Power EnJoy

RASD Document

Discussion Scheduler

- What are our goals and how our system is showed
- Description of system functionality
- Hardware and software installed in our system.

General description

Specific description

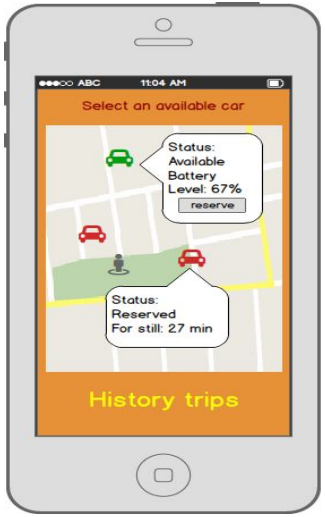
Goals...

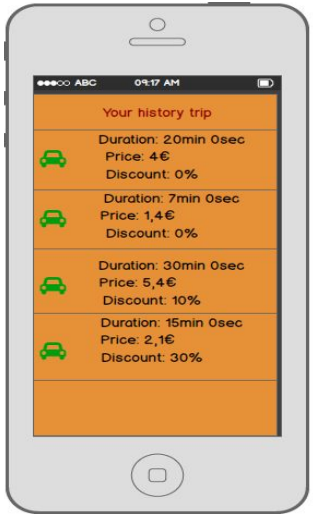
- System allows only logged customers to see available vehicle.
- Customers will be able to reserve chosen car for 1 hour before they pick it up.
- User that exceed the pickup time will be charged.

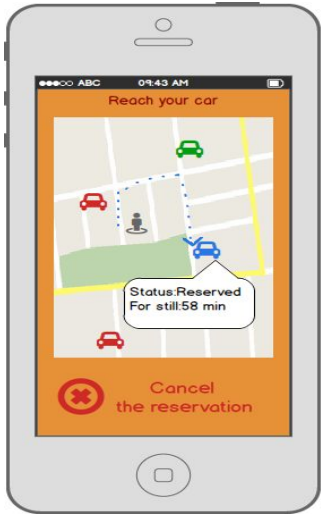
Goals...

- User that reaches the reserved car is able to open it only using mobile app.
- System during the trip shows details about ETA
- System computes automatically charges and discounts related to the user’s behaviour.
- System will include assistance service 24h.

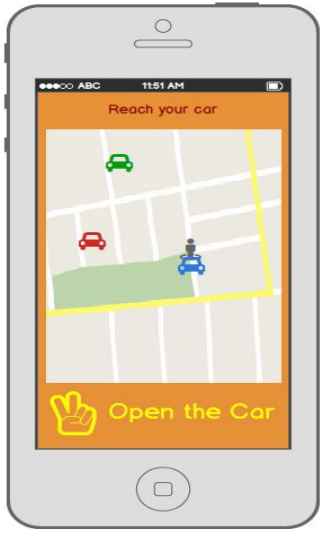

ABC 11:51 AM
Welcome
Power EnJoy
Login
Create an account

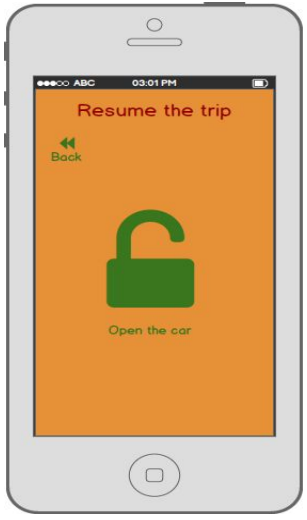

ABC 11:04 AM
Select an available car
Status:
Available
Battery
Level: 67%
reserve
Status:
Reserved
For still: 27 min
History trips


ABC 09:17 AM
Your history trip
Duration: 20min 0sec
Price: 4€
Discount: 0%
Duration: 7min 0sec
Price: 1,4€
Discount: 0%
Duration: 30min 0sec
Price: 5,4€
Discount: 10%
Duration: 15min 0sec
Price: 2,1€
Discount: 30%


ABC 09:43 AM
Reach your car
Status:Reserved
For still:58 min
Cancel
the reservation


ABC 09:17 AM
Insert this pin into the IPad
that you find in the car
58930


ABC 11:51 AM
Reach your car
Open the Car


ABC 03:01 PM
Resume the trip
Back
Open the car

Power EnJoy
An electric Car Sharing System

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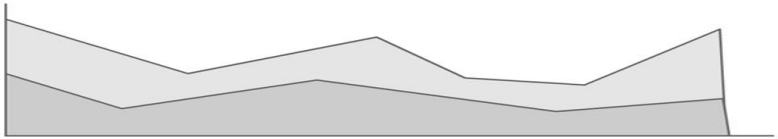
Home | Map | Vehicle | Payments | Contact | Create an Account

Login: username password Button

Best Way to Move around the City



Save Money

11 November 2009

Using our system you will save money, it's easy to start. Register and start Driving!

