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The case for IoT applications in Africa

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The Internet of things (IoT) refers to the networked interconnection of objects in addition to traditional networked devices. This is starting to happen, as the incessant decrease in size, cost and energy consumption of wireless devices is boosting the number of deployed wireless devices dramatically. The number of mobile objects composing the IoT will be huge: in 2020 between 12 to 50 billion devices are expected to be connected with each other, a 12- to 50-fold growth from 2012. Several different technologies will converge into IoT, such as RFID systems, wireless sensor and actuator networks, personal and body area networks, etc., each using its own access solution.

One key issue with the Internet of Things is the ability to rapidly create IoT applications. Fields of applications include for example sustainable development, environment and infrastructure monitoring, emergency response and disaster mitigation, waste management, continuous health care, smart product management, smart meters, home automation and smart events. Applications of Internet of Things 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.

In the paper we focus on research activities necessary to find solutions to the issues faced by IoT applications in Developing Countries, such as intermittent energy availability, limited bandwidth, low data storage capacity, harsh environmental conditions, privacy issues for underrepresented communities, user interface for illiterate operators. These peculiar issues require research to be solved and solutions will drive IoT architectures. To realize the benefits offered by IoT, a broad portfolio of successful deployments in Developing Countries will be needed as a proof of concept and the future community of African IoT researchers will have to be trained.

Primary author: Dr ZENNARO, Marco (ICTP)

Co-authors: Prof. MIKEKA, Chomora (University of Malawi); Dr NSENGA, Jimmy (CETIC); Dr NGEND, Luc (University of Malawi); Prof. KUMARAN, Santhi (University of Rwanda)

Presenters: Dr NGEND, Luc (University of Malawi); Prof. KUMARAN, Santhi (University of Rwanda)

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