

METHODOLOGICAL FRAMEWORK FOR CYBER THREATS IDENTIFICATION IN FUTURE SMART HOMES

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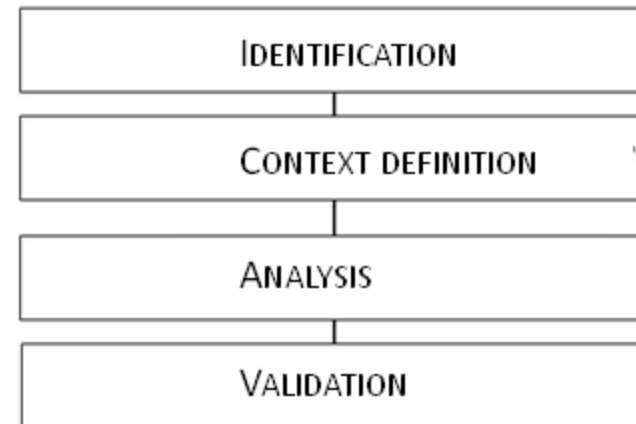
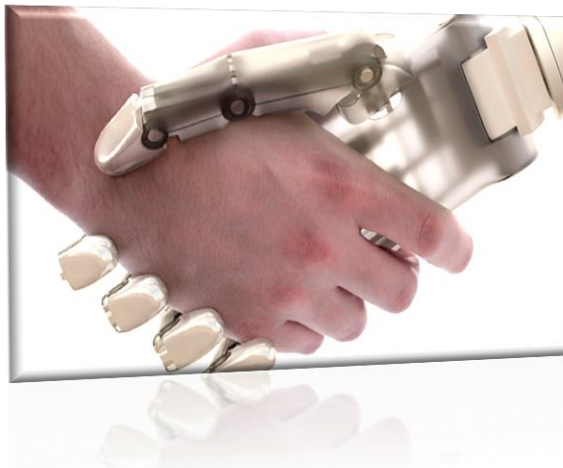
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THE DIGITAL WORLD AROUND US



METHODOLOGICAL FRAMEWORK FOR CYBER THREATS IDENTIFICATION IN FUTURE SMART HOMES*

- ❑ WE ASSUME THAT SMART HOMES ARE CYBER-PHYSICAL SYSTEMS ENCOMPASSING BOTH TECHNOLOGIES AND HUMAN FACTORS;
- ❑ THE MAIN IDEA IS TO CREATE A PLAUSIBLE SCENARIO SET USING AT FIRST MORPHOLOGICAL ANALYSIS FOR PROBLEM SPACE DEFINITION AND LATER ON, A SYSTEM ONE, CONCERNING A MORE DETAILED OBSERVATION.

