Citation: Muramatsu, B., McKinney, A., Wilkins, P. (2010). Opening Up IIHS Video with SpokenMedia. Presented at OpenCourseWare Consortium Global 2010: Hanoi, Vietnam, May 7, 2010.

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SpokenMedia

Case Study of Using SpokenMedia for IIHS

- **Demonstrate transcripts and translations of IIHS videos**
- **Describe the process and our experiences**
  - Transcribe -> Edit -> Translate -> Present

The Indian Institute for Human Settlements (IIHS) will… "create India's first independent National Innovation University focused on the challenges and opportunities of its urbanisation."

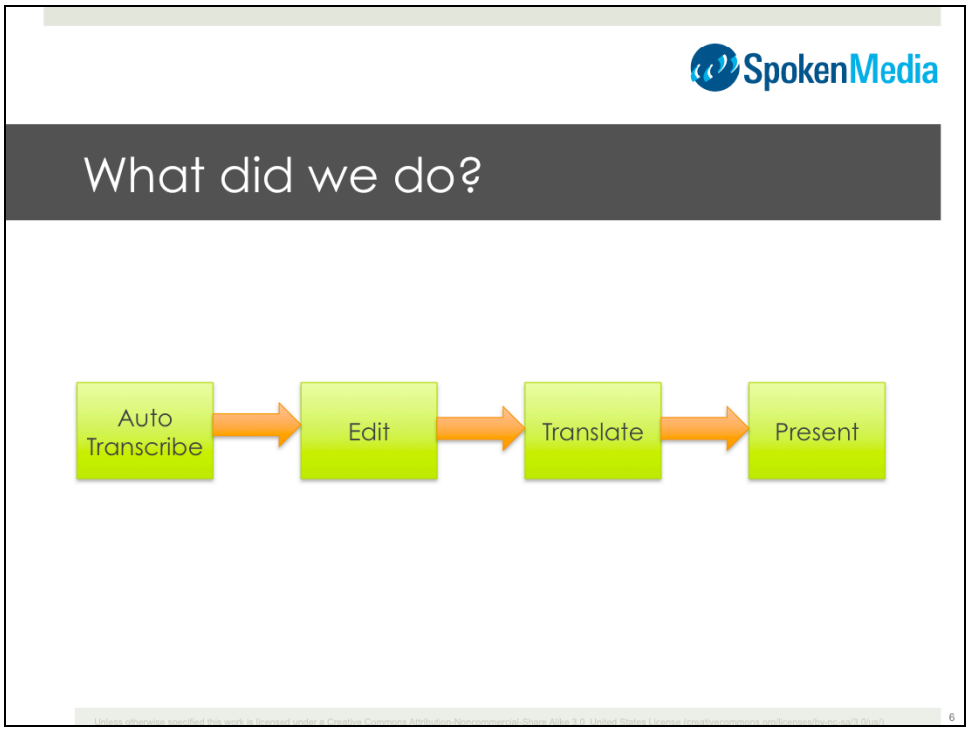
– Indian Institute for Human Settlements: Curriculum Framework Version 3.0
January 2010

"The IIHS Website is our commitment to a different way of looking at things."

– Aromar Revi
5 January 2010

"The Institution will fail or scale based on language."

