

EXPLANATORY STATEMENT

Project ID: 24789

Project title: Alternative Routes Quality Exploration on Road Networks

A/Prof. Muhammad Aamir Cheema

Department of Software Systems and
Cybersecurity, Faculty of Information
Technology, Monash University, Australia

Phone: 03 9905 9662

email: Aamir.cheema@monash.edu

Lingxiao Li

Phone : 0410362627

email: lingxiao.li@monash.edu

You are invited to take part in this study. Please read this Explanatory Statement in full before deciding whether or not to participate in this research. If you would like further information regarding any aspect of this project, you are encouraged to contact the researchers via the phone numbers or email addresses listed above.

What does the research involve?

Modern navigation systems often provide to the users more than one routes from a source location (starting point) to the destination location. The goal is to provide the users with multiple options so that they can choose a route of their choice for traveling. Intuitively, the routes provided to the users should be significantly different from each other but have similar traveling time (so that the users have more diverse but feasible options). We call these multiple routes provided to the users “alternative routes”. In this research, we have selected four existing approaches that provide the users with a set of alternative routes. It is not clear what constitutes a set of “good” alternative routes because it is subjective and depends on a user’s experience. Therefore, in this research, we display the alternative routes generated by the four approaches and ask the users to rate each approach from 1 to 5 based on their perceived quality of the provided routes (higher number indicates better quality).

You will complete the survey online. It is expected that this will take 5 to 10 minutes of your time. You will need to go to <http://aamircheema.com/routing> on any internet enabled device. You will select two locations on the map (the first location will be the source and the second location will be the destination/target). You can press “Clear” to remove the source and target locations if you mistakenly click on the map. When you press “Submit”, a new window will open which will display a set of alternative routes from the source to the target for each of the four approaches named A, B, C, and D (to maintain anonymity of the approaches). Each approach will display up to 3 routes (in some cases, an approach may display only 1 or 2 routes). For each route, you will also see estimated travel time of that route. You will be expected to carefully look at the alternative routes generated by each approach and rate them from 1 to 5 (higher indicated better quality) based on how good you think the choices are considering that the alternative routes should be significantly different from each other but meaningful/natural. In other words, if these routes were provided to you by your navigation system, how will you rate the quality. Note that in some cases, you may find that the routes generated by two or more approaches are of similar quality. In this case, please enter the same rating for such approaches. You can also enter an optional comment to support your rating or indicate any other issue (e.g., “I don’t like routes by approach A because it has an un-necessary detour”).

Please consider using source and target locations in areas that are familiar to you so that you can better evaluate the route quality. Also, note that the map data (e.g., speed on a road and estimated travel time) is taken from

OpenStreetMap which may be different from the navigation system that you normally use. Thus, the travel time may be different from what you expect. Please ignore this. Also, note that the travel times in this study do not take into consideration the real-time traffic. So, the routes are generated assuming that there is no congestion on any road (e.g., as is typically the case around 3:00 am on a weekday).

Why were you chosen for this research?

The maps we are using for this study consists of road networks in metropolitan areas. Since you are a resident, we believe you are familiar with at least some areas in the map. Thus, you are in a good position to evaluate the quality of the routes reported by each approach. We did not obtain your contact from an external source. You are being contacted because we personally know you and that you are familiar with roads in the areas. Some of the participants are not residents in the area but we seek their feedback to assess how non-residents perceive the quality of different techniques.

Consenting to participate in the project and withdrawing from the research

Participation in this study is optional. If you complete the online survey, it implies your consent. Since we do not collect any personal information, you cannot withdraw your participation after you have submitted your ratings. This is because we are unable to identify your submissions. If you do not want to participate in this research, please do not submit your feedback.

Possible benefits and risks to participants

This study will help us to compare and evaluate the quality of different approaches that generate alternative paths. To the best of our knowledge, this is the first user study that compares different approaches. Thus, this will help understanding what types of routes are perceived better by the users and which approach is better. Also, we hope that the user study will give insights on how to further improve the existing approaches. Thus, the study will help improve the quality of navigation systems and map-based systems.

There is no discomfort, harm or risk associated with completing this survey.

Confidentiality

We do not collect any personal information. Thus, the participants are anonymous and cannot be identified. We will publish the results based on the ratings provided by the users. The results may be published in a conference, journal or PhD thesis and will not contain any information that can identify an individual.

Storage of data

Our online system is running on Nectar Research Cloud. Therefore, the data entered by the users will be collected at Nectar. Once the data has been collected, we will copy the data to Monash folder with access restricted to the investigators. The data will be deleted from Nectar Research Cloud and will be maintained by A/Prof. Aamir Cheema in the Monash folder for 5 years. The data will be destroyed after around 5 years (in 2026).

Results

We plan to publish a research paper based on the data submitted by the users. The paper will be available on the personal webpages of the investigators. The results may also be included in the PhD thesis of the student investigator and can be accessed after the thesis is published online.

Complaints

Should you have any concerns or complaints about the conduct of the project, you are welcome to contact the Executive Officer, Monash University Human Research Ethics Committee (MUHREC):

Executive Officer
Monash University Human Research Ethics Committee (MUHREC)
Room 111, Chancellery Building D,
26 Sports Walk, Clayton Campus
Research Office
Monash University VIC 3800

Tel: +61 3 9905 2052 Email: muhrec@monash.edu Fax: +61 3 9905 3831

Thank you,

A handwritten signature in black ink, appearing to read 'Aamir', enclosed within a hand-drawn circle.

Muhammad Aamir Cheema