The WHS Project

Phase No.2

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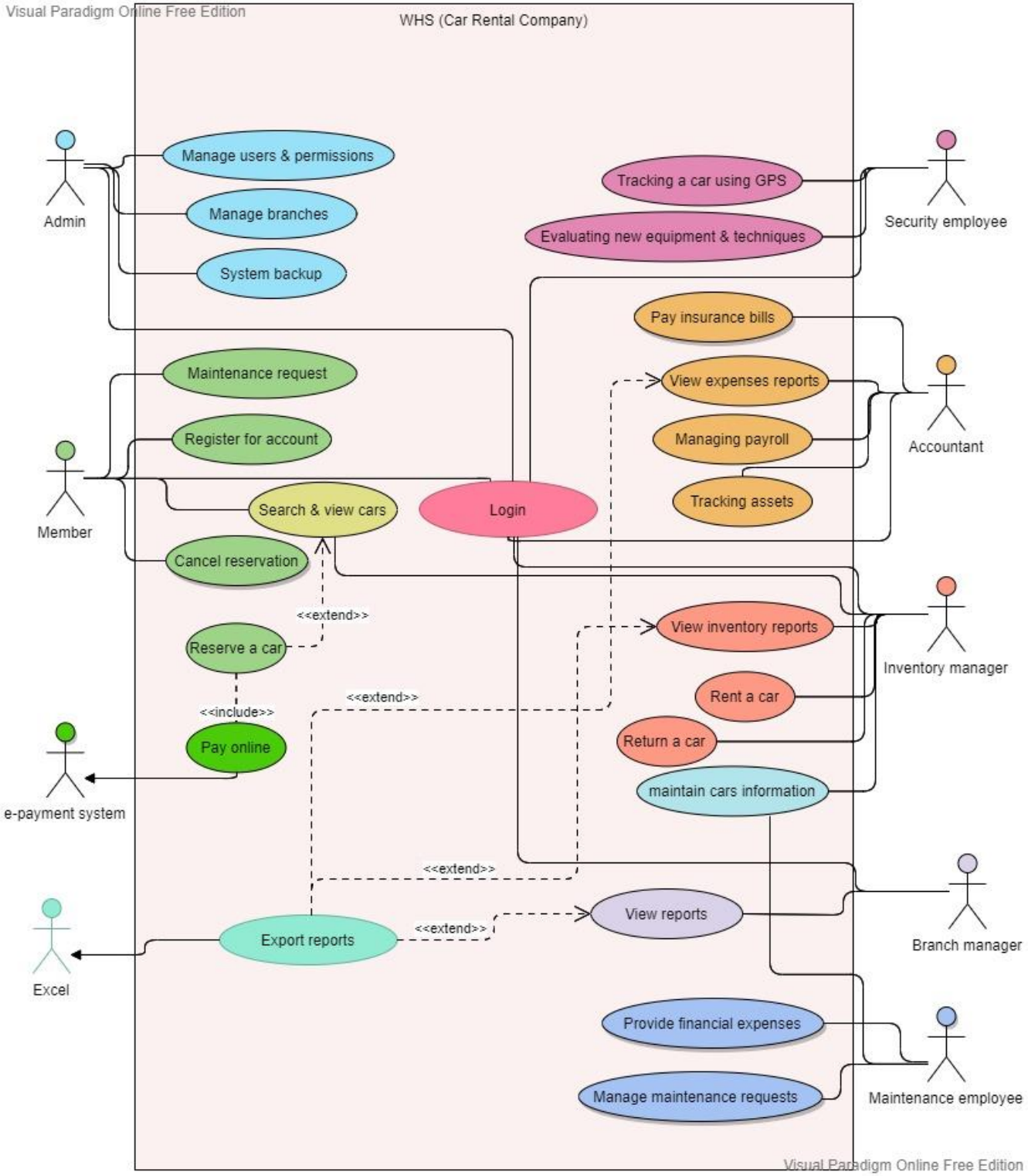
Use Case Diagram:



Following are abbreviation description of our system use cases:

1-manage user & permission: this feature enables the admin worker to manage employee records; that is registering new employees & finalizing records for senior employees when they leave and any updates necessary of their information.

