CSG Software Solutions Ltd.

SOFTWARE PROJECT MANAGEMENT PLAN

Car-Pooling: “Share My Ride”

March 28th, 2008
Bilkent University - Ankara
SIGNITURE PAGE

The page where all the employees signature exists, agreeing to do the necessary work

I certify that the information in this application is complete and accurate to the best of my knowledge.

Applicant Signature: ______________________________________

Print Name: ______________________________________

Telephone No: ____________________________

Term: ____________________________

Date: ____________________________

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# CSG Software Solutions - Software Project Management Plan

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1. OVERVIEW

This document identifies the requirements, estimations and expectations within the scope of the “Car-Pooling: “Share My Ride” in terms of the development process, the product and administrative subjects, and to define the basic problem areas that have created the requirement.

1.1 PROJECT SUMMARY

1.1.1 PURPOSE SCOPE AND OBJECTIVES

The objective of the project is to present a web based application which provides a communication platform between car owners and passengers. Car owners will be able to post a notice announcing that (s)he has been traveling between some particular locations regularly or just once, to search a travel-mate in order to reduce the ride costs. An example of a post described above is like that:

“On 12\textsuperscript{th} of July, at morning, I am driving from Ankara to Izmir. My Car is Honda Civic. 3 seats are available. Non-Smoker, male passengers are needed. No pets allowed! Only one luggage. Cost is 12 Euros.”

Also, passengers will be able to search for a ride suitable to their situation.

Benefits with respect to the drivers:

- The driver who will already make that trip on that day, will reduce his/her travel costs.
- For the ones that do not like traveling alone, will have the chance to find a travel-mate.
- Shared driving carpooling can also reduce driving stress.

Benefits with respect to the passengers:

- Passenger will have the chance to travel at lower costs than train or bus.
- They will make their trip with the comfort of an automobile.
- Avoiding lonely trips also applies for passenger.

Benefits to environment and economy:

- Carpooling was encouraged to save oil. In reducing the number of cars on the road, carpooling decreases pollution and the need for parking space, and in a global perspective, reduces greenhouse gas emissions.[2]
• When there is less cars on roads, traffic jam of especially large cities like Istanbul and Izmir will decrease.

In Switzerland, Federal Ministry of Environment and Transportation announced that they will support car pooling facilities officially in 2007.[3]

1.1.2 ASSUMPTIONS AND CONSTRAINTS

− Language to be used for any document and report to be prepared will be English.

− Any document and report to be prepared will be able to be opened, modified, saved and printed in MS OFFICE 2003 programs.

− System software will work in Windows 98, Windows 98 SE, Windows ME, Windows NT 4.0, Windows 2000, Windows XP, Windows Server 2003, Windows Vista, Mac OS X 10.1.x, Mac OS X 10.2.x and later, Solaris, HP-UX and AIX Operating Systems, all major Linux distributions operation systems and it will also work on popular web browsers like IE, Mozilla Firefox, Opera, Safari, Netscape...

− The software system will have an object-based architecture. The application shall use PHP, JavaScript, MySQL technologies and AJAX language for software development.

− Existing engineering software will be used during the software; however, the final product shall be developed with an engineering and production model based on original design which can work independently of any commercial software.

− Any software requirement such as compiler or operation system necessary for the Project will be met by the means of the contractor. Of the software necessary for use, those existing in the hands of the contractor shall be met by the contractor, and those that the contractor does not possess shall be provided by the institution.

− It will be ensured that total expenditures needed for participation to training, symposiums and seminars approved by the institution be within the limits envisaged for such activities in the financial chapter of the contract to be signed.
The decision whether to continue the Project will be given by the customer at the Project Assessment Preliminary Meeting, the date of which will be decided based on the time line to be indicated in the Project tender document.

Some of the staff may leave the Project due to retirement, quit, promotion etc. This situation must be fixed by the party of this deficiency. The parties are liable to take the measures in their responsibility to overcome any deficiency of information and experience that might occur.

