Content

1. Introduction

1.1. Application system name

Full title: Used Auto Parts Company Program System. Short name: EAAD.

1.2. Subject area

Activities of a company engaged in dismantling used cars and selling their parts. Since most of the cars registered in Lithuania are older than 10 years, used car parts are quite popular. However, in order to find out whether the desired part is available in a particular company, the customer has to go there and find out. Some companies have installed information systems, but you can only find out if a car of a certain brand is available without going there.

1.3. Problem area

- Inefficient customer service.

  In the absence of information about available details, the customer is forced to go to the company and personally learn about the detail of interest.

- Inefficient work of managers.

  The manager cannot immediately provide information about the detail of interest to the client

- Bad company image.

  Customers are lost due to low-quality service, lack of computerization determines the advantage of competitors.

1.4. Users

- Salespeople (qualification: basics of working with computers)
- Manager (qualification: computer literacy certificate)
- Accountant (qualification: computer literacy certificate)
- Technicians (qualification: basics of working with computers)

1.5. The basis of work

The document was prepared as a laboratory work of software systems engineering.

1.6. Documents used

[1] Article 57 of the Law on Profit Tax. Adopted in 2001 December 20 No.: IX-675

[2] Article 12 of the Law on Financial Reporting of Companies. Adopted in 2001 November 6 No.: IX-575

[3] Article 229 of the Labor Code. Adopted in 2002 June 4 No.: IX-926

[4] Value Added Tax Law. Adopted on March 5, 2002. No.: IX-751.

[5] Article 24 of the Law on Legal Protection of Personal Data. Adopted in 2003 January 21 No. IX-1296

2. User interface requirements

2.1. Metaphor requirements of the subject area

The following metaphors should be used to formulate tasks:

1. Supplier – individual person (company) supplying cars.
2. Customer – an individual person (company) interested in buying item(s).
3. Registered employee – a person permanently working in the company and using "EAAD".
4. Car - any motor vehicle intended to drive on the road and carry goods and/or passengers or tow other vehicles, except for trolleybuses, buses and trucks.
5. Car brand - the brand of a specific car.
6. Car model - the model of a specific car.
7. Year of manufacture - the year in which a particular car was manufactured.
8. Car registration - entering a new car into the database.
9. Detail - detail of the car.
10. Part code – unique characteristic of the part.
11. The price of the part - the price of the product for one measuring unit. with tax.
12. Quantity of details – quantity of details expressed in units of measure.
13. Part search – part search in the database based on certain part characteristics.
14. Supporting Information - EAAD User Guide.
15. Backup is a file that stores a copy of the database.
16. Backup is the process of creating a file that stores a copy of the database.
17. System Restore - Restoring the EAAD database using a backup copy.

2.2. Tasks are formulated

Five user interfaces must be implemented in EAAD: salesperson, manager, accountant, technician and customer.

Using the seller's interface, the following tasks are formulated:

Task	Task description:
1. Find the detail	Command: find detail. Parameters: any combination of part characteristics: part name, code, car model, brand, comments about the part. Data: The database stores data about available parts.
2. Register the sale	Command: sell item. Parameters: part code, price.
3. Get help	Command: get help. Data: system help files.
4. Make a system back up copy	Command: back up. Data: The data stored in the database.

Using the manager interface, the following tasks are formulated:

Task	Task description
1. Register the car	Command: register the car. Parameters: price, brand, model of the purchased car.
2. Edit details information	Command: Edit Details. Parameters: any combination of part characteristics: part name, code, car model, brand, comments about the part. Data: The database stores data about available parts.
3. Get a report on the demand for parts	Command: demand. Parameters: period. Data: The database stores data about available parts.
4. Get help	Command: get help.

	Data: system help files.
5. Restore the system	Command: restore. Parameters: backup identifier. Data: System Backup.

The following tasks are formulated using the accountant's interface:

Task	Task description
1. Get a report on sales	Command: report. Parameters: period. Data: The database stores data about available parts.
2. Get help	Command: get help. Data: system help files.

