iitOnline+U

putting ^ in the classroom

Enhancing the online educational experience via integrated, time correlated comments

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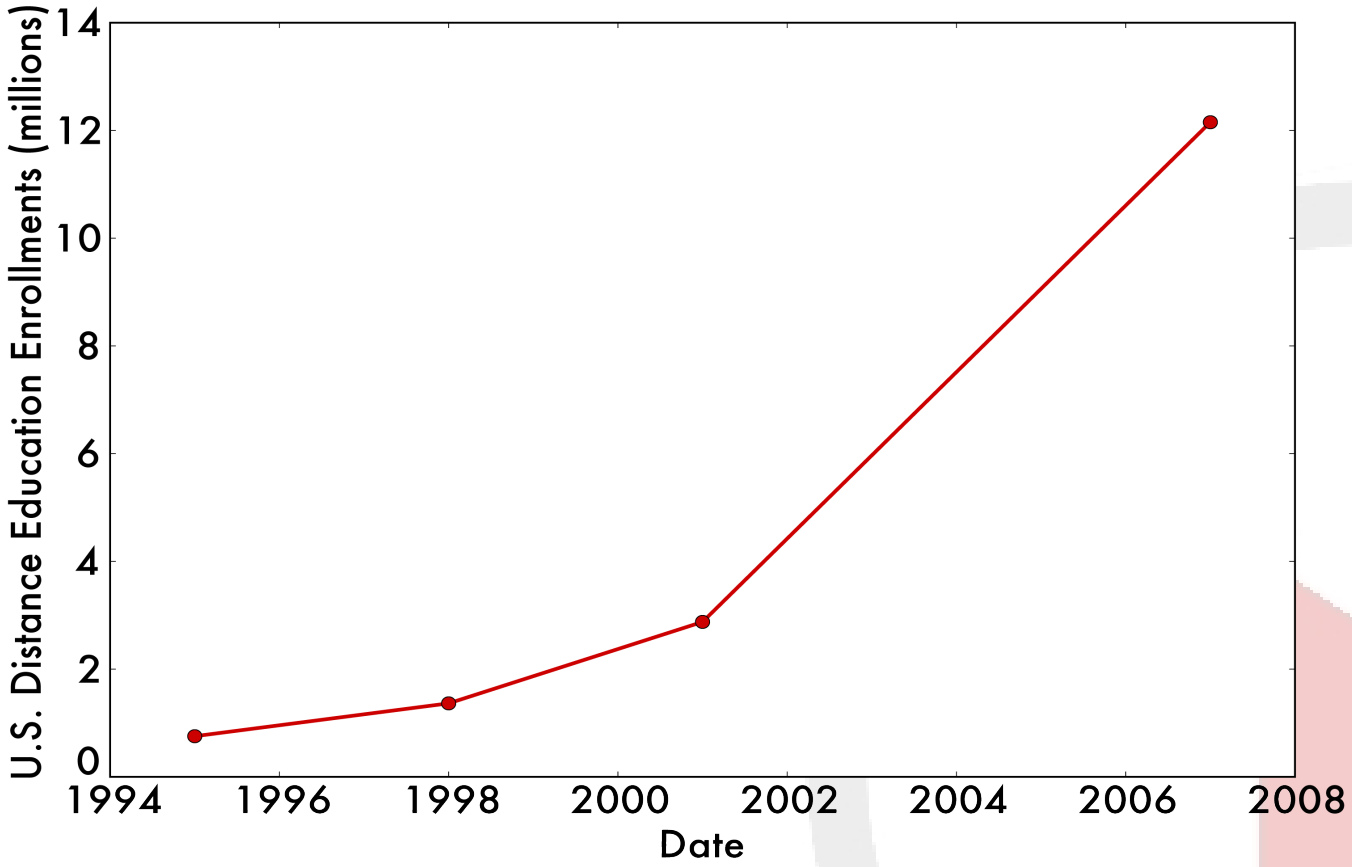
Outline

- Introduction
- Team Development and Performance
- Project Work
- Problem Solving Technique
- Achievement
- Conclusion
- Question and Answer

