Bluetooth Headsets as Client for Voice Search and Other Voice Functions

Voice Search March 2009
Sensory is the Leader in Speech Technologies for Consumer Products

- Founded in 1994, VC backed, private company
- Fabless IC & SW licensing biz models
  - #1 market share in speech recognition chips
  - #1 market share in voice biometric chips
  - #1 speech recognition market share in Bluetooth ICs
- Expertise in small footprint embedded speech
- Strong patent and IP position
- Highly experienced in speech application design
  - Focused on consumer electronics, toys, and Bluetooth headsets/HFKs

Improving the User Experience for over 15 years!
Sensory has Hundreds of Customers and Partners with >50,000,000 products shipped

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<th>Telephony</th>
<th>Automotive</th>
<th>Home Electronics</th>
<th>Toy &amp; Learning</th>
<th>Bluetooth</th>
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<td>Oregon Scientific</td>
<td>Fisher Price</td>
<td>BlueAnt</td>
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<td>Dynamic Hearing</td>
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More Customers, More Products, More Experience
“Any product with a user interface can and will have a voice user interface”

But Bluetooth Headsets are VERY SPECIAL
**Why are Bluetooth Headsets Important?**

- **Wide spread acceptance of BT in Wireless Handsets**
  - >800 Million handsets to ship with Bluetooth in 2009
  - 2/3 of handsets sold include Bluetooth

- **BT Headsets - Large volume/wide usage product**
  - Over 80M units sold in 2008
  - Double digit growth forecasts

- **First major VUI based consumer electronic product**
  - No keyboard, no display, no room to add anything
  - Mic & speaker embedded into product

- **Increasing power and memory**

- **Optimal environment for capturing voice**
  - Great S/N ratio – could make automotive recognizers work!
  - Beamforming, echo cancellers, noise reduction already deployed

- **Headset is first stage of entry for voice search**
  - Great for reinforcing keyword commands
    - “Call ATT”, “Purchase Music”, “Dictate Message”, etc.
Why a VUI for Headsets?

- **Form factor**
  - Lightweight and compact size desired
  - No room for a display
  - No room for a keyboard

- **Driving safety**
  - Hands on the wheel
  - Eyes on the road

- **Convenient feature & information access**
  - Buttons too few and difficult
  - Access to phone based VR
  - Access to server based VR

- **Ease of use**
  - The most natural way to communicate
  - No manual necessary
Bluetooth Headset & HFK Value
Added Features through Voice I/O

- **Basic access to information**
  - Press button & make requests
  - One button many functions
  - Example: “What can I say?”, “Am I connected”, “Check battery level”

- **Handsfree control**
  - Respond to voice-prompts to create action
  - Example: Incoming call from 408-625-3325, would you like to accept?

- **Voice Dialing**
  - Favorites
  - Preset names
  - Last number redial
  - Call back last incoming call
  - Continuous digit dialing (feasibility confirmed)
  - Examples: “call back”, “call home”, “call voicemail”

- **Voice setting of controls – great for music**
  - Volume, tone, song, etc.

- **Voice prompting instead of “beeps”**
  - Confirmation of incoming and outgoing phone numbers
  - Natural sounding voices available in any language
  - Easier to interpret than beeps and flashes

- **Incoming CallerID by NAME or NUMBER**

- **FUN – apps HUGE on cellphone...voice apps on headsets?**
The Headset/Client/Server chain - each with speech recognition

The Headset is the key point of entry

- Increasing MIPS and memory
- Growing functionality and shrinking size
- REQUIREES VUI
A Hybrid Client/Server solution

Headset
• Category Triggers
  • Search
  • Dictate
  • Read emails
  • Mapping
  • Social Networking
  • Other headset functions

Hybrid Client/Server Provides
• Internet Search & info access
• Dictation & TTS technologies
• Phone dialing functions

Handset or Navigation Device

Server
**Headset Initiated Recognition**

- Seamless voice user interface
  - Safer
  - Easier
- Better S/N gives better accuracy results
- Reinforced voice usage models
  - “you can say...”
- Best of all paradigms recognizers
Where are we?

Editorial Reviews of the First BlueGenie on BlueAnt V1

- **CNET EDITORS CHOICE AWARD** “an incredibly intuitive ‘voice user interface’ that is a snap to use” – 
  CNET Editorial Review, Sept/2008
- **WINNER – BEST FEATURES** over Jawbone 2 in CNET Prizefight 
  CNET Prizefight, Oct/2008
- **What’s revolutionary about the BlueAnt V1 is the BlueGenie voice control engine. Nothing else on the market can come close to it.**
  SlashGear.Com Review Aug/2008
- “...in terms of user-friendliness and intuitive control, the V1 beats the Jawbone to a bloody pulp...”
  PhoneDog.Com review Nov/2008
- **“Functionality-wise, the V1 is spot on and offers a fantastic voice interface system that never revealed any hiccups during our testing”**
  MobileBurn.com Review Aug/2008
- **The V1 with BlueGenie is “...a useful advance for an industry that's been focused on everything except ease of use.”**
  Peter Svennson, Associated Press August 26, 2008
- “What sets this headset apart is the BlueGenie Voice Interface...I’m surprised no body else thought of this..it just makes sense... the best Bluetooth headset available today.”
  TreoCentral.Com review Nov/2008
- **“The voice-response system, called BlueGenie and made by a company called Sensory, is surprisingly accurate for such a small device. It’s better than the voice system in my Blackberry phone.”**
- **“The voice commands are nothing short of fantastic..... they have left much of the field far Behind**
  Just another mobile Monday.com Nov 2008
Consumer’s Agree
BlueGenie is AWESOME

- Highest rated headset on Amazon, CNET, Crackberry.com and more

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<tr>
<th>Rating</th>
<th>Stars</th>
<th>Count</th>
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<tr>
<td>1 star</td>
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</tbody>
</table>

93 Amazon Reviews

80% rated ★★★★★★
15% rated ★★★★★
0% rated ★★★★
5% rated ★★★
0% rated ★★

20 Crackberry Reviews
Sensory forming Partnerships to make this a reality...

- Sensory and #1 headset ODM Foxlink partner on BlueGenie implementations
- Sensory integrates BlueGenie with noise vendors STEP, Dynamic Hearing and Acoustic Technologies
- Partnerships formed with server based search/recognition companies
  - Google, Jingle, Microsoft, Vlingo
- Catching on with headsets and carkits
  - 3 headsets and 2 carkits announced at CES
Give Bluetooth Headsets the Recognition they Deserve!!!

Thanks!