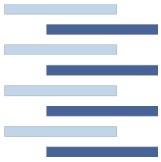
Web Portal »Passaggiare« – Supporting a Regional Car Pooling Network and Encouraging People Enjoying it



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Abstract

The aim of the project is to create an easy and helpful car pooling web portal which guarantees integrity and preservation of released personal information and be a trustworthy platform for drivers as well as passengers. To create such a web portal, it has been necessary the use of distinct and various material and methods, first in phase of apprehension and second in phase of programming. The main areas of the project are two: a social field, detectable in consultations of statistics and surveys as well as in the human interactivity of the web portal, and a mere technical one, which has been mainly expressed in the accomplishing of several internal functions and features. Results would be, in case of success of the site, a useful support to similar car pooling projects. At the same time, the successful experience of collaboration with the municipality of Cesena and the state traffic department could suggest a different organization of car pooling networks which do not involve any fee or requests of privates (as banners and advertising).

Keywords car pooling | car sharing | vehicle | car | mobility | mobility network | Italy | Romagna | regional | local | PHP | MySQL

Kurzfassung

Web Portal »Passaggiare« – Wie man eine regionale Mitfahrzentrale entwickelt und die Menschen dazu bringt sie zu mögen

Ziel des Projektes ist es, ein Mitfahrnetzwerk zu verwirklichen, an dem sowohl Fahrer als auch Mitreisende aus einer bestimmten Region (und zwar Romagna) teilnehmen könnten. Dieses Netzwerk sollte sowohl verschiedene Benutzerdaten sicher speichern können als auch als zuverlässige Internet-Plattform bedienbar sein. Das Projekt gliedert sich in zwei Hauptteile: einerseits basiert die Realisierbarkeit des Projekts auf verschiedenen nationalen Statistiken und auf Recherchen über menschlich interaktives Verhalten im Internet, andererseits wurde diese Webseite rein technisch mit Hilfe von unterschiedlichen Programmiersprachen und Webseite Design Tools programmiert. Es wird der Effekt erhofft, dass die Regionalbeschränkung die richtige Lösung sein könnte, um eine Mitfahrnetzwerk in der italienischen Gesellschaft einführen zu können. Außerdem haben die Zusammenarbeit mit der Gemeinde von Cesena und die staatliche Unterstützung für die Webseite es ermöglicht, eine kostenfreie und nicht kommerzielle Mitfahrzentrale zu verwirklichen.

Keywords Mitfahrgelegenheit | Car sharing | Fahrzeug | Auto | Mobilität | Mobilitätsnetzwerk | Italien | Romagna | regional | lokal | PHP | MySQL

Abstract

Portale Web »Passaggiare« – Sostenere una rete regionale di Car Pooling e incoraggiare una comunità ad utilizzarla

L´obiettivo proposto nel progetto è quello di creare un portale di car pooling ben strutturato e in grado di garantire l'integrità e la preservazione dei dati rilasciati, oltre ad essere una piattaforma web affidabile per tutti gli utenti del sito. Per realizzare il portale web si è reso necessario utilizzare materiale e metodologie differenti per la prima fase di approfondimento personale quanto per la fase di programmazione e realizzazione. I primi due punti risultano particolarmente importanti perché, assieme al livello di usabilità raggiunto, accrescono la fiducia complessiva nel portale. I risultati ottenuti potrebbero, in caso di successo del sito, fornire materiale di appoggio e linee guida per nuovi progetti di car pooling. Una concezione regionale del car pooling potrebbe inoltre diventare la soluzione ideale per la situazione sociale italiana. Infine, la proficua collaborazione con una struttura pubblica dovrebbe permettere la realizzazione di siti web esenti da richieste commerciali come tasse di iscrizione e banner pubblicitari.

Parola chiave car pooling | Car sharing | veicolo | automobile | Mobilità | piattaforma | Italia | Romagna | regionale | localmente | PHP | MySQL

Introduction

The car pooling is a spontaneous movement which got a foothold first as an organized phenomenon in the U.S.A. during World War II, were it was introduced in order to encourage people saving up for vehicles and fuel (cf. COHEN 1991, pp. 77ff). Car pooling is defined as »a system by which members of a group share a [A. N.: private] vehicle to reduce the volume of traffic on the roads and reduce the impact of traffic on the environment« (NEC 2009). It has to be carefully distinguished from the car sharing, which is »a cooperative ownership of automobiles that share the costs between multiple motorists« (PERMATOPIA 2009). Car pooling in fact utilizes private vehicles, which are entirely owned by one of the travellers.