Guidelines - Respect Environment

No Pollution!

Social

- Add Us On Facebook
- Add Us On Twitter
- Add Us On Myspace

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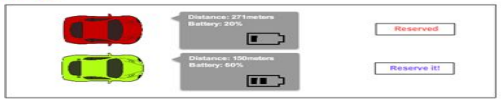
Welcome, username Logout

Look for a Car

Address:

Cars Nearby:



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Welcome, username Logout

List of all Payments

Date(ddmmyyyy)	Start Time(hh:mm:ss)	Duration(hh:mm:ss)	Total Amount($)	Discount(%)
01/01/2018	12:20:10	00:34:15	3	15
07/01/2018	07:24:11	00:13:17	1	0
09/01/2018	18:10:03	00:35:15	15	0

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Registration

Fill all required data:

First Name: Last Name:

Email: Repeat Email:

Password: Repeat Password:

Sex: Male Female

Birth: 31 01 1998

City: Region:

ZIP Code:

Tax Code:

Identity Card: N° Identity Card:

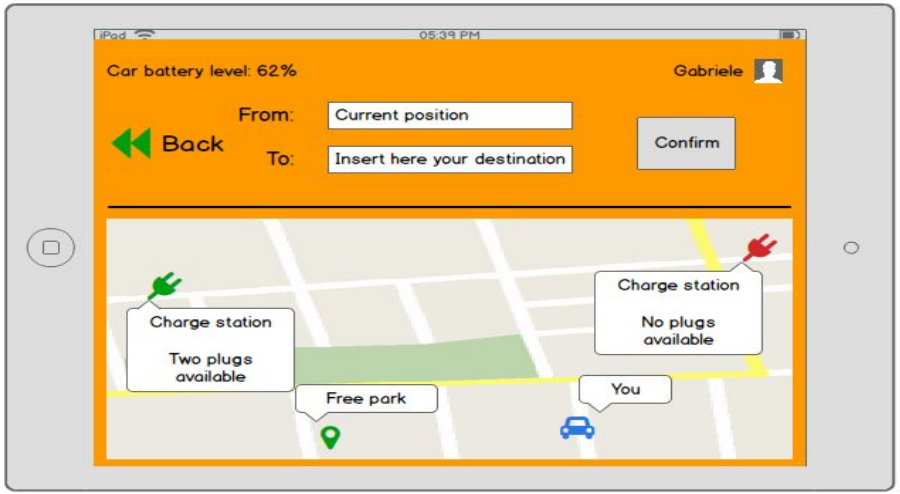
Release Date: Dn Dn Dn

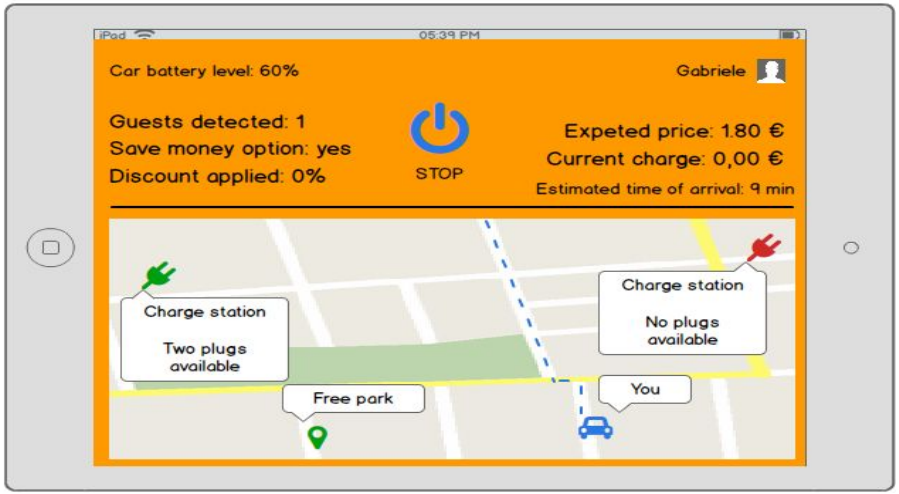
Expiration Date: Dn Dn Dn

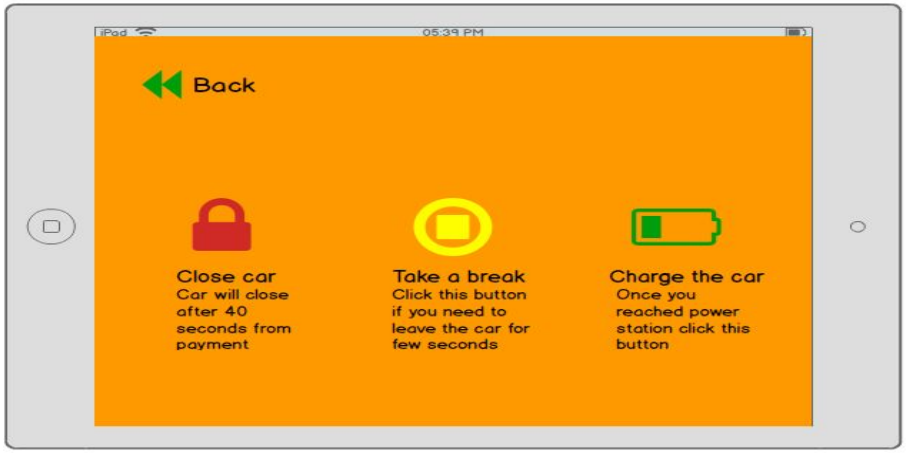
Cancel Register

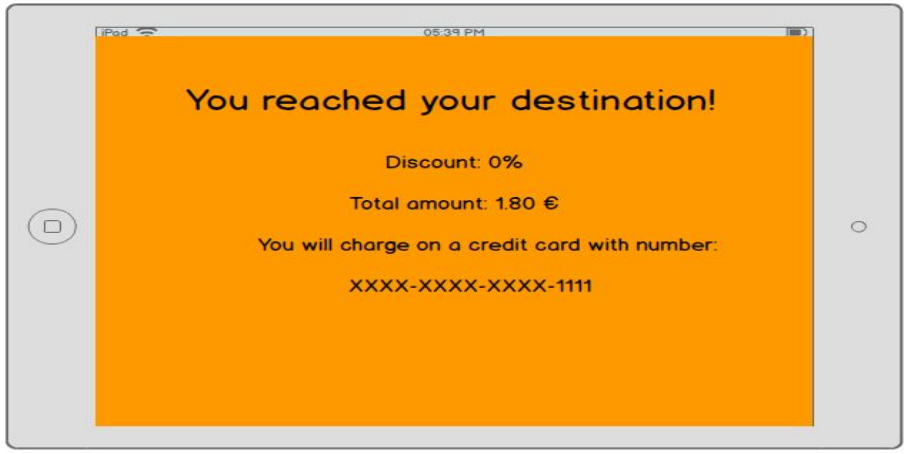

iPad
05:39 PM
Hi, Gabriele
Insert your pin code here...
1
2
