

[SE14-ICT]

IoT4D: Potential and Open Issues in IoT for Development

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Brief Bio

Session Leader(s)

Marco Zennaro is a researcher at the Abdus Salam International Centre for Theoretical Physics in Trieste, Italy, where he coordinates the Telecommunications/ICT4D Laboratory. He received his PhD from the KTH-Royal Institute of Technology, Stockholm, with a thesis on Wireless Sensors for Development. His research interest is in ICT4D, the use of ICT for Development, and in particular he investigates the use of IoT in Developing Countries. He is a Visiting Professor at Kobe Institute of Computing, Japan.

Abstract

Short description, including alignment with conference themes and objectives

The Internet of Things (IoT) has the potential to change the world, just as the Internet did. Maybe even more so. Applications of IoT can greatly benefit populations in Developing Countries: food safety can be checked, water quality can be monitored, air quality can be measured, landslides can be detected and mosquitoes can be counted in cities in real time. To realize these benefits, a number of issues faced by IoT applications in Developing Countries have to be tackled: intermittent energy availability, low speed Internet connections, harsh environmental conditions, privacy issues for underrepresented communities. These peculiar issues require solutions that will then drive new IoT architectures. Building on existing deployments, this session will look at lessons learned from the use of IoT in Developing Countries. We will look at the social impact of IoT and how privacy and security issues were tackled. We will discuss the best technical solutions in terms of connectivity and energy sustainability.

Description

Proposed discussion focus

The focus will be on IoT solutions that fit development goals, from the technical and the social points of view. As ICT in general, IoT technology was designed for the industrialized world. A lot of attention is given to products and devices that fit our world (the Nest energy meter, for example) but that are not particularly useful in the south. In most Developing Countries, IoT applications require different technical solutions (longer wireless links than the ones used for the Nest, for example) and a different user interface (people most in need are not able to understand graphs or figures. I am thinking of farmers monitoring irrigation in fields). From the social point of view, we will discuss about privacy and security issues in the context of development. Ownership of data will also be discussed, especially for communities that don't value data as such.

Objectives

Justification and expected impact during and after the conference

As the problems tackled by IoT researchers and practitioners fall into a limited number of categories (environmental monitoring, air quality, water quality, smart agriculture, weather monitoring etc), it is paramount to establish a network of IoT4D experts working in this domain. The network will provide a way for researchers to share solutions and to collaborate on finding the best solution to their problem. Ways to interact may include social networks, portals, mailing lists, specialized scientific conferences and expert meetings. Particularly important is the exchange of information among researchers from the South, in a South-to-South collaboration.

Target Audience

Researchers in ICT4D; practitioners in IoT4; students interested in this new technology; decision makers that want to understand the potential of IoT for development.