The interim and final products to be produced during the Project might deviate from those designated at the beginning of the Project. The parties are liable to carry out the necessary verification and validation activities effectively to prevent such deviations.

1.1.3 PROJECT DELIVERABLES

<table>
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1.1.4 SCHEDULE

ND BUDGET SUMMARY

The schedule will consist of training of staffs, the implementation time, Web Development, Graphics Design, Database Design, Establishment of Servers, Testing. The details will be given in schedule allocation section.
Budget allocation will consist of Salary, Travel Costs for Server Manager, PCs needed, Software tools cost, Training costs, Meeting costs, Advertisement. The details will be given in budget allocation section.

1.2 EVALUATION OF THE PLAN.

There will be updates of the web design process and implementations in the process of project development.

2. REFERENCES

1. www.nrdc.org/reference/glossary/c.asp
3. www.malmokongressbyra.se/ecomm2007/download/2_1.PDF
4. www.rideonline.com
5. www.mithfahren.com
6. www.carpoolworld.com
9. www.covoiturage.com

3. DEFINITIONS

Car-Pooling: Carpooling (also known as ride-sharing, lift-sharing), is shared use of a car, in particular for commuting to work, often by people who each have a car but travel together to save costs and in the interest of other socio-environmental benefits. [1]

DLL: Dynamic Link Library

STL: Standard Template Library

GUI: Graphical User Interface
4. PROJECT ORGANISATION

This section describes interfaces to entities outside of the project, identifies the internal project structure, and defines roles and responsibilities for the Project.

4.1 EXTERNAL INTERFACES

The external entities of the project is the users contractors and support organizations. As a contractor the car-pooling project can have a renting car service. The customers can be found by this way. The supporting organizations will make the advertisements of the project. Marketing, finance and other purchasing entities will be all supported by the contractor.

4.2 INTERNAL STRUCTURE

The internal structure of the project consists of the units of the software team. The units of this team are web development unit, implementation unit, testing unit, graphic design unit and database design unit. Web development unit, graphic design unit and database design unit all works in a coordination with the implementation unit. Testing process is at the end of each part. And after each unit finishes their job the testing unit starts debugging the software part of the project.
4.3 ROLES AND RESPONSIBILITIES

□ Gökhan Babacan
Project management
User interface design
wrapper module implementation

□ E.Selin Alkan
DLL design and implementation
software requirements specification
Testing documentation
Audits

□ Cansu Helvaci
GUI design and implementation
software design specification
Configuration Manager

5. MANAGERIAL PROCESSES PLAN

This section defines the various project management plans and activities for the project.

5.1 START UP PLAN

5.1.1 ESTIMATION PLAN

Car-pooling project is a web based system where people can login and generate their own profiles. Since it is a web application, web design tools will be used in order to
reduce the time and make some parts automatically. Among these tools, we will investigate web design tools such as Dropale, EXT and of course Dream Viewer and FrontPage. With the help of these tools, it is possible to implement Login part, opening polls, user profiles automatically. In addition to these tools, the languages we will use is PHP, HTML and JavaScript and Ajax if necessary for good user interfaces.

After considering the big picture and making the design with boxes as systems, the estimated cost and time required will be consulted to the each department’s leader. The big design will be divided into sub-categories as activities and an activity diagram will be generated. It will be helpful to decide which process should be finished in order to start another and which processes can be made in parallel. After we had the output, Microsoft Project Tool will be used to estimate the overall time necessary with the data coming from each Department.

As mentioned above, this project is a web based project and all we need as computer resources are just PCs with the tools installed in. The number of computers will be as much as the staff working in the project. For the information of the staffing see next section. Also we need a server for testing in the implementation process. This server can be a simple one during testing but we have to consider the number of servers and their download-upload bandwidths after the web site is published and be ready for use. For this information see Resource plan in 5.1.3.

In order to make the project’s estimation, necessary data should arrive from each department. Every department will provide a report to the leading project manager. These reports will be prepared by concerning engineers and will be reviewed by project leaders in departments. All reports will be gathered in leading project manager and project manager will review all of them. Feed-back will be given if necessary.