Using the technician interface, the following tasks are formulated:

Task	Task description
1. Find the detail	Command: find detail. Parameters: any combination of part characteristics: part name, code, car model, brand, comments about the part. Data: The database stores data about available parts.
2. Register the detail	Command: register detail. Parameters: part name, code, notes, car brand, model.
3. Get help	Command: get help. Data: system help files.

The following tasks are formulated using the client interface:

Task	Task description
1. Find the detail	Command: find detail. Parameters: any combination of part characteristics: part name, code, car model, brand, comments about the part. Data: The database stores data about available parts.
2. Get help	Command: get help. Data: system help files.

2.3. Language requirements for task formulation

1. **Requirement:**The user must be allowed to formulate tasks by means of a graphical interface. They must be presented to the system using dialog boxes, menus, input forms.

2. **Requirement:**The following input devices - mouse and keyboard - must be allowed.
3. **Requirement:**Each task should open a dialog where the user, with the help of drop-down lists or checkboxes, selects product characteristics from those already available.
4. **Requirement:**Only the manager and technician should be allowed to enter new values, when registering new cars and registering dismantled car parts, the manager can change prices. In other cases, changing the characteristics of the parts must be prohibited.
5. **Requirement:**The program must contain the following windows: The seller's interface must contain the following windows: 1. EAAD system login window.
   2. Find the detail.
   3. Register the sale.
   4. Get help.
   5. Make a system backup. The manager interface should have the following windows: 1. EAAD system login window.
   2. Register the car.
   3. Edit details information.

4. Get a report on the demand for parts.

5. Get help.

6. Restore the system.

The accountant's interface must have the following windows: 1. The EAAD system login window.

2. Get a report on sales.

3. Get help.

The technician's interface must have the following windows: 1. The EAAD system login window.

2. Find the detail.

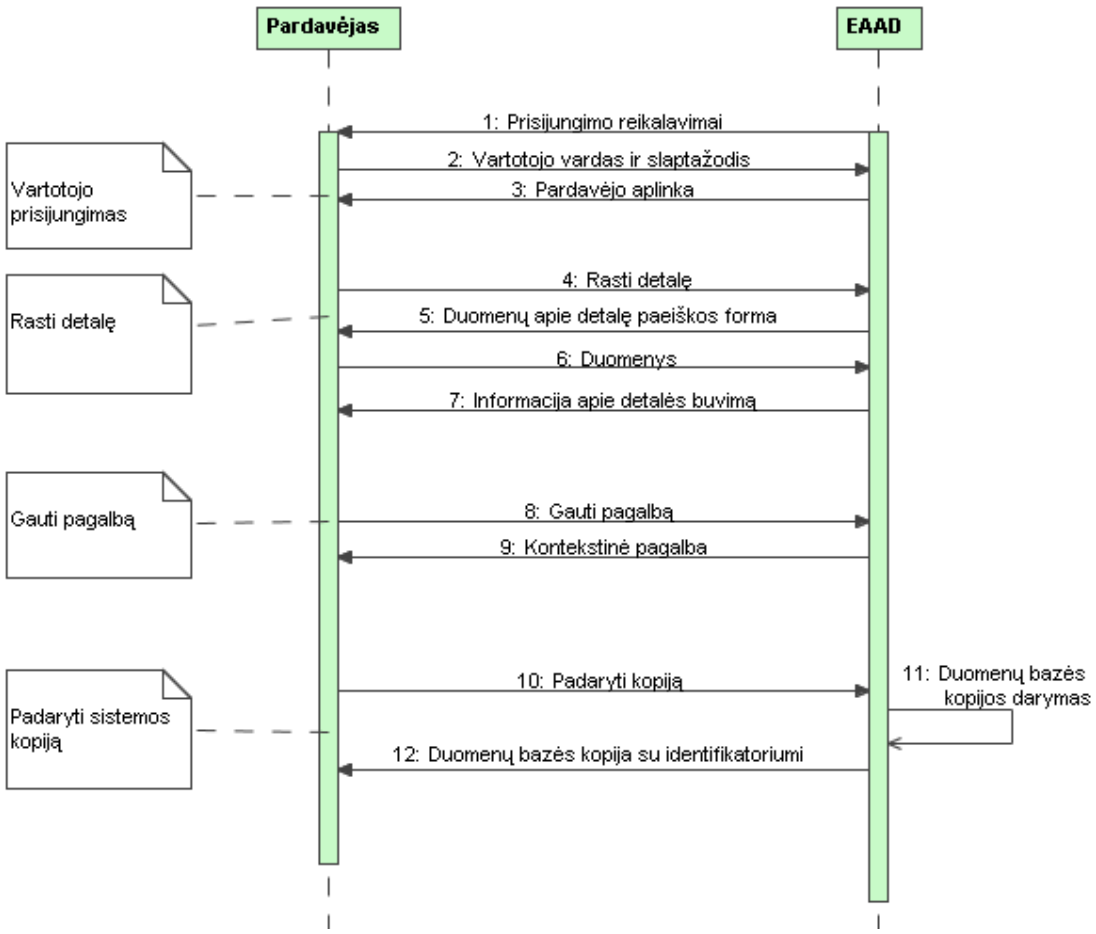
3. Register the detail.