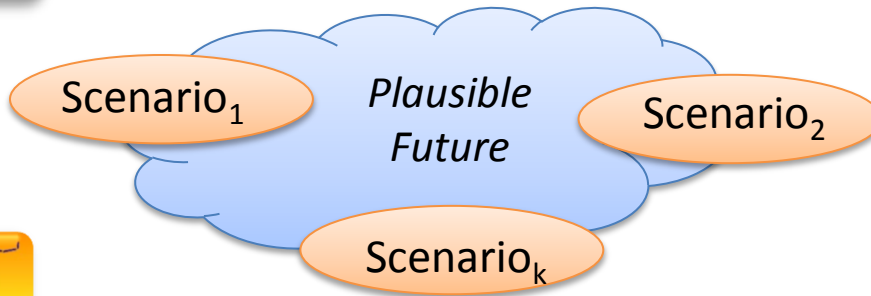


PROBLEM SPACE DEFINITION



EN

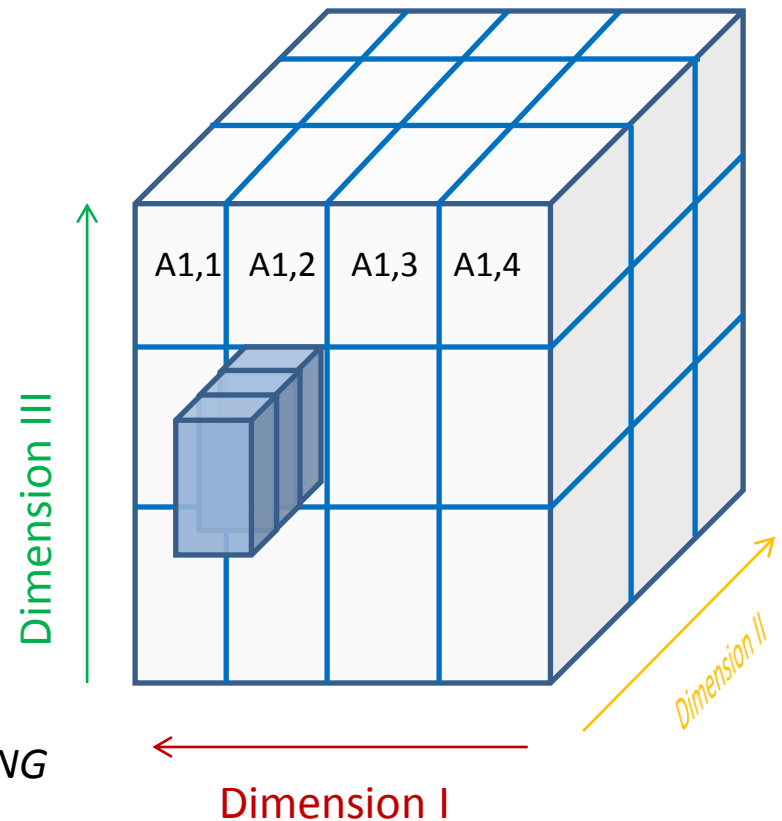
BG



Dimensions

Alternatives	Dimensions		
	Dimension I	Dimension II	Dimension III
	A1,1	A2,1	A3,1
	A1,2	A2,2	A3,2
	A1,3	A2,3	A3,3
	A1,4		