Introduction

Motivation


U.S. Distance Education Enrollments (millions)
0
2
4
6
8
10
12
14
1994
1996
1998
2000
2002
2004
2006
2008
Date

Motivation

- Failure to mimic benefits of real world classroom
  - Limited student interaction
- Opportunity to improve online education

Proposed Solution

- Develop a rich video commenting system
- Integrate commenting system with streaming online lectures

Hypothesis

- Integrated rich commenting will improve online interaction
- Student interaction improves student performance
- Thus, our system will improve online education

Semester Objectives

- Design and implement online education system
- Measure and verify system usability
- Develop a deployment and integration plan

Team Development and Performance

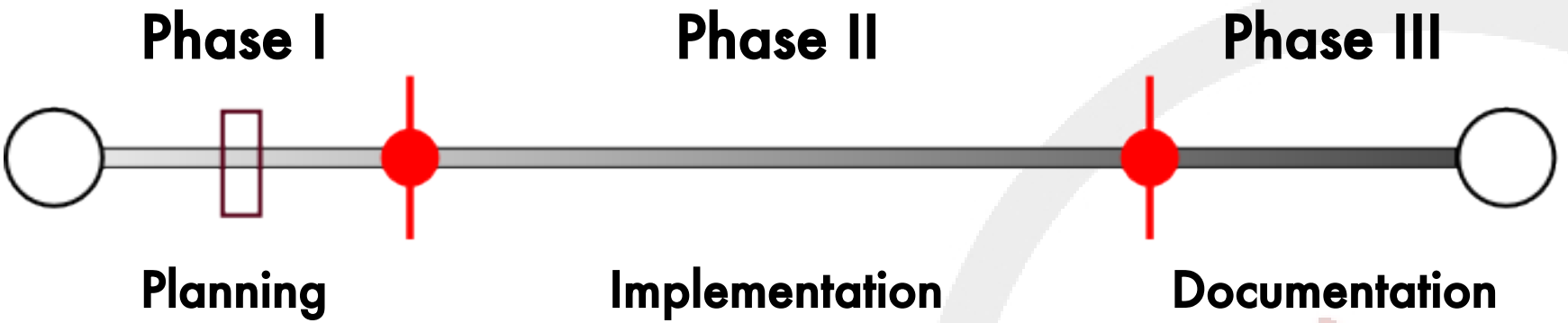
Establishing Values

- Identifying best practices
- Reinforcing best practices
- Reflecting on our performance

Team Organization

- Novel three-phase approach
  - Phase I – Planning
  - Phase II – Implementation
  - Phase III – Documentation

Team Organization



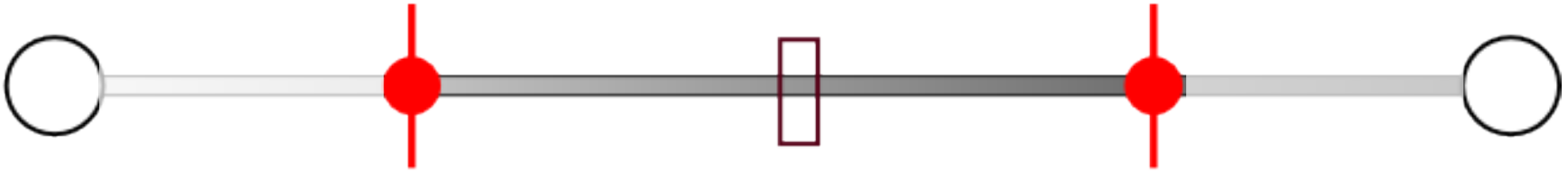
Phase I – Planning

- Define team organization
- Project Plan
- Team values and expectations
- Future milestones
- Requirements gathering

Phase I – Planning

- Sub-teams:
  - User Liaison Planning Team
  - School Liaison Planning Team
  - Development Planning Team