– Aromar Revi
5 January 2010

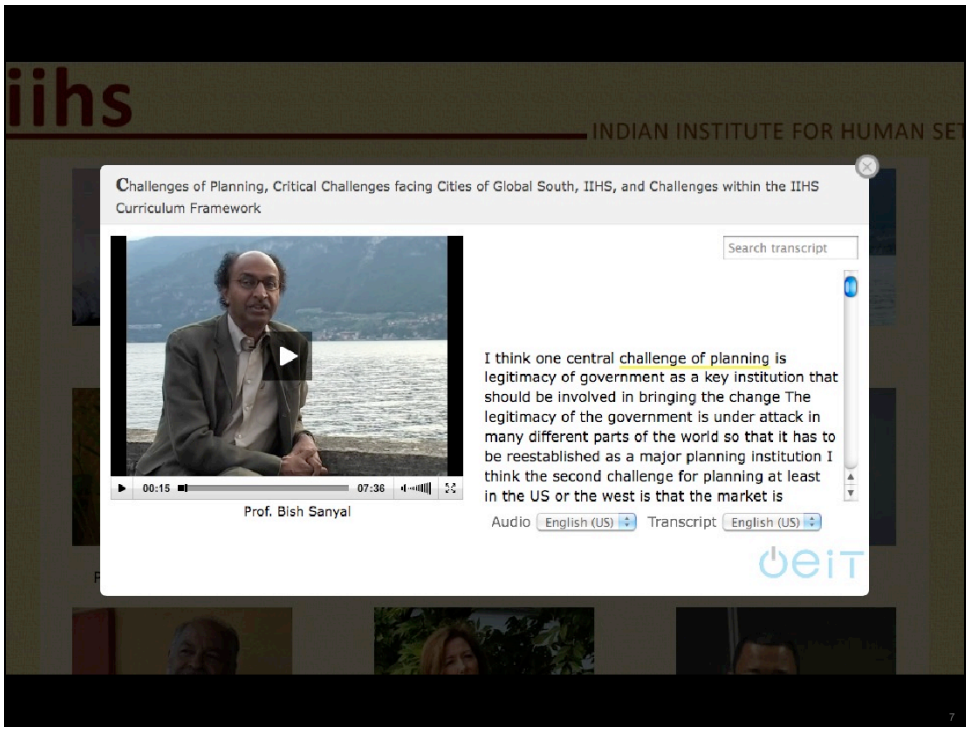


Four step process (simple)

First we used the SpokenMedia to do automatic transcription.

Next we did hand edit and translation steps.

Then we created a player for the presentation of the video and transcripts…


iihs
INDIAN INSTITUTE FOR HUMAN SET
Challenges of Planning, Critical Challenges facing Cities of Global South, IIHS, and Challenges within the IIHS Curriculum Framework
Search transcript
00:15
07:36
Prof. Bish Sanyal
I think one central challenge of planning is legitimacy of government as a key institution that should be involved in bringing the change The legitimacy of the government is under attack in many different parts of the world so that it has to be reestablished as a major planning institution I think the second challenge for planning at least in the US or the west is that the market is
Audio English (US)
Transcript English (US)
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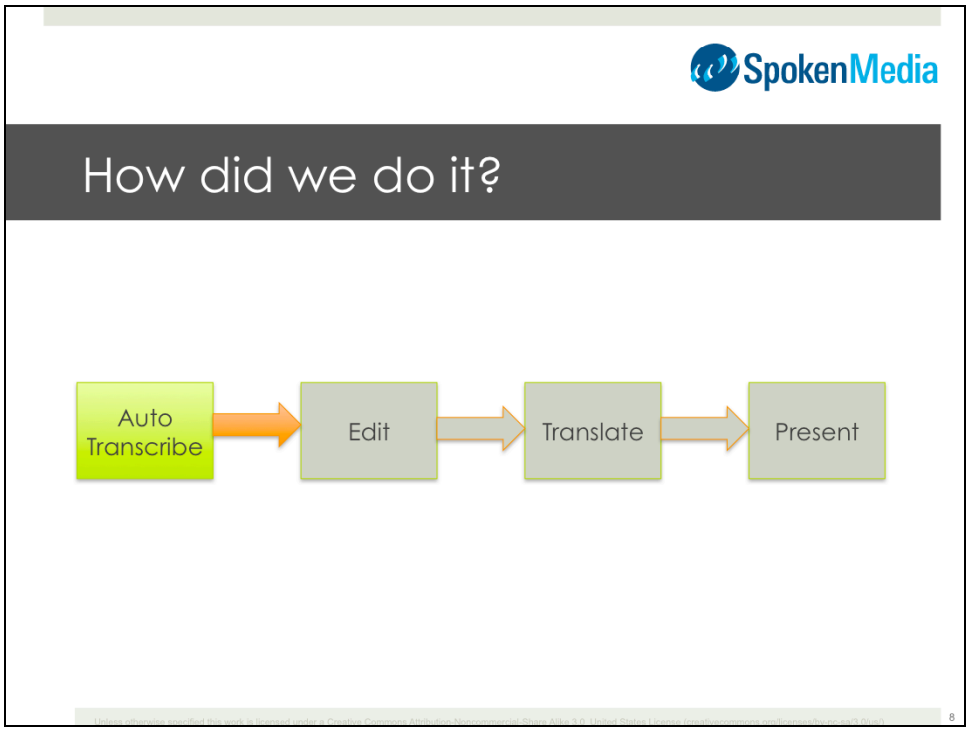
Demo



