

LORA - INTELLIGENT INFRASTRUCTURE FOR COMMUNICATIONS AND DECISION SUPPORT IN POWER SYSTEMS

Goal of the project

The main goal of this project is to create an IoT research and didactic laboratory, based on the LoRa technology and the LoRaWAN communication protocol, in which IoT devices will be developed for electrical and power systems applications.

Short description of the project

Enhance existing techniques, develop new ones in term of IoT applications for electrical and power engineering fields.

Implementation period

21.11.2017 – 31.12.2018

Budget

46.500 RON (10000 EUR)

Main activities

During this project, the research team was focused on the following activities:

- Artificial intelligence algorithms adaptation, more precisely the swarm algorithms, to the requirements of the power engineering field;
- Developing different type of monitoring devices, based on the LoRaWAN communication protocol;
- Developing web based platforms for processing and analyzing the data coming from the monitoring devices;
- Equipping a laboratory with LoRaWAN-compatible equipment for further research and their integration into the teaching process;
- Validation of research results, attending international conferences and publishing results in prestigious journals.

Results

Team achievements within this project:

- a device that transforms a regular electricity meter into a smart one - using LoRaWAN communication protocol;
- an environment monitoring device for photovoltaic parks - using LoRaWAN communication protocol;

Results - continuation

- web-based application for processing and analyzing the data coming from the monitoring devices;
- scientific papers accepted for publication:
 - 4 in conference proceedings indexed in Thomson Reuters Web of Science (WoS),
 - 4 papers published in conference proceedings indexed in international databases,
 - 1 paper in WoS journals with impact factors and
 - 1 book chapter in a Springer-Verlag volume.

Applicability and transferability of the results:

- Through developed devices, the authors have demonstrated that old meters need not necessarily be replaced but can easily transformed into smart ones.
- Also, with the help of environmental monitoring devices for photovoltaic parks, it is possible to make better forecasts of electricity generation.

Research team

Attila SIMÓ, Project Director
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Contact information

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