Power Supply Tester

Faulty or substandard PC power supplies are a difficult issue to diagnose. The recent industry-wide problems with bad capacitors have caused many bad power supplies to be released. To diagnose power supply problems technicians use handheld or benchtop power supply testers. The current power supply testers that are available range from very inexpensive (around $10) to very expensive (many hundred dollars), with the full-featured testers being very manual. We believe there is a market for a low-cost high performing automated power supply tester. This device would retail for less than $50 but have more capabilities than existing testers while automatically testing the power supply. The low-cost power supply tester shown in the attached photo is provided with PC Doctor's retail products. While it is adequate for basic testing it cannot detect power supplies that have intermittent problems or fail under load. It provides a load on the main inputs only and LED's to indicate the presence of voltages on the other inputs. Your project is to design a power supply tester that loads all of the inputs by switching loads between them. It will be connectable to a controlling PC which can, through custom software, configure the device, store settings and read real-time information about voltage and the current status. Additionally it would have LED's to indicate the status of each line. Ideally the device would be connectable via USB and have a microcontroller and onboard flash. Some of the key challenges in this project would be to keep costs low, to properly dissipate the heat generated while applying a real world load to adequately test the power supply and to interface this device with software.