Internet Controlled Rover

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Next Generation Internet (NGI)
Outline

- The Situation
- Internet Control Rover
- Architecture and Design
- Did we meet our goal?
- Future Work
- Summary
The Situation

- To visit a tourist location you need:
  - Money
  - Mobility (temporal & spatial)
  - Effort

- However, most Internet users are:
  - Cheap
  - Sedentary
Internet Control Rover

- **Main Idea:** Small Remote Control device.
- **Features:**
  - Transmits high quality Video and Audio.
  - Works over the Internet
Internet Control Rover Cont.

- Pros:
  - Saves time and money
  - Could go to places where humans can’t
  - Interactive Experience

- Cons:
  - Limited Access to Information
  - Not Real
Architecture & Design Overview

Taj Mahal
Agra, India

Internet2 Connection

Alice
U.S.
U.K.

Bob
A&D Details (Client/Server)

CLIENT SIDE
- Video Thread
- Sound Thread
- Chat Program
- Control / Main Thread

Server Side
- Video Thread
- Sound Thread
- Chat Thread
- Control Thread

Technology Used for Server Client Interaction:
- Internet2
- Java
A&D Details (Server)

SERVER

Sound
Radioshack Two-way Personal Radio

Video
Linksys 2.4 GHz Wireless USB Adapter

Control
SK-167CR Micro-Controller
Radioshack Remote Control car Remote
A&D Details (Components)

- Radioshack Two-way Personal Radio
- Linksys 2.4 GHz Wireless USB Adapter
- Radioshack Remote Control car Remote
- D-Link DCS 1000W Wireless Camera
- Radioshack Two-way Personal Radio
- Wireless
- Sound
- Video
- Control
A&D Details (Conclusion)
A&D Details (Bar Detector)

Transition Widths:
4 5 50 20 10 30
8 9 10 7 9 8 8 7 9 10
8 9 7 9 7
33 50

= 15 transitions = 8 Bars
Did we meet our goal?

- Problem(s):
  - Signal Interference
  - Latency
  - Others

- Testing:
  - Functionality Testing
  - QoS Testing
  - Crash Testing
Future Work

- Multiple Views
- Going to different “Environment”.
- Others
Future Work Cont.

- Multiple Views
Future Work Cont.

- More Interaction with the Environment
Future Work Cont.

- Going to Different “Environments”
Future Work Cont.

- Better Tools and Devices
- Even Higher Bandwidth and Speed
- Paint the Rover
Summary

- Small Remote Control Device roaming around interesting places
- Saves time and money
- Works over Internet2
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DEMO Time