Mobile Voice Applications for M-Commerce

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Mobile Shopping Opportunities

Mobile Commerce Growth

Two research firms project rapid growth in mobile commerce revenue from 2009 to 2015.

Source: Coda Research Consultancy & ABI Research.
However

• There’s significant room for improvement in the mobile device purchasing experience – mainly through optimizing the shopping and payment processes for consumers. *Bill Ready, May 27th, 2012 Tech Crunch*
Keyword Search?

Claude Monet, Haystack at Giverny
Structured Menus?
Improve the Mobile Shopping Experience with Natural Spoken Dialog

- Speech supports fast search through large inventories and websites
- Users can easily express multiple constraints with natural language
- Price range restrictions can be selected by user
- Easy to narrow search by relying on context
- Less need to micromanage the shopping process if the system anticipates the user’s needs
Knowledge acquisition was once a huge bottleneck in building intelligent systems.

Today a lot of knowledge acquisition has been done, and is available as structured information through web services.

programmableweb.com alone has over 8000 API’s including 463 shopping API’s!
Example: Best Buy API

• Best Buy provides a RESTful web service that can be accessed with HTTP GET queries to retrieve results in XML or JSON
• Information includes over 500,000 Best Buy products, prices, descriptions, whether they’re on sale, reviews, shipping costs, store locations...
Resources: Technology

• Device
  – GPS
  – speech input and output
  – camera
  – display
  – time and date
  – TTS

• Web
  – Mapping API’s (MapQuest, Google)
  – Speech Services
    • ASR
    • TTS
Types of Shopping Applications: Online

- Search for specific items, categories of items, brands, new arrivals, sale items
- Research products, read reviews
- Manage wishlists and recently viewed items
- Ordering and tracking orders
- FAQ's: Store locations and route to store, hours, phone numbers
Types of Shopping Applications: In-store

- Locations of items
- Find services
- Get human assistance
- Check for different sizes, colors of items
- Take picture of bar code and get product reviews
Different Kinds of Assistants

• General Assistants
  – have a lot of generic information, but eventually have to just provide a web search
  – Have to be neutral

• Comparison Shopping
  – user-oriented
  – access multiple merchant feeds

• Merchant-specific
  – know a lot about a specific merchant and its inventory, but not general information
  – don’t have to be unbiased, can upsell and cross-sell
Ways to add intelligence:
Applying the Maxim of Relevance

• Grice’s Maxim of Relevance states "I expect a partner’s contribution to be appropriate to immediate needs at each stage of the transaction".

• If a contribution appears irrelevant, people will try to figure out how it could be relevant, and derive potential meanings, or implicatures, that make it relevant.
I’d like to look at those in person.

Why is that relevant to our conversation now? She must want me to help her find a way to look at the items in person. Where? Aha! A retail store! I can help her find a retail store so she can look at the items in person. I know where the stores are from the merchant API. But to get to the store she needs to know how to get there. I know where she is from the device’s GPS. I know how to ask for a route and travel time through the MapQuest API. I can help her see those in person by calculating a route to the store!
Heard: I'd like to look at those in person
Understood:
Said: Sure, you could drive to the store. You are about 116 miles away and it will take you about 2 hours and 19 minutes to drive to the store. Here's the route.
Another way to add Intelligence:
Proactive Notifications

• Location-based
  – “You’re not too far from a Best Buy and that iPhone case you wanted is on sale there.”
  – “You’re near Pet Smart and you asked me to remind you to pick up dog food.”

• Time-based
  – “Lucy’s birthday is next week. You asked me to remind you to shop for a present.”

• Event-based
  – “Let me know if that goes on sale”
Summary

- Mobile shopping sales are rapidly growing
- The current shopping experience could be enhanced through voice
- Many resources are now available to support more natural shopping experiences
- Natural dialog interaction can improve shopping by making search easier and anticipating users’ needs