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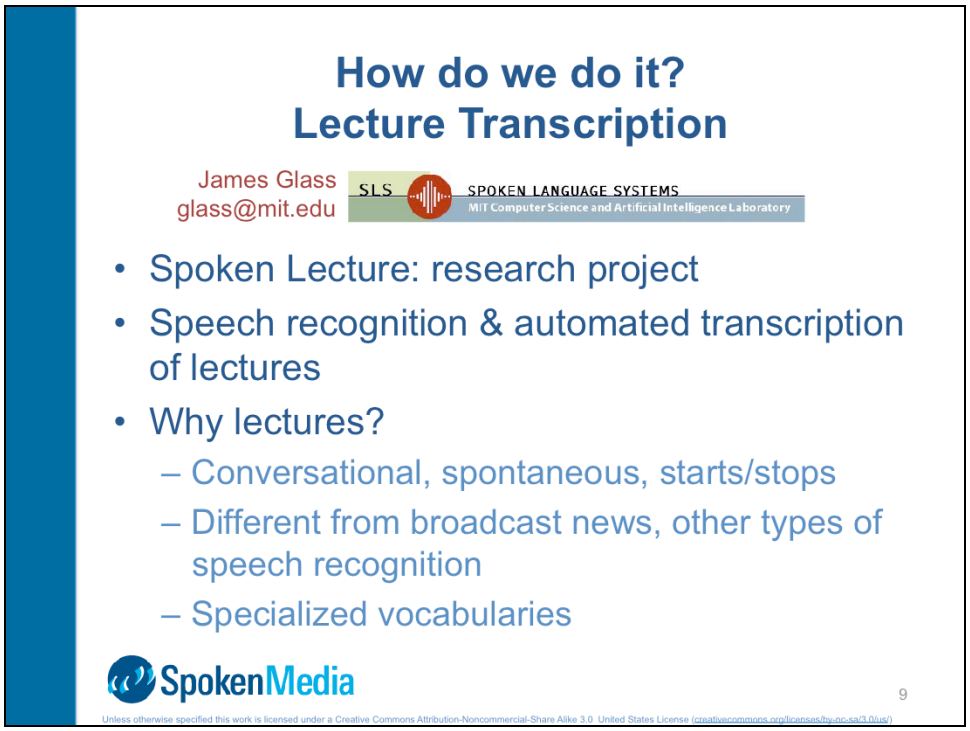


Lecture Transcription

• Jim Glass and his group have years of research experience for spoken languages

• Lectures are a different type of spoken language

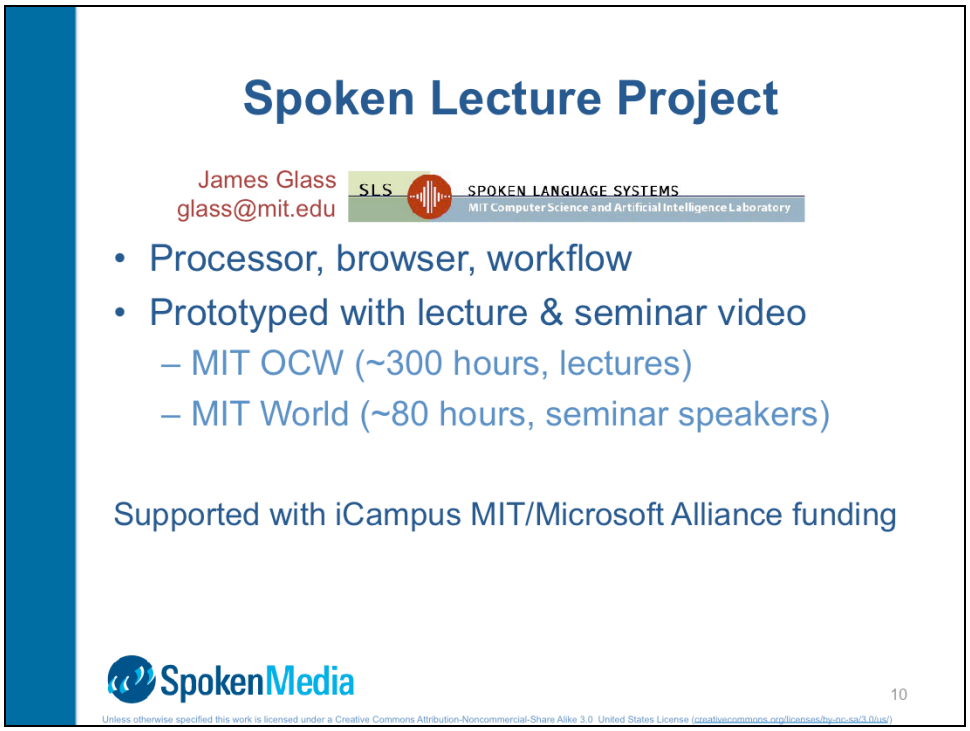
  • Much of the speech recognition research has focused on real time transcription of news broadcasts, or interactive voice response systems (telephone)

