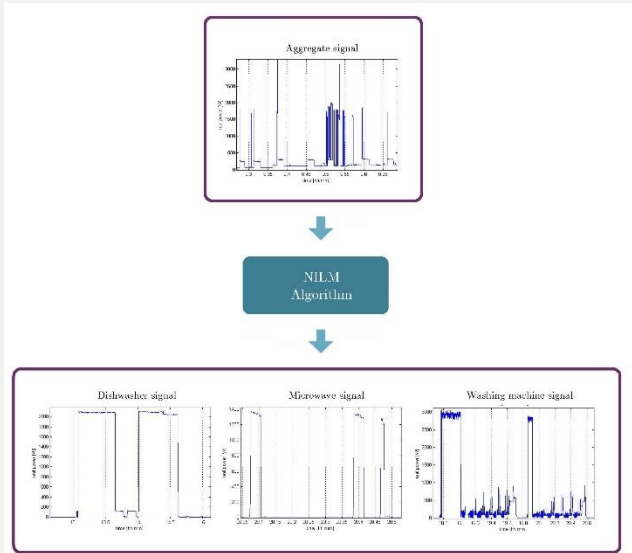


SECTOR: ELECTRIC MEASUREMENTS

ALGORITHM FOR ELECTRIC LOADS DISAGGREGATION

APPLICATION DATE: 17/01/2017

APPLICATION NUMBER: 102017000004554

DESCRIPTION	FIGURES
<p>The invention implements an alternative formulation of a known algorithm (Kolter et al.) with significant innovations that represent the progress beyond state of the art.</p> <p>Different loads (e.g. domestic appliances) are modelled using HMM (Hidden Markov Models, a more informative representation with respect to finite state machines), while the overall electric network aggregating the loads is modelled using FHMM (Factorial HMM), that is an aggregation of the individual HMMs where each one evolves independently in parallel to the others.</p> <p>The data obtained from the modelling of the electric loads and the network are used in an optimization problem to extract the disaggregated profiles of the active and reactive power related to each appliance.</p>	
PATENT APPLICATION STATE Valid in: <ul style="list-style-type: none">- ITA since 17/01/2017- Possible international extension before 01/2018	
COMPETITIVE ADVANTAGES <ul style="list-style-type: none">✓ Discrimination of different loads (appliances) using the reactive power component, even in presence of similar active power components.✓ Accurate modeling of the state transitions using the combination of active and reactive power, i.e., the (P_a, P_r) couple of values.✓ Disaggregation of the reactive power profiles.	
APPLICATIONS <ul style="list-style-type: none">✓ Electric measurement (including apparatus)✓ Electric load optimization (energy efficiency)	
TECHNOLOGY READINESS LEVEL TRL 3: experimental proof of concept	
NOTES	