Phase II – Implementation

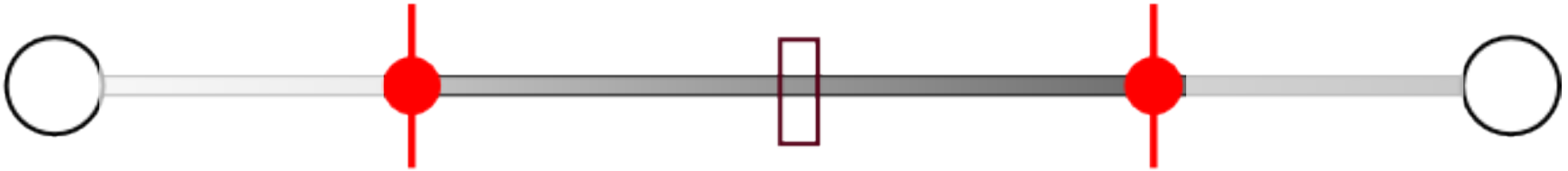


September
12th

November
14th

- Further requirements gathering
- Survey students, faculty, and administration
- System development
- Interface design
- Usability testing

Phase II – Implementation



- Sub-teams:
  - User Liaison Team
  - School Liaison Team
  - Development Team

Phase III – Documentation

- Complete work integration
- Prepare system documentation
- Produce IPRO deliverables

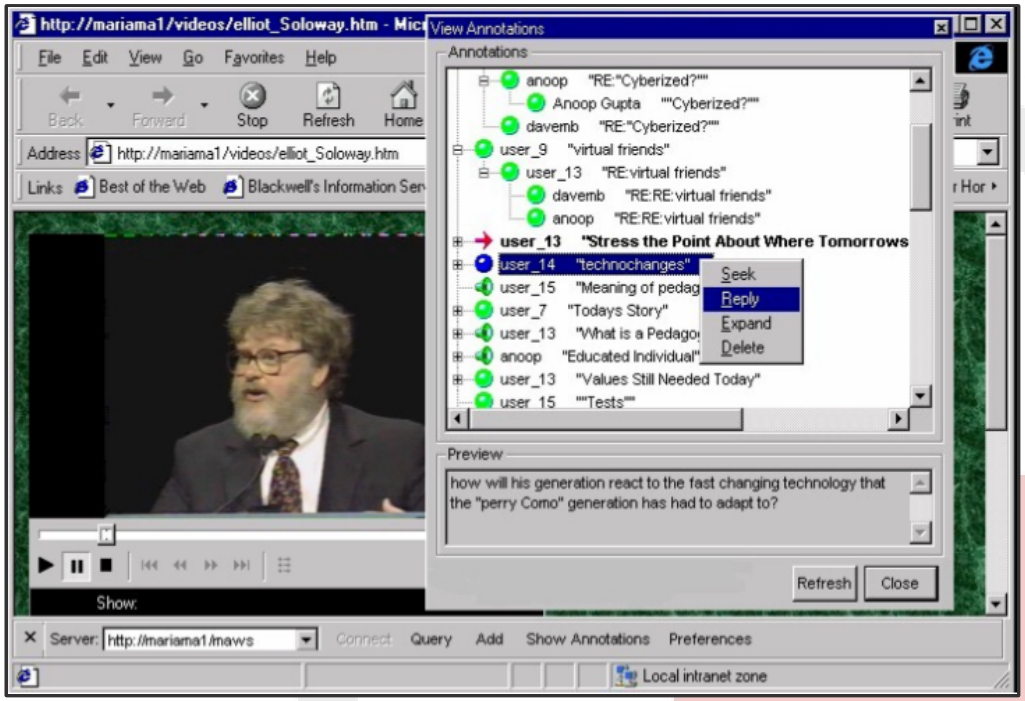
Phase III – Documentation

- Sub-teams:
  - Development/Integration Team
  - Deliverables Team
    - Brochure/Poster
    - Presentation
    - Final Report

