
MIT Microelectronics WebLab v. 4.2: Addition of a Thermometer plus a new Management System

Personnel

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Sponsorship

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This past year has seen a number of significant upgrades to the Microelectronics WebLab System. The first of these is the addition of a thermometer to the data collection portion of the WebLab system. This device is used to provide ambient lab temperature data to the remote user when an experiment is performed. Knowing the ambient temperature is essential to interpret pn diode characteristics, MOSFET subthreshold characteristics, and BJT Gummel plots. Temperature measurements are made using an Agilent 34970A data logger with a thermocouple input, which is connected to the WebLab server via the existing GPIB network. A custom driver creates a command interface to the data logger that is used by the Java applet to retrieve the data. This numerical data is then displayed on the applet's results window as well as the downloadable data set.

The second upgrade to WebLab is the completion of a web-based management system. This allows a WebLab administrator to access the lab from virtually any location at any time. Such tasks as user management, setting available device descriptions and setting content access control can be accomplished remotely. Using this new functionality, an administrator can even send email to a group of users, which can be used to alert an entire class of a change in the status of the system. These administrative tools were built using Active Server Pages that interface to the WebLab system database (Microsoft SQL Server). VBScript was used in these ASP pages to administrative functionality to be performed on the database records over the web.

WebLab v 4.2 was officially released in August 2001. Since then, it has been used in a number of classes offered at MIT. During the Fall of 2001, more than 200 students, including a number from Singapore through the Singapore-MIT Alliance, used WebLab v 4.2. During the most recent term, Spring 2002, more than 100 students have used WebLab for their coursework.

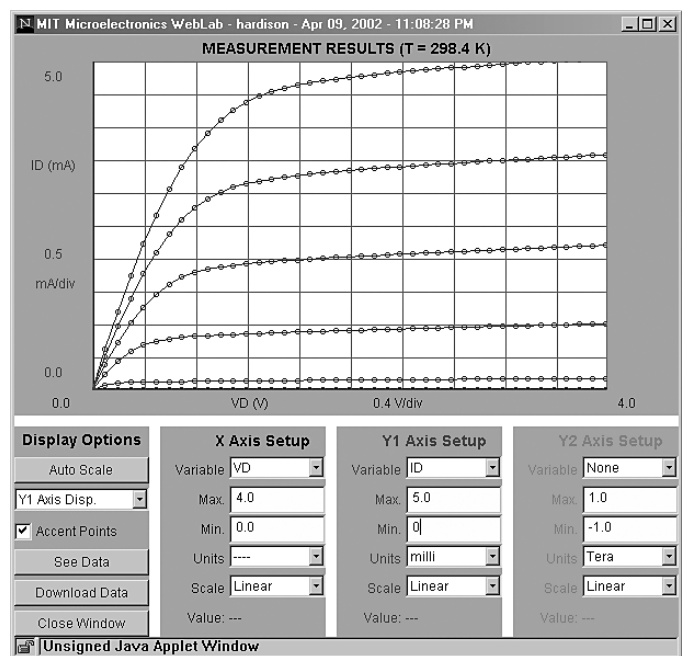


Fig. 3: The measurement results panel of the Microelectronics WebLab System. The temperature data from the Agilent 34970A is displayed in brackets at the top.