Open Thesis / Project:

Electronics for an FPGA Demonstrator

Motivation & Summary

The goal of this work is to create an Field-Programmable Gate Array (FPGA) demonstrator and simulator for study fairs and exhibitions. It is supposed to demonstrate the functionality of an FPGA using cables and switches. To do so, a mechanical front plate consisting of multiple switches, buttons, and LEDs must be connected to a computing device for simulating the FPGA primitives (e.g., a microcontroller on a printed circuit board – PCB). Its firmware stores and updates the state, depending on how the demonstrator FPGA is "configured" on the front plate. Moreover, some features like *going back in time* allow exploring the functionality and give some intuition on how an FPGA can realize real-world designs.

Thesis Type

- Bachelor's Thesis
- Master's Project

Student Target Groups

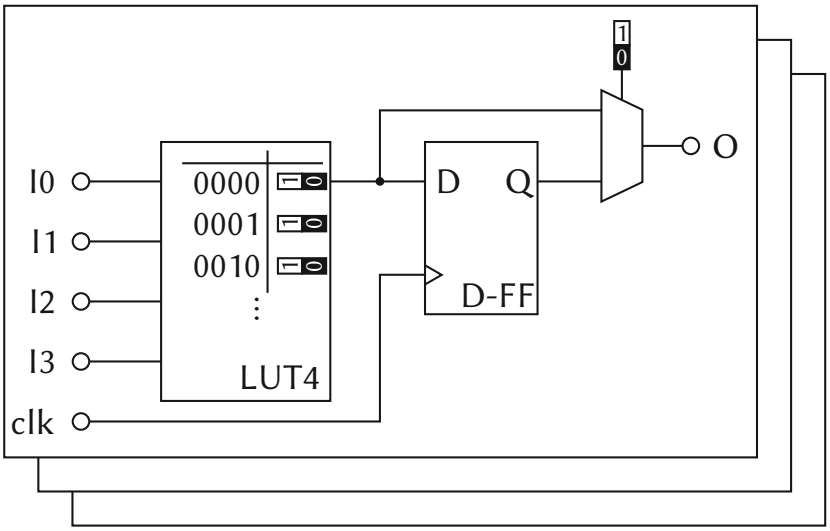
- Computer Science (CS)
- Information and Computer Engineering (ICE)
- Electrical Engineering (EE)

Goals & Tasks

- Create the electronics for the simulator
- Design and implement the microcontroller firmware

Recommended Prior Knowledge

- FPGAs
- Electronics / PCB design
- Microcontroller programming



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