

Mobility Vocabulary Development

Semantic Data Web Technologies Lab 2014

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Problem Definition

Time matters everywhere and in every case. So the electric car users also look for flexible and faster way to get the information about charging points according to different criteria instead of going to each of the charging points to get information about them.

MobiVoc (<http://www.mobivoc.org>) is an open standard vocabulary that can be used for mobility solutions and services. Its development started in 2014 and currently it's expanding by many domains related to mobility (e.g. infrastructure for electric cars).

Our task in this project is to collect information about the charging points, encode this information as linked data using given vocabulary provided by MobiVoc, and expanding the MobiVoc vocabulary as required.

Represent the knowledge as a linked data vocabulary, and includes expanding the MobiVoc vocabulary. In order to complete the task we should retrieve data using the respective APIs, or by downloading data dumps. Then the open data should be converted into linked data using existing software. If not available then we will have to implement ourselves.

Use case / Scenarios

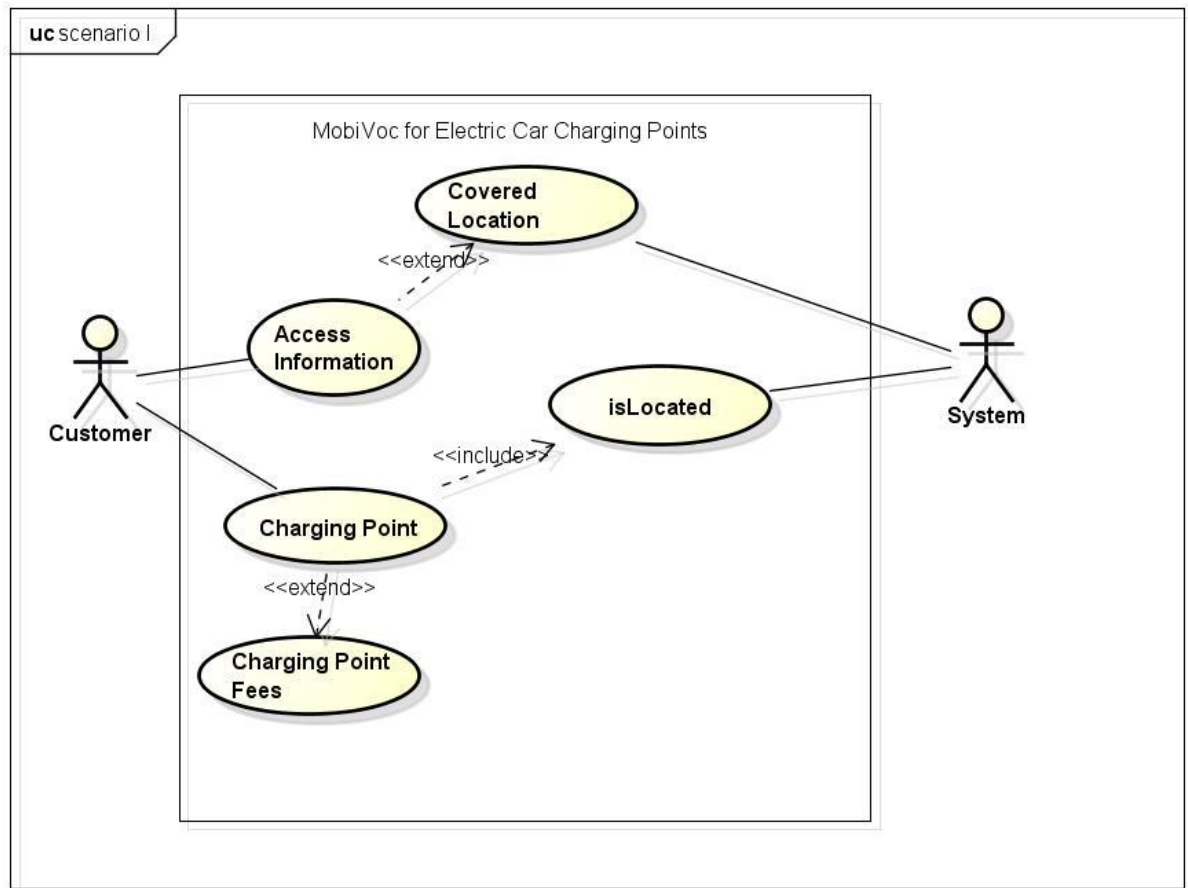
There could be many scenarios for electric cars associated with charging points. Here we have decided to show only three scenarios among all. And all of the following scenarios have been made according to the MobiVoc vocabulary.