In Europe, car sharing is and has been economically and socially speaking more incisive than car pooling. Car sharing took origins in Switzerland, introduced by the company Sefage, in 1948, and then the movement spread soon after in the whole Europe (SHAHEEN et al. 2000, p. 38). Car pooling instead, which had a popular ancestor in the phenomenon of the hitchhiking, common among youth since the first years of the sixties, increased conspicuously in the last 15 years thanks to the development of Internet social communities, which managed to facilitate and incentivise contacts among people independently from their geographical distance. Nowadays is the car pooling numerically starting to decline, and the motivation seems to be that »most people find it more convenient to travel alone. […] [N. A.: That's why] it is important that any carpooling scheme can be operated with a minimum of inconvenience to those involved« (KENAAN/BRODIE 1998, p. 362).

Under these circumstances, it is important to underline that in Italy car pooling has never been a social phenomenon. European countries as England, Germany and Switzerland for instance, have a much larger and consolidated tradition than Italy in car pooling. In order to clarify it by a comparison, www.roadsharing.com, the largest Italian car pooling site, counts 30.000 users (DE MITRI 2009), while the largest German car pooling web portal, www.mitfahrgelegenheit.com, has nowadays more than 1 000 000 users (MYMERCURY 2009).

The reasons of a lesser development comparing with other European countries appears to be, as it has been written in most of dedicated web portals all over the country, a specific socio-cultural Italian background.

It has been reported in fact that the condition of travelling with an unknown is in Italy mostly seen as a possible danger instead of a socialization opportunity and that, even where the car sharing system is successfully working, like in the province of Venice (which is in the first position on the national ranking for number of participants to car sharing activities), car pooling is not taking off at all. The lack in this specific field is said to be, as the responsible of the car pooling network for that province declares, a lack of mentality of the Italian travellers (cf. CAR SHARING… 2005).

This lack of mentality can be identified in the over averaged perception of crime in Italy (see *Table 1*) as well as other more profound and entrenched reasons. The detecting of these causes is anyhow, though important, not one of the principal aims of this article. The trust and the social background of a territory can obviously modify the opinion of single citizens towards institutions, social innovation and progress of society.

As already said, the high perception of crime and the lack of trust in unknown people impair actually some of the fundamental elements of such a network. It is remarkable to underline then the differences between Italy as a whole and Emilia-Romagna, the region where the project of the mobility network is planned to run, on these two holding-back components: in fact, Emilia-Romagna, statistically observed, is a region which is positioned on the ranking under the national average of crime perception. According to *Table I*, people in Emilia-Romagna feel safer promenading at night in dark roads, and just a lower percentage of them would avoid doing it (25,6 % – national average 27,6 %); furthermore fewer people would not go out at night alone at all (22,6 % – Italian average 25,4 %). Last, the percentage of citizens whose habits are influenced by crime perception is lower comparing to the national average as well (43,2 % – 46,3 %).

Tavola 11.2 - Persone di 14 anni e più per percezione della sicurezza di sera, in strada o in casa, influenza della paura della criminalità e regione - Anno 2002 *(per 100 persone della stessa zona)*

	Si sente poco o per niente sicuro camminando da solo per strada al buio	Si sente poco o per niente sicuro da solo a casa la sera	Non esce di sera da solo per paura	La criminalità influenza molto o abbastanza le sue abitudini
REGIONI				
Piemonte	26,2	10,8	23,3	47,0
Valle d'Aosta	12,8	7,5	14,7	33,1
Lombardia	28,7	12,1	26,2	46,3
Trentino -Alto Adige	15,4	7,4	19,0	32,3
Bolzano-Bozen	*14,8*	*6,1*	*18,5*	*28,4*
Trento	*15,9*	*8,4*	*19,4*	*35,5*
Veneto	28,1	15,4	25,2	45,4
Friuli-Venezia Giulia	19,8	10,9	20,7	37,3
Liguria	24,4	9,2	24,4	42,3
Emilia -Romagna	25,6	12,7	22,6	43,2
Toscana	23,3	11,3	19,7	38,1
Umbria	26,3	14,2	24,4	42,9
Marche	21,1	13,0	20,4	38,7
Lazio	30,8	11,9	25,0	46,1
Abruzzo	24,3	13,2	23,6	45,0
Molise	19,7	11,5	23,9	40,2
Campania	38,9	15,3	34,5	57,6
Puglia	30,1	13,9	29,4	56,0
Basilicata	18,2	11,4	25,3	45,2
Calabria	25,2	11,4	26,1	46,7
Sicilia	26,7	9,4	26,9	47,3
Sardegna	20,2	9,6	19,2	39,6
Italia	**27,6**	**12,2**	25,4	46,3

