



# Ion Susnea

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## Bilateral Meetings

- 09-00 am - 12.00 am
- 14.00 pm - 17.00 pm

Request

## Looking for partners for a proposal: A Distributed System for Energy Management in Buildings

According to official estimates, buildings are responsible for 40% of the energy consumption in Europe. Under these circumstances, finding solutions to reduce energy waste in buildings may have significant impact on the overall energy consumption. For example, most modern HVAC systems (Heating Ventilation and Air Conditioning) can be programmed to automatically adjust the target temperatures depending on the time of the day, assuming that during certain time intervals, the building is likely to be unoccupied, and can be maintained at a lower level of thermal comfort. However, a priori predictions about building occupancy are seldom accurate, therefore this control scheme has limited efficiency. The solution proposed in this project is based on the idea that the occupancy and activity levels can be estimated using passive infrared (PIR) sensor, usually present in most buildings as part of the security system. The core idea is to design low cost, microcontroller based "detachable neurons", which are connected in a communication network, emulating the functions of a neural network. The output of the resulting ANN directly controls the HVAC and lighting systems of the building according to the occupancy level detected by a plurality of sensors.

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