2-Manage Branches: the system will implement a network that will connect all the branches of the company & allow management access to maintain synchronization & communication between the branches as well.

3- System back up: The system will automatically back up all the data & still be manageable by an admin worker.

4-Maintenance Request: The system will allow members to request maintenance for their rented cars & the concerned employees will be notified of that request.

5- Register for account: The member will have the ability to register through the system and have their data saved for later login.

6-Search & view Car: The user will be able to view all the available cars and search through them with specific filters.

7- Reserve a Car: After searching for their desired car the user will have the option to reserve the car.

8-Pay Online: The system will provide the user with the option of online payment through credit/debit cards, or any electronic payment method.

9- Cancel Reservation: The user will be provided with the option of canceling any reservation even after the payment has been processed.

10- Tracking a car using GPS: only in cases of emergency security employees will have access to a tracking system that will locate all the cars under the company name. Although the employee will only gain access after authentication & the system will log their actions for ethical reasons.

11- Evaluating new equipment & techniques: The system will keep records or reports made by security employees concerning the evaluation of machinery & equipment.

12- Pay Insurance Bills: The system will also keep a log of insurance expenses & allow digitization of insurance payment.

13- View Expenses Reports: The system will allow the company accountants to view reports of the data kept in the database, however employees requesting to access this data need authentication & high enough access level granted to them.

14-The system will automate much of the financial management of the company of the company that includes managing payrolls of the employees; where the accountant in charge will only need to approve the transactions before they are made.

15- Tracking Assets: The system will keep a log of all inventory & other assets and the accounting department will be able to manage that digitally.

16- View Inventory Reports: The system will provide the inventory management department with potentially regular reports containing all/any desired information about the company's inventory log & other assets.

17- Approve Rental Applications: The system will allow inventory employees to check rental applications & approve/reject them.

18-Return A car: Given the job description of inventory managers, they should be the ones logging returned cars back into the inventory count.

19- Maintain Car Information: The inventory Manager will be able to remove a car's information from the system if for example the car was rendered useless; & log new information for new cars once the company acquires them.

20- View Reports: The branch manager shall be granted access to view all reports produced by the system's database from inventory to financial records to expenses reports.

21- Provide Financial expense: The maintenance employees will provide reports of expenses concerning their line of work for example car parts replaced through the system which will keep those records for financial analysis & reporting.

22-Manage Maintenance requests: Maintenance requests will be sent to the maintenance department while an employee process that request and possibly send the workers to the site or do any other necessary tasks.

23- Export Report: The system will export all the reports & the records mentioned previously to an excel file that should be kept in storage spaces and backed up.

24- Login: The system will require all the users to login with a username & password to access any of the system features with the exceptions of searching & filtering cars in stock.

User & System Requirements:

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UR 1: The system shall provide functionality to allow the user to browse the website whether he is registered or not.

SR 1.1: This System will be available for users.
SR 1.2: The home page shall have buttons for login and registration.
SR 1.3: The user shall be asked for their email and password if they press the login button.
SR 1.4: The site shall present the most important things about the page and its purpose, mission and Goals.
SR 1.5: The website shall be equipped with more than one section that appears to the user, such as contact us, home page and about us.
SR 1.6: The website should be easy to use and doesn't require any training.
SR 1.7: The user shall browse the website via scrolling.
SR 1.8: after login the system shall view a page depending on user type.

Non-functionality:

- The system shall have a very fast (speed) processed transaction" read in at least 1 second ".
- System should be usable.
- The system shall have security, efficiency, dependability and maintainability.

UR2: The System Shall Provide Functionality to allow registration on the website.
SR 2.0: This System will be available for users.
SR 2.1: The users can be able to create an account

2.1.0: The User fills his information as first name, last name, email, phone number, DOB, Id number, password, gender.

2.1.1: User email must be unique in the system.