Table 1 *Statistics on perception of crime in Italian regions* (ISTAT 2005, p.107)

Regarding Internet use, the number of Internet connections in Emilia-Romagna correspond to 38 % of all families, which is a high percentage if compared with the national average (36 %). This faculty is fundamental in order to have an access possibility to the mobility network. Furthermore, about 50 % of people who have an Internet access use it daily and 82 % weekly, which is a good circumstance to spread the catchment area of the web portal (REGIONE EMILIA-ROMAGNA 2007, p.12f).

Emilia-Romagna is in the first positions also concerning public spirit with regard to society and institutions: this region occupies respectively the second, the third and the first position on the national ranking in PUTNAM (1993), SABATINI (2005, p. 198) and CARTOCCI (CARTOCCI 2007).

The failure of car pooling in other regions and on national basis is possibly due to a different milieu from Emilia-Romagna. The grouping of positive and solid conditions as public spirit, social trust, high IT level and Internet communication development in this region origins a favourable environment for the starting of the project.

Moreover the administrative and demographic structure of Romagna, which is mainly composed of several under populated cities, offers a good platform to overcome a possible lack of trust as well.

In fact, as theorized in sociology, communities with dense, short distanced and multiple networks (which means intense, distributed and frequent relations among individuals) are particularly inclined on an extension and spreading of trust (RAO 2008, p. 28f). That is why is my belief that, differently from other areas, such a project could be fully successful in Romagna.

Materials and Methods

It is a very hard task to design a mobility web portal which should be not far too complicate to program, but at the same time simple and intuitive for a wide range of users who are not necessarily experienced and familiar with Internet interfaces.

With the aim of creating such a web site, it has become important to plan and analyse every single phase of its attainment and to select each software tool carefully, in order to be helped in the best way to accomplish it.

During the first important step of the planning part, the brainstorming phase, a wide-used freeware software named *Freemind* has been utilized. *Freemind* is simple and incisive, and supports the brainstorming and the ordering of ideas through a graphical interface.

The software contains a tree-graphic which uses nodes of different levels to establish a hierarchy in the organization and in the phases of a project. This is not only used for the general structure, but also for analysing and branching single actions and details of every subgroup possible of the website.

Programming and modelling every webpage requires organization as well as creativity. Freemind fulfils both of the requirements through an easy and well-structured illustrating tool. An example is shown below as a diagram (see *Figure I*).

