



Philip-Dylan Gleonec



Biography: Philip-Dylan Gleonec is a French PhD student in the IRISA laboratory, in partnership with Wi6labs, a start-up located in Rennes, where he works to bring energy harvesting capabilities and theoretically infinite lifetime to long-range wireless sensors. Previously, he graduated from the Telecom Bretagne engineering school with a specialization in telecommunications and electronic. He previously worked at Renesas Mobile on cellular platforms, and at Avivest on embedded video transmission systems.

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Abstract: Wireless sensor networks are constrained by their energy supply. In order to relief this constraint, scavenging ambient energy from the environment has been considered. However, most existing energy harvesting devices rely on a single energy source, potentially reducing the sensor reliability. In this paper, we present an architecture for multi-source energy harvesting, aimed at low cost and easy integration with existing wireless sensors. Unlike existing architectures, our solution relies on a single power conditioning block. This block is powered by multiple sources, selected through a switch matrix by a dedicated controller. A prototype has been developed, validated and compared with alternative architectures. First results show our architecture benefits for systems using many heterogeneous sources, and highlights improvement possibilities through the addition of MPPT (Maximum Power Point Tracking) circuitry.

Session Title: Architecture Exploration of Multi-source Energy Harvester for IoT nodes