

The New Power of WHERE: What Should We Know and Why Should We Care About Location-Enabled Devices in Everyday Life?

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Abstract

With the democratization of geospatial technology, wireless communication and cloud computing, precise real-time positioning is entering every facet of our life. Smart phones can tell us where we are, what route to follow, if our friends are close, if there is an Indian cuisine restaurant within a kilometer, what is the name of that bright star we are pointing at, show the interior of a building before entering, display in real-time where is the bus or taxi we want to take, and so on. Sensor networks, the Internet of Things and low-cost flying drones provide real-time locational information about traffic, weather conditions, usage of energy, movement of industrial products inside and outside of manufactures, crowd behavior during public events, home appliances functioning, medical devices for hospitals and individuals, etc. Smart Cities are integrating all this localized information to monitor and optimize the coordination of such activities and infrastructures. The Semantic Web is facilitating the interoperability of systems and the integration of heterogeneous localized data. Big Data produces new geo-referenced information from this huge amount of diverse information to better understand what is going where on and how to react. In fact, the immediate availability of "Where" things are is rapidly transforming our Society and leading to a revolution as important as the industrial revolution and the computer revolution. We are entering a geodata-centric age where we will very soon gather more location-based data than we have collected in the entire history of humankind. This is exciting! This also creates new challenges for many disciplines dealing with privacy, data quality, reliable analysis, liability, copyright, ethics, responsibility, security, governance, regulation, etc. This new era calls for more collaboration than ever before between engineering, computer sciences, social sciences and humanities. This lecture will present an overview of the opportunities and challenges that relate to "The New Power of WHERE" and will call for a growing collaboration between sciences for a better Society.