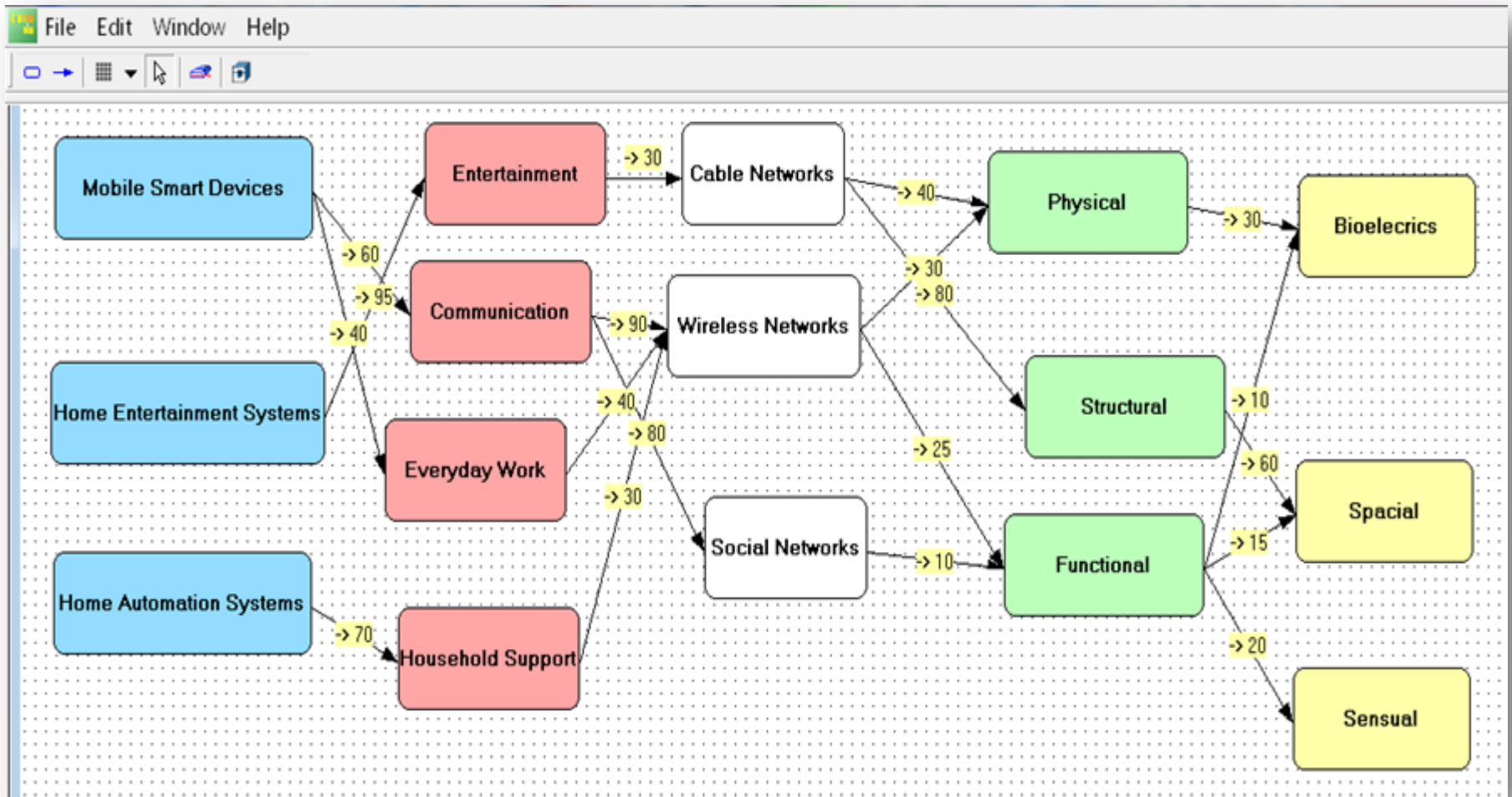
Morphological Analysis



BRAINSTORMING & Q-BASED DELPHI INFO GATHERING

IMPLEMENTATION WITH SCENARIO EXAMPLES*

MAXIMUM SCENARIO COMBINATIONS: $5 \times 3 \times 4 \times 3 \times 3 \times 3 = 1620$





RESULTING SCENARIOS

Selected Scenarios Set

Morphological Analysis

Devices	Activities	Communication Medium	Environment Characteristics	Human Factor Characteristics
Mobile Smart Devices	Entertainment	Cable Networks	Physical	Bioelecrics
Home Entertainment Systems	Communication	Wireless Networks	Structural	Spacial
Home Automation Systems	Everyday Work	Social Networks	Functional	Sensual
	Household Support			

Index	Length	Weight	Name
1	5	170	Scenario1
2	5	125	Scenario2
3	5	265	Scenario3
4	5	145	Scenario3
5	5	195	Scenario4
6	5	195	Scenario5
7	5	140	Scenario6
8	5	160	Scenario7
9	5	210	Scenario8
10	5	165	Scenario9
11	5	120	Scenario10
12	5	140	Scenario11

