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A User Study on Route Evaluation

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ABSTRACT

Currently existing route direction representation like arrow on the route is vastly used and intuitive however it is not guaranteed to meet the requirement of application level use. With many routes overlapping with each other on a map, directions become vague and ambiguous for user to recognize. Route visualization is a vital part of map-related application. We developed several route direction representations to investigate which one performs best when user view the routes on actual map. The shapes we chose for these representations respectively are curve, arrow, triangle, right triangle, and taper. We established a complete mechanism to test route representations. First, it randomly generates 70 points with real GPS coordinates then randomly creates around 20 routes, each of which cover every point generated. Second, it queries the corresponding detailed geographical information of each route from Bing map. Third, we build up a website to displays images that contains different route direction representations based on the geographical information. Finally, subjects are asked to perform tasks on our website so that we can collect performance data such as accuracy, response time and so on. Our expected result in the pilot survey in lab, the result should show the combination of curve routes representation is better than all other representations. From the result demonstrated, the curve representation will be recommended in application-level use. We will continue investigating more combination of representations in further research and use crowdsourcing to let more subjects participate the survey on our website.

KEYWORDS

User Studies, Graphs, Directed Routes, Information Visualization