3
4
5
6
7
8
9
Delete
0
Confirm


iPad
05:39 PM
Car battery level: 62%
Gabriele
You wish
activate save
money option?
No
Yes


iPad
05:39 PM
Car battery level: 62%
Gabriele
Back
From:
Current position
To:
Insert here your destination
Confirm
Charge station
Two plugs
available
Free park
Charge station
No plugs
available
You


iPad
05:39 PM
Car battery level: 60%
Gabriele
Guests detected: 1
Save money option: yes
Discount applied: 0%
STOP
Expeted price: 1.80 €
Current charge: 0,00 €
Estimated time of arrival: 9 min
Charge station
Two plugs
available
Free park
Charge station
No plugs
available
You


iPad
05:39 PM
Back
Close car
Car will close after 40 seconds from payment
Take a break
Click this button if you need to leave the car for few seconds
Charge the car
Once you reached power station click this button


iPad
05:39 PM
You reached your destination!
Discount: 0%
Total amount: 1.80 €
You will charge on a credit card with number:
XXXX-XXXX-XXXX-1111


iPad
05:39 PM
Resume your trip


iPad
05:39 PM
Insert PIN received on your mobile phone to resume the trip
Insert your pin code here...
1
2
3
4
5
6
7
8
9
Delete
0
Confirm