  • Broadcast news has something like 300 unique words in an hour long broadcast

  • Broadcast news is well structured, prepared copy (in studio via teleprompters), clear transitions between speakers, etc.

  • Lectures are conversational and spontaneous

  • Can use highly specialized vocabularies, engineering, physical sciences, mathematics

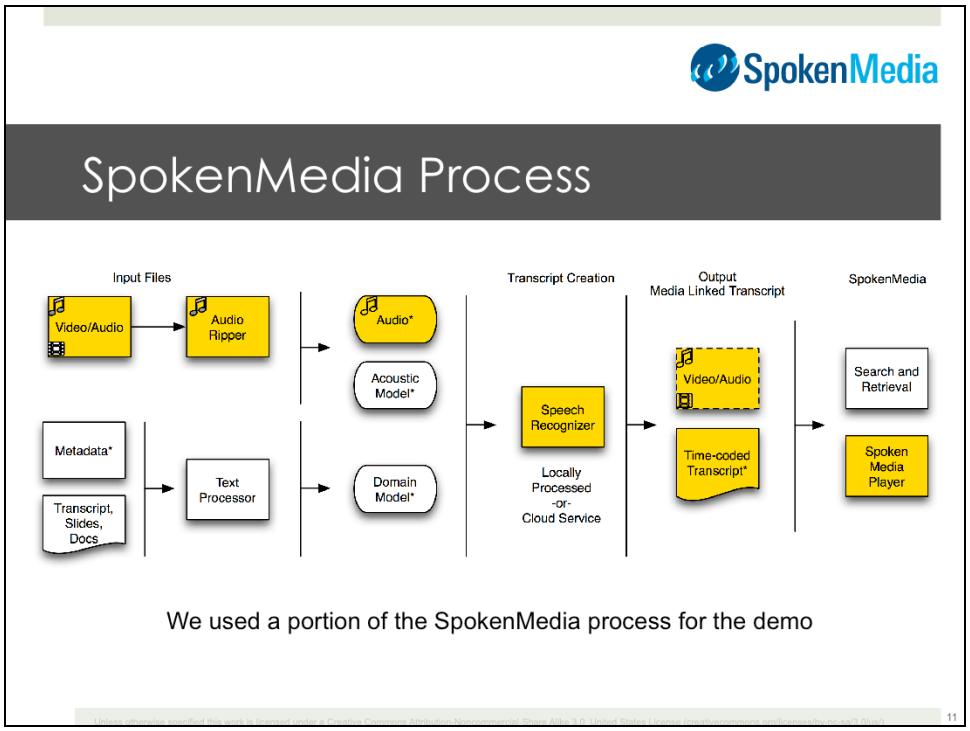


Spoken Lecture Project

• Supported by iCampus

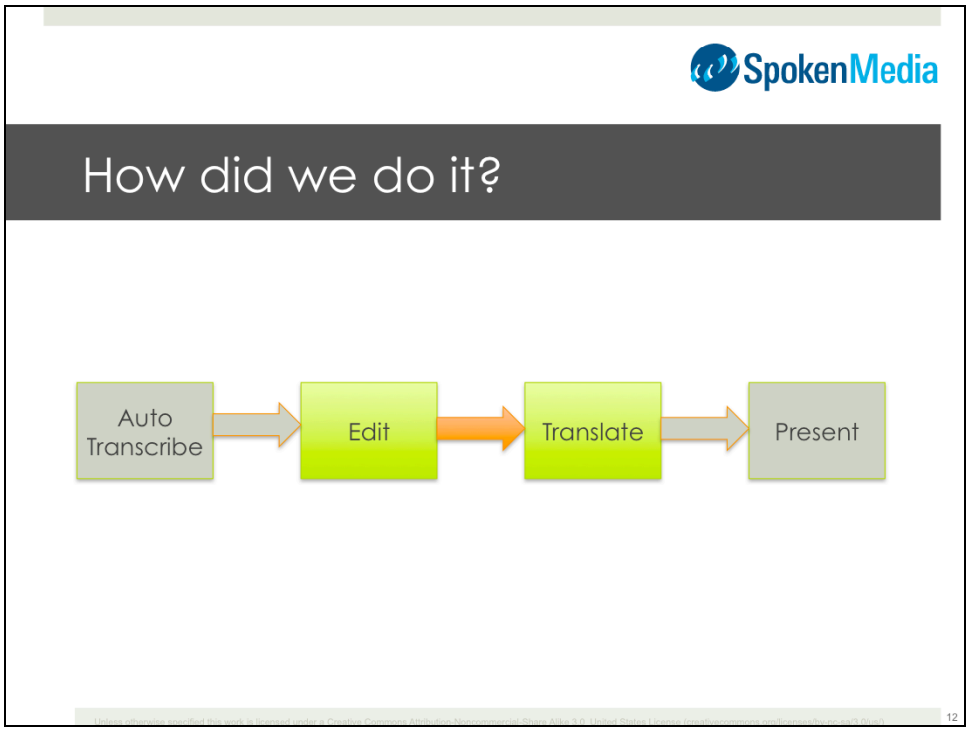
• Includes the browser (which was just demo'd) the processor (back end lecture transcription) and a hand workflow to do the processing

• Approximately 400 hours of video indexed



We only used part of the process due to time constraints.

Audio separation, speech processing, time-coded transcript, and then presentation through a SpokenMedia player.