2.1.2: each user on this system is uniquely identified by an id.

SR 2.2: The system should provide in the sign-up using Gmail or Facebook.

SR 2.3: The system should provide a verification email for security purposes.

SR 2.4: The system shall support the concept of user role.

2.4.0: Each user gets a different permission depending on his type in the system.

2.4.1: The permission determines what the user can do in the system.

2.4.2: Each user is associated to one role at least. The user role can be changed if he gets permission from a higher-level user.

SR 2.5: there are three types of users in this system, administrator, moderator, customer & employee.

2.5.0: if the user is Administrator, he's responsible for managing website sections.

2.5.1: if the user is Moderator so he can maintain on the website, Send feedback to admin and login.

2.5.2: if the user Customer, there's Individuals registered on the website, but manually validate the account by the moderator.

2.5.3: if the user Management, so it's Individuals registered on the website, but manually validate the account by the moderator.

2.5.4: if the user is Employees, Individuals registered on the website to have access for his specialty.

SR 2.6: The System shall provide a click / button to sign up on the home page.

SR 2.7: When the user clicks save the system will validate his info.

2.7.0: System shall check the information as it contains a mistake or not (syntax error).

SR 2.8: The system should send a welcome message to user email.

SR 2.9: The system shall have a choose option (combo box) so the user can choose his type (company or Applicant), city when registration.

SR 2.10: The registration system shall have a captcha test to confirm humanity. (“I'm not a robot “).

SR 2.11: The system shall provide the user with the permission "Manage User Roles" the ability to manage users.

2.11.0: the properties and user roles according to their role where administrator can manage all user roles then comes the manager who can manage the roles of users with less permissions.

SR 2.12: The system will allow changing username and password and all other personal data and store the new data in the database.

SR 2.13: The system shall provide the ability to change profile details and save it.

<u>Non-functionality</u>:

- The system shall have a very fast (speed) processed transaction" read in at least 1 second ".
- System should be usable.
- The system shall have security, efficiency, dependability and maintainability.

UR3: The system shall provide functionality to allow users to login to the website.

SR 3.0: This System will be available for users.

SR 3.1: The user shall enter a correct email and password to login successfully.

3.1.0: If the user enters incorrect (email & password) the system will keep the login user interface GUI.

3.1.1: the user can try more than one time to login, there is no limit to the user that can try login as much as he wants.

3.1.2: when a user enters the correct (email & password) on the system, the website will appear on the home page that is suitable for his role in the system and it will give him the promotions according to his role.

SR 3.2: If the user forgets his password, he can press forget password button

3.2.0: the system will display recovery screen

3.2.1: the user can recover his password using two ways, by email or through phone number.

SR 3.3: The system should keep the user logged in option.

Non-functionality:

- The system shall have a very fast (speed) processed transaction" read in at least 1 second ".
- System should be usable & safe.
- The system shall have security, efficiency , dependability and maintainability

UR 4: The system shall provide functionality to allow the manager & employee to fully automate the rental process for the customer.

SR 4.0: This System will be available for managers & employees.

SR 4.1: the system shall appear on a page/ form that customers can fill and choose what they want.

4.1.0: the customer shall fill all information to continue this process successfully.

4.1.1: The user shall be able to choose the car he needs by using the form it contains the information of the car he needs (color, model, ...etc.).

SR 4.2: the system shall save all this information.

SR 4.3: The user shall be able to send a message for the site if he is confused about something.

SR 4.4: The user shall be able to see the reservation process when it is completed so that a message will appear stating the success or failure of the reservation process.

UR5: The system shall provide functionality to allow to user to brief description about us and contact us form.

SR 5.0: This System will be available for users.

SR 5.1: The system shall have an about us section containing a brief description about the system and how it works.

SR 5.2: The system shall have a contact us form to contact with developers if any problem or issue occurs when trying to use the website.

SR 5.3: The system should have a feedback section; the user gives his rating of the system services and his opinion or suggestions for the system.

SR 5.4: The site well as allowing for direct contact with customer service employees directly from the website & in real time.