4. Get help.

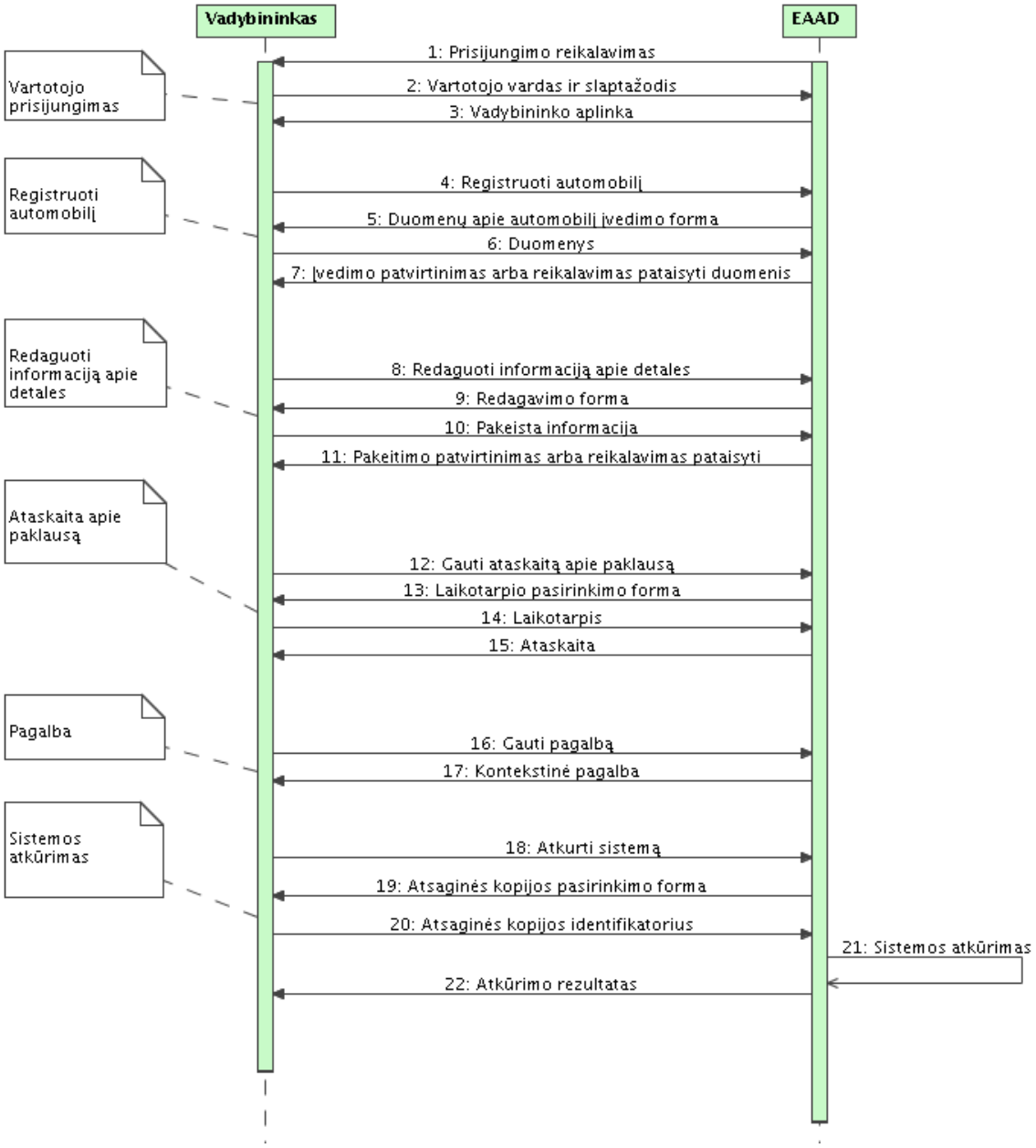
The client interface must have the following windows: 1. Find a detail.