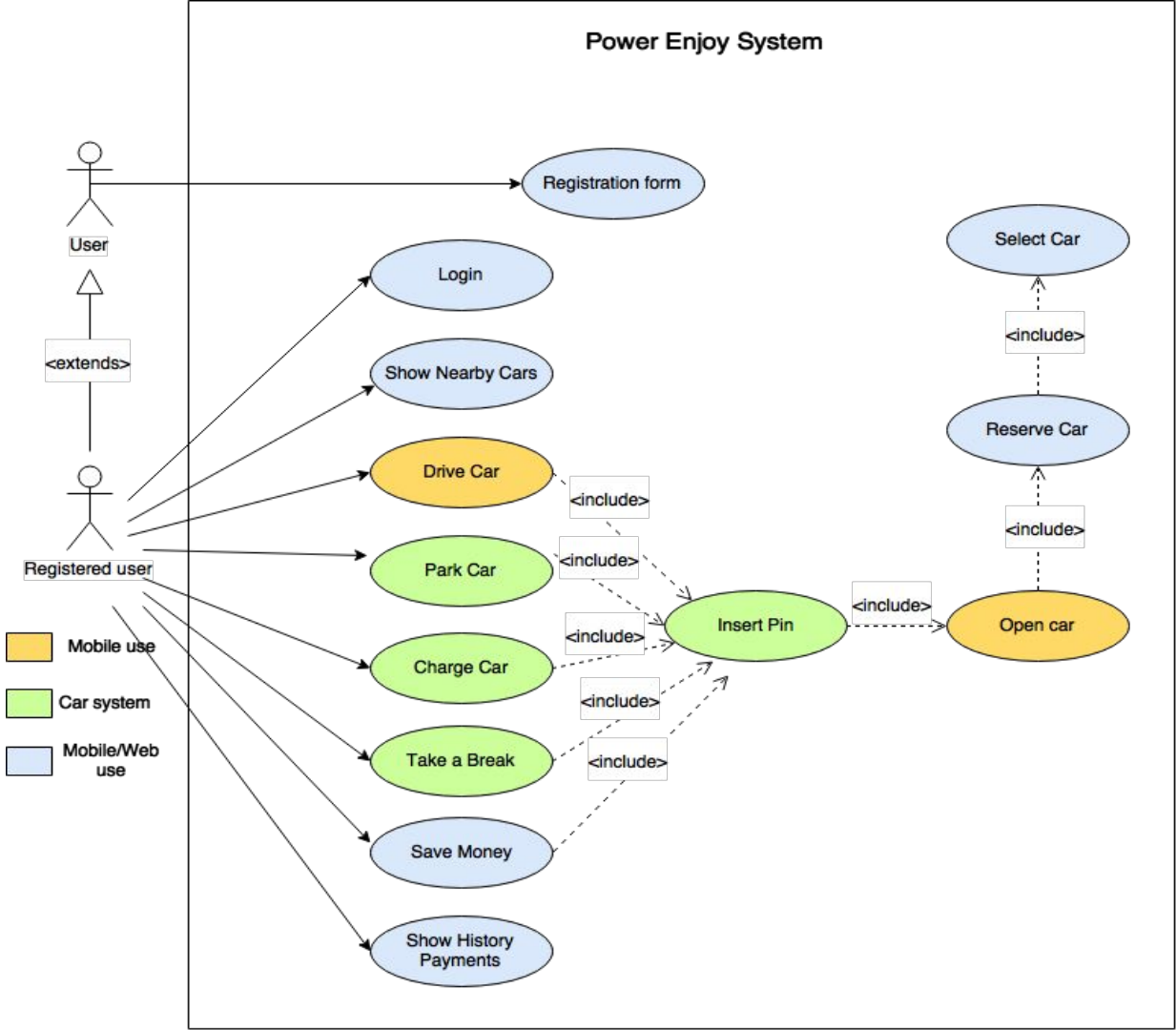
USE CASES

Assumptions:

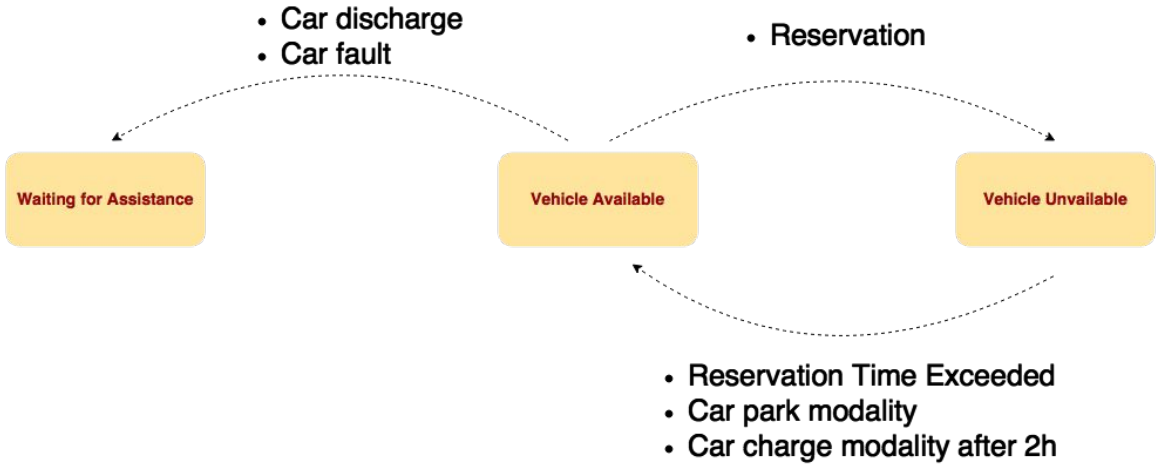
1. the power enjoy App installed and always working.
2. The User's cell phone is always on and online.
3. The user takes always with him his cell phone.

