

Voice-Interactive Private Residential Context-Aware Information Engine

Summary

Using natural language, users will be able to manage a personal repository of information as a context-aware memory aid. The engine will utilize voice recognition and heuristics to build a database of information that will be searchable using regular natural language queries, thus creating an infinitely expandable, personal, and private repository of data for each individual user.

Invention Description

Search engines such as Google gather data from public sources and sources under its control. However if we are to apply search engine technology to individuals, the engine must have a source of input for data that is applicable to an individual user. This invention proposes to provide a voice interface to a personal repository of data that is applicable to each individual user, which the user can search at a later time for information he/she supplied the engine.

Example: Storing Information for Later Retrieval

Hiding car keys during a long trip.

1. The user speaks the keyphrase to activate the system, "Hello, system."
2. The system responds by saying, "I'm listening."
3. The user says, "I'm hiding my car keys in the back of the freezer under the frozen peas."
4. The system analyzes the information, stores it, and says, "I'll remember that for you."

Remembering the location of the car keys.

1. The user returns from his trip and cannot find his keys, but he figures that he probably told the system where they were.
2. The user activates the system by saying, "Hello, system."
3. The system responds by saying, "I'm listening."
4. The user asks, "Where did I put my car keys?"
5. The system responds with, "You hid your car keys in the back of the freezer under the frozen peas."

The system can also be configured to learn whether it was correct by interrogating the user with the following additional flow:

1. The system asks, "Was I right about your car keys?"
2. The user replies, "Yes."
3. The system learns that its algorithm was correct in this instance.

Standard authentication and authorization techniques can be applied to raise the level of security of the system, and, in addition, sensors can be used to increase the context-awareness of the system. Examples of sensors can include occupancy/motion sensors, RFID tags, temperature sensors, humidity sensors, light sensors. A pluggable, extensible architecture could integrate voice control with other home automation systems besides the built-in personal information database.

Invention Commercial Value/Customers

The business of modern life frequently overloads the capacity of individual persons to remember temporally-contextual and location-specific minutiae which may have a significant impact on that person's productivity once the information has passed from his/her short-term memory but failed to implant into his/her long-term memory. This system bridges that gap and can provide an invaluable tool for patients suffering from a mental disability or disease, family members who share the same location physically but are not always temporally collocated. In addition, the availability of a voice-interactive, computer-backed "memory center" provides a friendly interface that will encourage the adoption of the system over more traditional text-based or graphical user interfaces.

Invention Differences

A US patent search returned the following patents:

- 8,719,026: System and method for providing a natural language voice user interface in an integrated voice navigation services environment
- 8,726,297: Search tool that aggregates disparate tools unifying communication
- 8,725,711: Systems and methods for information categorization.

While some of the pieces of the system are present, none of these patents suggests a complete system for analyzing, storing, and retrieving personal information using a natural language voice interface.