2. Get help.

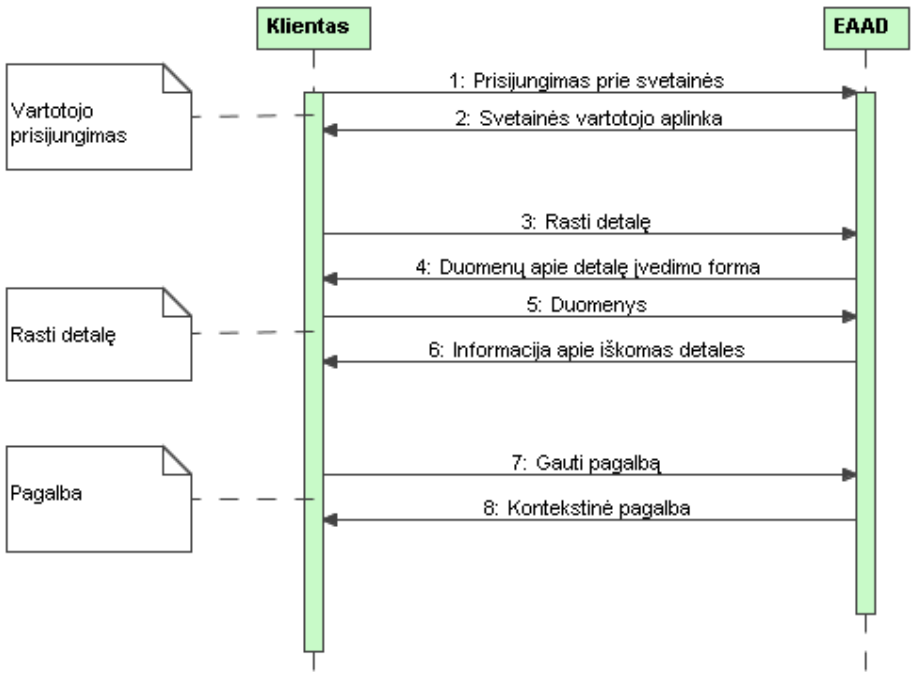
2.4. Requirements for the method (protocol) of formulating tasks