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UR 6: The system shall provide functionality to allow System website to an advanced filtration search.

SR 6.1: This System will be available for all users.

SR 6.2: The website shall contain a place dedicated to the search process.

SR 6.3: The user shall enter the specialization words in which he wants to search a car.

SR 6.4: if search process are successful the website must display all car publications according to the priority.

SR 6.5: The system should provide the filtration process in many things such as car models, rental period, vehicle fields and their types.

SR 6.6: car status can be one of the following: available, rented or reserved.

SR 6.7: Clicking on car title, the system shall display complete car information along with car picture.

SR 6.8: System shall show results in no more than 3 seconds

UR 7: The system will also provide the management department with regular expression and updates of useful information like market research, consumer statistics.

SR 7.1: management department shall accesses all the reports that provided by each department

SR 7.2: only management department has validity to change and update price for cars and salary for all employee.

SR 7.3: management department shall contain record for employee attendance.

SR 7.4: employee attendance record shall contain the arrive time, left time, the total number of hour that employ work, the salary of each employee.

SR 7.5: management department shall add a new employee to the system and remove any one who leave the job.

SR 7.6: get employee records and get specific employee details with time less than 2 seconds same thing applies in customers.

UR 8: a report shall be provided from each department that show performance for them.

SR 8.1: for Customer Service department the report shall contain the total number of customers they visit our app, the total number of effective customers.

SR 8.2: a customer called effective customer when he visit our app continuously, also when he make operation that we suggested in our app.

SR 8.3: the report shall contain the Operations performed by effective customer like rent operation.

SR 8.4: for accounting department the report shall contain all financial processes.

SR 8.5: financial processes contain customer payments, new cars payments, employee's payroll and care maintenance expenses.

SR 8.6: the accounting department report shall show how the customer payment (cash, credit-card), number of days that the customer rent the car, how much for each day must the tenant pay, the total price shall the customer pay.

SR 8.7: for the new cars payments the report shall include, type of the car, manufacturing Country, year of manufacture, price, the number of new cars of each type, total price.

SR 8.8: for maintenance department the report shall contain all maintenance operations.

SR 8.9: maintenance operations Include car maintenance, fixing and spare parts that have been placed

SR 8.10: The report shall be clarified the cause of maintenance where it can be a regular maintenance or maintenance because an accident.

SR 8.11: if the maintenance caused by accident the report shall contain all tenant details

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UR 9: The project shall provide tools assisting the financial management & record keeping of the company.

SR 9.1: All the records concerning the company from inventory to employees financial records will be stored in a database.

SR 9.2: The system database shall also contain information about the level of access granted to the employees.

SR 9.3: The system shall implement a user interface that previews all the options available to interact with the stored records after login & employee authentication that checks if the user is authorized to access information from the database.

SR 9.4: If the user account checks out & they are allowed to access the information stored, the system shall display a page that contains the following options as well as a brief but complete description as to what each option does.

9.4.1: reports option, once clicked, this option will display a form for the employee to fill out all the information they desire to be contained in the report that includes filtration fields, logical constraints, graphing options & desired report format.

9.4.1.1: after submission the system shall check again if that user has access to the specified information.

9.4.1.2: If yes the report shall be presented in the desired format. If on the other hand the user does not have access the system shall display a message in the form of a notification telling the user the

specific information they requested that they do not have access to & display the submission form again with fields still filled out to allow the user to edit the reporting request as necessary.

9.4.2: Information Update, once clicked that option will display a search engine for employee/financial records or items in inventory through a unique ID & a submit button.

9.4.2.1: Once the user has entered the ID & clicked submit the system shall check as above if the user is authorized to access the requested information as well as checking if the information is available to be updated; if yes, the system shall display a window with all the fields already filled in with the old information with the editable fields available to the user for change and a save button. Once clicked the system shall update the record edited and overwrite the old information. If the desired record is not found the system shall display a notification message informing the user of the problem, after which the system shall go back to the search page with fields still filled in the same; that way the user wouldn't have to fill the form again.