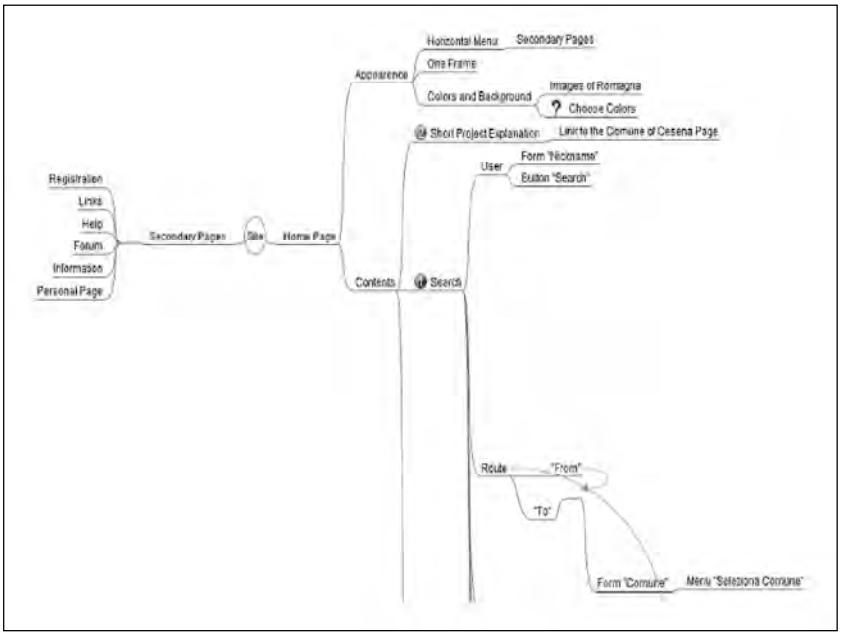

Fig. 1 *Screenshot of the structure of* Passaggiare *designed with Freemind*

Once the designs of the pages of the whole website had been completed, it became necessary to realize them through specific software and supporting literatures. The decision of writing the code of the website with the programming language PHP is due to several important advantages that this programming language has, comparing with other languages with similar functions (Asp, Java, Cold Fusion, Perl).

According to literature and tutorials concerning website programming, each language has its own benefit over others in certain application areas. Thus after examining resemblances and differences with other different languages, PHP has been considered to be the most appropriate for designing this website. PHP has a simple and flexible syntax which is easy to learn, to structure and recall. Furthermore, web-oriented useful functions are constantly provided. PHP is also an open source language: it is available on the Web for free and everybody is allowed to download, improve and support it. Besides, there are various discussion forums and communities which constantly contributes in developing all features and functionalities of this programming language.

Last, PHP can be easily applied to a great number of operating systems: it works excellently with almost every software environment (cf. FULGHUM 2009). Besides, next to it, it had been necessary to choose a programming language concerning databases and their managing as well. The natural matching of PHP is MySQL (My Server Query Language), a Database Management System which allows the user to interact directly with tables of the database.

MySQL seemed a proper choice also for this website because of the high compatibility between the two free open source packages. Furthermore there is a well-grown community supporting this database managing program as well.

Resuming with the PHP features, it is a sever side scripting language: this means that the code has not to be processed by the elaborator itself, but from a server, which receives requirements from the elaborator. It is usually not possible for students to rent server space on the web, so that local servers, which are provided in order to substitute the web server functions, are particularly important in programming websites.

For the portal Passaggiare it has been used the software package XAMPP. Thanks to this tool, which contains several useful applications to design a website, as Apache Server, Perl (a programming language), PHP and Phpmyadmin (an interface to MySQL), it has been possible to program elaborate Internet web pages and save users data directly into databases.

With regard to web design, *Dreamweaver* is the software that has been selected. Dreamweaver is a web editor and a syntax checker which allows to produce and realize different types of web documents in different programming languages. The syntax control of the application, thanks to the combination of different colours, allows to recognise and distinguish different types of mistakes. If an error is found on the script, it will be localized and showed clearly also to users who are not familiar with programming. Furthermore, several functions and examples are provided by software so that it is simple to include routine functions (as counters and date displayers) in the user's own script.

During the programming phase, it has been often consulted a complete and well-organized PHP manual: PHP5 & MySQL La Guida (cf. CONVERSE et al. 2004). Parts of code, examples and functions are provided and explained in the volume, and it

contains several comments and descriptions which let the user understand and reproduce every single line of a script.

Next to manuals, a great support has been offered by PHP/MySQL forums, where it has been possible to identify errors, ask for advices and retrieve trouble shooting discussions. Their service has been fundamental in the whole programming process.

Results

A website which is to be introduced to such a heterogeneous community with different personal characteristics, information technology attitudes and web skills, should mainly focus on two points: the usability purpose and the safety warrantee of all travellers and their data.

Usability

Usability is a quality attribute that assesses how easy user interfaces can be used. In practice usability is changeable and depends on different values and goals of the project. A website oriented to users which may do not have particular internet capabilities and that could lose interest in the website by wasting time or getting confused in searching information, needs a simple layout with easy and intuitive interaction functions. Nevertheless a web portal should be complete, informative and detain skills to attract new visitors.

In testing the usability of the site, it has been followed the theoretical approach of the Jakob NIELSEN Decalogue (1993), which introduces ten simple rules for realizing an usable website.