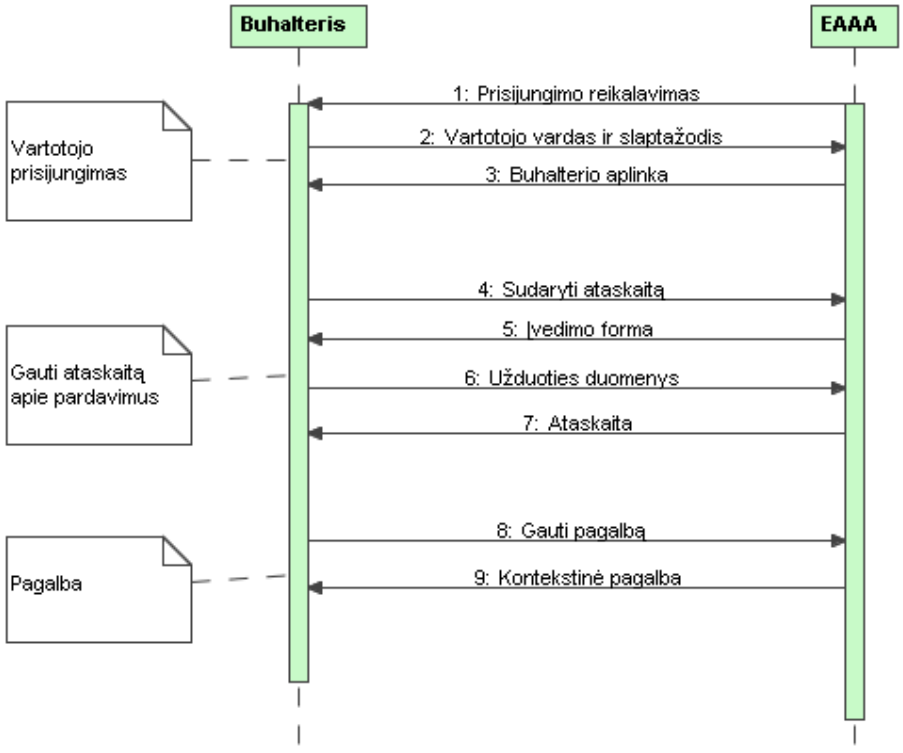
UML sequence diagram of the vendor interface



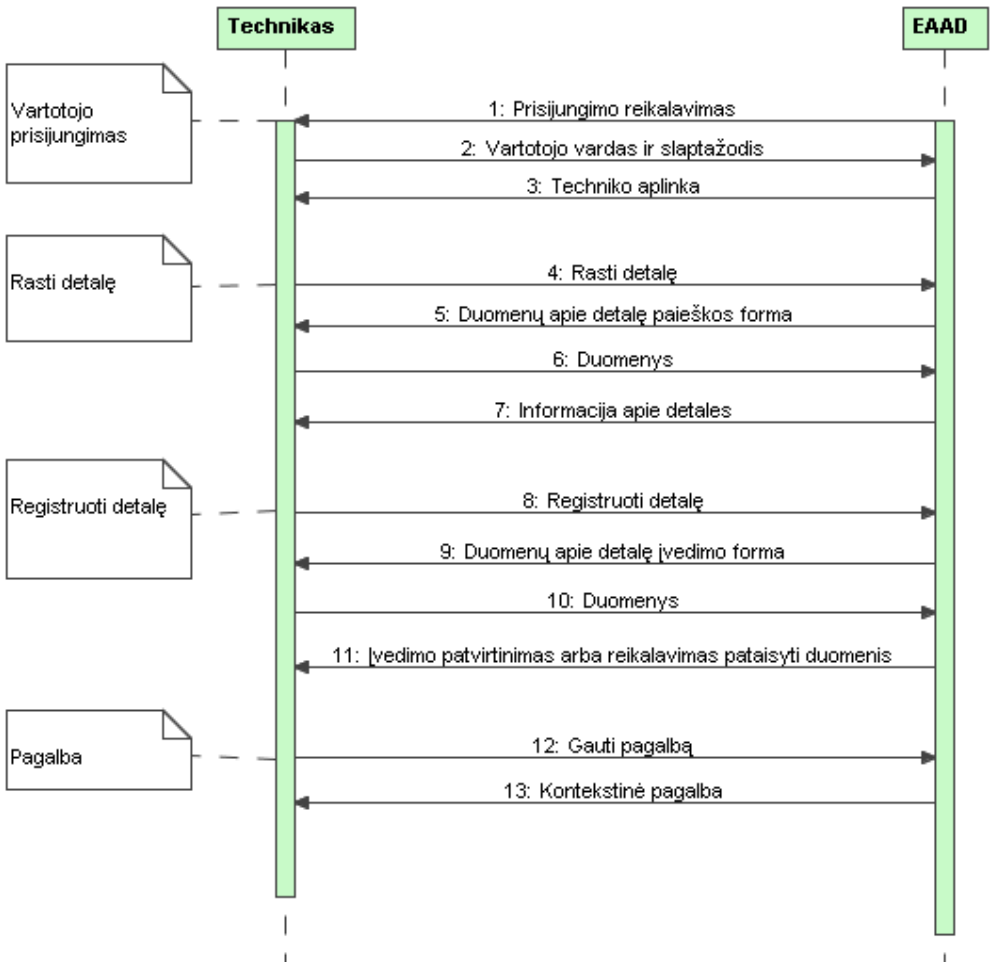
UML sequence diagram of the manager interface



