Mobile Studio Lab: Future of Engineering Education

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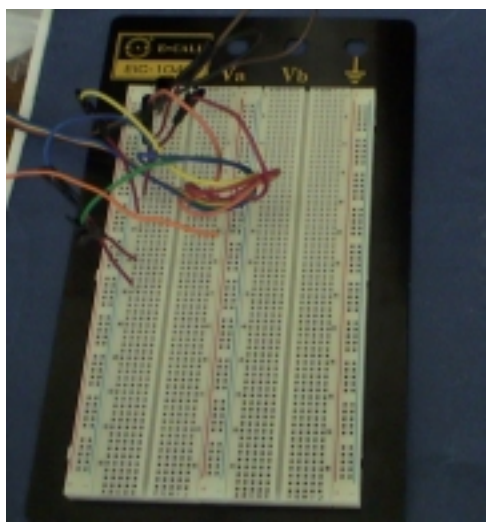
MOBILE STUDIO OPEN HOUSE

November 14, 2005

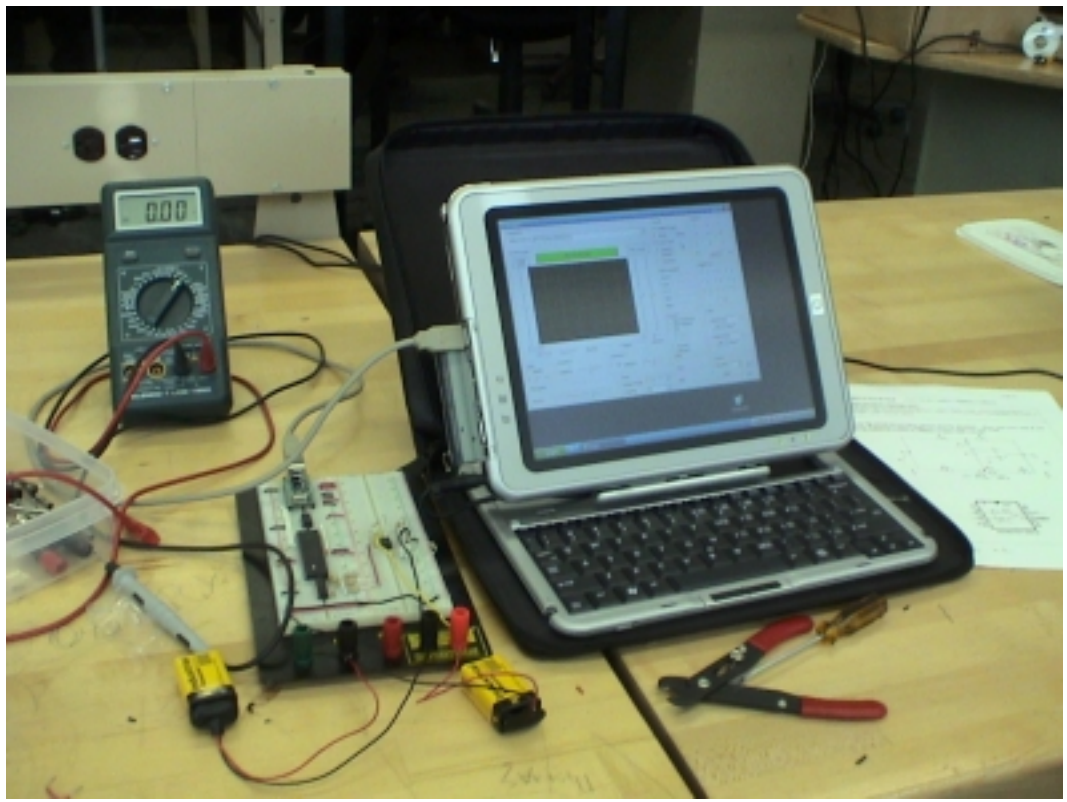
Conventional Lab

- Conventional Lab
  - Lab Space
  - Lab Equipment
  - Breadboard
  - Space/Room Restriction



Mobile Studio Lab

- PC or Laptop or Tablet PC
- Breadboard with Interface
- Battery
- Software (“scope”)