Active scenarios +

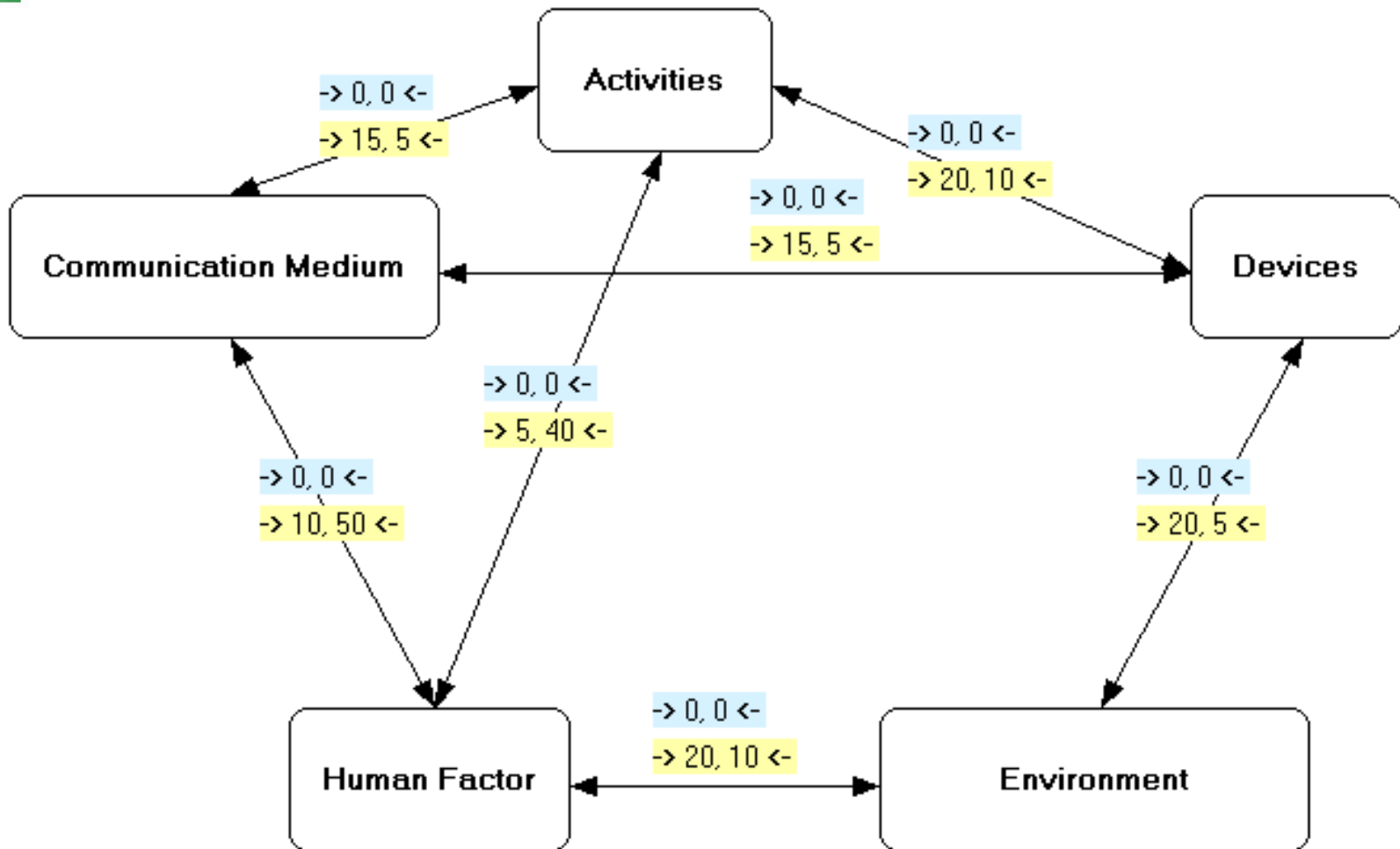


Passive scenarios -