Project Work

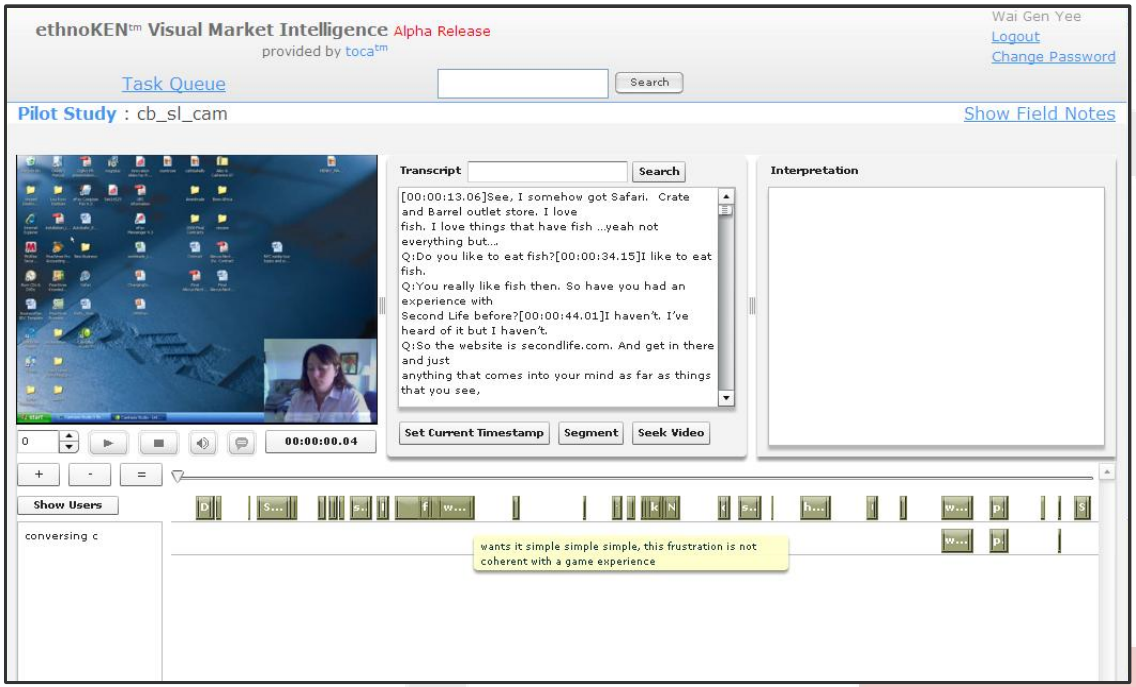
Related Work

- Microsoft Research Annotation System (MRAS)