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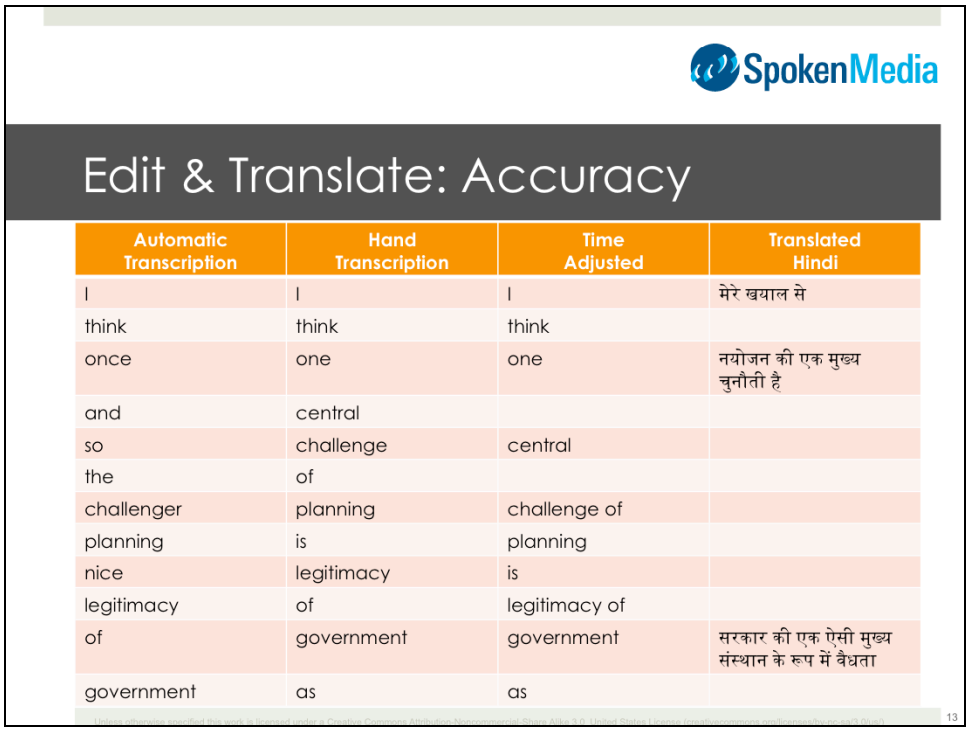
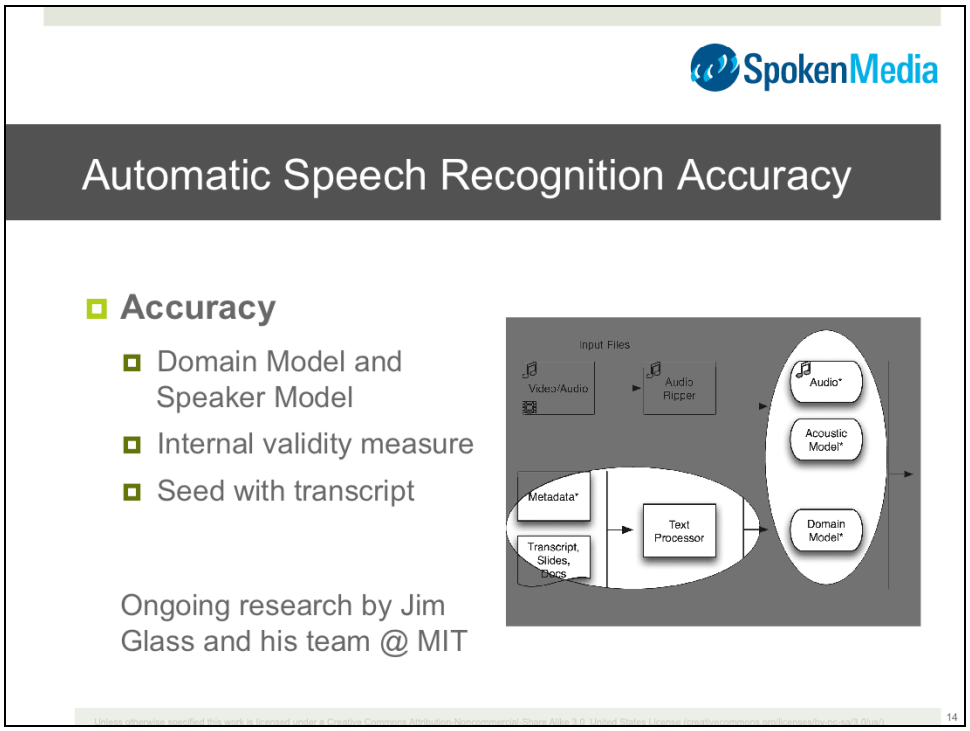
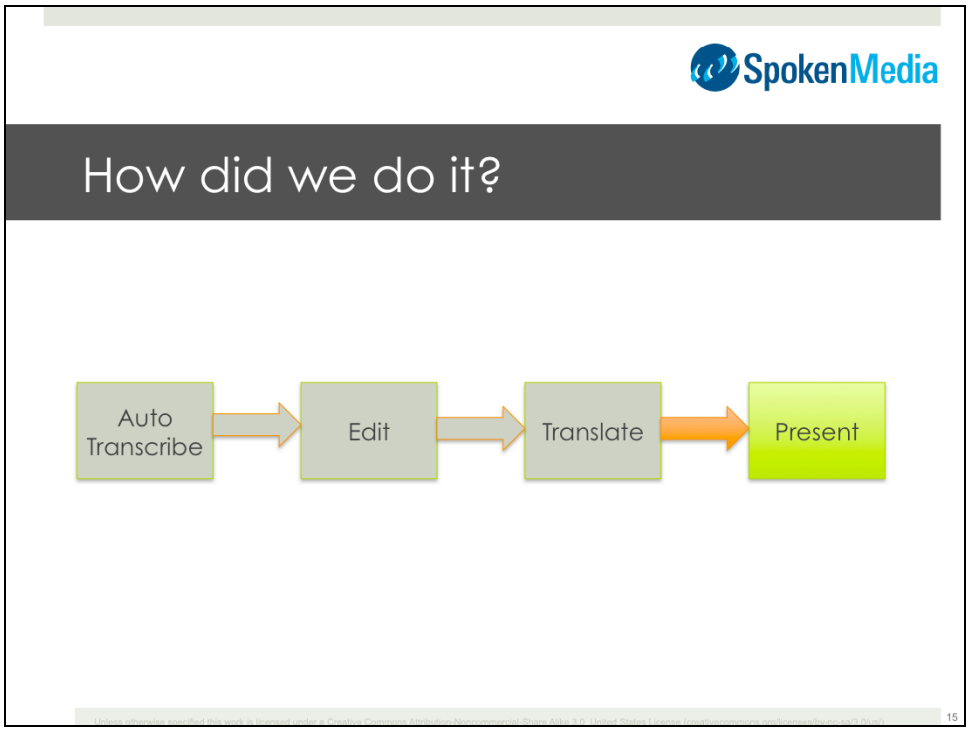


For this demo, we did computer-based automatic transcription, sent a file to IIHS for “editing” that consisted of performing a hand transcription (due to the format we sent, and the low accuracy of the automatic transcription in this case), a time alignment (though I actually feel that it’s “off” or “slow”) and then a hand translation by IIHS.



