



# About 234car

The single most cost effective measure an organisation can take to tackle traffic problems and reduce parking demands

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## 1. About 234car Software

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**234car** software offers the most advanced solution available to organisations and individuals who wish to use car sharing as a cost effective and environmentally friendly means of transport. It is a vital ingredient of any Travel Plan.

### 1.1 Key Features

The key features of the **234car** system are:

1. **Easy to use interface on a fully Web-based system requiring no additional software expenditure or skills**
2. **Hidden sophisticated route matching technology helps users to find accurate journey and car share matches**
3. **Centrally hosted with devolved maintenance and automated administration – the only extra staff effort you will need is to promote the service**

### 1.2 Web-based system

**234car** is completely Web-based, easy to use, fully accessible and requires no specific IT skills or software other than a Web browser, which is available already on most people's desktops. This means that it can be run over the Internet, an Intranet or an Extranet. The only requirements of this system are a networked computer and a Web browser. Automated administration allows the users themselves to set up and maintain their accounts.

**234car** does not require any additional individual software licenses or hardware upgrades. The system is accessed via a Web site. If a person can use a Web site like Amazon.com or Telegraph.co.uk then they can use **234car**. This is an important issue when considering full implementation costs, take-up and eventual usage levels within an organisation.

**234car** can be supplied to teams of staff via one contact point within your organisation. This is particularly useful when not all staff have access to a computer or the appropriate IT skills.

### 1.3 Route Matching

The matching system that we have developed as part of **234car** is, in our opinion, much more advanced than any other currently available, as it offers a complex merging of geographical spatial data with journey information. We offer full route mapping with the ability to find carshare matches anywhere on a route of travel. This means that users are much more likely to find an **accurate** match for their journey.

The ability to provide accurate and usable matches to users is obviously a crucial component of any car sharing system. Unless the system uses some form of journey mapping (be it main nodal points, towns for example, or complete journeys – i.e. routes of travel) then the chances of finding matches are fairly limited and necessitate having a large number of active users registered and using the system. Our system offers both routes of travel (i.e. quickest routes of travel along the road network) and nodal points (e.g. start and finish points, drop off points such as schools or other places of work). This has the end effect of producing a system that starts to provide matches with a relatively small number of users. One person's route to work often passes another person's start or drop off point, that equals a potential match or car share.

As far as we are aware, no other car sharing system currently offers all of these route matching facilities.

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## 2. 234car Features and Functionality

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The **234car** software has the following features and functionality:

- Available via a Web browser – either through a standard Internet connection or Intranet using HTTP.
- Hosted on its own dedicated server or installed on an existing server – details to be discussed.

- A customised carsharing Web site for your organisation with linked in sections that will be tailored to your requirements (e.g. content, design and branding).
- Compliance with W3C WAI guidelines on accessibility (i.e. suitable for all users capable of using the Internet).
- Simple, intuitive interface designed by leading usability professionals.
- Route matching for journeys to and from a primary destination and other nominated locations, as well as stop-off points along the journey route (e.g. schools, partner's place of work, etc...).
- The route matching facility can be expanded to include major locations in the United Kingdom – this additional facility requires some data configuration and minor system changes. It enables staff travelling on business to other locations in the UK to check for colleagues travelling on the same day.
- Users create their own account to hold their personal and regular journey details. Access to this account information will be via a unique username and password – created and set by each individual.
- A "password reminder" facility for users who have forgotten their password
- The facility to look for matches with all people registered on the **234car** system.
- The system will anonymously broker matches – the system will identify possible car share matches and then users will select which match(es) they would like to pursue. At this stage the system will forward the details of the possible match to the individual(s) concerned (via email and/or the Web). This puts the users in control of the information exchange – personal information will only be exchanged if both parties request it. Once both users have approved and exchanged details in this way, this will be considered a brokered match.
- Provide a method of tracking brokered matches of the system. A brokered match is more than a potential carsharing match – it occurs when people actively request an exchange of contact details between the matches they have found. **234car's** *admin* interface (which shows brokered matches and

other statistics) is a key part of monitoring and evaluating car sharing in your organisation.

- Provide a data collection mechanism that allows users to be contacted only if they agree to participate in a user feedback process.
- Provide summary data for administrative users of the software – this will include a breakdown of usage statistics by:
  - Total number of registered users
  - Total number of brokered matches for users
  - Names and email addresses for users who have agreed to provide further feedback on their use of the system
- The entire system will conform to the requirements laid out in the Data Protection Act 1998.

## 2.1 Security Issues

The **234car** system will provide security on a number of levels:

- All transactions to and from the Web server are Secure Socket Layer (SSL) i.e. encrypted.
- User account details will be protected by username and password, created by each individual user, so that only they will be able to access their account details.
- The software will broker carshare matches between users, thereby concealing the personal information (name, contact details and address) of users – this information will only be made available with the explicit permission of each user.

Additionally, guidelines and help will be provided online to guide users in their usage of the **234car** system to promote safe and successful carsharing.

## 2.2 Management information systems integration

It is additionally possible to integrate the **234car** software with an organisation's Management Information Systems (MIS) and associated data. One approach to this is to link the system with personnel data on all staff (thereby pre-registering all staff on the system). This would have the benefit

of simplifying the registration process and significantly increasing the number of registered users on the system – combine this with the route matching facilities of the software and the system should provide a significant number of matches.