Project History

- toca, LLC
  - ethnoKEN™
- eduKEN



Studies Performed

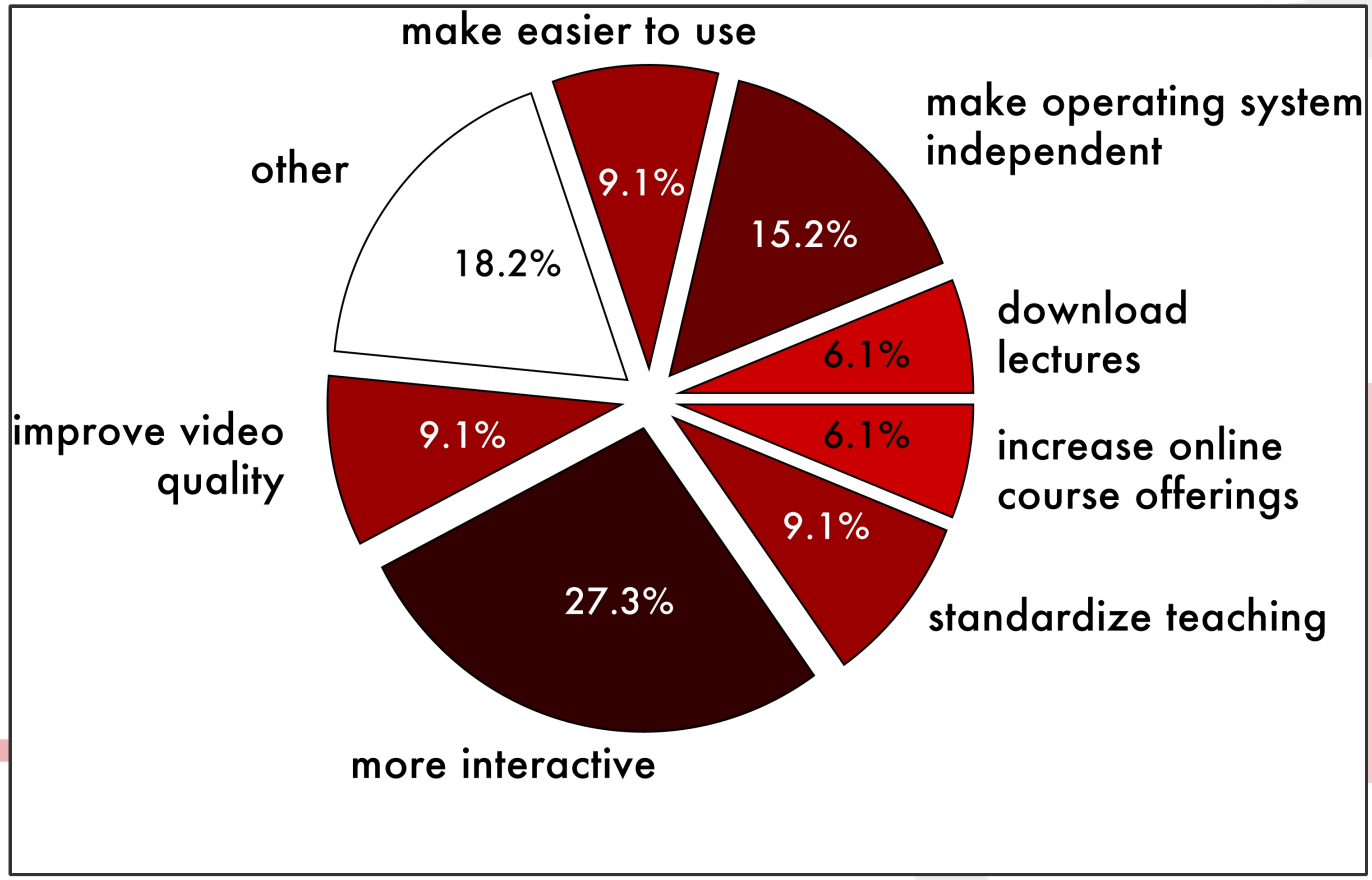
- Preliminary Questionnaire
- Usability Testing

Preliminary Questionnaire

- Objective
  - Determine desired functionality from students, faculty, and administration
- Process
  - Researching survey design
  - Eliciting subjects
  - Administering online

