

Welcome to my
Summer 2009
Intern Presentation



Christopher McNally

(Laboratory Assistant)

A LITTLE ABOUT ME!

- ❑ 17 years old
- ❑ I am a high school graduate
- ❑ I am attending Diablo Valley College (DVC) this fall
- ❑ I play Club soccer for the Diablo Futbol Club (DFC) year round
- ❑ Enjoy long-boarding, mountain-biking, hanging out with friends, attending sports games

PROJECTS AND TASKS COMPLETED THIS SUMMER

- ✓ Built up a tool kit
- ✓ Built carts for Linan
- ✓ Cleanroom readied
- ✓ New equipment entering Marvell lab
- ✓ Moved selected items from the back hallway on the 4th floor to Marchant
- ✓ Resurfaced Stable Table
- ✓ Brought METRO racks from RFS (Richmond Field Station)
- ✓ Built racks for Marvell
- ✓ Put together gowning area for Marvell Lab
- ✓ Built METRO racks for mask storage
- ✓ Re-terminated AC power cord
- ✓ Caped hazardous bolts on catwalk in new lab
- ✓ Power washed scaffolding
- ✓ Drove to AMAT to receive donations
- ✓ Fixed the edwards eb3 backing valve
- ✓ Assisted with pqecr rebuild
- ✓ Fixed DCL storage cabinets
- ✓ Relocated stable table
- ✓ Serviced truck

WWW.WALLPAPERS.COM

Storeroom

Table of Contents

- ▣ Description of the equipment access control
 - Taurus
 - WIS
 - HP
- ▣ Hydra - The new equipment control
- ▣ Cape
- ▣ Wand

Taurus

Implemented at the inception of the micro lab in 1985

The Taurus was designed to:

- 1) Allow qualified lab members to gain access to the equipment
- 2) Restricts “cheaters” or unqualified Personnel access to the equipment
- 3) Records Date and Time to keep a record of machine usage



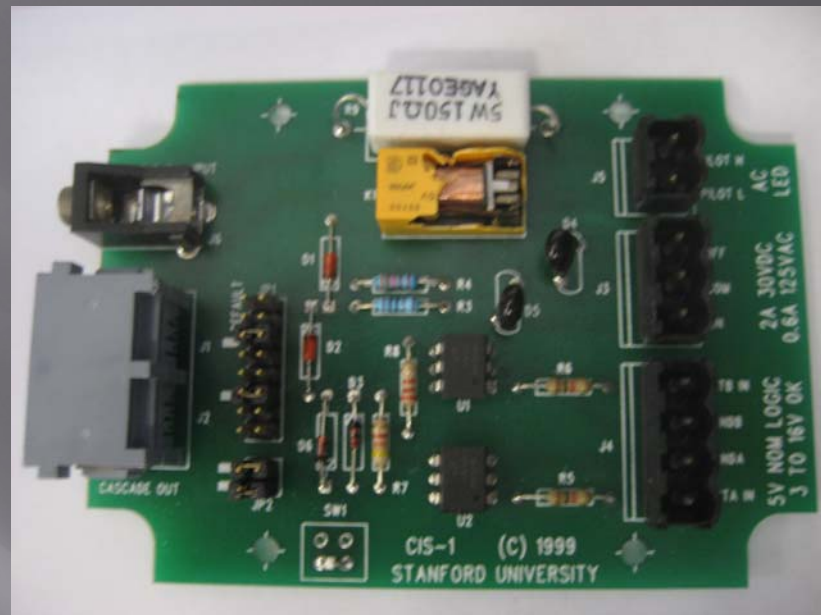
Taurus cont.

- The Taurus control system consisted of 2 very large patch panels; one on either side of the laboratory. Each panel had hundreds of “deports”
- A total of 2 boxes were used during the Taurus era, one style of box switched 117V, the other provided a simple contact closure
- The Taurus eventually became obsolete and was soon replaced by the “WIS”. One of the reasons why Taurus was replaced was because the Taurus Computer Co. went out of business making the system unsupported



The WIS or The Walker Instrumentation System

- Was introduced in 1999, a product of Terry Walker for Stanford University.
- Walker examined the Taurus and produced a similar design
- Two boxes were also used, one for switching power and the other for low-voltage switching
- WIS also became unsupported when Walker's firm closed
- Todd Merport identified a substitute, a switch system manufactured by Hewlett Packard or, more commonly known as HP