3.4.3: after each process the system will display a message that informs the user with the success/failure of the process and navigation options as to what should be done next.

SR 9.5: the system should also provide the option of automating the reporting process; once the user chooses that option, after authentication the system shall display a form similar to the reporting form described above with the added fields to specify the frequency of the automatic report & what should be done with it after generating it, the user should be able to choose whether they want the report as a notification through the system or through E-mail.

SR 9.6: The system shall also provide the option for digitizing physical records that were made before the entire system was implemented and set up or records that ware made by consumers or employees not fully accustomed to modern tech. If that option is selected the system shall access a scanning machine & wait for the physical record to be inserted, scan the paper & using image processing software convert it to a format that would enable the system to log it onto the record log or alternatively notify the user in real time or errors

in the scan or the validity of the information after a successful scan. The user will then also be notified of the success or failure of the entire logging process. In the event of unsolvable errors like for example attempting to scan a record that was made before an entirely new logging system was implemented or if the image processing is completely unable to process the scan the user will be asked if they wish to simply keep the record as a simple scan that they can view later.

Non-functional Requirements:

SR 9.7: The interface shall provide the user with complete directions & explanations to all its functionality making it usable even by users with minimal training and tech expertise.

SR 9.8: Given the potential size of the database & the computational power required this part of the system should require large storage space & computational power.

SR 9.9: with sufficient processing power the system shall take no longer than two seconds for digitization process from the time the user inserts the copy to the scanner to the time the actual record is added or updated. And one second for all the other functionalities.

SR 9.10: The critical status of the Database management system requires high robustness, maintainability & as well as usability.

UR 10: The system shall be fitted with a comprehensive notification system for the consumer as well as one for employees and admins.

SR 10.1: During the application process for renting a car, the system will test out logical expressions to validate the information inserted in real time while the application is being filled. For example the user attempts to enter an invalid date format or information that is not logical.

SR 10.2: If the user enters an invalid field the system shall detect that and instantly display a notification message that specifies the exact problem & the rule violated.

SR 10.3: Once the user confirms that they have read the message the system shall take them back to the application form with the fields still filled out.

SR 10.4: If the user attempts to submit the same unacceptable information three times the system should offer to redirect them to a page where they can contact an employee of the company directly and inform them of the issue.

SR 10.5: This notification message will have two options the user can choose from; to accept or decline. If they decline the system should redirect them to the form page again; however If they accept the system will redirect them to a contact page, while still displaying the previous form with the fields still filled out.

SR 10.6: Given that some fields in the form would invalidate others based on the information given; for example if the user selects the option requiring a driver the fields that ask for information about the user's driving license become redundant & unnecessary; the system should detect that while the user is filling the form & block out the unnecessary fields while also displaying an explanation to all the automatic changes.

SR 10.7: once the user clicks the submit button the system should check if the all required fields have been filled with valid information; if yes the system will display a notification message informing the user that their application has been submitted for vetting.

SR 10.8: After submission the system will save the information provided in its appropriate space in the database and would also provide the option of informing the appropriate employees instantly.

SR 10.9: If the user enters information that would make them not eligible for application for example an age bellow the legal driving age the system will alert them to that and potentially block out the entire form. Making the vetting process easier for employees.

Non-functional Requirements:

SR 10.10: The notification system should be as quick as possible to be effective; the user should get a notification in less than a second from entering the data that prompted the alert.

SR 10.11: The notifications will be intuitive so as to require very little training time.

SR 10.12: Given the fact that the system as a whole will maintain most of it's functionality in the event of a failure of the notification system resources could be better utilized in robustness & reliability for other parts of the system.

UR 11: The project would include a mobile application that should provide most/all features the website has; this would make user interaction easier & more efficient.

SR 11.1: The mobile application should have similar design & interface to the rest of the system; meaning it should be usable & robust.

SR 11.2: The application should provide the user with the option to register/login for the website.

SR 11.3: The application shall also provide the option of filling out the entire rental form, viewing all available cars in stock as well as direct contact of support staff.