5.1.2 STAFFING PLAN
The main areas that team members will work on are Web-Design, Graphic Design, Database admin, Server Processing, and Advertisement Management.
The number of necessary webmasters will be 3 or 4. These staffs should be experienced in PHP, MySQL for at least 2 years and knowledge of JavaScript and Ajax is an advantage. Also knowledge about the tools Dropbox, EXT is a preference.

Graphics Designer will be the one who is responsible for nice-looking and easy to use user interface. One graphics designer will be necessary who has artistic thinking and experienced in web graphics before. Knowledge of Adobe Photoshop is a great preference. This project gives a huge emphasis on nice looking interface.

Since we aim to have millions of users for the long term, data mining and data integrity is a must in this project. Database should be handled knowing that we will have huge amounts of users. Also having idea about our customer’s behavior would help us to easy have Customer Relation Management. So Database Admin should work knowing these responsibilities and have experience about that.

Again considering huge amount of customers, server should reply to these requests in time and correctly. In order to handle these considerations, a server manager who has knowledge about Computer Networking is necessary. A Master Degree in Networking is a preference.

Finally, an advertisement manager is required to inform people about the system. One or two staff is enough for this process. These staffs should make the advertisements in the right place, in the right time.

5.1.3 RESOURCE PLAN

During implementation phase, a PC for each staff is necessary and a server for testing must be available. After the release of the website, server considerations should be discussed with getting Server Manager’s ideas. Approximately, for each 2000 online user, we had better to employ a new server with necessary bandwidth. The decision of functionalities and the locations of this server are left to Server Manager.

The number of staffs required for each process is written in previous section. After the implementation of the system, these staffs can be delivered to other projects but one or two staff
will be required for server and database maintenance. Also a customer relation representative has to be employed in order to reply customer complains.

5.1.4 PROJECT STAFF TRAINING PLAN

Webmasters should be experienced in web developing but knowledge of tools Dropale and EXT is not a must. Our company is ready to provide training for these tools within this project. The training will last within 1 or 1.5 months. Another training activity is for Server Management. This training will be outside of the company, in a related Education Center. Training for other processes is not available such as advertisement, database management.

5.2 WORK PLAN

All work activities, schedules, resources and budget details are considered here.

5.2.1 WORK ACTIVITIES

Detailed Work Breakdown Structure is left to the leading project manager. General issues that are going to be worked on are Graphics Design, Web Development, Advertisement, Server Management, Data Management and Maintenance of system. Among these activities most of the things depend on web development. Graphics designer can finish important parts of his job at the half point of the schedule and rest of them at the end. Advertisement analyst can make customer analysis during the implementation and be ready after the release. Database Manager will work during implementation and build a consistent database; and maintain its integrity after the implementation. Server Manager also will take action generally after implementation.

5.2.2 SCHEDULE ALLOCATION

- Training of staffs. (1 - 1.5 months )
- Implementation begins.
- Web Development Release 1 (1.5 - 2 months )
- Graphics Design Starts
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- Database Design (1 month)
- Establishment of Servers (0.5 – 1 month)
- Web Development Release 2 (1-2 months)
- Testing begins
- Database design finishes.
- Graphics design finishes.
- Web Development Release 3( 1-2 months)
- Establishment of Servers finishes.

**5.2.3 RESOURCE ALLOCATION**

Web Developing: 3 or 4 staff – 4 or 5 PCs
Database Admin: 1 staff - 1 or 2 PCs
Graphics Design: 1 staff – 1 PC
Server Management: 1 staff – 1 PC and Servers
Testing: 1 staff – 1 PC

**5.2.4 BUDGET ALLOCATION**

Salary estimates: 10 people works. Approximately 2.500 YTL on average salary... Estimated finish time is 8 months:

\[ 2.500 \times 10 \times 8 = 200,000 \text{ YTL} \]

Travel Costs for Server Manager in order to establish servers in other countries:

\[ 5,000 \times 2 \text{ times} = 10,000 \text{ YTL} \]