UML sequence diagram of the client interface



UML sequence diagram of the accountant interface



UML sequence diagram of the technician interface

2.5. Interface consistency and standardization requirements

1.**Requirement**: The user interface of the application system must be independent of the operating system.

2.6. Notification wording requirements

1.**Requirement:**Reports must be formulated in the terms of the subject area, specific and concise.

2.**Requirement:**The notification window must have the ability to use auxiliary functions.

2.7. Interface customization requirements

1.**Requirement:**The user is not given the option to change the graphical user interface.

3. Functional requirements of the program system

3.1. Subject requirements

3.1.1. Task: find the detail

Initial data:

1. Name of the part: character string.
2. Code: real number.
3. Car model: character string.
4. Brand: character string.
5. Notes on detail: character string.

Results:

1. Data on details that match the search criteria.

Explanations:

1. The database is searched for details that match the search criteria.
2. The seller, technician, customer can find the part.

3.1.2. Task: register the sale

Initial data:

1. Part code: an integer.
2. Price: real number.

Results:

1. Information about sales is entered in the database:
    a. Part code: real number.
    b. Price: real number.
    c. Quantity: an integer.
    d. Date: character string.

Explanations:

1. Updated information.
2. The fact of the sale of the goods is noted, reducing the number of sold goods in the database the number Only the seller can register the sale.

3.1.3. Task: register a car

Initial data:

1. The price of the purchased car: real number.

2. Brand: character string.
3. Model: character string.

Results:

1. Information about a new car is entered in the database.

Explanations:

1. The manager registers a new car.

3.1.4. Task: Edit detail information

Initial data:

1. Name of the part: character string.
2. Code: an integer.
3. Brand: character string.
4. Car model: character string.
5. Notes on detail: character string.

Results:

1. Details information is changed in the database.

Explanations:

1. Manager edits detail information.
2. Monitoring of edits.

3.1.5. Task: Get a report on the demand for parts

Initial data:

1. Period: character string.

Results:

1. A report on the demand for details has been compiled.

Explanations:

1. The manager receives a report on the demand for parts.

3.1.6. Task: get a report on sales

Initial data:

1. Period: character string.

Results:

1. A sales report has been drawn up, according to the selected period.

Explanations:

1. The accountant prepares a sales report.

2. The completed report is submitted to the manager.

3.1.7. Task: register a detail

Initial data:

1. Name of the part: character string.
2. Code: an integer.
3. Model: character string.
4. Notes: character string.
5. Car make: character string.

Results:

1. A new item is registered in the database.

Explanations:

1. The technician registers a new part.

3.2. Support system functions

3.2.1. Task: get help

Initial data:

1. System help file.

Results:

1. Help is available.

Explanations:

1. The system help file describes how to use the system.

3.2.2. Task: Back up the system

Initial data:

1. Identifier: character string.
2. Database

Results:

1. A copy of the database with an identifier is created.

Explanations:

1. The manager makes a backup copy of the database.

3.2.3. Task: restore the system

Initial data:

1. Identifier of the backup copy of the database character string.

Results:

1. Database recovery.

Explanations:

1. The manager restores the database.

4. Non-functional application system requirements

4.1. Internal interface requirements

4.1.1. Requirements for using the operating system

1. Requirement: The EAAD application system must run on the Linux® operating system.

4.1.2. Requirements for interaction with databases

1.**Requirement:**"EAAD must use a relational database, which must store data on available parts and sales of parts.

2.**Requirement:**Data exchange with the database must be done in SQL.