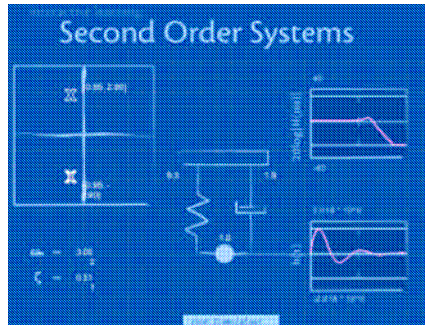


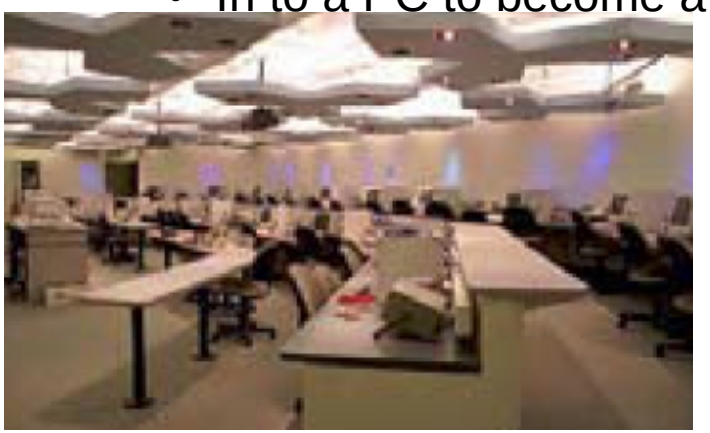
Advantages of Mobile Studio Lab

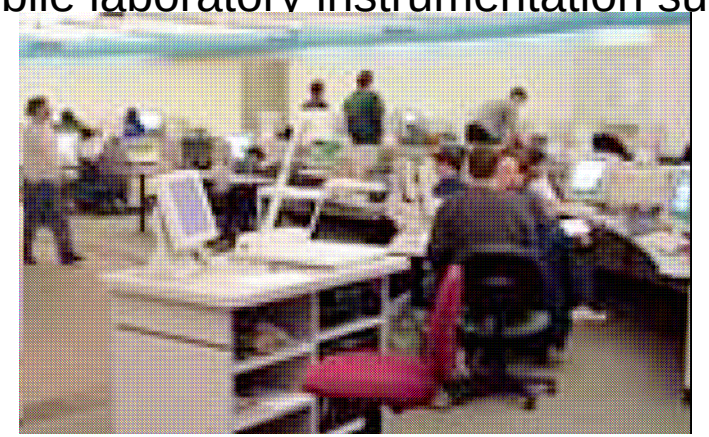
- “mobile” lab
  - Any place (with PC, Interface breadboard, and “scope”)
  - No space limitation
  - No access limitation
- “Lab in lecture” and “Lecture in lab”
  - Easy merge of lecture and lab
- Good candidate courses
  - Electrical Circuit
  - Electronics
  - Digital Systems
  - Signal Processing
  - Etc

Some Background
How we got here?

- RPI
  - Dr. Don Millard
  - Director, Academy of Electronic Media, RPI
  - Pilot Program in Circuit Theory in Fall 2004
  - Mobile technology, interactive software, laptop/tablet PC
  - “anytime anywhere”
  - Combination of lecture and lab
  - Interface Hardware and “scope” software integrate:
    - Scope, multimeter, and function generator
    - In to a PC to become a mobile laboratory instrumentation suite

