

Automatic toll payment based on *blockchain*

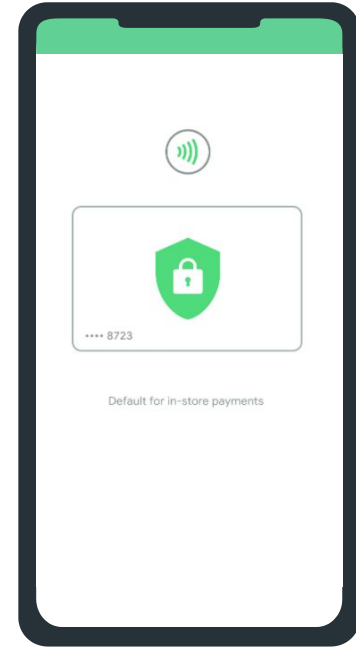
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Milestone 2

State of the Art

Project Background

- Operational Road Side Units
- RSU's collected data is published
- Other services consume this data

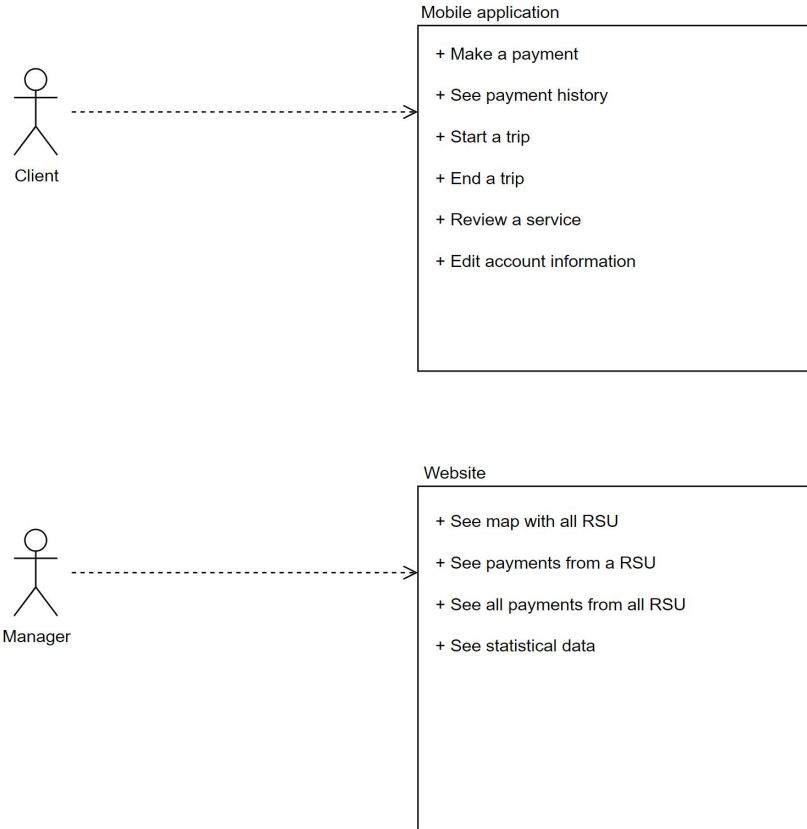


Actors

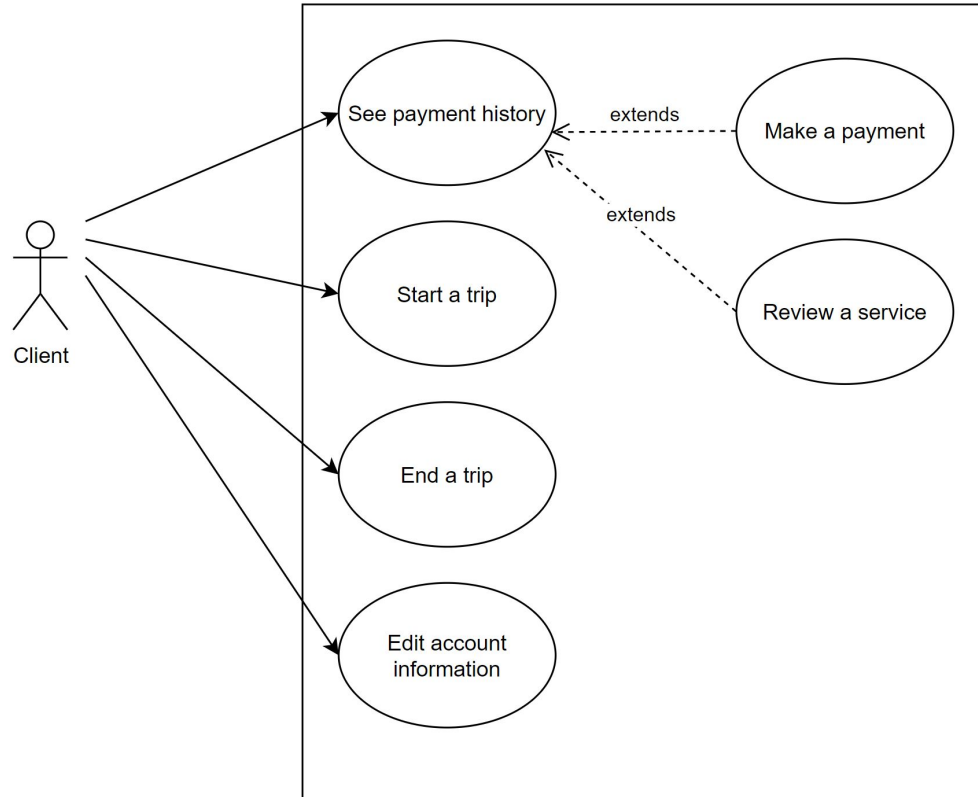
Client: Represents the user of the mobile application. It is not expected to have much experience with technologies. He can make payments, view the payment history, start and end a trip, make a service claim and edit the account information. The client is not expected to have access to the website.