SR 11.4: The application will also be fitted with a notification system that would provide the user with all updates even while offline.

SR 11.5: If granted access to the location of the user directly by the user the application should provide the option emergency contact to maintenance staff in cases of failure in remote locations or needed maintenance in general.

Non-functional Requirements:

SR 11.6: The application shall be easy to navigate & therefore highly usable.

SR 11.7: The application shall also be maintainable & reliable.

SR 11.8: interaction shall also be fast in order to be effective. The application should respond to commands within less than a second at most.

UR 12: The system shall provide a functionality to allow users to take a look at the availability of cars and their status.

SR 12.1: System users namely customers, employees and managers shall be able to see all cars in the company and view their information.

SR 12.2: In this feature, the system shall provide the search feature which is needed to search about a car and see it is availability.

SR 12.3: When user click on a car picture, the result is a page of full car information such as: name, year, make, model, style, color, mileage, type, rent price and description of body & attachments/standard equipment.

SR 12.4: Car status can be one of the following: available, rented, reserved or soon available.

SR 12.5: Since the company have more than one branch, the system shall provide user the location of available cars that would provide the option of faster acquisition of the cars for the user depend on locations.

12.5.1: Using this feature, the selected car will be send from the nearest company branch to the customer, or the customer is directed to get the car from the nearest branch according to customer and car locations.

SR 12.6: The system shall provide the user the time period the unavailable car becomes available for reservation.

SR 12.7: By clicking the car picture, the system shall show car information within no more 3 second.

UR 13: The system shall provide the user with an emergency option.

SR 13.1: The system shall provide this feature for customers only.

SR 13.2: The user shall be able to alert the maintenance department of the company if he/she exposed to a car failure or an accident.

SR 13.3: When the user selects the emergency option, the system will show an emergency form.

13.3.1: The emergency form shall be abbreviate, which the user determine the problem whether it's an accident or car failure with a short description of the general status.

13.3.2: The user shall fill the following information: the location of the car in question in addition to his/her contact information to the form.

SR 13.4: When the user fill the emergency form, the system shall notify him/her that the emergency request was successfully sent to the maintenance department.

SR 13.5: The system shall provide to user the contact information of the maintenance department in case if the emergency form fails to send.

SR 13.6: As the user select the emergency option and send the emergency form, the maintenance department shall reply to he/she within no more than 5 minutes to send to his/her the support team.

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UR 14: The system shall allow the employee to track a car using GPS.

SR 14.1: The system users, that is, only employee shall be able to track a car only in cases of emergency.

SR 14.2: The system shall force the employee to provide his credentials to be able to use it.

SR 14.3: The user shall provide the system with the car number plate.

SR 14.4: The system shall record all user movements with the time that they occur from the beginning of entering the system until leaving.

SR 14.5: The tracking results shall contain the last place the car was in, in addition to the time.

SR14.6: System shall show results in no more than 1 second.

SR 14.7: The failure rate of this system should not exceed 2% in a year.

UR 15: The system shall allow the maintenance employees to record regular car maintenance and fixing.

SR 15.1: The system users namely maintenance employees, shall be able to search for a car using its number plate and view and update its parts maintenance information.

SR 15.2: The employee shall update the information on the parts that have been fixed, by explaining the type of failure in detail.

SR 15.3: The employee shall provide the system with the financial expenses resulting from fixing a failure or from the maintenance process.

SR 15.4: The system shall notify the employee of the need to dispose of the car if the financial expenses on it reach more than 10% of its price within a short period of time (a year).

SR 15.5: When a person requests maintenance, the system must notify him that it will determine his / her location by GPS.

SR 15.5: The system shall notify the maintenance department manager when someone requests maintenance.

SR 15.6: When the manager clicks on the maintenance notification, the system shall display a list of maintenance employees, and when he selects one of them, the system shall automatically send a message to the selected employee to inform him of the details (such as location and time required to supply maintenance work).

SR 15.7: The failure rate of this system should not exceed 2% in a year.