



Charting a new course

Motoring organisations were quick to embrace online mapping systems for drivers. Cycling groups are now following suit. **George Coulouris** reports on Camden Cycling Campaign's innovative online mapping project.

Would you find it useful to have an internet-based map showing other cyclists' favourite routes through London? Perhaps you would like it to show you the nearest bike stands to your destination and a few bike shops along the way? Information on interruptions to cycle routes and specific dangers could also be valuable.

Drivers have access to a range of route-planning and road traffic information via websites, mobile phone and satellite navigation systems, not to mention speed camera databases to help them to speed between cameras. Arguably, cyclists have an even greater need for detailed information about routes, but there is little available online for London cyclists.

Web-based maps offer attractive benefits. They're accessible from any computer and can be zoomed out to cover large areas or panned in to focus on details, with satellite imagery superimposed to add extra information. Above all, they can be indefinitely extended with overlays adding information for specific needs.

Camden Cycling Campaign has set out to exploit developments in online mapping to help London's cyclists. Our goal is to develop an extensive 'routes library' that enables cyclists to share their knowledge about routes and their cyclability, as well as other information such as parking facilities and shops.

What does the system do?

To see how far we've got, point your web browser at maps.camdencyclists.org.uk. The first version of the system, launched in early 2007, covered only Camden. A second version, designed to handle larger amounts

of data and show routes, hazards, stands and shops across London, went live in May. The system has since been refined, and enables users to add information.

The map currently shows almost all the LCN routes in Camden, Westminster, Islington, Hackney, Tower Hamlets and the City. We hope to extend this to all the inner-London boroughs. In order to do so, we need help from volunteers familiar with the areas we don't yet cover. In addition to the LCN routes, we have already included many of the longer off-road routes (towpaths, Haringey's Parkland Walk, etc) and park routes.

Routes submitted by LCC members form another important category – it was the opportunity to share this type of information that originally motivated our interest in online mapping. We currently have some 40 such routes and we plan to build on that number. Many of these routes are an excellent basis for planning safe commuter routes, while others are leisure rides.

How the information is organised

The routes are accessed via a menu organised into categories such as LCN, utility, leisure, schools, etc. Most categories are further subdivided by borough, but the LCN routes are organised on a London-wide basis.

Colour is used to distinguish the main categories, both in the menu and on the map itself. Groups of routes covering smaller areas can also be useful. In Camden, for example, we are developing a scheme that will result in a 'spider map' that shows recommended routes for each participating school. These routes can be viewed by clicking on the school's name or by using our 'user-customised maps' facilities to generate a web page showing only the routes to that school.

We gave a lot of thought to the design of a user interface for selecting and controlling the display of information. The challenge was to enable users to choose from a large set of available routes without displaying them all simultaneously, since that would have cluttered the map to the point of illegibility, and also degraded its speed of operation. The menu structure is our solution to the challenge, together with interactive techniques to show labels on routes, highlight individual routes and to control their display. A 'focus' facility enables users to select any route from the menu and get an overview of its entire extent on the screen.

How it was done

Our project is based on Google Maps (maps.google.co.uk) and the Google Maps application programming interface (API) which enables users to develop their own applications. While the Google Maps API is currently the most advanced mapping toolkit, we are keeping an eye on the community-based OpenStreetMap (www.openstreetmap.org) in the hope that it will offer similar facilities while removing the constraints that go with the use of Google's proprietary base map.

To contribute routes, people use one of several websites that offer route-sketching facilities to generate and save a 'path' representing a route. They can then use our system to install the route, giving it a name and a short description with a link to more detailed information. The system automatically generates information about the route's length and other details. Once the route is installed, this information is available in an 'info window' that pops up with a mouse click on any route.

Developing the website

The next challenge is to provide a way to search for routes by start and end points. Our aim is different from route planners such as Transport for London's Journey Planner and the various aids for motorists because finding routes for cyclists in London remains an exploratory activity. Think of the many traffic barriers that are permeable to cyclists or places where by walking a short distance, you can shorten a route or avoid a congested road. Many of these are not on databases that provide routes for drivers, nor is the 'cyclability' of roads and junctions recorded. Once we have collected a large set of users' routes, we hope to add a facility enabling users to select two areas on the map and view routes that would be helpful in connecting the selected areas.

Learn more about the project

See maps.camdencyclists.org.uk for more details on the system and also to contribute routes. There is a forum where the developers post information about the system and users are encouraged to contribute suggestions and comments.

George Coulouris is a member of the Camden Cycling Campaign (www.camdencyclists.org.uk).

HOW TO GET INVOLVED

Camden Cycling Campaign (CCC) plans to organise a workshop meeting to discuss the system's development soon after publication of this article. Details will be available at maps.camdencyclists.org.uk. In the meantime, the project needs your help and CCC would like to hear from:

- Information providers to provide routes and other information for the database - think Wikipedia! All LCC members can help with contributing routes and information on shops, stands, hazards, etc. It's particularly important to complete the LCN network and we hope borough groups will participate in that.
- Data administrators to act as 'moderators', keeping an eye on and enhancing the accuracy of the existing database of routes, etc. We need your local knowledge to maximise the map's usefulness.
- One or two experienced web application programmers (Javascript, PHP, AJAX) to help take the project forward and extend its scope.
- Users with feedback about their experience with the system and suggestions for improving it. Thanks to Jean Dollimore, John Chamberlain, Ralph Smyth and others who have contributed valuable suggestions and added their knowledge of routes and facilities to the map.

Please email maps@camdencyclists.org.uk

LOCAL CUSTOMISATION

Local LCC groups and anyone else with a relevant website is encouraged to display a customised view of the system on their site. Facilities to customise include: specify the centre point and zoom level when the map opens; specify a route when the map opens; offering a subset of the routes available; specify which information to show when the map opens.