Introduction to the Smart (City) Application Development Minitrack

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1. Introduction

In the field of E-Government, Smart Cities have been a topic for years now and are well covered within the Digital Government track. Complementing these tracks, we are focusing on Smart Applications—a subset of which applies to Smart Cities—and how to develop them. We are specifically interested in architectural approaches and technological frameworks that have been proven to work in the field.

Our selection of papers therefore covers these aspects and gives a diverse selection of technologies and algorithms, frameworks, and success stories.

2. Minitrack Content

The first paper in the track focuses on one specific challenge to autonomous vehicles (AVs). While increasingly sophisticated driver assistance and even fully autonomous systems are already on the roads, there remain fundamental concerns about their safety and adaptability to complex conditions and events. This paper explores and evaluates strategies on how to recognize and master ad hoc and temporary changes to roadways, that do not appear on maps, such as those associated with lane closures or detours associated with accidents or construction sites. Key to finding an alternative route is the vehicle's vision system.

It proposes an interesting mixture of 2D and 3D picture analyses methods to figure out alternatives to the pre-calculated route. By also sending back information about the incident and the alternative route found to a Smart City application, this could greatly improve traffic in such situations.

The second paper in the track goes into the details of developing a Smart City application using a framework called FIWARE. The application deals with monitoring air-quality data. What makes this use case specifically interesting is the fact that some of the sensors used to measure air quality are mounted on public transport vehicles like busses and trams. It covers all aspects of smart applications ranging from reading, routing, and storing sensor data to visualizing current state as well as historic data in a Smart City Dashboard. The fact that the sensors are mobile translates to challenges in the interpretation, analysis, and visualization of the data streams, however their mobility provides an effective approach to covering larger areas than would be possibility with the same number of fixed-location sensors.

The third and last paper is a success story comprising a survey covering multiple years of successful projects that have established the Polish city of Poznań as one of the leading Smart Cities in Europe. Importantly, the paper details not only the technologies but demonstrates the critical importance of sociotechnical and political factors necessary to the adoption of emerging technologies and the realization of their potential in providing services to its citizens.

In addition to the paper presentations, we will convene a panel discussion titled "Catching the next Wave of Smart Applications" with visionary panelists, who will discuss and identify topics most relevant in the field.

3. Outlook

Although this was only the second edition of our Smart City Application Development minitrack, we received some really interesting submissions. Based on the outcome of our panel discussion we will most likely fine-tune the CfP for the next edition of HICSS.