

## Applications of Choice Routing

We have discovered an approach to route planning that simultaneously computes all of the good alternative routes that exist between two points.

It works by running a conventional routing engine twice, once for the source of the route, and once for the destination, and then combining the results to assess millions of routes without further computation.

The best diverse alternative routes are ranked by a powerful goodness function, and can be presented to the user in a variety of ways.

This leaflet highlights the application of these techniques to both route planning, and route guidance.

The techniques can utilise whatever roads database and routing techniques are already used, so existing investment in these areas is enhanced.

## Route Planning

*The task of examining the best routes from A to B, in order to choose the most appropriate one to follow.*

To many users, planning involves examining the single optimum route that their software has produced, and then forcing the planner to come up with an alternative route by modifying their preferences, or by adding extra waypoints or exclusion zones.

Our technique computes all of the best possible routes, and shows the top n that exceed a given threshold value.

### Control

The user can choose their favoured route directly from a set that includes the very best available.

### Understanding

The user will know why the computer has ranked one route as better than another.

### Road pricing

If pricing becomes widespread, the trade-off between financial cost and journey time will become crucial. Only the user knows what expenses are tolerable, or the consequences of running late, so they must be given a choice of routes to make this trade-off for themselves.

## Route Guidance

*The provision of timely information to guide the driver along a sequence of roads to their destination.*

We do not replace techniques such as dynamic route recomputation or congestion avoidance, but add the ability of the driver to choose their own overall route while driving.

### Choose by Driving

At the few points in a journey where there is a choice between good alternative routes, we will present information about each of them.

The driver then simply follows the route that they like best without the distraction of interacting with the computer.

### Understanding

We present route characteristics such as congestion information, ETA and price so that the user can understand why one route is recommended over another under the current conditions.

### No Surprises

The route that is usually best can become slightly slower due to congestion or temporary speed limits.

It does not disappear from the choices, so the driver is not left wondering what happened to it.

## Working with Camvit

We have implemented Choice Routing on a highly flexible and extensible roads model which can already accommodate differential junction delays, time-dependent costs and driver familiarity.

The main techniques are being patented, and the algorithms are now ready for integration with in-car systems.

Our aim is to work with the current providers of telematics systems to bring these ideas into their products, using the most suitable combination of consultancy, contract engineering and licensing.

### Selling Points

Marketing

*"Which route do you want to drive today?"*

Chief Executive

*Gives the user more understanding and control*

Finance

*Low cost differentiator*

Engineering

*Builds on existing software base*

Production

*No hardware changes required*



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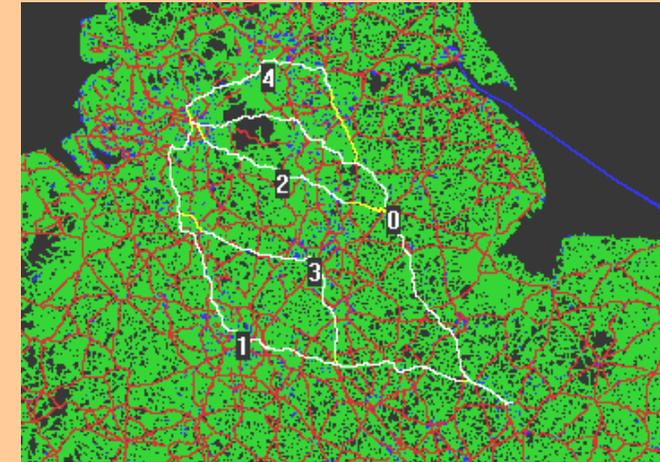
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