Layout

Layout is the fundamental phase of programming the graphic appearance of a site, with the intention to organize and give personality to the web portal, besides attributing it a pleasant overview and a recognizable brand.

In realizing the portal, the guidelines established were to create a simple and minimalistic page, with few indispensable features, where it could result easier to pone a flexible and arranged content.

The two main colours which occur the most frequently in the web portal are yellow (hexadecimal code #FFFF00) and black (hexadecimal code #000000), often used together. Pages are subdivided in three columns, a central one, which has a black background, and two lateral ones, which have a yellow background.

The menu is horizontally disposed and written mainly with the JavaScript programming language, and its buttons have the property to invert colours as soon as the cursor of the mouse has been detected on them.

The logo of the website represents a smoking angel, drawn by the painter Andrea Giglioni, which allowed the image for this use. This is positioned at the right side of the central column, and is included in every page, in order to symbolize the entire site Passaggiare trough a simple and recognizable logo.

The contrast of colours used to write titles and texts has been maintained as well as the clearness in exposing them. The informative contents of the website have been carefully disposed: in the whole web portal neither graphic nor decorative objects prevent the user from receiving notions or distract him from his own purposes.

Functioning

In the functioning part of the website objects, contents and services have been oriented to usability as well. The simplicity of the layout itself is respected for contents and functions too: just the essential is exposed, pages contain mostly minimal but complete information and the menu is understandable and precise. The main menu is composed by five different categories which are the main areas of the site: Home page, Profile/Login, Forum, Help, Links, Information.

To better analyse the website, the composition of every sector will be shortly described in the next paragraphs.

Home Page

The home page is arranged with the motto of the site appearing in the upper part: »Passaggiare, cleaner, cheaper and funnier. All in a simple passage«. The motto refers to a pun which bases on the Italian passaggio, meaning lift, and its homonym, meaning step.

After a short explanation of the content of the site, two buttons underneath link to different procedures: registered users can be directed to the log in while new users enter the registration form.

Profile/Login

This is the most processed and complex part of the site. As asserted in the Decalogue of NIELSEN (1993), every different user should be able to focus on a different target and match functions which are appropriate to him.

The first requirement for accessing the profile page is a cookie (a small file which attest that the page has been already visited by the user) from the website: in case the cookie is already on the computer, it will be directly possible to access the personal page, if not, the user will be asked to log in, in order to obtain the cookie. Else, if the user is not registered at all, or fails the access, a link to the registration form is appearing on the error page. If the log in is successful instead, the user can enter the personal area and receive then the temporary cookie from the site, so that he does not need to repeat the log in within a short period of time. Underneath a screenshot of the Log in access to the members area of the website (see *Figure 2*).

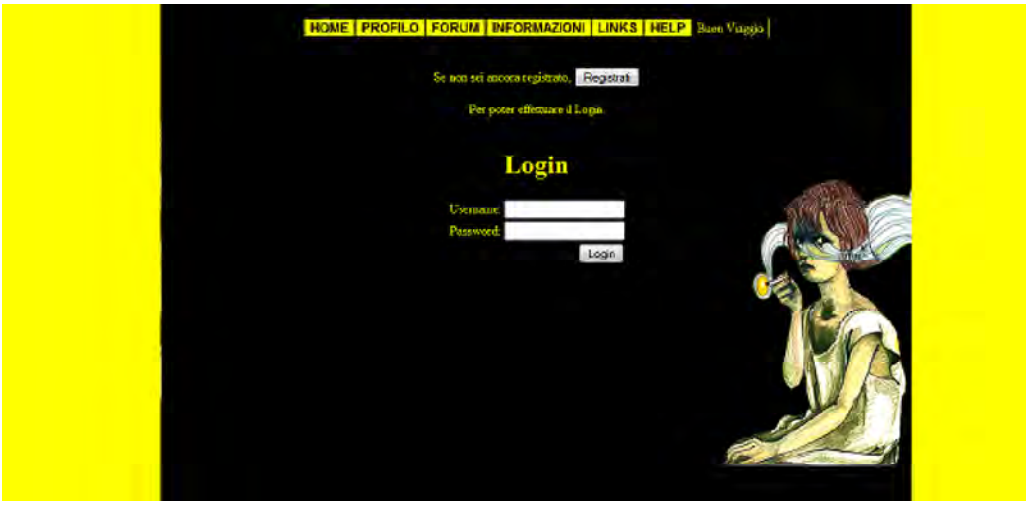

Fig. 2 *Screenshot of the access interface to the personal page*

The personal area is structured differently for users who have registered as passengers, or users who have registered as both passengers and drivers. The one who claims to be a driver should release the plate number of the used vehicle. Drivers have the possibility to offer and edit lifts they are intended to give.

