The field of computer science has expanded considerably since its emergence. This development obviously requires teaching curriculum in greater depth and breadth, including computer architecture courses. The definition of computer architecture varies, but it generally refers to the way the elements of a computer relate to each other. The curriculum of the course must provide students with an overview of computer architecture as well as teach students the operation of a typical von Neumann machine.

The School of Computer Science at the University of Manchester provides courses in which students learn about computer architectures and system designs. Currently, the STUMP processor, a 16-bit machine with a RISC-style architecture has been developed in the laboratory to support a course in VLSI design. The top level behavioural model and the RTL (Register Transfer Level) level model of the STUMP processor is written in VHDL. Now the School wants to move from the 16-bit STUMP processor to a 32-bit ARM-like processor named ALARM.

The aim of this project is to start this movement from the STUMP processor towards the 32-bit ALARM processor by specifying the top level view of the ALARM processor and to then develop and test this top level model. The top level model is written in SystemC. This project also investigates the difficulties and characteristics of implementing a design in SystemC as there is no previous experience of using this language for hardware design in the School.