Approximately 12 PCs needed. 4 free PCs are available. 8 required with all hardware inside.

\[ 8 \times 1250 = 10,000 \text{ YTL} \]
Software tools cost(Dropale, EXT)

\[2.500 + 1.500 = 4.000 \text{ YTL}\]

Training costs:

\[3 \text{ people} \times 1 \text{ month} \times 3000 = 9000 \text{ YTL}\]

Meeting costs:

\[\text{Appr. 4 meeting} \times 2000 = 8000 \text{ YTL}\]

Advertisement:

\[\text{TV + handouts + magazines} = 49.000 \text{ YTL}\]

TOTAL = 290.000 YTL approximately.

**5.3 CONTROL PLAN**

This section describes how the project will control and report on the project status and activities. Specify the frequency at which the various project status indicators are to be monitored and specific events that could trigger a status evaluation.

**5.3.1 REQUIREMENTS CONTROL PLAN**

Huge changes in requirements are not allowed since it can damage database integrity and overall design. Simple updates can be done avoiding any harm. Risk factors should be considered when adding new functionalities. Also budget plan have to be reconsidered with respect to the additional requirements type. Project schedule should not be delayed by some determined time. Reports should be revised by the related department.
5.3.2. SCHEDULE CONTROL PLAN

The milestones of this project are the releases (release 1, 2 and 3). After each release, project schedule should be revised and some processes should be fastened if there exists a delay. Project Schedules will be drawn by Microsoft Project Tool. Gantt charts will be available.

5.3.3. BUDGET CONTROL PLAN

Department Manager is responsible for forecasting and controlling budgets and expenses on an annual basis, and the Project Manager is responsible for tracking actual hours and for reporting actual and estimated project hours by milestone to the Department Manager.

5.3.4 QUALITY CONTROL PLAN

Standards of the web sites should be applied in this project. Some certifications that is related with web pages will be taken. Especially, since this system includes online paying. Certifications for security are important for customer satisfaction and law.

5.4 RISK MANAGEMENT PLAN

Car-pooling project includes some risks. For example, one may not desire to ride with another one for security reasons. In order to avoid such possible abuses, system will provide some services. Every one will be able to open his own profile so that others can have idea about him better. A TC id control will be employed to decide whether the person uses the right name for his login.

Another issue is secure paying on internet. This process will be left to the third parties who is responsible for getting security certifications.
6. TECHNICAL PROCESS PLAN

We will use an iterative development in this project since it is an object oriented project and object oriented solutions are best solved as all the necessary requirements are collected. And we will use feedbacks to clarify and improve the evolving specifications.

6.1 PROCESSES MODEL

The schema above illustrates the commonly known Waterfall model but we discovered this one is so failure-prone since all the specifications and predictions should be done at the beginning of the iteration and they are stable to the end. We decided to use one similar to this waterfall model but allows user to change/update/delete requirements at any stage.
In evolutionary iterative development, the requirements evolve over a set of early iterations, through a set of the early iterations, through a series of requirements workshops.

At the moment we have collected all the necessary requirements about our project. We created our feasibility report as well. What to be done and how to do are identified clearly. Because of Car-Pooling project is new in Turkey everything may not go the way we want and in any stage we may have to change our way of developing this system (governmental reasons, customer satisfaction...etc) there may some changes needed in our Car-Pooling Project. This model allows us to change anything or add new requirements at any time.
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6.2 METHODS TOOLS TECHNIQUES

For the Software Design Specification; the software will be modeled using “Enterprise Arthitect” to draw UML diagrams.

Two main components of the software product will be programmed in different languages: The Dynamic Link Library (DLL) will be implemented in C++, taking advantage of Standard Template Library (STL) and using Microsoft Visual C++ development environment.

Code for the graphical user interface will be written in Java, compatible with Sun Microsystems’ JRE.

Borland JBuilder will be used as the Swing form design program.

The wrapper between the GUI’s JNI interface and the DLL will be implemented in C.

Milestone reports will be produced electronically and/or as paper document. For electronic documents we will use Microsoft Office Word program.