On the other hand, users who are just passengers do not have this possibility: they can only look for lifts from a city to another of Romagna, or give a numeric evaluation (from a minimum of one to a maximum of five) to registered drivers.

Last, moderators are instead particular users who can log in and, beyond the normal activity of users, are enabled to regulate and administer the Forum and other specific parts of the website as well as the behaviour of users.

Forum

The forum is organized with topics and it is accessible only for users who are already logged in. Every user can start with a new topic, but this service is mainly intended to collect information, problems, opinions of the drivers.

Administrators are supposed to regularly check topics and take measures, modify, erase, warn or ban users who show an outrageous attitude towards other users of the website. Some rules on proper behaviour inside the forum are required in order to avoid dubious or negative situations.

Information

In this part of the website has been reported, with the intention to set it straight to the readers, what the portal is made for, why is there any necessity of a car pooling network in Romagna, how does the website works and further answers to important questions about Passaggiare.

Well-constructed paragraphs explain focus points and topics of the website, as well as organization and arrangement of its pages. The purpose of this area is to let the website be clear and transparent with the users, and only potentially counterproductive explanations (in particular concerning safety systems) have been hidden from being elucidated.

The content of this part is informative as well as short and summarized: there is no menu or search bar which allows to look up in the page, but the text as well as the whole paragraphs are well structured and easily recognizable. Author, responsibilities and administration of the portal are here revealed as well, and information to contact them are provided.

Links

Because of the intention of promoting an ecological and territory bounded mobility, links are forwarded to projects or sites which are also involved in similar activities.

Furthermore, also busses and railway local mobility societies detain a link on this page, with the intention to support public transports and cumulative tickets which, similarly to car pooling, help people to find each other in order to share tickets and protect environment.

A link exchange will be then promoted with the purpose to create a structural and stronger union for car pooling networks and ecological mobility.

Help

The help area includes frequently asked questions on functions and services of the web portal, as well as information on its structure and internal subdivisions.

For example, an user is here told how to register, how to offer a lift, how to look for it, which behaviour should be maintained in the forum, or which advices could improve the relationship between users during a ride.

Safety and Security

The second main problem which had to be solved in order to realize a complete and stabile website was about security of passengers and safety of their data. This main point can be further divided into an informatics technical problem, and a social and juridical issue.

Some kind of solutions have been implemented in this project and, although they are not able to solve every juridical, technical or social question of the website, they suggested new ways and conceptions to manage at least with most of them. Besides experts, who master a specific knowledge in various fields and have been providing for help in different areas of the project, have been supplied by the municipality.

Technical Security

The topic of data safety is a technical field which is particularly hostile to somebody without a specific education in this subject. Programming does not demand, during the first steps, a deep counter-measures knowledge against data hacking and illegal database intrusions.

Fortunately car pooling websites are not of high interest to illegal actions. Obtaining such information as rides and plate numbers is not very dangerous, and personal data (age, city of residence, nativity) are not interesting for illegal intruders as well.

Moreover in no procedure of the website the credit card number or some payment form is required. Mobile phone contacts and email addresses, which are provided from drivers to passengers as contact information, are the only relevant data which can cause real safety problems or inconveniences.

But the opportunity to give such information has been long practiced by the important German car pooling network Mitfahrgelegenheit.de as well, which had additionally no requests for registration and a catchment area considerably more extended than Passaggiare, while no particular problem have been signalled with it.

The decision to let only logged in users have access to the database in order to find or offer rides is a more serious attitude towards data safety of personal information. The support of specific personnel has been an important enhancement in guaranteeing the safety of all databases and provided information.

Social Security

As utilizing a website regards interactions among users and a virtual environment, social security is tightly bounded to programming and is about controlling of not allowed actions from users in the network.