HYDRA



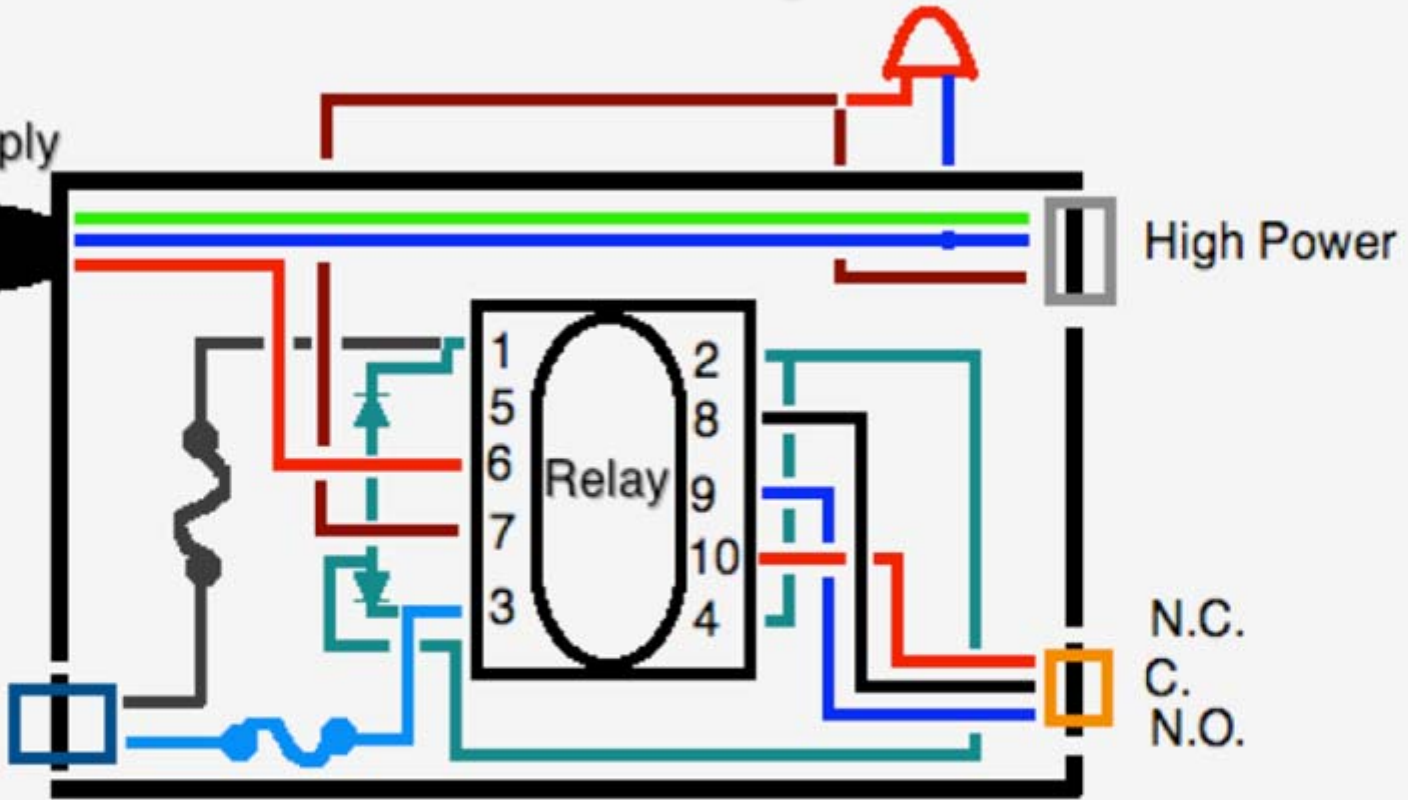
HYDRA

- The third and latest generation
- In this design there is only one box allowing for versatility when connecting the box to the machinery
- The box allows for 117V in the high power terminal, and also has a low power contact closure.
- The Hydra box receives its command through the Hydra computer.
- The red light, located on the front of the box, will light up when a lab member has access and the machine is enabled



The Design Light

Power Supply



High Power

N.C.
C.
N.O.

