Dissertação de Mestrado em Engenharia Informática (2017/2018)

Title: Data Fusion in Internet of Things

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Summary
Internet of Things (IoT) brings the real physical world, virtual cyber world and digital world together. A myriad of sensors, such as mobile terminals, cameras, microchips, wearables and even the Internet, play an important role in IoT. These sensors collect, generate, and preserve a diversity of data with different representations, scales, and densities from various “things”, which offers IoT the ability to measure, infer and understant environments. Integrating things, data and semantic opens opportunities for knowledge discovery, and further makes it possible to provide advanced and intelligent services. Thus, data fusion is an essential and integral part of IoT, because integrates multiple data and knowledge into a consistent, accurate and useful representation, in which the data are fused to high-quality information to provide a reliable decision support. The base idea for this research is to create a computerized model with capability to fuse data from different sources in order to produce a reliable and accurate information. In addition, a practical scenario should be defined including, the decision making on the adoption of sensors, data handling, metrics and outcomes produced by the system.

Objectives
The main objective of this work is the development of an application that applies fusion principles on the collected data. In addition, a comparative benchmark composed by different techniques should be produced.

Tasks
• T1 – Technological background study;
• T2 – Review the State-of-the-art;
• T3 – Requirements Analysis: what kind of sensors? what kind of data? what kind of model to handle data?, … ;
• T4 – Design and construction, including integration;
• T5 – Testing and evaluation;
• T6 – The writing of the dissertation.

Expected result
In this research work the following deliverables are expected:
A review article presenting the state of the art (and the benchmark). and a conference paper describing the process.

Timeline

	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
T1	X	X						
T2		X	X					
T3		X	X					
T4			X	X	X			
T5					X	X	X	
T6				X	X	X	X	X

References:

n/a