Use Case Scenario 1

User of this system is located in a random location with his vehicle. He checks his remaining battery load and realizes that he has only 20% left of the overall battery capacity. The user needs to find a location to charge his battery. With the use of MobiVoc system he should check first if the location in which he is located is covered by the system (e.g. the system is equipped with enough data to display the locations relevant information). If this is the case then the system should be able to display price of charging points that are located near the user's current location. At the end the user has to be able to see how he can reach the location in which he wants to charge his battery. All information needs to be displayed on a screen.

The data quality has to be checked in advance. In order to do this we should use the following metrics (initial approximation).

In the image below we describe use case scenario that is required to describe the situation.

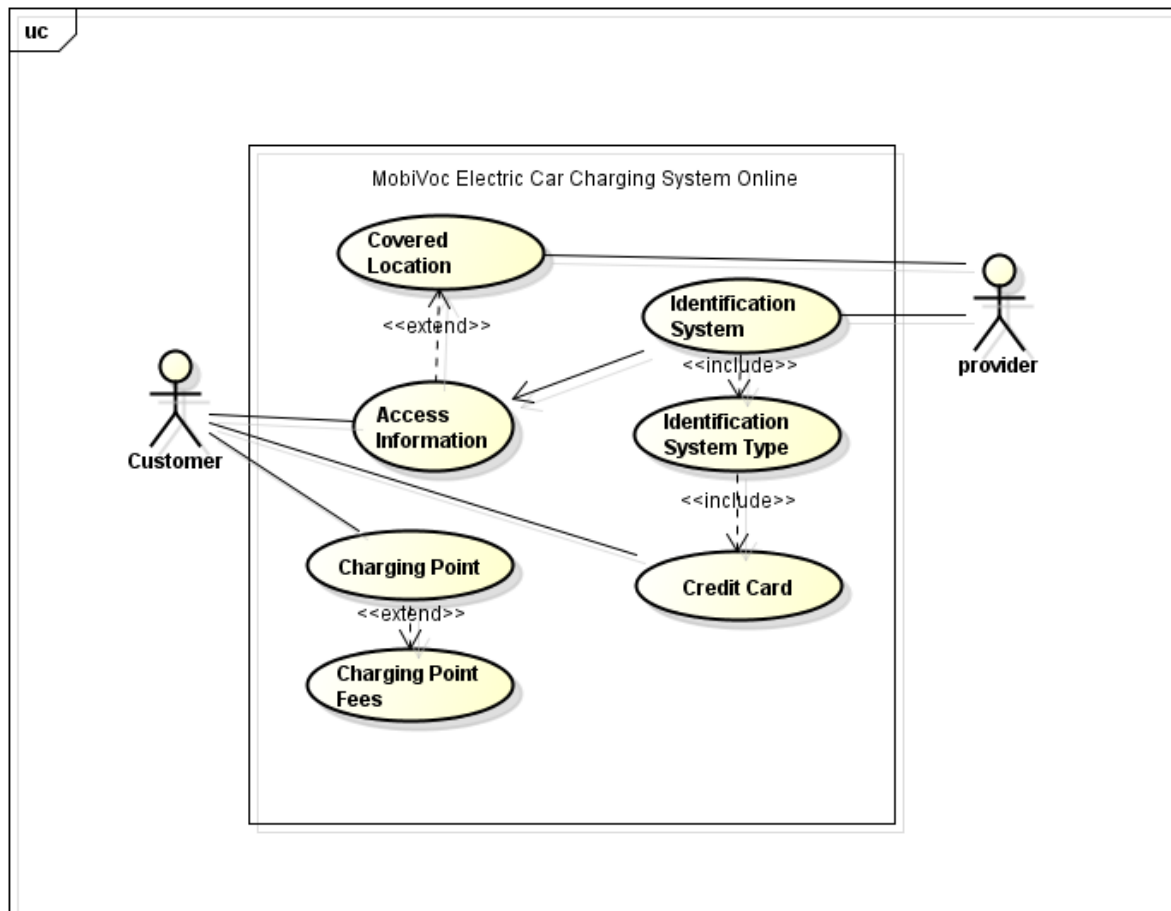


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Use Case Scenario I	Query
Initiating Actor	Customer
Participating Actor	none
Pre Condition	Customer needs to have access to MobiVoc Electric Car Charging System Online
Flow of Events	1. Customer in his display receives information about nearest by charging points
	2. Customer selects an option that shows the charging fees of each charging point
	3.The provider displays the information of the price
	System collects all this information and performs the query
Post Condition	Customer observes results from his query
Quality Requirements	Response time does not take more then 15 seconds