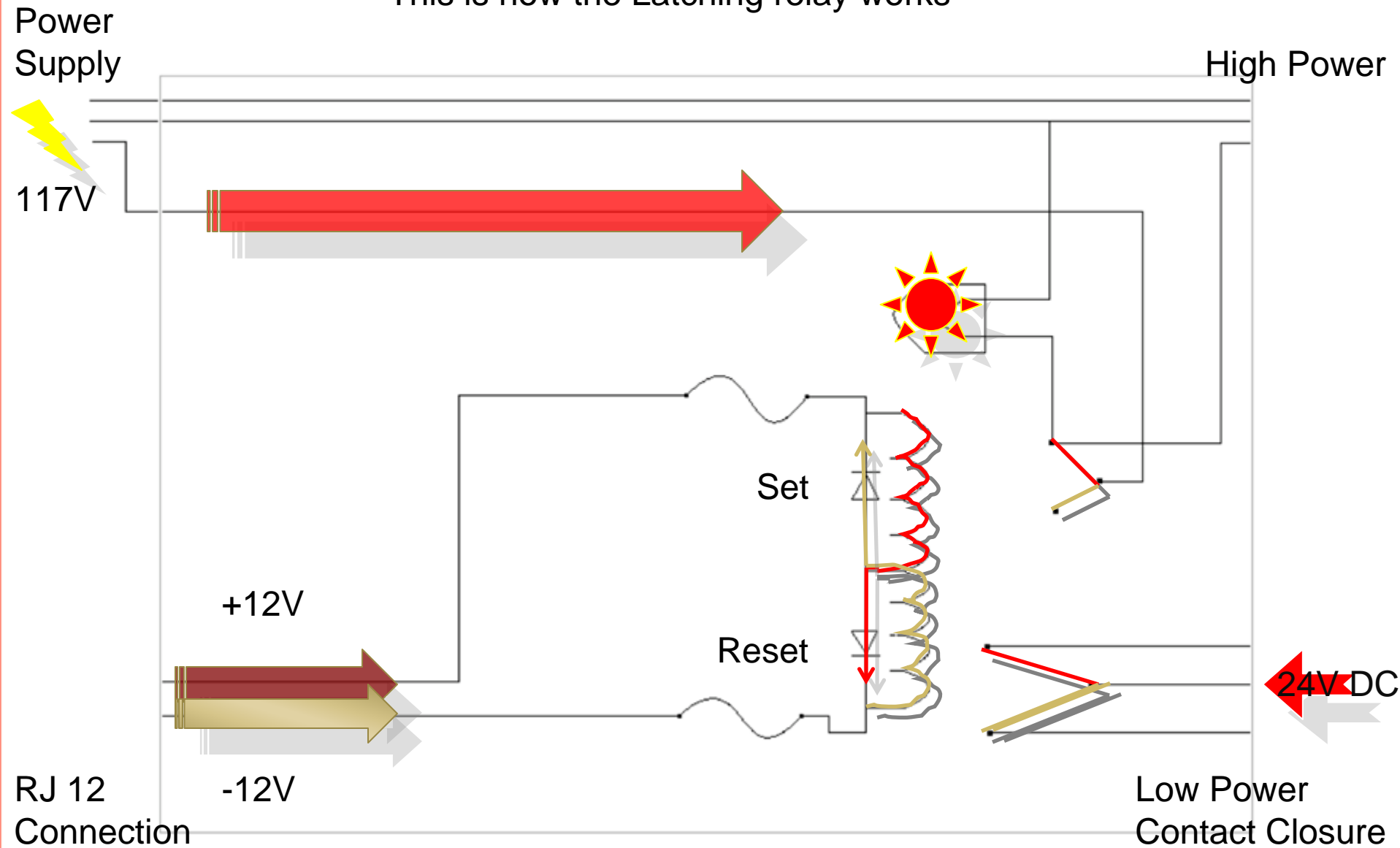
Low Power Contact Closure

When opening up the HYDRA box this is what you will see

It is the basic schematic

The Theory

This is how the Latching relay works



Engineering A Prototype

The major problems with Prototype I:

- ❑ The box walls are too thick so the connectors do not snap into the box correctly
- ❑ Everything should be attached to the front panel, makes for easy removal, and maintenance
- ❑ The box used was very large and all pieces could be easily fit into the box. It would be better if the box was downsized
- ❑ It seemed as if the pins ordered were the wrong type for the high power adapter, so I used a larger size and they worked better
- ❑ Connectors should be mounted into the middle of the box rather than having one side exposed when the box is open

The background features a complex, abstract pattern of overlapping, wavy lines in various shades of blue and white. The lines create a sense of depth and movement, resembling a topographical map or a series of concentric, flowing shapes. The overall color palette is cool and vibrant, with a gradient from light cyan to a deeper blue.

