Speak+Seek

Voice activated access to business intelligence

CeADAR
Centre for Applied Data Analytics Research

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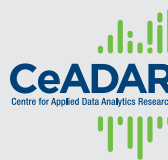
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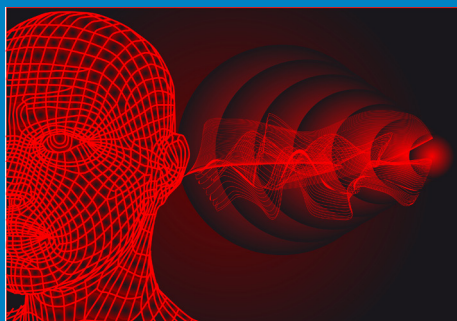
A voice-driven system for rapid retrieval of data from executive dashboards

Speak+Seek is a voice-drive system that enables interaction with data held in executive dashboards. It is created by researchers at the Applied Intelligence Research Centre (AIRC) at DIT in partnership with CeADAR - The National Centre for Applied Data Analytics Research.

A sales director, for instance, who is away from their desk and requires a piece of sales information in a hurry, could activate Speak+Seek and make a verbal request. Speak+Seek would

retrieve the requested information from the user's business intelligence (BI) dashboard and deliver the result in speech and text formats.

Gartner reports that the total market for BI will exceed $20 billion per annum by 2018, with ever more focus on cloud and mobile BI.

Speak+Seek has been developed initially as an app for Android smartphones.

In Step 1 a user activates the Speak+Seek system and voices a natural language query into their smartphone querying their BI system. In Step 2, the smartphone speech recognition system transforms the spoken words into text. In Step 3 this

text (the user command) is converted from natural language into a machine-understandable query. In Step 4 this machine-understandable query is used to extract the relevant information from the user's BI dashboard. In Step 5 this information is transformed into a natural language sentence. Finally, in Step 6, this natural language sentence is converted into speech using a text-to-speech engine and delivered to the user in audio format and in text format on the smartphone screen.
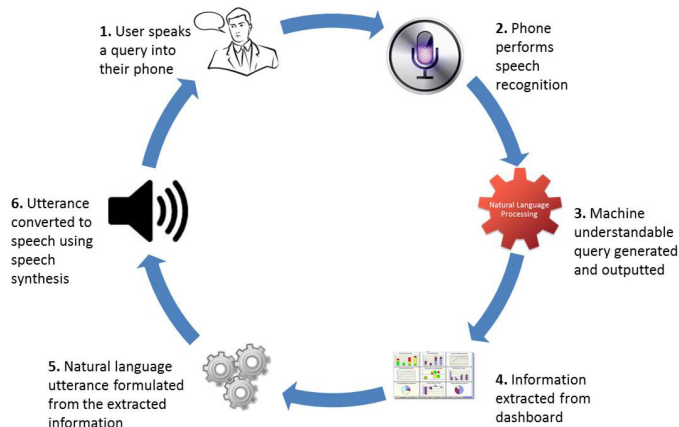
Above: *The key components of the Speak+Seek system*

Applications

The Speak+Seek system is of interest to any company that produces business intelligence (BI) software.

The system will provide ease of access to data analytics software, enabling users to query metrics on the move.

The Speak+Seek software can be integrated into financial management software, enabling voice queries of audit and tax information.

Speak+Seek can be used where any static dashboard is in place such as on a television screen in on-screen guides and tuning information.

Opportunity

Gartner estimates that by 2016 70 per cent of leading BI vendors will have incorporated natural language and spoken word capabilities into their products. To remain competitive, companies in the BI space will have to incorporate some elements of voice control technology into their systems.

According to Gartner, "Initially, BI vendors will enable basic voice commands for their standard interfaces, followed by natural language processing of spoken or text input into SQL queries. Ultimately, 'personal analytic assistants' will emerge that understand user context, offer two-way dialogue, and (ideally) maintain a conversational thread."

The potential number of users of the Speak+Seek system corresponds to the total number of users of BI software worldwide, particularly those who typically rely on static desktop dashboards. These users include stockbrokers, business executives, and commodity traders.

Advantages

Speak+Seek is novel in that it is based on use within a mobile app and uses proprietary text-to-speech synthesis to speak the results back to the user. It offers a range of advantages to both developers and users:

"The Speak+Seek system is of interest to any company that produces business intelligence (BI) software."

- **New Product Development** – Speak+Seek offers a quick and easy introduction for any company hoping to develop voice-accessible BI software.

- **Ease of Use** – The use of voice recognition systems enables non-technical users to access BI systems more easily. Speak+Seek enables a move away from drop-down lists and form filling towards a simpler, voice-controlled interaction between user and computer.

- **Mobile Ready** – Speak+Seek removes the need for drag and drop or point and click interfaces making it easier to access information via a mobile device.

- **Rapid Access to Data** – Speak+Seek enables access to information hands-free and whilst users are on the move.

Stage of Development

Speak+Seek has been developed in the DIT Applied Intelligence Research Centre (AIRC) as part of CEADAR - the Enterprise Ireland funded Technology Centre for Data Analytics.
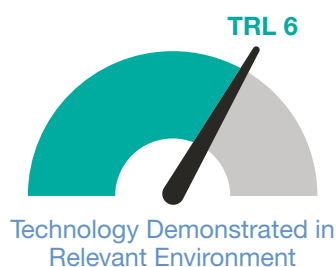
Speak+Seek has been designed using a web application architected composed of a lightweight front-end user interface (Android smartphone app) and a back-end web application that performs all high-end processing including the bridge to the underlying third-party BI dashboard.

Speak+Seek adopts a platform independent design that leverages speech technology capability for any given platform.

A prototype demonstrator has been developed, tested and executed in order to validate the proof of concept..

DIT is currently seeking expressions of interest from potential licensees. The technology may be licensed through the CEADAR Technology Centre.

Technology Readiness Level (TRL)

TRL 6

Technology Demonstrated in Relevant Environment