

# IFSM 303 Human Factors



*Every contrivance of man, every tool, every instrument, every utensil, every article designed for use, of each and every kind, evolved from a very simple beginning. - Robert Collier*

## Topics

Exam

Domino's Pizza

Low Fidelity Prototyping

Forming Groups



# EXAM!

No Talking  
Review after exam

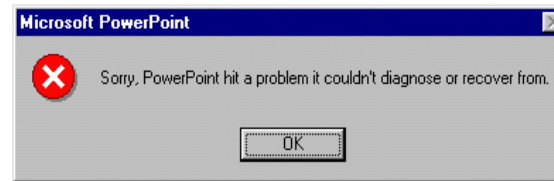
1 Free  
Right/Wrong



## Review of Exam

How did you do?

## What's Wrong with This?



# Hands On Windows 7

## Windows 7

Minimum recommended specs call for:

- 1 GHz 32-bit or 64-bit processor
- 1 GB of system memory
- 16 GB of available disk space
- Support for DirectX 9 graphics with 128 MB memory (for Aero theme)
- DVD-R/W Drive
- Internet access (for updates)



## Let Install It

Dell 8200  
512MB RAM  
40GB HD

You can also use VMWare, etc...

Follow along with me  
We will delete partitions

## HCI in The News

## TECHNOLOGY

First cell phone was a true 'brick'

Monday, April 11, 2005 Posted: 10:28 AM EDT (1428 GMT)

CHICAGO, Illinois (AP) -- "The brick" weighed 2 pounds, offered just a half-hour of talk time for every recharging and sold for \$3,995.

Clunky and overpriced?

Not in 1984, when consumers lined up in droves to buy the first cellular phone as soon as it hit the market. And certainly not to Rudy Krolopp, lead designer of the Motorola DynaTAC 8000X.

Krolopp, now 74 and retired, still gets a "warm fuzzy feeling" thinking about the DynaTAC and knowing that "a handful of us did something that was really significant."

This brick took over a decade to get to market.



Motorola's first cell phone the DynaTAC8000X and their new RAZR cell phone.

## Rudy Krolopp

Lead Designer of the Motorola DynaTAC 8000X



## Cell Phone Design Issues

"Marty called me to his office one day in December 1972 and said, 'We've got to build a portable cell phone,'" Krolopp recalled. "And I said 'What the hell's a portable cell phone?'"

Talk about short talk time -- Krolopp and his team were given six weeks to come up with a working model.

## Reasons

The urgency was because the Federal Communications Commission (FCC) was deliberating over whether to allow AT&T to set up a network to provide wireless service in local markets, and the phone company itself was considering making wireless phones. Motorola didn't want to be shut out.

## The Prototype

After the meeting with Cooper, Krolopp got together with his design staff and built a conceptual model.

"We sprung it on the engineers one day," he said, recalling their surprise at how small it was at the time. "There were only eight guys in the room. Cooper said 'Anybody who doesn't believe this can be done, leave the room.'"

## Delays

No one left the room.

But it was another 10 years and a total of \$100 million in development costs before the phone was officially unveiled in 1983 - the delay resulting mostly from the need to build towers and infrastructure.

## Motorola DynaTAC 8000X



## The Razer



## On Motorola's new Razer

"Oh, would we have loved to do that back then," he said of the Razer's wafer-thin size. "We had the capability to design it but we didn't have the capability to build it. We couldn't get batteries down that small, couldn't get antennas that small, couldn't get key pads to work that way."

## And Now...



## HCI in the News

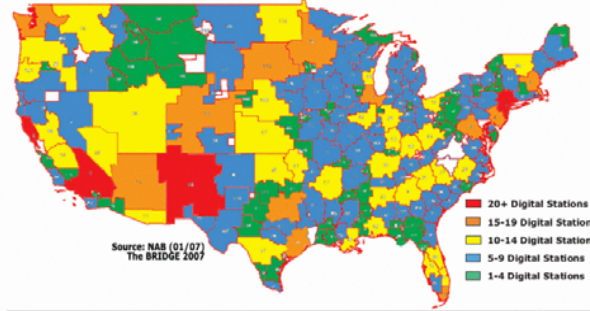
There is a big debate if the US should delay the digital television transition until June 12. U.S. broadcasters were to begin transmitting their TV signals only in digital format on February 17.