Use Case Scenario 2

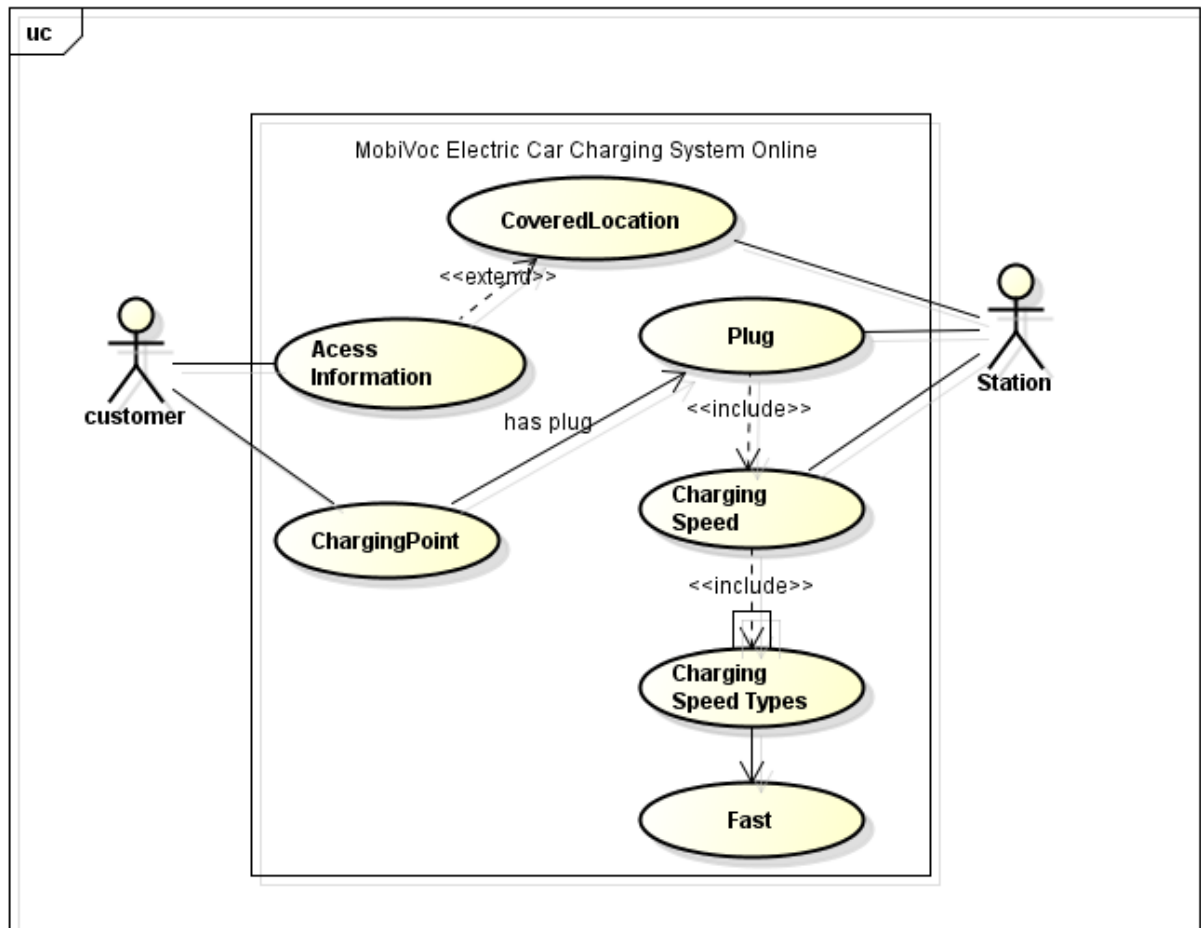
User of this system is located in a certain charging point where he can charge his vehicles battery. In the current charging point the user needs to be able to check which kind of payment he can use for receiving this service and if he can pay by credit card.



Use Case Scenario II	Query
Initiating Actor	Customer
Participating Actor	none
Pre Condition	Customer needs to have access to MobiVoc Electric Car Charging System Online and to be in covered location.
	Provider is accessing the Identification System
	Provider needs to have option for payment with credi card
	The provider collects all this information and performs the query
Post Condition	Customer observes results from his query
Quality Requirements	Response time does not take more then 15 seconds

Use Case Scenario 3

The user has very low battery level. The user soon will not be able to drive his vehicle. Because of this reason the user needs to find a charging point where he can charge his battery fast. For getting his problem resolved, he needs to have information about the type of charging that is offered by the closest charging points located to his location.



Use Case Scenario III	Query
Initiating Actor	Customer
Participating Actor	none
Pre Condition	Customer needs to have access to MobiVoc Electric Car Charging System Online and to be in covered location.
	Customer accesses this information that is stored in all covered locations.
	Customer selects certain charging point to perform charging of his vehicle
	Station needs to be open equipped with available plugs
	The speed type of the charging points needs to be FAST
	System collects all this information and performs the query
Post Condition	Customer observes results from his query
Quality Requirements	Response time does not take more then 15 seconds