In order to facilitate MIS integration a good working partnership will need to be established between the 234car team and client MIS staff. With this in place, integration should be a relatively simple task taking approximately 5–10 days additional staff effort.

However, it is worth noting that there may be ethical, privacy and data protection issues associated with the pre-registration of a large number of people. These will need to be addressed internally by the client prior to any MIS integration work being undertaken.

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### 3. 234car.com – Case Studies

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#### 3.1 The University of Bristol

The University implemented its car sharing scheme as part of an integrated approach to managing the travel and parking needs of its staff. We have direct access to all usage data with this client and so are in a good position to monitor and evaluate usage and system success. In addition, the University has conducted two detailed travel surveys, before and after implementation, which give us detailed statistical information on changes in travel behaviour. The figures below illustrate the success that can be achieved with commitment and an integrated approach to implementation.

The number of University employees at the time was 5020. Of those, 44% usually drove to work. After the introduction of the changes, this number fell to 32%. 270 people are registered as official car sharers. These 270 travellers share 125 car parking spaces. Thus, formal car sharing releases 145 car parking spaces. Current costs for the bulk annual rental of a car parking space in central Bristol is around £1200. Car sharing is therefore saving a potential cost of  $145 \times 1200 = \text{£}174,000$  per annum.

No. of University employees	5020
No. usually driving to work (44%)	2209
No. usually driving to work after changes (32%)	1606
Users registered on the car sharing system	282
Registered car sharing teams	125
Registered car sharing car park spaces	125
Individuals registered as car sharers	270
Formal sharers as % of total travelling by car	15%
Formal Car sharers as % of total employees	6%
Total Car sharers as % of total employees	10%
Saving	£174,000 pa

Carsharers at the University of Bristol qualify for a reserved car-parking space; this means that we have a very accurate figure for the number of formal carsharers within the organisation. However it should be noted that registered users will use the system to find occasional matches without qualifying for a regular parking space. In fact, a further 200 people car share on an occasional or informal basis – thus 10% of all staff car share.

The figures above show that approximately 15% of people who usually travel by car to work at the University of Bristol are now registered car sharers. It is clear that the software has had a sizable impact on the number of carsharers within the University and we have seen a subsequent marked reduction in the number of vehicles travelling to the University and parking in its car parks.

These figures represent an outstanding success. This is attributable to a number of factors: accessibility and effectiveness of the software; senior management commitment to implementation; traffic conditions within Bristol; significant increases in car parking charges and University incentives to carshare. We would usually expect a figure of 2–10% of current lone car drivers moving to car sharing with the introduction of 234car. This is still a significant “modal shift” as they say in transport circles and it is difficult to

think of any other single action that an employer can take to produce such a reduction in lone car drivers. When compared to any other activities (e.g. subsidised bus routes, discounted season tickets or installing bike parking facilities) this is by far the most cost effective way of achieving modal shift.

### **3.2 How full route matching compares to point matching**

Recent experiments have shown that full route matching increases the effectiveness of carsharing applications by about 400%. In these experiments route matching was compared to a system that only matched users on the basis of their home postcodes being within a mile of each other. To get an average of 10 matches per user without route matching, over 475 users were needed in total. To get an average of 10 matches per user with route matching, only 105 users were needed. If we assume that 10% of car drivers might move to car sharing then this means that a system without full route matching requires 4750 staff all going to the same location in order to get a reasonable number of matches per person. By contrast the **234car** system would only require 1050 staff. This is a significant improvement and aid to carsharing as a viable transport option.

It should be emphasised here that if a system is used which does not allow sophisticated matching then there is a very real danger that users will become disillusioned and just not use it. This will have a long lasting deleterious effect on people's willingness to investigate carsharing. It is important to get it right the first time with systems that are trying to encourage a cultural and behaviour shift.

### **3.3 234Car in Oxford**

An expanding scheme is built around a number of organisations in and around Oxford. The scheme was initiated by the Universities of Oxford and Oxford Brookes who were subsequently joined by four NHS Trusts. In 2005 both the City and County Councils joined the scheme.

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## 4. Summary

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### 4.1 Features

234car can be supplied to meet the following requirements:

- A Web based system allowing access and data entry via simple and easy to use Web forms
- Secure systems allowing anonymous matching until a match is agreed by both participants
- Requiring no administrative input from the client, allowing all users to communicate by email
- Hosted on a server with data supplied and maintained by 234car
- Data maintenance and updating on a regular basis throughout the contract lifetime
- Full route matching for all locations included in the system
- The possibility of a phone-based contact point, operated by a sub-contractor or by the client, for users without email.
- Monitoring and logging of brokered matches

### 4.2 Maintenance and support

234car will support and maintain the software as follows:

- Installation and initial set-up
- Data maintenance and updating on a three monthly basis
- Server monitoring and server-side software upgrades
- Carsharing software upgrades as appropriate

### 4.3 Locations covered

The system will normally cover commuter journeys within about 50 miles of a given destination. The general scope of coverage can easily be modified and

will be agreed during specification; precise details and minor changes may be agreed during implementation. **234car** is flexible and adaptable – it will certainly cover all of the popular commuting journeys and routes and can include special journeys such as Head Office to branch or factory.

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## 5. Contact Details and Further Information

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