Senate Republicans earlier this month blocked a bill to delay the national switch. The so-called DTV Delay Act, though, was brought back to the Senate floor after Democrats and Republicans in the Senate reached a compromise.

The approved bill would allow television stations to switch to digital signals before the June 12 deadline if they are ready, for the vacated spectrum to be allocated to public safety services.

## Digital Stations By DMA Moving Toward The Switch



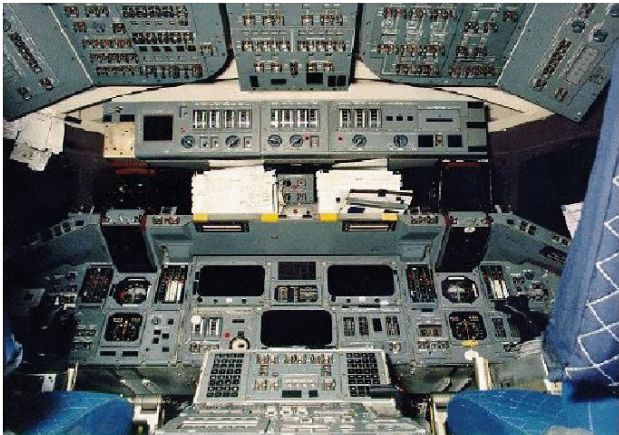
The coupon program to subsidize digital converter boxes is also extended under the legislation, allowing consumers with expired coupons to apply for new ones. Since the coupon program ran out of money, hundreds of thousands of consumers have been waiting for a coupon.



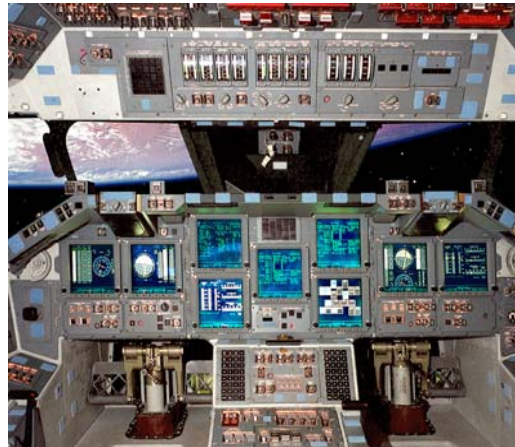
"I firmly believe that our nation is not yet ready to make this transition at this time," said Sen. John Rockefeller. "The Senate acted responsibly to give the Obama administration time to attempt to bring order to a mismanaged process."

And here is why... Digital TV PSA

## Overwhelming? Space Shuttle Cockpit



## Space Shuttle Upgrade



## Compared to SpaceShipOne



## Case Study

## Domino's Pizza

## Case Study

Domino's Pizza wanted to create a new pizza.

This required an lot of change, analysis and data collection.

What the heck does this have to do with Human Factors?

## Case Study

## Concept Computers

## IBM Concept Computers - Video

From the Year 2000  
Wall Street Journal  
IBM Design Center in North Carolina

## Evolution of the Laptop - Video

From 1976 to 2005 and future  
prototypes

## Apple's Vision of the Future (1991)



# In Depth

# Low Fidelity Prototyping

## Why We Prototype

Get feedback on our design faster saves money

Experiment with alternative designs

Fix problems before code is written

Keep the design centered on the user

## Fidelity in Prototyping

Fidelity refers to the level of detail

High fidelity  
prototypes look like the final product

Low fidelity  
artists renditions with many details missing

## Why Use Low-fi Prototypes?

Traditional methods take too long  
sketches -> prototype -> evaluate -> iterate

Can simulate the prototype  
sketches -> evaluate -> iterate  
sketches act as prototypes  
designer "plays computer"

Kindergarten implementation skills  
allows anyone to participate

## Hi-fi Prototypes Warp:

Perceptions of the tester/reviewer  
formal representation indicates  
"finished" nature

Time  
encourage precision  
details takes more time

Creativity  
lose track of the big picture

## Low fidelity Prototyping

Heavy White Paper - Screen  
Index Cards - Components

Tape, stick glue, correction tape  
Pens & markers (many colors & sizes)  
Overhead transparencies  
Scissors, X-acto knives, etc.



## Forming Groups

3 Groups - 3 people on each.

Same group for Experiment and Project?

Experiments start in 2 weeks  
Must be approved

Projects during final Week

End of This Lesson