip sharing among all the passengers that will pick the trip that fits them the most.

# Features



Plan your trip  
and estimate  
the costs.



Save money by  
sharing your car.

Travel to  
events in  
private  
transport

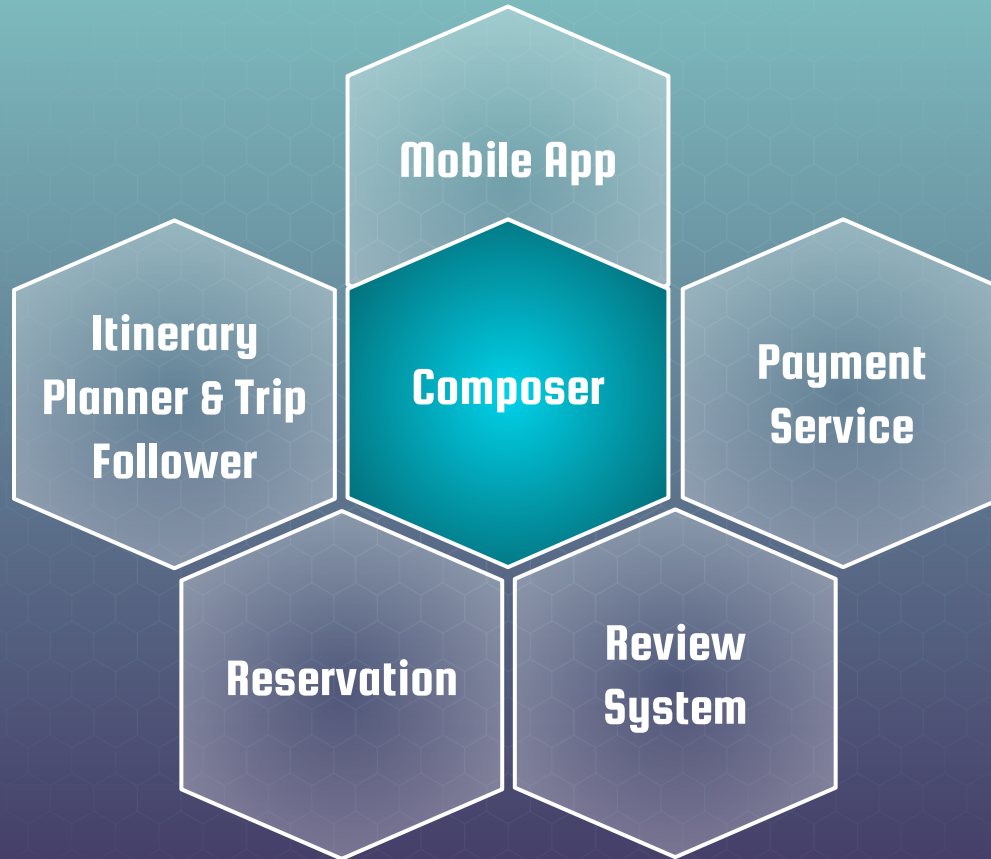


Travel assured that  
you chose the right  
driver allowing  
safer and cozier  
trips.

Trip quality  
assurance and  
security by  
reviewing drivers.



# Architecture



# Itinerary Planner & Trip Follower

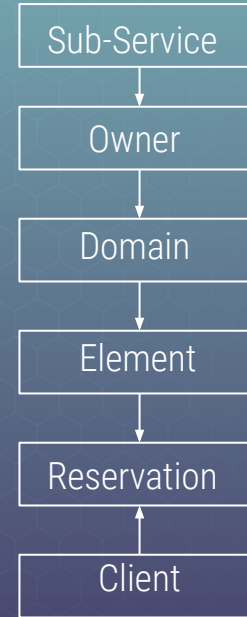
- Service responsible for planning road trips and estimating costs;
- Manages and stores subtrips;
- Finds potential trips for certain requests;
- Uses ViaMichelin API for path finding;
- Keeps track of a given trip as it occurs, storing GPS data;



mais  
gasolina

# Reservation System

- Service used for the registration of all iKer trips and their reservations.
- Works as a persistence service.
- Thought and developed for diverse use cases:
  - Flights, Cinema and Theater seat, etc...
- Technology used:



# Review System

- Service built on Nodejs with MongoDB persistence, whose purpose is to register reviews between two entities;
  - Those entities can be of different or same types (eg. Person - Person, Person - Place, etc)
- Allows the editing of already reviews;
- Allows for nested comments of those reviews.



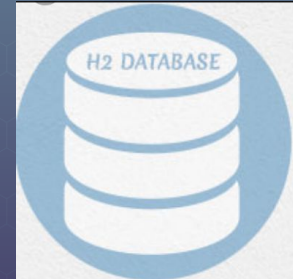
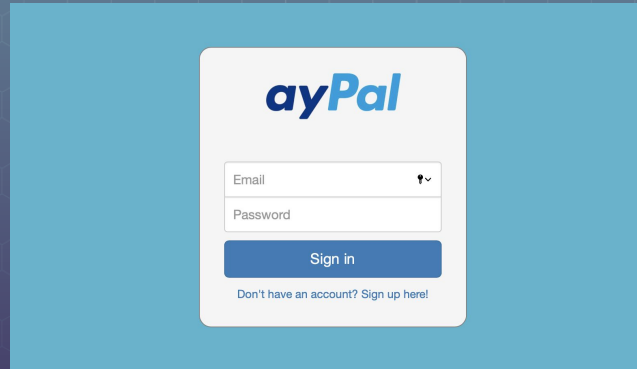
mongoDB





# Payment Service

- The payment service, *per se*, is a completely independent system from the rest.
- It uses a complete separate user base where the UID is the email.
- In this concept version the system packs core features such as transacting and account management.
- A “captive portal” assures the payment is being made in the payment service and not through a middle man.



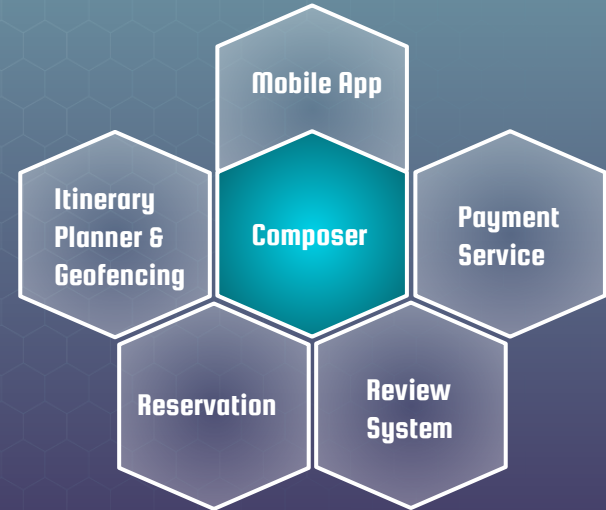


# Composer

- Most of the requests made by the mobile application is done to this module.
- Aggregates all services.
- Implements Business Logic.
- Orchestrates a serie of requests to the services and arrange needed information to display in the mobile app and synchronize the context of each service.
- Technology used:



SQLAlchemy



# Mobile App

- Communicates with Composer to get its data.
- Integrates with Firebase to support Google Sign-In Authentication;
- Makes use of diverse google services:
  - Google GeoCoding API for providing user with place picker Type Ahead
  - Google Maps visualizing trip route;
  - Google Roads to snap polylines to roads;





# Demo



**Thank you for your time!**