Control automatic readout of the IOR cryogenic measurement setup

Goal
Develop a device that controls the IOR measurement setup and read outs automatically the spectrometer.

Problem
A unique IOR measurement setup is available at NOVA-ASTRON. It is a recent developed system. It can measure the index of refraction of optical samples for various wavelengths (300nm – 25μm) across a large temperature range (20K – 400K). The setup is available and about ready. The whole test cycle will take several days and might be run over night. We like to improve the control of the system, typically the temperature control. Also we like the automate the setup of mainly all measured values and control settings.

Project definition
The task will be improving the temperature control system and logging and control of the setup during the long measurement cycle.
It is a project where the student can work at several different types of disciplines like sensors, controllers, hardware and software. Depending on skills and interest the project can be defined.

Tasks
- Problem definition
- Basic testing of the system
- Define different solutions for control and logging
- Develop and test controls
- Develop a logging and control system
- Reporting

Student capabilities
The student will plan the project, chair progress meetings and produce minutes of these meetings.
The student will have good communication skills, both oral and on paper.
The student shall work independent and seek for help before progress is stranded.
A project report will be offered well in time for review.

Study  Mechatronics, Electronic, Sensor Systems
Level  Bachelor
Duration  4-6 months
Support  Johan Pragt: Group leader and Project manager
          Eddy Elswijk: Test and support engineer
          Albert van Duin: Electrical engineer