In fact, the importance of avoiding that not reliable users have the possibility to give a ride passes necessarily through the efficacy and correctness of the system of

voting: untrustworthy drivers have to be marked in order to inform users over their poor capabilities and behaviours.

In the same way, passengers who are not trustworthy or correct as well should change their behaviour in order to gain more chances for a drive. Because of the two different roles in a ride, drivers and passengers have been distinguished from the first since the registration already: they have two separated main areas which have been differently analysed concerning the social security problem. In the relationship between passengers and drivers, drivers are the owner of their vehicle and they transport passengers with it; this means that, in terms of safety, passengers are quite disadvantaged comparing to drivers. So that is why it is a common opinion of several car pooling web portals that passengers needs more safety measures.

Safeguarding Passengers – Drivers Control

The registration process, which requires personal data to save users into the database, is a compulsory step that, differently from what happens in some other car pooling websites, allows to maintain information of every users of the site.

First of all, during the registration phase, drivers have to release the plate number of their vehicle. This requirement is provided in order to associate every user to a plate number. This security process allows the administrator to access, in case of necessity or irregularities, to such information.

Drivers can be evaluated by passengers: the database collects marks assigned to drivers (as already said, from one to five) and estimate the average result. When a logged in passenger evaluates a driver, the vote is directly included into the database profile of this latter user: every passenger who will operate a ride search will be informed, beyond features of the available lifts, of the average mark obtained by the driver.

The process of voting has to be clear and correct: errors in pages, self voting users, agreements between drivers and passengers have to be prevented as far as possible. Some counter measures have been decided to avoid these potential leaks. First of all, the website does not enable any user to vote for himself. Second, once a ride formulary has to be compiled, the driver must provide the number of available seats of the vehicle in use. This number, besides giving a clue to passengers over the dimension of the driven vehicle, it has a significant role for the evaluation system.

When a driver assigns for example three available seats to the passengers, it means that, at most, he should be receiving three different evaluations. In case a fourth mark has been obtained from the driver, a message error is automatically generated. That apprises the user of the not delivered vote and proposes him to report this matter to the administrator. In fact, although it could be possible that an user repeated unintentionally the voting process, the path to the evaluation is so detailed and complicate that this eventuality is at least unlikely.

After being contacted and having checked the votes received by the driver, the administrator will decide if intervene and trace the problem. Furthermore every abnormality, alteration of information by drivers or particular unpleasant episodes occurred during rides will be reported by passengers directly to the administrator as well.

Relying on spontaneity and public spirit of passengers, together with the implementation of safety systems, is an important fundament of every mobility network.

Safeguarding Drivers – Passengers Control

Another important difference between the role of drivers and of passengers in the website is that drivers cannot directly evaluate passengers with the same voting system they use. This decision is due to the fact that passengers do not have formally to sign up for any ride, but contact the driver in each way they prefer. That prevents the website having sure information on which users took actually part to the ride.

And not even drivers could help to identify them: it would be difficult indeed (and a lack of privacy as well) for drivers to recognize or request the username from the passengers during the lift. Not mentioning that some of them could not assert the truth.

On the other hand in a website where passengers would be required to sign up electronically, it could be difficult to report changes or cancellations for rides simultaneously: the spontaneity and the validity of the network would be penalized. As a consequence of all this, it would be very unlikely to organize a good evaluation system for passengers similar to the one implemented for drivers. Nevertheless, drivers should be able to express their opinion about passengers and problems they had during rides.

The fact that drivers are leading their own auto and so they have an higher decisional power than passengers (they directly deal with people which they would like to be selected for the ride) is not enough to guarantee sufficient safety. In order to assure to drivers a major concern, a forum has been given to guarantee them a further support.

In fact they are here enabled to start topics and retrieve information about other drivers experiences or problems. A frequent and mutual communication among them can consequently improve the trust and the reliability of the whole network.

Important counter measures have been taken to prevent users, because of resentments and personal motivations, to attribute to drivers arbitrarily bad or good evaluations. The most significant of them consists on a database focused safety system.

The main assumption that bases its realization is that people who are not satisfied with a specific driver would probably not repeat bad experiences with the same one for more than three times at most. Under these circumstances, it has been first created a table in the database with the aim to register evaluations given from a particular passenger to a specific driver.

