Agenda

- Introduction of IBM Accessibility Center activities
- Introduction of Caption Editing System
Accessibility is being driven by two forces, legislation and the market.

In public sector, government regulations are being adopted by state and local government agencies and education.

In private sector, usability features and technology are beginning to drive customer demand for accessible products and services.

Philanthropic

Legislative

Market Driven
IBM Accessibility Center-Asia Pacific

History

● Accessibility Center (AC), 1999/4 (Yamato Lab, IBM Japan)
● World Wide AC, 2000/1 (Austin, Texas, US)
● Europe AC, 2001/1 (Paris, France)
● Asia Pacific, 2001/4 (Yamato Lab, IBM Japan)

Mission

Improve working environment, provide service, enhance accessibility for persons with disabilities by IBM technology and solution.

• Enhance technology for persons with disabilities
• Promote IBM products and Services
• Provide Accessibility Solution
• Improve IBM Internal workforce for persons with disabilities
• Standard Committee and Marketing
Number of Persons with Disabilities by the Type of Disability

(Persons with Physical Disabilities Living in Home)

<table>
<thead>
<tr>
<th>Year</th>
<th>Hearing</th>
<th>Visual</th>
<th>Mobility</th>
<th>Other</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1951</td>
<td>100</td>
<td>121</td>
<td>291</td>
<td>0</td>
<td>512</td>
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<tr>
<td>1955</td>
<td>130</td>
<td>179</td>
<td>476</td>
<td>0</td>
<td>785</td>
</tr>
<tr>
<td>1960</td>
<td>141</td>
<td>202</td>
<td>486</td>
<td>0</td>
<td>829</td>
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<tr>
<td>1965</td>
<td>204</td>
<td>234</td>
<td>610</td>
<td>0</td>
<td>1048</td>
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<tr>
<td>1970</td>
<td>235</td>
<td>250</td>
<td>763</td>
<td>66</td>
<td>1314</td>
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<tr>
<td>1980</td>
<td>317</td>
<td>336</td>
<td>1127</td>
<td>197</td>
<td>1977</td>
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<tr>
<td>1987</td>
<td>354</td>
<td>307</td>
<td>1460</td>
<td>292</td>
<td>2413</td>
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<tr>
<td>1991</td>
<td>358</td>
<td>353</td>
<td>1553</td>
<td>458</td>
<td>2722</td>
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<tr>
<td>1996</td>
<td>350</td>
<td>305</td>
<td>1657</td>
<td>621</td>
<td>2933</td>
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<tr>
<td>2001</td>
<td>346</td>
<td>301</td>
<td>1749</td>
<td>849</td>
<td>3245</td>
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(Source: Ministry of Health, Labor and Welfare: 2001)
## Legislation of Accessibility in Japan

<table>
<thead>
<tr>
<th>Year</th>
<th>Description</th>
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<tbody>
<tr>
<td>1995/4</td>
<td>Description of Accessibility Guidelines for use of computers by the Persons with Disabilities and elderly Ministry of Economy, Trade and Industry (Revised 2000/6)</td>
</tr>
<tr>
<td>2000/10</td>
<td>Accessibility Guidelines for Use of Telecommunication Equipment by Persons with Disabilities Ministry of Posts and Telecommunications</td>
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<tr>
<td>2004/5-6</td>
<td>Accessibility JIS (Japan Industry Standard) Issued - JIS X8341-1~3</td>
</tr>
<tr>
<td>2004/6</td>
<td>The basic Law for Persons with Disabilities (Last Amended) Local Governments are required to obey JIS</td>
</tr>
</tbody>
</table>
IBM Human Ability & Accessibility Centers

IBM Human Ability & Accessibility Center
HA&AC

A Corporate Function

Standards

Project Office
Internal compliance

Technology

Solutions

Strategy

Marketing

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Penetrating Accessibility into IBM Culture

Integrated Product Development (IPD) process

Integrated Services Development (ISD) process and Global Method

CI 162 – Accessibility of information technology for people with disabilities

Business transformation management
Accessibility Products and Solution

Home Page Reader (HPR)
Talking Web browser for users who are blind or have low vision
http://www.ibm.com/able/solution_offerings/hpr.html

Braille Editing System (BES)
Helps many Braille transcribe volunteers
Supports Braille Printers, TTS, Braille Displays

Easy Web Browsing (EWB)
Helps novice users, seniors and people with limited vision or eye fatigue access Web site information more easily
http://www.ibm.com/able/solution_offerings/EasyWebBrowsing.html

Caption Editing System (CES)
An easy method of improving the accuracy of captions by correcting the errors of voice recognition.
http://www.alphaworks.ibm.com/tech/ces
Introduction to the Caption Editing System

Synchronize voice, charts, and/or movies, creating captions for a speaker’s lecture with synchronized timestamp.

CES Recorder

Voice file
Caption file
Movie file
Presentation file

LAN

CES Master/Clients

Confirm and correct captions with simple and easy-to-use functions.