Recognizer Accuracy

- Base accuracy is approximately 50% (generic domain and speaker models)
- Increase accuracy with speaker model up to 80-85%, and specific domain model
    - This approach is good for courses with multiple lectures by the same speaker
    - Domain models get more useful as more relevant text documents are indexed (keyword/noun phrase extraction)
- Initial results indicate that doing one 99% accurate (by hand/manual) transcript can help immensely for additional lectures by the same speaker
    - Better use of limited resources
- Search accuracy is closer to 90%, searches tend to be for unique words which the processor is better at recognizing



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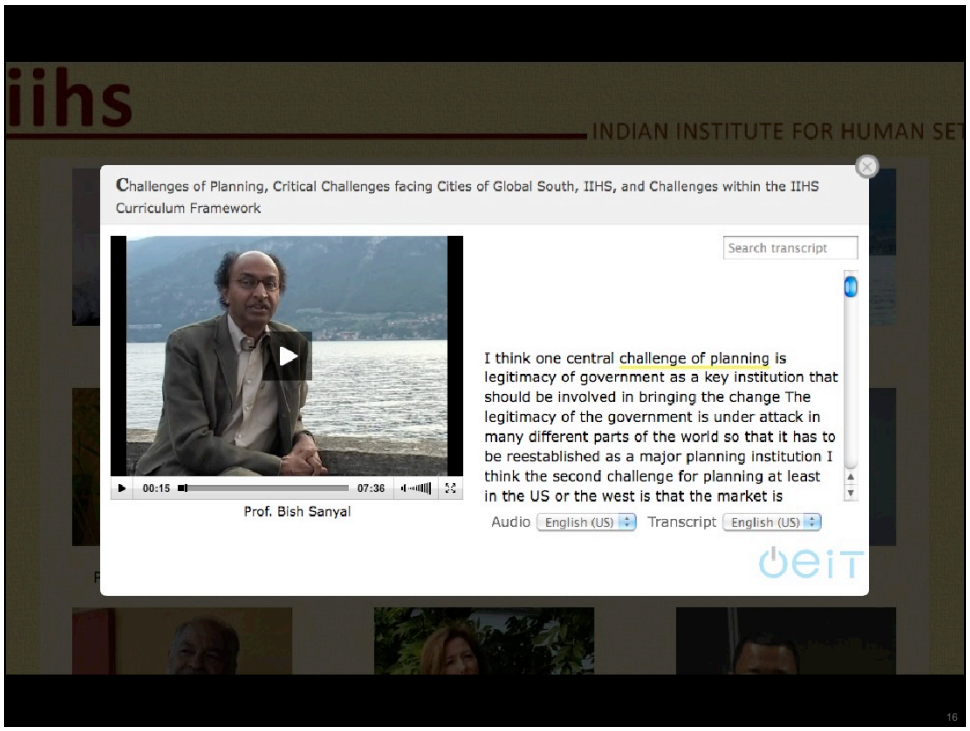
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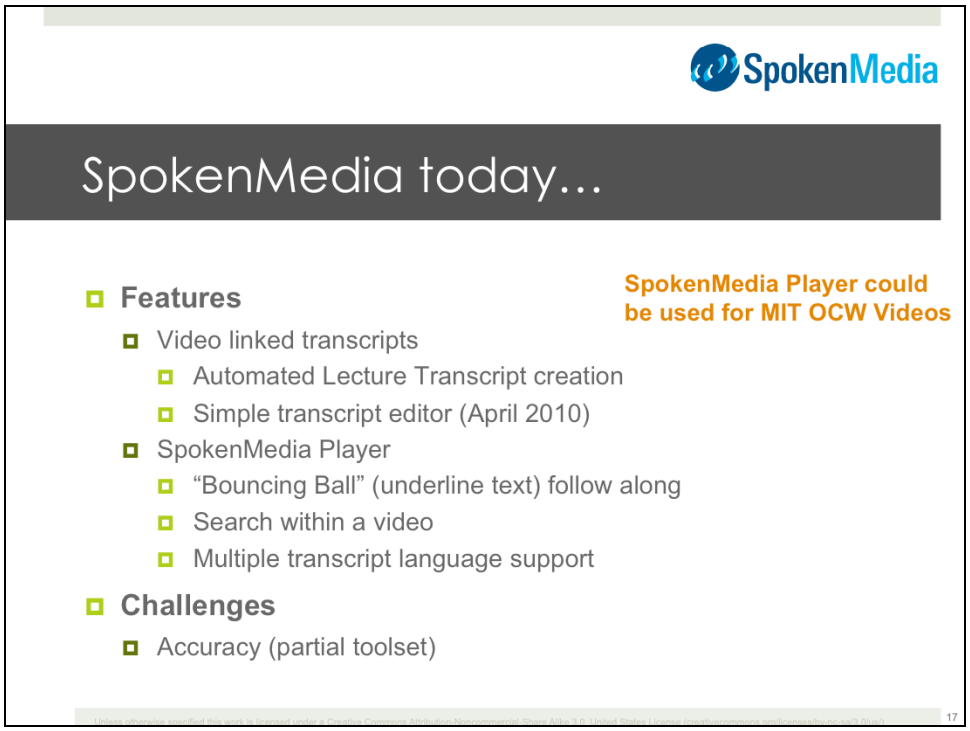