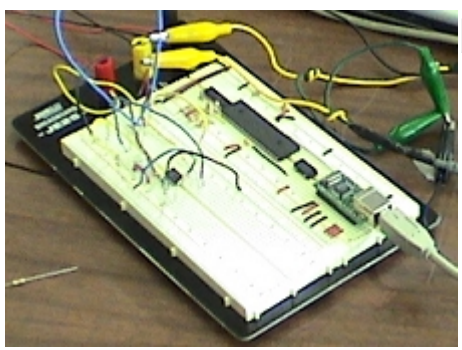






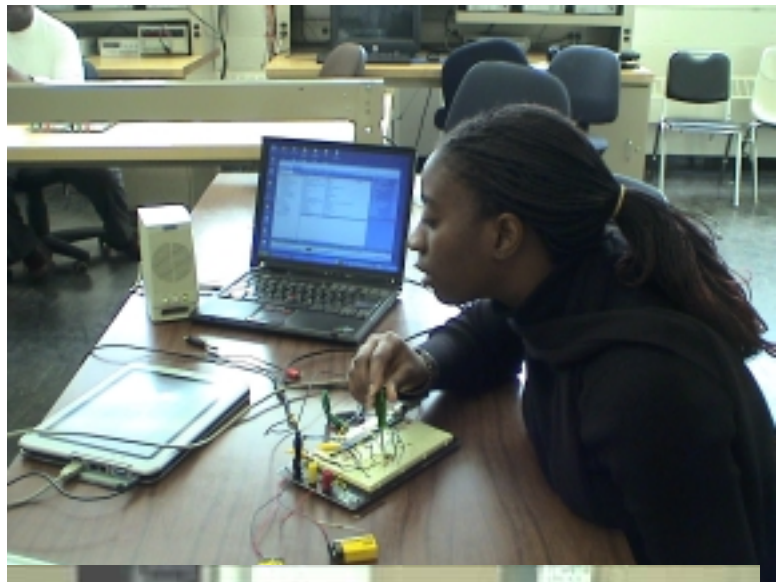
Background
-continued

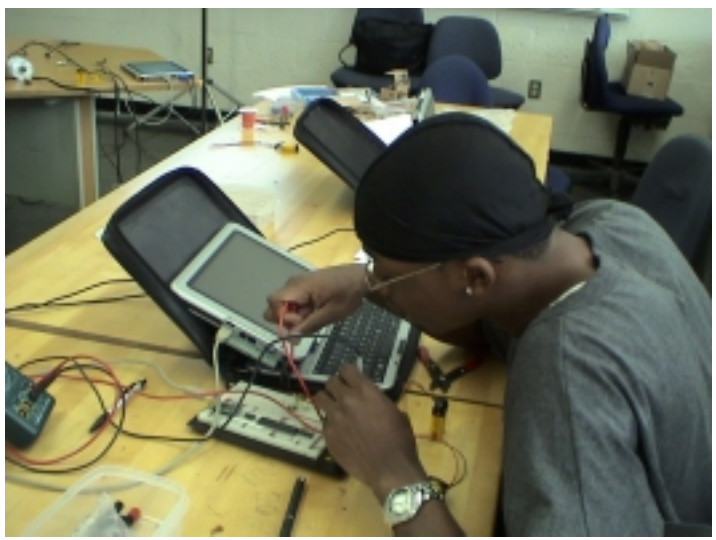
- HU
  - Fall 2003: Dr. Chouikha (with Zeng and Jendoubi) to RPI for co-operation
  - Fall 2004: Drs. Millard & Kim in Network analysis II (Bass and Treble control)
  - Spring 2005: Drs. Millard & Kim in Network Analysis I (RC circuit)
  - Spring/Summer 2005: HP grant of “mobile studio development” (Drs. Chouikha, Kim, Linder, and Zeng)
    - 21 HP laptops
  - RPI Supports
    - Full Software including “scope”



Fall 2004 Mobile Studio Lab

Gallery





Spring 2005 Mobile Lab Gallery

The Objective of Mobile Studio Lab
in Electrical and Computer Engineering

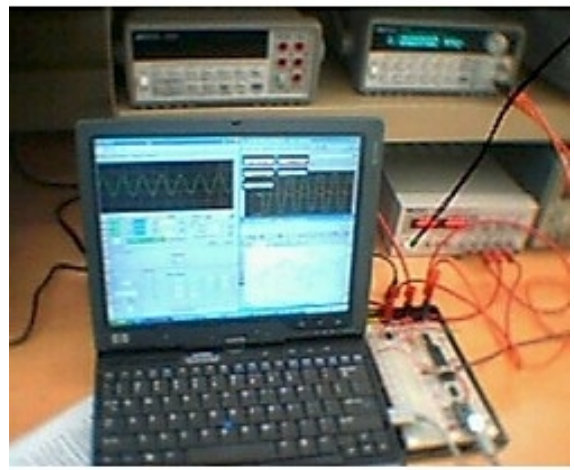
- Our objective is to provide greater flexibility for student learning and thus to adopt the mobile studio model so that students can use technology to learn in any physical environment, no longer restricted by locations with specialized equipment: classrooms, laboratories, residence halls, library conference areas, the Blackburn Center, café, and other non-classroom environment.

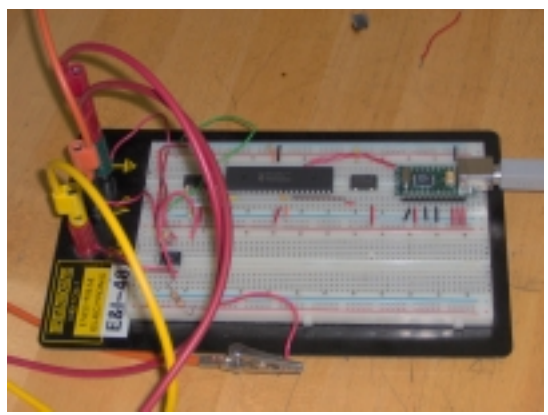
Fall 2005 Activities

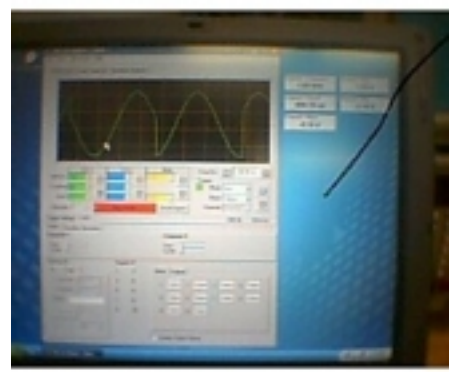
- Electronics I and Lab: Regular Basis
- Microcomputer: Regular Basis
- Network Analysis II: project
- Computer Engineering Lab: Project
- Policy under development
  - Software “scope” availability
  - Interface Breadboard Loan
  - Etc
- Assessment Model and Metric Under Study

Demonstration of Studio Lab

- Electronics & Electronics Lab by Kojo Linder







Questions and Comments