We are going to present our Project here we will use Microsoft Office Power Point.

Web software we will use to the most current version of standards as XML HTML, HTTP, JAVA.

The program will be used by all the operating systems such as Windows 98/XP/Vista, Mac, Solaris that use internet applications.
6.3 INFRASTRUCTURE PLAN

The software development will be done using existing workstations and network infrastructure.

6.4 PROJECT ACCEPTANCE PLAN

Project deliverable’s priority and their short description will be specified as;

1.1.1.1. Priority  Phase  Description
1. Software Requirements Specification; all the requirement are collected in order to decide what to do
2. Software Project Management Plan; the collected requirements are examined carefully in order to manage, How to do
3. Graphical User Interfaces: The prior look of the program with their interfaces will be shown
4. Software Design Specification; The design of the software is considered here the as the tools, programming language, process model to be used were clarified in the previous step they are used according to get the GUI mentioned above
5. Testing Documentation: Test the project for the last time before submission to find out whether there is a mistake or misunderstanding.(open issue if there will be a test document or not)
6. Final Report: Final report will be prepared at the end with all the above points.
7. SUPPORTING PROCESSES PLAN

Contain plans for the supporting processes that span the duration of the Car Pooling Project. These plans will include, but are not limited to, configuration management, verification and validation, software documentation, quality assurance, reviews and audits, problem resolution, and subcontractor management.

7.1 CONFIGURATION PLAN

The planning team analyzes Car Pooling System’s technical needs and identifies their business objectives for deploying Configuration Manager (Cansu Helvacioglu)

Cansu tried to create the web site with most secure management environment possible after discussing the different site mode options for Configuration Manager with key players with team.

7.2 VERIFICATION AND VALIDATION PLAN

Cansu searches for all the Car Share Systems all around world and determine how to adapt this system to Turkey. And made a questionnaire among bilkent students whether they will use this system or not. It is concluded that more than 65% of the colleagues said to use this Car Pooling system. This is more than we have expected. This means that we will have more profit than we had expected at the beginning since we made our calculations on the 35 percent of colleagues to use this system. This means more than twice we expected will use our system if the Car pooling System is Safe enough. So it is an undeniable fact that we have chosen a good topic as a project.
7.3 DOCUMENTATION PLAN

Documents to be written during this projects are;

- Project description document,
- Software Project Management Plan
- Software Requirements Specifications
- Software Design Description

Each document will be written in Microsoft Office Word application that will be converted to HTML to put it on a web site at last.

There may a user’s manual will be written in case of being more clear.

7.4 QUALITY ASSURANCE PLAN

Quality of the software product will be verified and improved during the development process using techniques such as formal reviews and peer inspection. Formal reviews will be held internally in the group when a task is about to end or has just ended.

Each delivered document will be formally reviewed with the customer.
7.5 REVIEW AND AUDITS

- Joint acquirer-supplier reviews
- Management processes reviews
- Developer peer reviews
- Quality assurance audits
- Acquirer-conducted review and audit

All these audits will be considered by Selin Alkan.

7.6 PROBLEM RESOLUTION PLAN

We as a group determine to have as minimum problems as possible by improving the project step by step. As a report wrote all the group members check the report in order to make it perfect. If any problem occurs during the project we are able to analyze it and change our way to solve that problem at the earliest step. This will allow us to notice any possible trouble or difficulty at the beginning and solve it.

7.7 SUBCONTRACTOR PLAN

In this Car Pooling Project; we may coordinate with some car rental firms as subcontactor. So we have to make some contracts with them.

7.8 PROCESSES IMPROVEMENT PLAN

We are going to use a Waterfall type process model which allows us to go step by step as mentioned before the waterfall model specified in figure 2 is the one we are going to use. This will allow us to get feedbacks from customer and adapt these new requirements or specifications to our currently designed project easily.
8. ADDITIONAL PLAN

Additional plans will be considered here if any.

- Privacy
- security
- safety
- special facilities
- product installation
- user training
- integration
- data conversion
- system transition
- product maintenance
- product support