4.1.3. Document exchange requirements

1.**Requirement:**"EAAD reports must be submitted in the OpenDocument Format for Office Applications (OpenDocument) format.

4.1.4. Requirements for working in computer networks

1.**Requirement:**EAAD must use TCP/IP protocols to work in computer networks.

2.**Requirement:**Work in a computer network must be carried out on the "server-client" principle.

4.1.5. Programming environment requirements

1.**Requirement:**The application system "EAAD" must be programmed in a programming language independent of the operating system.

4.2. Performance requirements

4.2.1. Accuracy requirements

4.2.1.1 Imaging accuracy requirements

1.**Requirement:**Dates are represented in the following format: YYYY–MM–DD, where YYYY is the year, MM is the month, and DD is the day.

2.**Requirement:**The time is represented in the format HH:MM:SS, where HH is hours, MM is minutes, SS is seconds.

3.**Requirement:**All real numbers are represented with two decimal places.

4.2.1.2 Calculation accuracy requirements

1.**Requirement:**Dates must be calculated to days, times to seconds, and real numbers to 6 decimal places.

2.**Requirement:**The maximum length of a character string is 128 characters.

3.**Requirement:**Errors can occur only in actions with real numbers, then they must be rounded according to the rules in force.

4.2.2. Reliability requirements

1.**Requirement:**Internal disturbances may occur no more than once a month.

2.**Requirement:**"EAAD must monitor user actions with EAAD to prevent disruption.

3.**Requirement:**The software system must not control malfunctions related to the operating system or hardware.

4.2.3. Robustness requirements

1.**Requirement:**The application system must use a transaction mechanism that ensures that in the event of a failure, only part of the information of the commands executed at the time of the failure can be lost.

2.**Requirement:**Data recovery must be ensured using backups.

4.2.4. Performance requirements

1.**Requirement:**The application system must use no more than 500 Mb of hard disk space and 128 Mb of RAM.

2.**Requirement:**The response time when accessing the database must not exceed 15 seconds.

4.3. Installation requirements

4.3.1. Preparation requirements

1.**Requirement**: The EAAD software system must be provided on CD-ROMs.

2.**Requirement**: Its preparation must consist of installation files and a user manual, provided in text format.

4.3.2. Installation requirements

1.**Requirement**: The EAAD application system comes packed in .tar.gz format.

4.3.3. Initial database build requirements

1.**Requirement:**Data must be entered using the functions of the program system: register a car, register a detail. This will create the initial database.

4.3.4. System absorbability requirements

1.**Requirement**: A user manual in text format and printed format must be provided with the application system.

2.**Requirement**: The system must also provide a support function: for the seller, manager, accountant, customer. This help function will use the user manual to find the relevant chapter by keyword.

4.4. Service and maintenance requirements

1.**Requirement**: Backups should be done every day.

2.**Requirement**: The application system must implement a database cleaning function that deletes sales data older than one year from the current date.

3.**Requirement**: The system must be automated, stable and reliable enough to require maintenance by qualified specialists no more than once a month.

4.5. Reproducibility requirements

1.**Requirement:**All components of the application system being developed can be designed as non-reusable.

4.6. Security requirements

1.**Requirement:**The program system will be used by EAAD registered employees and customers through the website. Each registered employee will have a separate access to the system (ie user login and password). Customers will not have to register through the website and no login passwords will be required.

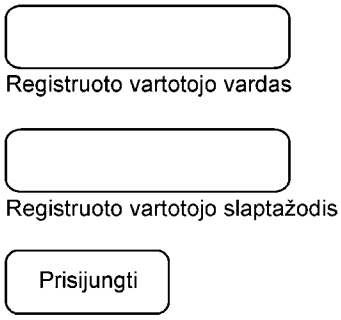
2.**Requirement:**Each EAAD registered employee will be able to work only with certain parts of the system (that is, the accountant cannot change the prices of goods, mechanics cannot view sales data, etc.).

