Requirements of the Corona-Project

Requirement	ID	Importance	Verifiable	Description	Remarks
General					
Gen.: #persons	G01	High	VHDL Testbench	The number of persons in a room must be known.	
Gen.: max	G02	High	VHDL Testbench	The number of persons in a room must not exceed a given limit.	
Gen.: only one pers.	G03	High	?	Only one person can either enter or leave the room at a time.	Check test.
Gen.: three light sensors	G04	Medium	VHDL Testbench	Along the doorway, there are three light-curtains to allow direction-tracking of possible visitors.	Why not only two?
Gen.: only one door	G05	High	?	Only one door exists.	Check test. Req. given during the lecture.
Sound					-
Sound: entered	S01	High	VHDL Testbench	A person entered the room, play a unique sound.	Check, if this is on the FPGA or on the uC.
Sound: left	S02	High	VHDL Testbench	A person left the room, play a unique sound.	Check, if this is on the FPGA or on the uC.
Sound: stop	S03	High	VHDL Testbench	The room is full, play a unique sound.	Check, if this is on the FPGA or on the uC.
LED					
LED: red	LED01	High	VHDL Testbench	The maximal number of persons reached.	
LED: green	LED02	High	VHDL Testbench	The maximal number of persons not reached.	
UART					
UART: 9600 baud	UART01	High	VHDL Testbench	The speed of the serial transmission should be set to 9600 baud.	
UART: 8 bit	UART02	High	VHDL Testbench	The data width of the serial transmission should be set to 8 bit.	
UART: no parity	UART03	High	VHDL Testbench	The serial transmission should not be checked with a parity bit.	
UART: one stop bit	UART04	High	VHDL Testbench	The serial transmission should have only one stop bit.	
UART: time	UART05	High	VHDL Testbench	The time stamp of an event should be delivered to a PC.	
UART: #persons	UART06	High	VHDL Testbench	The #persons should be transmitted to a PC.	
PC					
PC: language	PC01	Medium	C-program	The information should be displayed on a PC, the language is C++.	Medium: Other languages would do the job also.
IC_S3				Events and head-counts are transferred to IC S3 using a Three-Wire-Interface.	
IC_S3: interface	IC01	Low	VHDL Testbench	Use a three wire IF.	Low: Not needed for the functionality
IC_S3: events	IC02	Low	VHDL Testbench	All events should be transmitted via the three wire IF.	Low: Not needed for the functionality. Not atomic: which events?
IC_S3: #persons	IC03	Low	VHDL Testbench	The #persons should be transmitted via the three wire IF.	Low: Not needed for the functionality