Abstract: This thesis is focused on automatisation and synchronisation of newly installed devices in Prague laboratory. The devices will form an experimental arrangement not only for laser tests of ITK modules for the ATLAS detector, but also for tests of other types of semiconductor detectors. In addition to ensuring of a central control of the devices the goal of the thesis was to understand the principle of particle detection in high energy physics as well as to get acquainted with the construction of pixel and microstrip detectors. I participated in the development of a script for controlling a laser, 3-axis motorised translation stages, an optical attenuator and a pulse generator via RS-232 and GPIB communication interfaces from an object-oriented program ROOT. Finally, all installed devices were put into operation and a detailed description of their bundled software and internal control commands was included. The apparatus will participate during upcoming years in the research of the new generation of ITK modules for ATLAS upgrade.