Requirements:

1. Hardware:
* Standard PC, Camera
1. Software:
* Programming: Java Spring, Python, Vue.js, (WebSocket).
* Database platform (PostgreSQL)

For the first time for plate detection we are going to use YOLO model. In the web there are a lot of models for this purpose and we have to choose one of them and train with Kazakhstani cars and licensed plates. For training we have to find good dataset with images of Kazakhstani cars.

This model will be compiled on python and run on separate port. A backend server will send to this port image of cars and retrieving from this port a string message with plate number.

The backend server will be implemented on Java. After retrieving plate number, service will check from database whether the car has parking place or not, or whether the car has request to enter the campus.

Front-end:

Front-end of the software will provide system that gives students an opportunity of requesting for car entrance and looking for the registered vehicles and requests for security guards. It will be designed by Vue.js. A form containing student’s name, surname, id, room number and vehicle’s plate number would be connected with database. Then, security guard can easily get access to this database by the system.

The system will be integrated with the Nazarbayev University services. More precisely, we have to integrate the auth-server of university in order to provide easy access for the service to students. To do this, we need to talk with IT members of university and discover how they implemented it. Moreover, for this time we do not know whether they have or not some working services for this purpose or not. If they have one, we have to know about models and databases to integrate with NU services.