THE MYSTERY TO THE
OBSCURE NAMES?

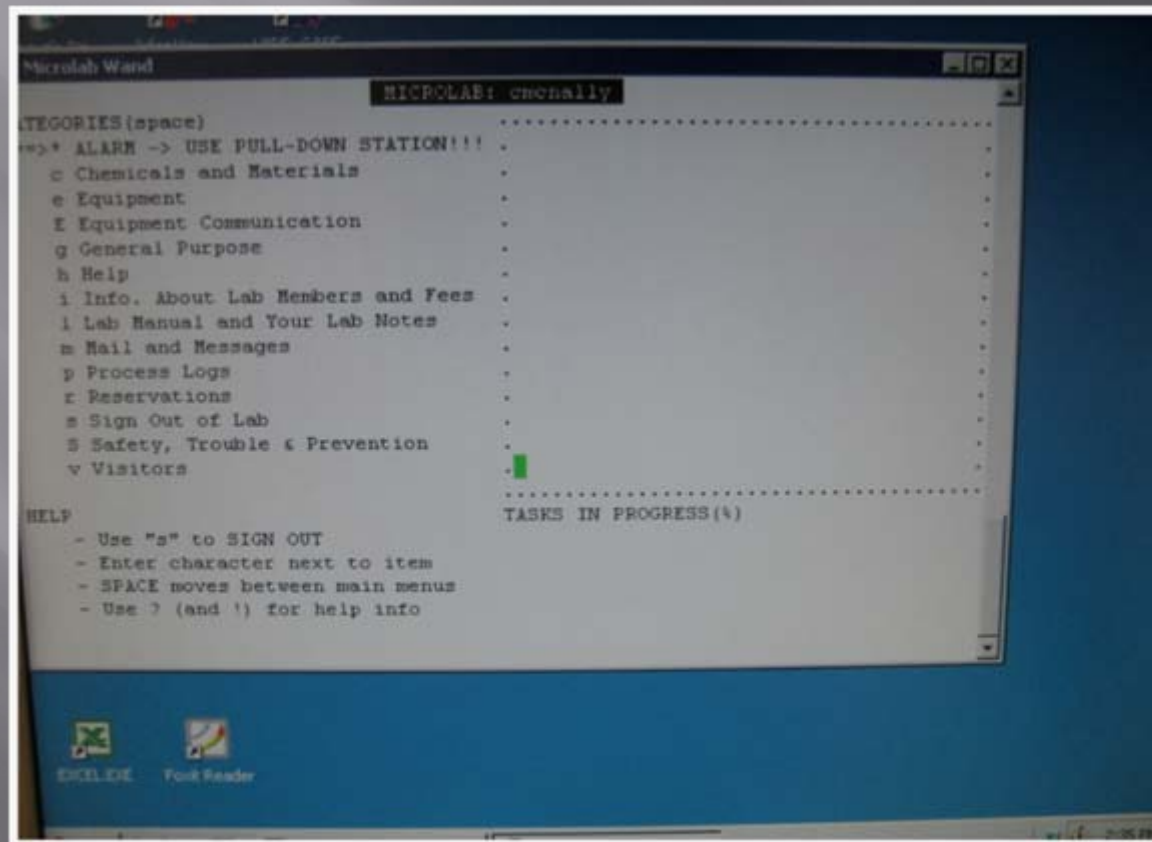
Merlin

- The First lab computer
- Named after the fictional wizard
- Giving the theme of wizardry to the computer systems



The Wand

- The 1st operating system
- Named the wand because it is the wizards tool; just as it is our tool to use the machinery
- Ran on a DEC VAX computer utilizing dumb terminals



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MicroLab Wand
MICROLAB: cmonally

CATEGORIES(space)
-->* ALARM -> USE PULL-DOWN STATION!!!
c Chemicals and Materials
e Equipment
E Equipment Communication
g General Purpose
h Help
i Info. About Lab Members and Fees
I Lab Manual and Your Lab Notes
m Mail and Messages
p Process Logs
r Reservations
s Sign Out of Lab
S Safety, Trouble & Prevention
v Visitors

