

Digital and physical methods to monitor urban mobility – Multisensor benchmark for the city of Pully

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In order to qualify the attractiveness of its city center, Pully (CH) has been developing since 2015 a Mobility Observatory in collaboration with Swisscom, a private telecom provider. Using the signals exchanged between SIM cards and antennas, Swisscom is able to produce information relevant to the mobility within a given area. For instance, the continuous communication of origins, destinations and dwell times is a real innovation compared to traditional methods involving expensive public surveys. However, the system lacks a multimodal analysis of the results, and can only reliably represent Swisscom's customers. For these reasons, a complementary architecture was implemented in Pully's city center: with infrared sensors for pedestrian detection, inductive loops for vehicles and statistics from public transport operators. The objective is to provide insights on multimodal flows, and correct potential biases. A comparison of all datasets revealed that Swisscom's observatory predicts vehicle flows more accurately than pedestrians', whose complex mobility patterns remain difficult to capture. Several data fusion models to combine all sources of information were proposed, each with its own advantages and limitations inherent to the context of Pully. In addition, a framework was developed to make future iterations of the system applicable to larger urban scales.