ARTEMIS Call 2010 Project
269374

IoE

Internet of Energy for Electric Mobility

PROJECT *description*

Internet of Energy for Electric Mobility (IoE) is developing embedded system modules and technologies facilitating the convergence of Internet and electrical grid. This forms an intelligent physical infrastructure by exploiting synergies between distributed renewable energy and electric mobility.

RELEVANCE *to call*

IoE addresses seamless connectivity and middleware by achieving interoperability of the Internet applications for Electric Vehicles (EVs) and Smart Homes with the Energy Grid. The focus will be on Electric Mobility infrastructure and the communication with the grid. The project will contribute to the reference design and architectures by addressing architectural and functional dependability.

MARKET *innovation*

IoE is providing an intelligent, highly efficient and collaborative network that links energy utilities to operators and ultimately to the energy consumers (sometime even co-generators) of any size or regional location, based on open communication standards. The IoE forms an energy distributed network linking the energy stakeholders, while providing a secure means of knowing where and how much energy is delivered, billed or requested at all times. To achieve such a vision, the energy grid interfaces with the Internet, by converging onto a resilient exchange network of both data contents and energy.

TECHNICAL *innovation*

The project proposes a novel architecture and distributed embedded systems that implement the real-time interface between smart energy grid (which increasingly relies on smaller, locally distributed electricity generators from renewable energy sources) and a cloud of devices/loads at the edge (electrical vehicles, residential and commercial buildings, offices, electric devices, domestic appliances, etc) that can be plugged and charged to any source of electric energy (solar panels, wind turbines, hydroelectric, etc).

The IoE underlying architecture is formed by distributed Embedded Systems (ESs), combining power electronics, integrated circuits, sensors, processing units, storage technologies, algorithms, and software. Reference designs and ESs architectures for high efficiency innovative smart network systems will be addressed with regard to requirements of compatibility, networking, security, robustness, diagnosis, maintenance, integrated resource management, and self-organization.

IoE
Internet of Energy

PROJECT COORDINATOR Ovidiu Vermesan	START May 2011
INSTITUTION SINTEF	DURATION 42 months
EMAIL info@artemis-ioe.eu	TOTAL INVESTMENT €44.3 M
WEBSITE www.artemis-ioe.eu	PARTICIPATING ORGANISATIONS 38
	NUMBER OF COUNTRIES 10

Advanced Research & Technology for EMbedded Intelligence and Systems