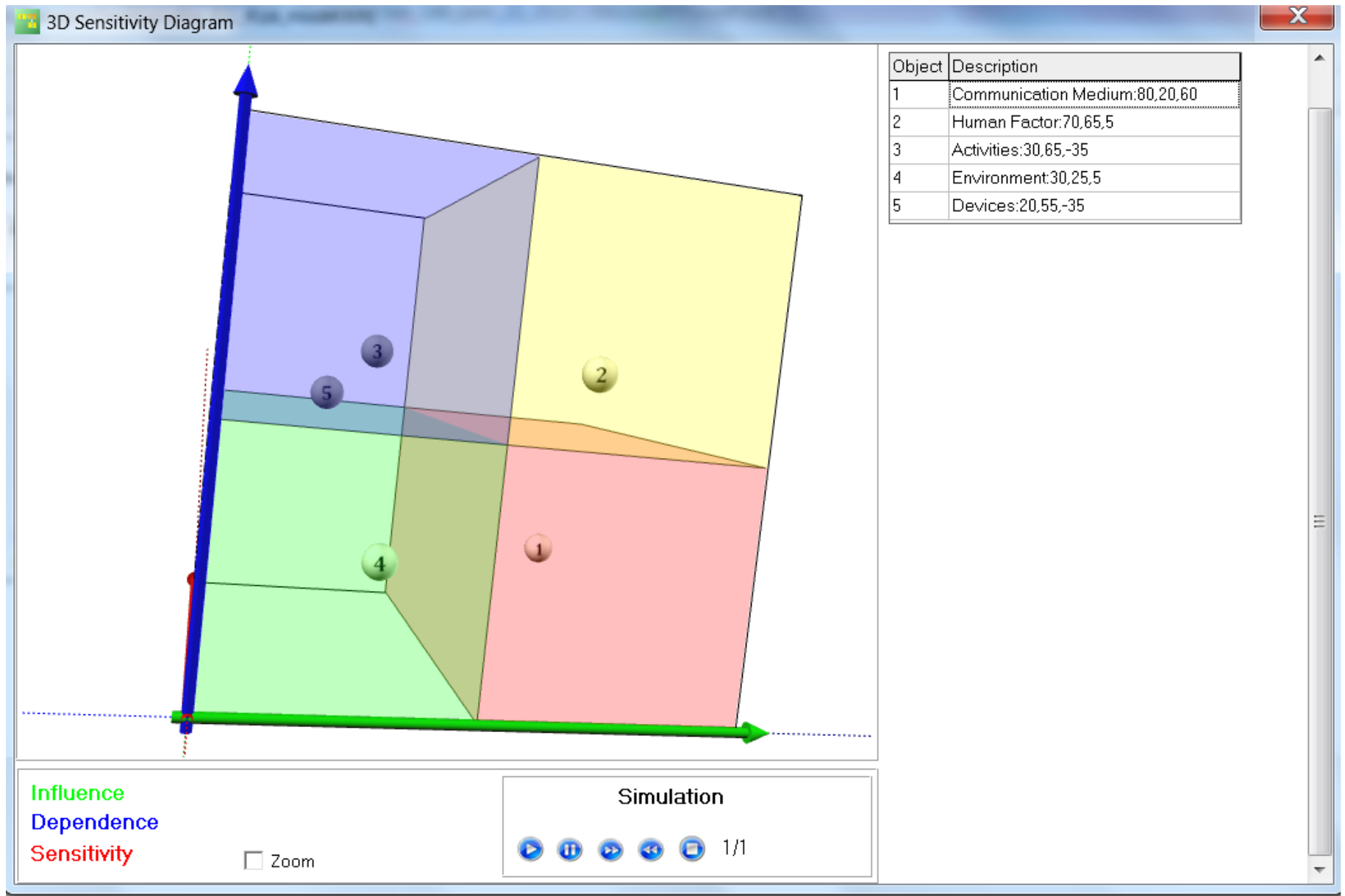
GENERAL SYSTEM ANALYSIS & AGENT BASED MODELLING