The table is ordered by couple numbers: every voting user can be associated only once to another voted user, and so they form a pair which will collect votes given form the voting user to the voted one. But if the voted user (necessarily a driver) will receive an evaluation from another passenger, a further couple will be formed and registered. Or if, in the same manner, the voting user will vote for a different driver, another pair would appear on the database table as well. In this way, a well-documented history of the evaluations given between two users is constantly maintained.

The system comes into operation first after three evaluations (corresponding to three voted rides) into the same couple. When the average of the votes result too low, namely inferior to 1,6 , or too high, namely higher than 4,7 , further evaluations will be no more calculated for the average mark of the driver.

It is in fact very probable that after such bad marks posted a user would not be prone to accept rides from the same driver anymore. As a consequence, if the

evaluations are still prosecuting with the same negative trend, the user is deliberately posting low evaluations in order to devalue the driver's average mark. At this stage, the counting of next votes from this passenger to the driver is stopped.

With regard to the higher limit (4,7) of the evaluation range instead, the choice of interrupting the flow of votes is more partial and subjective, and is due to the internal policy of the website.

It is surely possible that users, after experiencing several excellent drives in a row, decide to mark the driver continuously with the highest evaluations. On the other hand it is also possible that because of friendship, agreements or common purposes, users would give extremely high votes to a driver arbitrarily.

In this website, by reason of a general main attention to safety problems, it has been decided to prefer a solution which guarantees an higher security, to the detriment of a full regard to user's evaluations. After three votes in fact, the average of obtained marks from the same user, if superior to 4,7 , will be arrested as well. This decision is also based on the fact that, after such high evaluations, the user's opinion of the driver has already been cleared up and no more votes are necessary to fulfil it.

The procedure of voting has an elapsing time of one week, during which the user is enabled to give a mark to the driver. If the evaluation period is over, his mark will be not counted anymore.

The voting form requires the username of the driver, the date of the ride, the starting city, the arrival one, and last a time slot field in which is to select the hour value of the ride (for example choosing 13:00 in case the lift has been given since 13:25). The evaluation formulary is realized with the intention to ask precise information and so avoiding attempts of voting from users which have been not involved in the ride.

Juridical Security

The municipality experts undertook the intervention on this field, and different issues have been dealt directly by them. The users who intend to register must become aware of all the conditions and responsibilities which they are going to accept; moreover privacy requests must be clearly explained to them.

Problems which regard insurances of vehicles and people have to be carefully analysed and the role of the website in unpleasant episodes must be diminished as far as possible.

Discussion

The programming of a website which should be conform to the Nielsen principles of usability and at the same time guarantee completeness and security, it is a particularly complex task.

Users would be indeed more favourable to websites with as few bureaucracy as possible, meanwhile an high safety standard needs additional information which can cause frustration and discouragement in most of them. Compromises between these two orientations are difficult to find, and only some years after the hosting of the website it becomes possible to realize if the solutions found have been suitable.

Important questions that must be answered in the future are indeed: »How far are members of such a network willing to renounce to their privacy in order to guarantee a

greater safety?« or else »How complicated and detailed has to be a security system in order to do not prevent people registering and using the service?«.

Furthermore, though the achievement of some safety counter measures, it can be hardly claimed that the website is perfectly protected from any user that, for example, would cheat on giving bad evaluations. In fact, chances for deviant purposes are too numerous to be all prevented.

This has been not anyway the aim of the author, which has been instead to make deviations from allowed procedures as difficult as possible: if a perfectly safe users evaluating system is impossible, it is anyway important to include counter measures for most of the likely violations.

Although the designed website is still lacking in some areas as the juridical and the data safety one, it has the quality to be far more spontaneous and simply structured than other important car pooling websites; furthermore the support and hosting of the site in the municipality web space has stimulated the creation of a web portal which does not need any sponsorship by privates (and so renounces to gain funds and reach an upper ranking position by link exchanging and banners promotions).

These two elements, together with the profitable collaboration with the municipality and the mobility department of Cesena, are valuable choices and significant achievements which I hope could be taken as example for the creation of new car pooling services.

Furthermore the development of car pooling regional platforms can be seen as the right solution for introducing such an innovative mobility system in Italy, and this project could become an important source of inspiration for every other similar network in the future.

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