Explanation for the use cases:

1. some use cases can be performed using the mobile only



States of the vehicle



Assumptions:

1. An external company handles the cases of car fault and car discharge

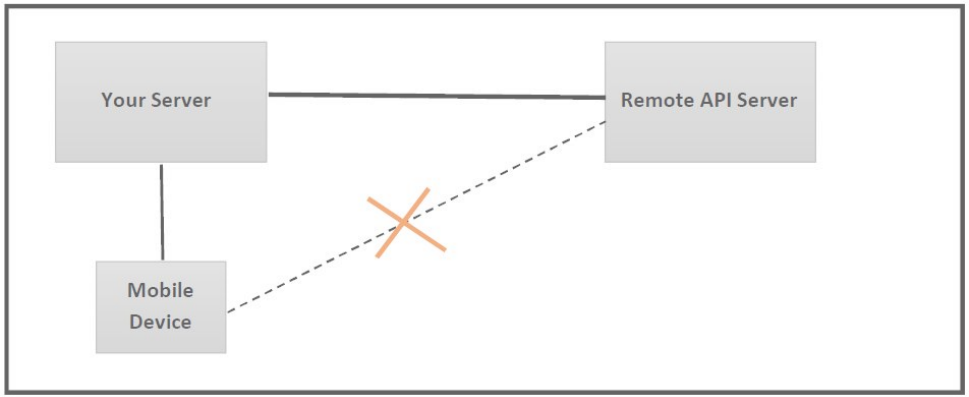
System Vehicle Interaction

Facing out the different solutions available in the automotive industry. We've analyzed the opportunities in electric vehicles. General Motors will sell starting from 2017 Opel Ampera-e, an electric vehicle with 200 miles range autonomy.

GM has given to us thanks to our request, the access to developer resources, description of API, and developer credentials.
This car has already installed OnStar Hardware technologies. In addition we insert in each car an iPad with an installed App which interact only with PowerEnJoy Server.

System Vehicle Interaction

The design of this system needs to use technology already developed. Since Remote API servers expect to interact with another server, System's architecture must reflect this line. Architecture will consider a web server that communicates with the user's phone and the iPad but on the other side invokes command on Remote API Server.



General Motors API Used

API Name	Description	API Use (Y/N)
Subscribers	List subscribers on an Account	N
Subscriber	Get a specific subscriber on an Account	N
Vehicles	List vehicles on an Account	Y
Vehicle	Get a specific vehicle on an Account	Y
Start Vehicle	**Remotely start the vehicle**	**Y**
Cancel Start Vehicle	Remotely stop the vehicle	Y
Lock Vehicle Door	**Remotely lock the vehicle doors**	**Y**
Unlock Vehicle Door	**Remotely unlock vehicle doors**	**Y**
Vehicle Location	**Retrieve the location (latitude/longitude) of a vehicle**	**Y**

Alert	Remotely alert (horn honk/flash lights) a vehicle	Y
Turn By Turn Route	Request to send directions to a vehicle based on destination and start location	Y
Send Destination	Request to send destination to the onboard navigation unit of a	Y
Retrieve Diagnostics	**Query a vehicle for diagnostic data**	**Y**
Batch	Request to send a set of commands for vehicle(s) for fleet clients	N
Telemetry Data Service	Location data stream.	Y
Trip Data Service	Data collected during a trip including: Seatbelt, Hard Braking, Hard Acceleration, Engine Idle etc..	Y
DTC	Data stream of active Diagnostic Trouble Codes.	Y
Remote Vehicle Disable/Enable	Ability to immobilize and remobilize the vehicle.	Y
Electric Vehicle Services	Services available to electric and hybrid vehicles.	Y

End