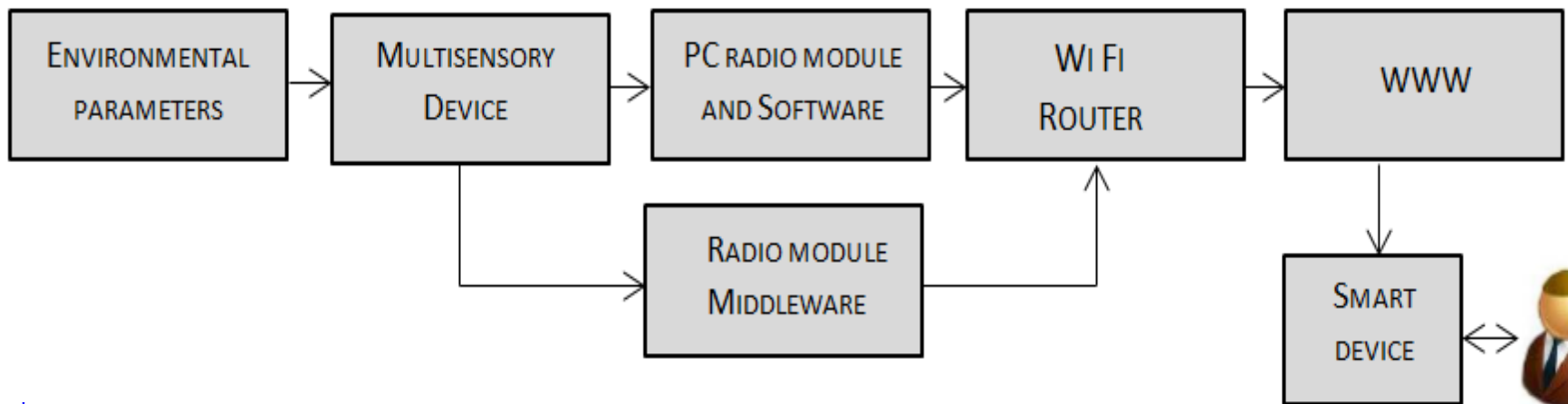
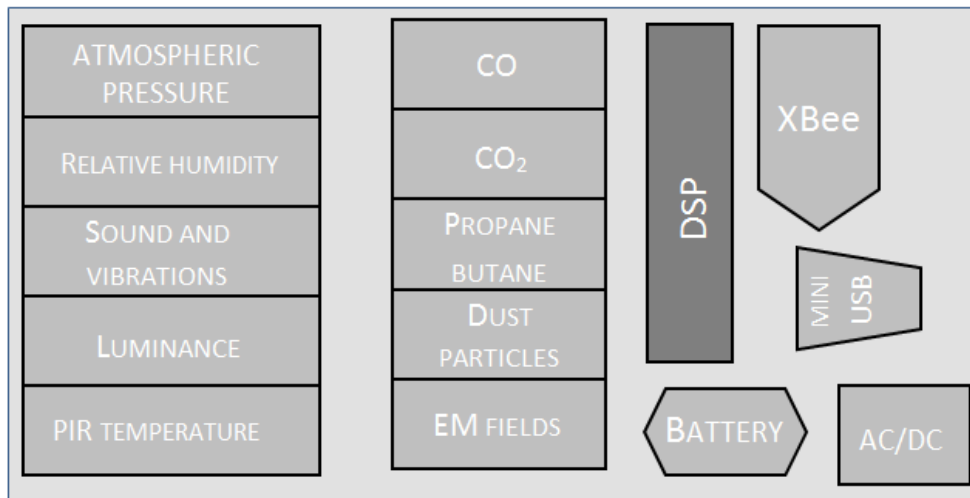
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RESULTING CLASSIFICATION

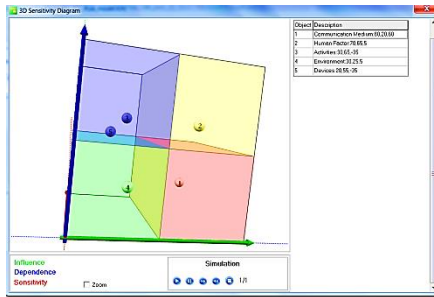
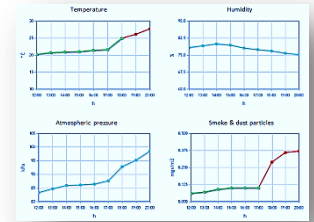
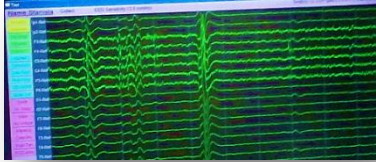


SMART HOMES ENVIRONMENT MONITORING*



*Georgiev, Kolev, Obreshkov & Lalev, 2013

ONGOING & FUTURE WORK



THANK YOU FOR THE ATTENTION!