



# ***Going Truly Hands-free In Consumer Electronics***

***Todd Mozer  
Mobile Search 2010***

# ***Who Is Sensory???***

- **Founded in 1994, VC backed, private company**
- **Focused on Speech Technologies for Consumer Electronics**
  - Highly experienced in low cost (small footprint) speech application designs
  - Market segments include Toys, Bluetooth headsets/HFKs, home appliances, automotive, home A/V and controls, etc.
- **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 VUI SW
- **>60M products shipped with hundreds of customers**
  - Sony, JVC, Mattel, Hasbro, VTech, Uniden, Toshiba, etc.

***For 15 years everyone  
has asked us the same question...***

**“If it has Speech Recognition then  
WHY do I need to Hit a Button?”**



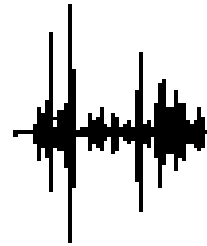
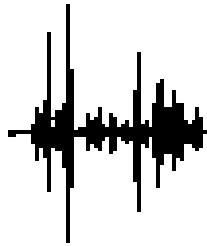
# *Many CE Products Need Truly Hands-free Triggers*

- **Remote Controls**
- **Light-switches**
- **Thermostats**
- **Bluetooth Car kits**
- **SCIDs...(what's a SCID???)**



***SCID's and Bluetooth Devices are an ENTRYPOINT FOR VOICE SEARCH***

# ***The Bluetooth Headset/CarKit to Handset to Server Chain - each with speech recognition***



## **Headset or CarKit SR**

- Local control
- Simple dialing
- Info access
- Synthesis playback

## **Handset SR**

- Name dialing
- Handset controls

## **Server SR**

- BING411
- Dial2Do
- Goog411

## ***The Headset is the key point of entry***

- *“Phone Command” – calls handset SR*
- *“Call information” – calls BING411 or Goog411*
- *“Text Message” – Calls Dial2Do*

## ***VUI based Bluetooth Products Now Have Proven Success***

- **Growing Demand for BlueGenie VUI**
  - >100% annual growth of products on market 2008-2011
- **Clear Success in Headsets**
  - Consumer ratings
  - Independent rankings & editorial reviews
- **“Handsfree” Carkits not Truly Hands-free**
  - Eye’s Busy Hands Busy
  - Changing laws

***Success in Bluetooth has forced  
a significant improvement in Phrase Spotting***

***Demo???***

# ***SCID's*** ***Speech Controlled Internet Devices***

***“By 2015 there will be over 15  
Billion devices connected to  
the Internet”***

***Pat Gelsinger***  
***Senior VP of Intel***  
***Intel Developer Forum Keynote August 2008***

***MANY Billions of these WON'T be Computers or Phones***

# ***SCID's – Speech Controlled Internet Devices***

- **What are they?**
  - New home electronic WiFi connected product
  - Not just another computer with keyboard
    - Lower cost: \$29-\$99
    - Functionally specific & flexible form factors
      - Clocks, radios, kitchen helper, etc.
    - Voice user interface – client/server technology
- **What will they do?**
  - Anything and Everything
    - Sports Fan - latest scores, sports radio, trivia, etc.
    - Kitchen Helper - Recipes, cleaning tips, calorie counter
    - Clock - Tells you the time or temperature ANYWHERE
    - Picture Frame - You tell it what you want to see!
    - Music or Media Players
    - Dictionary, encyclopedia, info access
- **Why speech recognition in the home?**
  - Convenience – like a voice remote control built into appliances
  - Lowers cost by removing expensive multi-modal interface requirements
  - Easy to use - simple design that responds to natural language commands
  - Great for hands busy/dirty usage – cooking, gardening, repairs, cleaning, etc.



# SCID's

## What Happened to Internet Appliances?

- **Cahners 2000**

“Total sales for Internet appliances will increase from US\$219 million in 2000 to US\$1.3 billion in 2005”

- **Why didn't it happen?**

- **High cost**
- **Inflexible form factor**
- **Little differentiation**
- **Unclear “value-add”**

- **3Com Audrey**

- “Room specific”
- Computer form factor
- Oct 2000- June 2001



- **i-Opener**

- 1999 started
- 2002 died



- **Kerbango**

- Internet radio
- 1998-2000
- Acquired by 3COM



**Speech Controlled Internet Devices Get Around ALL these Issues**

## ***SCID's - Why Now???***

- **WiFi Penetration**
  - 57 percent broadband penetration in US homes - Leichtman Research, 2008
  - Easy to connect technologies
- **Availability of Online Content & Data**
- **Speech Recognition coming of AGE**
  - Server based recognition – say anything & it works well!
  - Client for hands-free trigger and basic categorization
- **Cost & form-factor**
  - New low cost SR chips enable low cost device; VUI relieves need for keyboards & displays

# SCID's Example – Internet Radio



Voice Radio!

What Station, Style or Song?

Play Jazz!



Internet



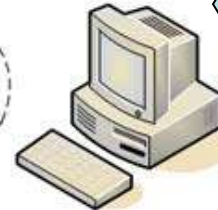
Modem



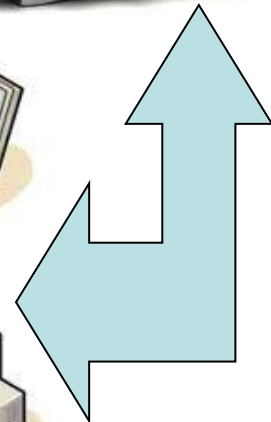
Wireless router



Laptop



Desktop



## ***Also...Your Cellphone or iPad or other device becomes a Portable SCID***

- **In the car**
  - Carkit with speakerphone
  - GPS with real time traffic update
  - Internet Radio
  - Driver Assistance (OnStar, etc)
- **At home**
  - Weather & time around the world
  - Recipes and kitchen assistants
  - Music and radio
- **Handsfree operation becomes a critical necessity**
  - “no button” turn on is now practical!



***THANKS!***

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