Contents with error-corrected closed captions

Server system at University

RealPlayer / Windows Media Player

SMIL
HTML
TXT

Presentation Chart
Closed Caption

Students with and without disabilities

Authoring tool function for e-learning contents with presentation charts and videos.
Caption Editing System

1. Participation in caption editing for novice users

2. Effectiveness in Editing
   - Easy start and stop operation of audio output
   - Complete Audio Synchronization
   - Network Collaboration

3. Effective use of Supplemental Information
   - PowerPoint Integration
   - Script Matching
Caption Editing System Function

- Developed by IBM Accessibility Center-Asia pacific

- Main Functions
  - Attach timestamps to the recorded data and generates captions automatically.
  - Support an editor in checking the recognized text and in fixing the errors easily while listening to the recorded voice data.
  - Combine presentation charts used in the classes, the presentation images, and also any videos or photographs, and create simple e-learning content.
Introduction to the Caption Editing System

- Synchronize voice, charts, and/or movies, creating captions for a speaker’s lecture with synchronized timestamp

- CES Recorder
  - Voice Recognition System
  - Import Presentation Chart
  - Import Movie

- CES Master/Clients
  - LAN
  - Confirm and correct captions with simple and easy-to-use functions

- Server system at University
  - RealPlayer / Windows Media Player
  - SMIL
  - HTML
  - TXT
  - Upload / Download

- Contents with error-corrected closed captions

- Authoring tool function for e-learning contents with presentation charts and videos

- Students with and without disabilities

- CES Recorder
  - Voice file
  - Caption file
  - Movie file
  - Presentation file

- Voice Recognition System

- Import Presentation Chart

- Import Movie

- Presentation Chart

- Closed Caption
Introduction to the Caption Editing System

Photo of Classroom
Caption Editing System Recorder

- With Voice recognition
  - Create
    - Audio
    - Text

Point:
- Real-time caption
- Automatic timestamps
- Supports SMIL/SAMI
- Records PPT Slides
Introduction to the Caption Editing System

Synchronize voice, charts, and/or movies, creating captions for a speaker’s lecture with synchronized timestamp.

Voice Recognition System

Import Presentation Chart

Import Movie

CES Recorder

Voice file

Caption file

Movie file

Presentation file

CES Master/Clients

LAN

Confirm and correct captions with simple and easy-to-use functions

Contents with error-corrected closed captions

Server system at University

RealPlayer / Windows Media Player

Contents with error-corrected closed captions

Authoring tool function for e-learning contents with presentation charts and videos

Presentation Chart

Closed Caption

Students with and without disabilities

SMIL

HTML

TXT

Upload

Download
Editing
Caption Editing System Editor (Master)

- Collaboration with Client machines on the network
- Novice users without training

Point:
- Easy start and stop operation of audio output
- Marks: ○ (Accurate) or △ (nearly accurate) or × (No display)
- Content layout
- RTF editors
- Append lines
- Split lines
- Add/Insert lines
- Set Insert time/Skip time
Caption Editing System Editor (Client)

- Work via a network
- Novice users without training

Point:
- Easy start and stop operation of audio output
References to presentation text

Point:
- Exports to speaker notes
- PowerPoint Slide text
Transcript Matching

- Caption file and transcript matching

Point:
- If there is a script can be matched instantaneously
Introduction to the Caption Editing System

Synchronize voice, charts, and/or movies, creating captions for a speaker’s lecture with synchronized timestamp.

- CES Recorder
- Voice Recognition System
- Import Presentation Chart
- Import Movie
- Voice file
- Caption file
- Movie file
- Presentation file

LAN

CES Master/Clients

Confirm and correct captions with simple and easy-to-use functions.

Server system at University

Contents with error-corrected closed captions

RealPlayer / Windows Media Player

Authoring tool function for e-learning contents with presentation charts and videos.

Presentation Chart

Closed Caption

Students with and without disabilities
Contents

- Supports RealPlayer and Windows Media Player
- Synchronize captions, PowerPoint, audio, and video
Pilot Program University

- Nagano University
  - April, 2005 – March, 2006
  - 1 Class

- Hiroshima University
  - September, 2005 –
  - 5 Classes
Challenges and future developments

- More attractive e-Learning content
- Enhance editing productively
  - Easy to correct voice recognition errors
  - Script matching
  - Network collaboration
- Continuous the pilot program
Thank you
Backup
Our Solution (captioning)

- Voice Recognition Technology
  - Great improvements in recognition rates
  - Higher PC processor speeds

- Digital Archive
  - Broadband accessible
  - Servers in universities
  - Multimedia players

- Supplemental Information
  - Slides and text in Microsoft PowerPoint
  - Scripts
## Captioning of TV Programs

### Target is 2007

<table>
<thead>
<tr>
<th></th>
<th>Captioned Ratio (only technically possible)</th>
<th>Captioned Ratio (Total)</th>
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<td>2004 (%)</td>
<td>2005</td>
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<tr>
<td>TV</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NHK (Japan Broadcasting Corporation)</td>
<td>89.5</td>
<td>98.2</td>
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<tr>
<td>NTV (Nippon Television Network Corporation)</td>
<td>66.3</td>
<td>80.0</td>
</tr>
<tr>
<td>TBS (Tokyo Broadcasting System, Inc.)</td>
<td>56.5</td>
<td>59.8</td>
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<tr>
<td>Fuji Television Network, Inc.</td>
<td>56.5</td>
<td>59.8</td>
</tr>
<tr>
<td>TV Asahi</td>
<td>63.1</td>
<td>73.1</td>
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<tr>
<td>TV Tokyo</td>
<td>31.2</td>
<td>48.5</td>
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</table>

(Japanese Government)