HELP
- Use "s" to SIGN OUT
- Enter character next to item
- SPACE moves between main menus
- Use ? (and !) for help info

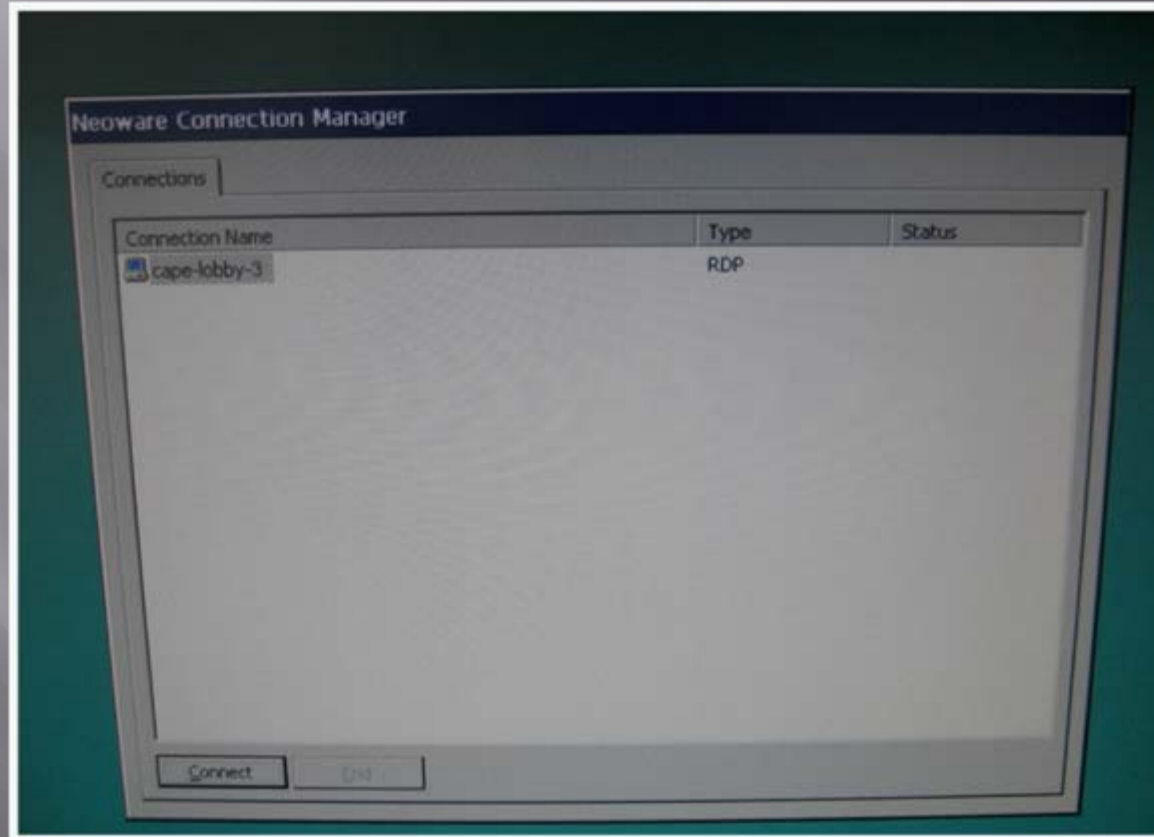
TASKS IN PROGRESS(%)
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The screenshot shows a terminal window titled "MicroLab Wand" with a user prompt "MICROLAB: cmonally". The main menu lists categories: ALARM, Chemicals and Materials, Equipment, Equipment Communication, General Purpose, Help, Info. About Lab Members and Fees, Lab Manual and Your Lab Notes, Mail and Messages, Process Logs, Reservations, Sign Out of Lab, Safety, Trouble & Prevention, and Visitors. A help section at the bottom left provides instructions on using the interface. The terminal is running on a Windows desktop, with icons for EXCEL.DDE and Font Reader visible at the bottom.



CAPE

- Runs on a SUN server using a personal computer interface
- Wizards often wear capes!



THE END

A Chris McNally Production

With the help of...

Jay Morford

Todd Merport

&

Micro Lab Colleagues