Preliminary Questionnaire

- Results

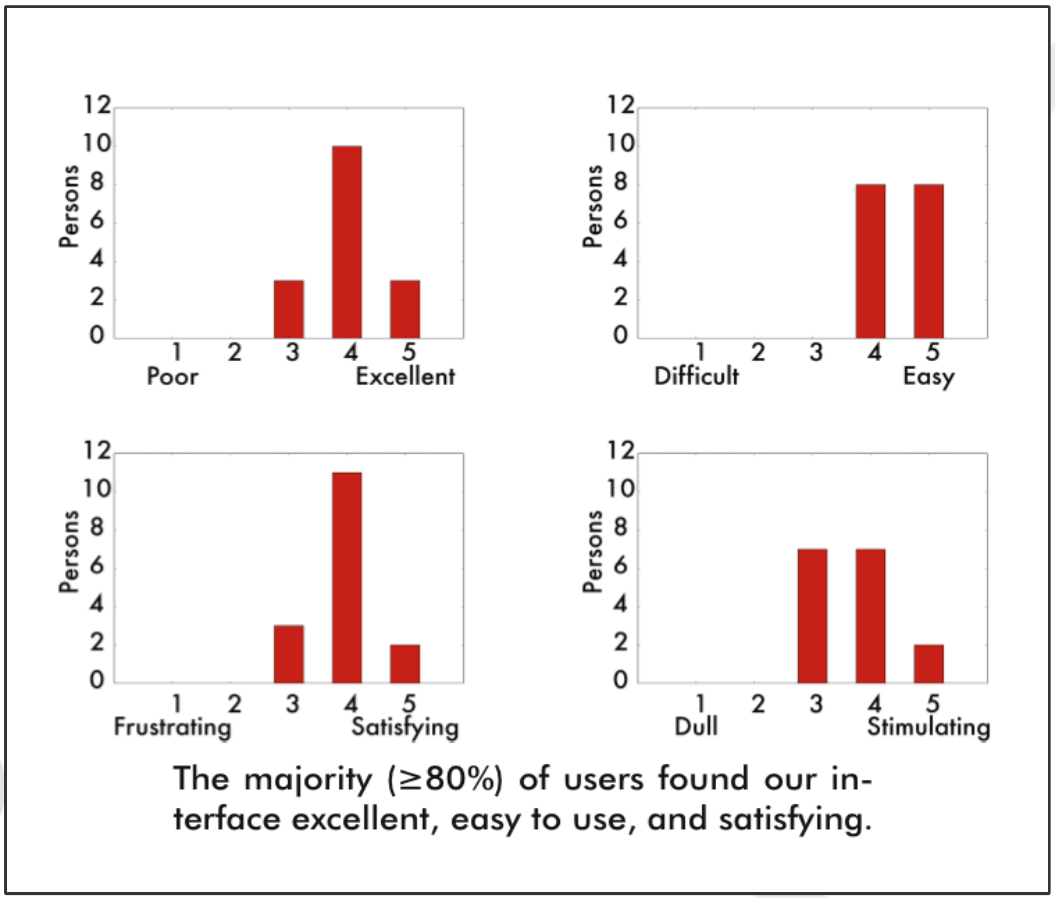


Usability Testing

- Objective
  - Measure usability of developed prototype
- Process
  - Researched usability metrics and methods
  - Developed surveys and task sequence
  - Elicited volunteers
  - Incorporated feedback

Usability Testing

- Results



Major Impacts and Risks

- Impacts
  - Improved online education
  - Improved video indexing and search
- Risks
  - Compromising personal data
  - Compromising intellectual property

Major Challenges

- Potentially disruptive innovation
- Measuring success
- Equitable distribution of work

Ethical Issues

- Institutional Review Board (IRB)
- Non-Disclosure Agreement with toca, LLC
- Intellectual property of professors

Project Continuation

- Spring 2010
  - Deployed in classrooms
  - Beta testing and usability improvements
  - Privacy policy
- Later semesters
  - Measure educational impact of system

Problem Solving Technique

Research

- Technical
  - MRAS
  - Designing UIs
  - Model-View-Controller
  - User Authentication
  - Ruby on Rails
  - JavaScript/AJAX
- Soft Skills
  - Team Communication
  - Designing Surveys
  - Principles of Document Design
  - Good Writing Habits
  - Presenting Results