What we have today

• It's not perfect, but a pretty good start

• Prototype has a number of useful features that demonstrate search interfaces and interaction interfaces

Where are we heading?

- Transition from research project to service
- Explore new interactions—what we're calling Rich Media Notebooks

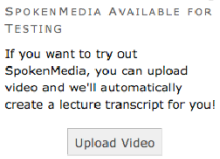
SpokenMedia

Check it out for yourself

- **IIHS Demo:**
  http://spokenmedia.mit.edu/demo/iihs/
- **SpokenMedia Website:**

  http://spokenmedia.mit.edu/
- **Upload Videos for Automated Lecture Transcription**

  http://sm.mit.edu/upload



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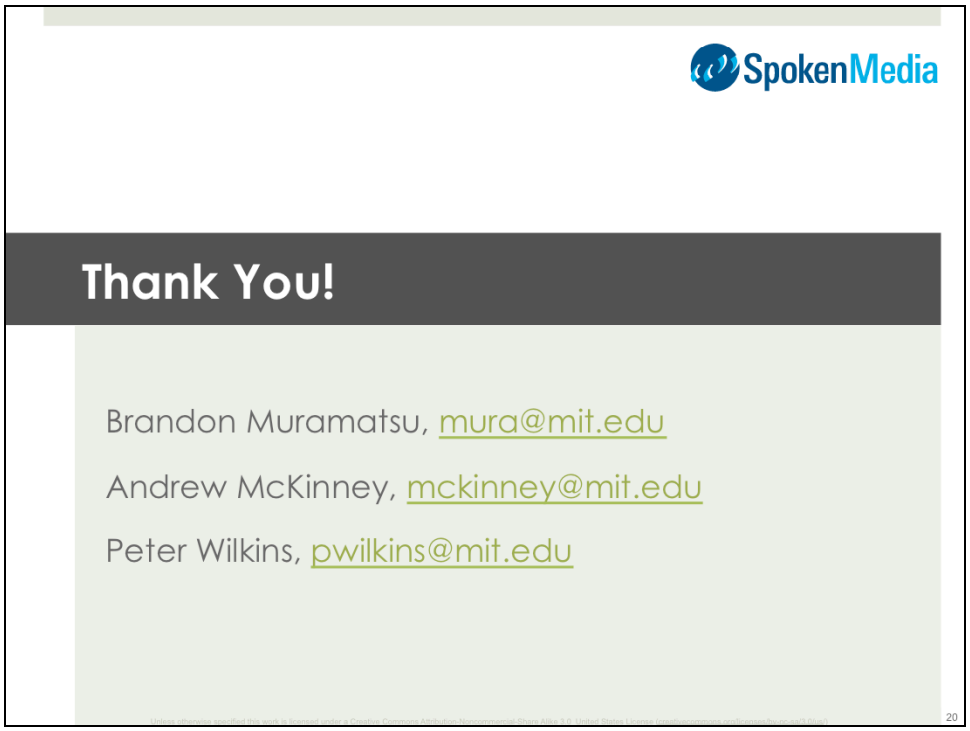

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