



DISCRETE HIGH VOLTAGE POWER SUPPLY

Assignment.

There is an existing design to generate extremely accurate high voltages for sensitive measurement equipment. This design is based on the resonant Royer oscillator. The start-up and the control loop of this generator need to move from software-based devices to discrete components (opamps, comparators, etc) for robustness.

The project will consist of a simulation of the current high voltage generator and a possible discrete solution. A prototype of the solution should be made to prove feasibility, followed by a complete design of the schematic and layout in Altium. This design will be produced and tested for performance. Typical applications are:

- X-ray generation
- Electron Microscopy

Internship overview

- Master Student
- Internship/Graduation
- Electronics
- Location: Eindhoven

Technologies

- Analog Electronics
- High voltage (>1 kV, current-limited for safety)
- PI Control Loop
- Altium

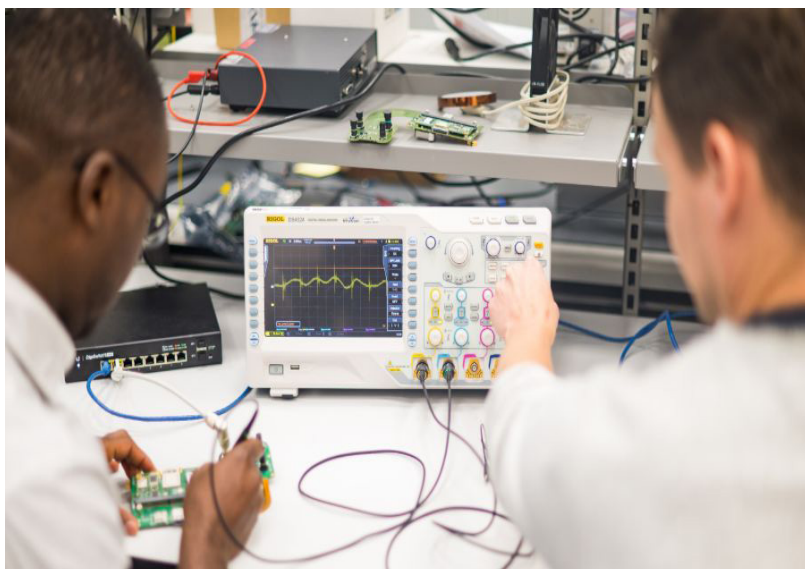


Context.

High voltage supplies are key parts of any machine that needs high-energy electrons. Typical examples are electron microscopes and X-ray generators. In these devices it is crucial that the supply voltage is not only high enough but can be controlled over a very wide range and with a very tight margin (typically less than 0.1% error). The accuracy of the high voltage supply directly influences the sharpness of the output images.

Activities.

- Propose a solution for the stated problem
- Simulate, build and test the proposed solution
- Draw schematic and layout of the student's design



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Would you like to know more about this student assignment?

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