Methods

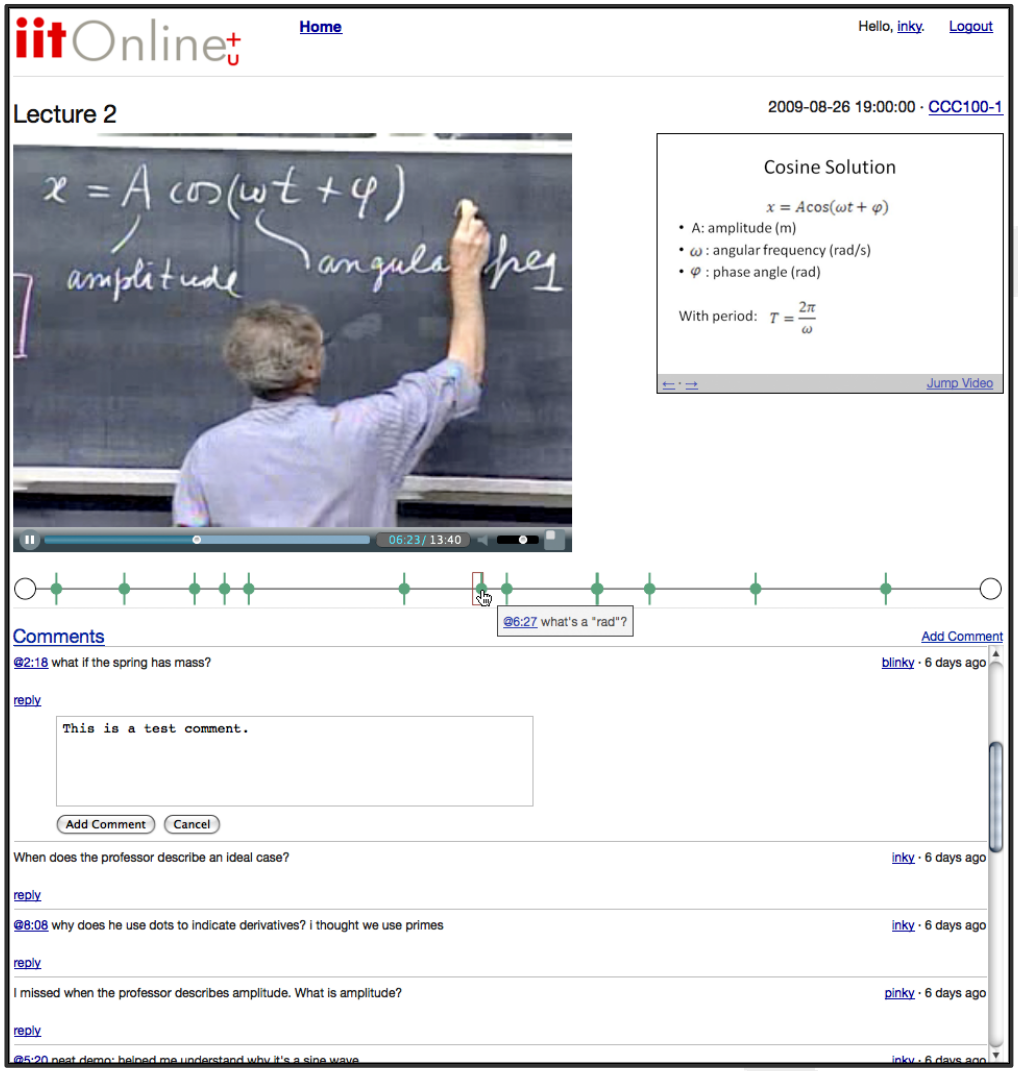
- Iterative prototyping
- Design patterns
- Version control
- Unit testing
- Brainstorming
- Survey research
- Usability testing

Innovative Approaches

- Phase-based team organization
- Wiki-based communication

Achievement

System


iitOnline
Home
Hello, inky. Logout
Lecture 2
2009-08-26 19:00:00 · CCC100-1
Cosine Solution
$x = A\cos(\omega t + \varphi)$
• A: amplitude (m)
• ω : angular frequency (rad/s)
• φ : phase angle (rad)
With period: $T = \frac{2\pi}{\omega}$
Jump Video
06:23 / 13:40
@6:27 what's a "rad"?
Comments
Add Comment
@2:18 what if the spring has mass?
blinky · 6 days ago
reply
This is a test comment.
Add Comment
Cancel
When does the professor describe an ideal case?
inky · 6 days ago
reply
@8:08 why does he use dots to indicate derivatives? i thought we use primes
inky · 6 days ago
reply
I missed when the professor describes amplitude. What is amplitude?
pinky · 6 days ago
reply

Significance

- 12.2 million people enrolled in distance education worldwide
- Opened up market to toca, LLC
- 58 students at IIT in Spring 2010

Conclusion

- Online education lacks student interactivity
- iitOnline+U integrates existing technologies to enhance interactivity
- Potential to improve quality of online education

Question and Answer