Citizen Science for Traffic Planning: A Practical Example

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Measures affecting traffic flows in urban areas, e.g. changing the configuration of traffic lights, are often causing emotional debates by citizens who are affected by these measures. Up to now, citizens are usually not involved in traffic planning and the evaluation of the decisions that were taken. The enviroCar project provides an open platform for collecting and analyzing car sensor data with GPS position data. On the hardware side, enviroCar relies on using Android smartphones and OBD-II Bluetooth adapters. A Web server component collects and aggregates the readings from the cars, anonymizes them and publishes the data as open data which scientists, public administrations or other third parties can utilize for further analysis.

In this work, we provide a general overview on the enviroCar project and present a project in a mid-size city in Germany. The city's administration utilized the enviroCar platform with the help of a traffic system consultancy for including citizens in the evaluation process of different traffic light configurations along major traffic axes. Therefore, a public campaign was started including local workshops to engage the citizens. More than 150 citizens were actively collecting more about 9.500 tracks including about 2.5 million measurements. Dedicated evaluation results for the different traffic axes were computed based on the collected data set. Because the data is publicly available as open data, others may prove and reproduce the evaluation results contributing to an objective discussion of traffic planning measures.

In summary, the project illustrates how Citizen Science methods and technologies improve traffic planning and related discussions.