

Leveraging Cellphones for Wayfinding and Journey Planning in Semi-formal Bus Systems: Lessons from Digital Matatus in Nairobi

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Abstract

For many cities in the developing world, public transit consists mainly of semi-formal mini-buses (paratransit). However, little to no digital information is typically available on routes, bus stops, passenger boarding, service frequency or scheduled trip times. Cities that rely on these bus systems can benefit from the generation of digital data on these systems for planning and passenger information purposes. Perhaps more importantly, this data can provide the ability to generate citizen-based information tools, such as transit routing applications for mobile devices widely discussed in the smart cities dialog (Townsend, 2014). Through our work in Nairobi, this paper shows that cell-phone technology that is ubiquitous in most countries can be used to generate a dataset in an open standard, GTFS. Citizens can then leverage open source tools made for that standard, enhancing access to information about the transit system. We argue that one of the most important components of our work in Nairobi was the engagement process that created trust in the data and knowledge of its existence for the development of civic technologies. The lessons learned in Nairobi can be translated to other areas interested in using mobile applications to develop data on an essential infrastructure and extending the use of that data by sharing it with the larger transit community.

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