Crowd Cycling: Understanding cyclist behaviour using the mobile tracking app Strava

Mark Dunleavy, M. Sc. Interactive Digital Media, University of Dublin, Trinity

Abstract

Concerns over traffic congestion, climate change and increased morbidity and mortality due to the rising rate of obesity have led to the promotion of cycling as a means to address all these issues simultaneously.

Governments and city planners have created policies, and reserved significant funds, to promote cycling as a mode of transport. Many cities, however, have evolved for motor vehicles with little consideration for cyclists. In order to ensure that the cycle-friendly policies are implemented as efficiently and effectively as possible, planners need to understand how cyclists behave, both as individuals and as a group. Current information on cyclist behaviour is derived mainly from surveys and bicycle counting studies, providing a very limited snapshot of cyclist behaviour in cities.

With the rise of the *Smart City* new opportunities exist to monitor every aspect of city life. The smartphone offers a whole new platform to record dynamic data while moving through a city. Furthermore, the ubiquity of smartphones also offers the opportunity to turn people into sensors, and create extensive databases of crowd-generated data. In the current study we use GPS data recorded in Dublin, by the users of the exercise-tracking app Strava, as proof-of-principle that crowdsourced location data can be a valuable resource in understanding cyclist behaviour.

The results of this study show that it is possible to gather information on cyclist behaviour using Strava. In particular, this study found data on the activity of cyclists with respect to dedicated cycle lanes, restricted turns and movement contrary to traffic flow on one-way streets. Our research also demonstrated that change in cycle traffic flow over time could also be observed using this data.

Overall, this study successfully shows that crowdsourced location data can give an insight into cyclist behaviour, and can help governments and planners make better informed planning and policy decisions in the future.