Application of voice recognition software for collecting lake trout survey data in Lake Superior

Originally by Shawn Sitar

Modified by Kevin Rathbun
KISS??

Keep
It
Simple
Stupid
Traditional Fisheries data collection & management process
Errors
Fisheries
Voice Data
Recording process

1. Observation
2. Data relay
   - Data entry
   - Data correction
   - Database

Dig. Voice recorder
Data entry

Data proofing

Data correction

Errors eliminated

2. Hearing-interp.
3. Data recording
4. Reading-interp.
5. Key punch
6. Reading-interp.
8. Data recording
Voice Data Recording system

- Microsoft Access
- MFRS Lake trout database
- Dragon Naturally Speaking 10
- Rhino Connect

Large rugged LCD monitor
Laptop/docking station
Airline Base unit for headset
Digital Voice recorder (1-AAA)
Usb flash drive for data backup
Rhino label printer

Airline wireless headset (1-AAA)

Download Voice files to hard disk or server

AC = AC power
U = USB connection
Dragon Naturally Speaking

- Product is a speech to text system
- Used widely in systems needing voice recognition capability
- Here’s a short clip of demo using the technology:

Crtl + Click to see Dragon demo
Note: both the monitor and laptop are “ruggedized” to withstand water and a broader range of temperatures than regular office equipment.
Hours of data processing

Total = 910 hr

avg. 151.6 hours
Cost of data processing (e.g., Tech @ $18/hr)

Total = $16,376

avg. $2,729
# Cost of VDR

Voice Data Recording System for R/V Lake Char

<table>
<thead>
<tr>
<th>Item</th>
<th>Desc</th>
<th>Price</th>
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<tbody>
<tr>
<td>Label maker</td>
<td>Rhino 6500 labeler</td>
<td>$240</td>
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<td>Labels</td>
<td>Vinyl/polyester label tape 1&quot; x 18' rolls ($13/roll): ~ 140 labels per roll (10 rolls)</td>
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<tr>
<td>Dell Latitude D630 ATG semi-rugged laptop</td>
<td>Dell machine Need &gt;1.5 GHz processor and lots of RAM; SOUNDCARD support</td>
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<td>Dell D/Dock Docking Station</td>
<td>Allows all accessories to be integrated</td>
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<td>Dell Optical mouse</td>
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<td>Dragon Naturally Speaking, professional 10</td>
<td>Software to integrate Speech recognition to MS Access</td>
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<td>Samson airline 77 wireless mic</td>
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<td>Andea USB adapter for wireless mic</td>
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<td>Proggammable keyboard (secondary system)</td>
<td>PI Engineering 128 key proggammable keypad</td>
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<td>Digital voice recorder (backup for VDR)</td>
<td>Olympus WS210S</td>
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<tr>
<td>20&quot; LCD Marine-rugged Monitor,</td>
<td>Need to withstand cold temps, vibration, moisture, and sunlight</td>
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Total: $7,824
Key concerns of VDR

• What if the system crashes?
• Would it be slower than paper data sheets?
• Would background noise cause problems?
• Do you have to say tab between each field?
• What if you say words that are not part of data entry? (e.g., uh oh, tare, etc.)
Backup Data Recording System

1. Head set fails

2. Switch to inputting with programmable keyboard

AC = AC power
U = USB connection
Programmable Keyboard
The Results

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[Image of a computer software interface showing a table and a form with a collection number]
Efficiency: Collection rate

- Traditional
- VDRS

Collection rate (s/fish)
Error rates

Average = 5.1%

Average = 0%
Summary

- VDRS was more efficient than traditional method
  - Collection rate was similar between VDRS and traditional method
  - About 200 staff-hours per year saved using VDRS (no transcription, proofing steps)

- Error rates were lower using VDRS

- It works!
QUESTIONS???
THAT'S ALL FOLKS!!!!