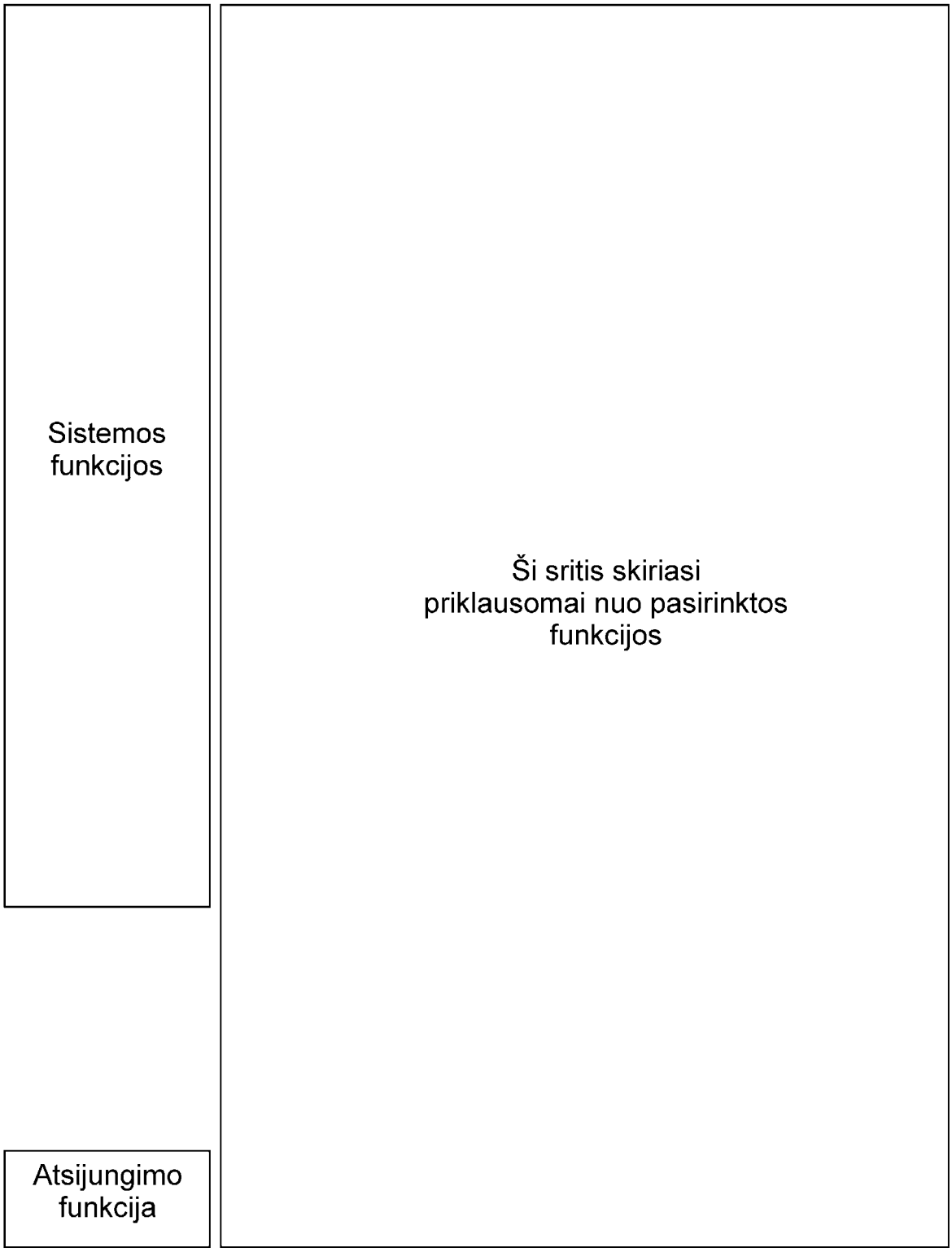
3.**Requirement:**Data sent over the network must be encrypted.

4.7. Legal requirements

1.**Requirement:**Programmers must use only licensed software.

Appendix 1. Window layouts of the system being developed




Sistemos funkcijos
Atsijungimo funkcija
Ši sritis skiriasi priklausomai nuo pasirinktos funkcijos