Manager: Represents the service manager. It is expected to have some experience with technologies. He can see the map with all the RSU and, when selecting a RSU, see all payments made on it. He can also see a list of all payments from all RSU and also their statistical data. The manager is not supposed to interact with the mobile application.

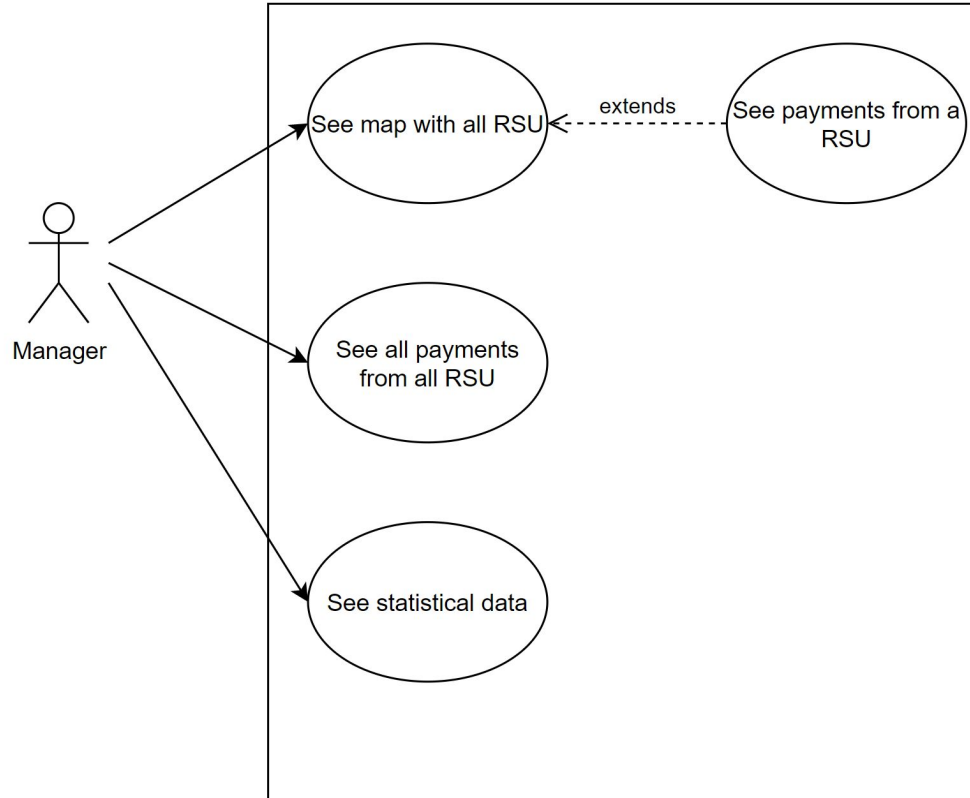
Use Cases



Use Cases - Mobile application



Use Cases - Website



Functional Requirements



System must be able to:

- Guarantee DLT transactions visualization with the mobile and web app
- Perform IOTA payments
- Establish wireless connection with the RSUs
- Establish geolocation of the mobile device and RSUs
- Establish communication between itself and a central database
- Guarantee mobile app user's identity
- Allow user to check balance and payment history

Non-Functional Requirements



- **Usability** : Easy to learn, easy to use
- **Interoperability** : Communication between modules
- **Security** : Blockchain technology
- **Implementation** : Correlation between frameworks
- **Robustness** : Deal with communication problems
- **Efficiency** : Manage resource consumption
- **Performance** : Good response time
- **Portability** : Compatibility with different smartphones and browsers

Assumptions and Dependencies

- **Users must have:**
 - a smartphone capable of connecting to the units via wireless
 - enough money to make the payment
- Both **RSUs** and the **infrastructure** which store the information about vehicles are already assembled and functioning

System Architecture

