Voice Recognition Technology: A Basic User Interface With Advanced Capabilities

At Omnicom Health Group, we strive to be at the forefront of assisting the healthcare industry and utilizing the latest cutting-edge technology, such as voice recognition. Advancements in this technology have created a new user-friendly interface, one that is approachable by everyone, including those who are not tech savvy. Let us know what you think. Send us your feedback at technology@omnicomhealthgroup.com.

Voice Recognition Technology

Voice recognition technology is the ability for a computer to detect and interpret human speech and either respond with a computer-generated voice or trigger a variety of actions. Such actions could be in digital or physical form, such as passing data to another system or triggering connected hardware in the real world. This technology is especially valuable to the healthcare industry because it doesn't require healthcare professionals or patients to interact with screens or keyboards. The complexity behind the scenes is masked by the oldest known human interface, our voices, providing a natural and intuitive method for all. This especially helps patients with poor eyesight or limited mobility who have had inadequate support with traditional healthcare software.

iPhone's Siri has been around for several years now, assisting with questions and requests such as "Where can I find an emergency room?", "Remind me about my doctor's appointment tomorrow at 3 pm", and even "What is the ICD-9 code for heart failure?" Such questions assist patients and medical professionals in a clear way, allowing them to do what they need, rather than struggle through technical hurdles. While this technology is pretty novel, there are others that are making huge strides in the healthcare industry.

Medical Transcription: An Antiquated Practice?

At its simplest application, medical transcription has allowed doctors and nurses to record what they say as text, rather than having to type or handwrite forms. This has reduced errors caused by poor handwriting, typos, or misinterpreted dosages. One of the better-known software companies that specialize in this technology—particularly in healthcare solutions—is Nuance. IBM Watson has also worked in this space partnering with Nuance to provide advanced voice recognition through its machine intelligence and ability to learn and adapt. In fact, Columbia University Medical Center and the University of Maryland School of Medicine have contributed expertise and research to help further develop these technologies with the idea that voice recognition paired with cognitive technology will uncover a wealth of undiscovered knowledge in real time.

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Voice recognition in medical transcription also saves time and frees a doctor's hands to perform a procedure, while simultaneously providing the ability to narrate their observations to the computer. The one-way conversation with the computer is becoming antiquated, now allowing medical professionals to simultaneously dictate their notes, while requesting a lookup for other information they may not have memorized, such as medical codes and appropriate dosages.

Verbal Triggers and Clinical Care

Going beyond the typical voice-to-text technology, hospitals have begun piloting the latest voice recognition platforms, working with products such as Amazon's Alexa. Boston Children's Hospital recently created an app that provides the ability for parents to verbally request information on their children's ailments with computer-generated voice responses as to the best treatments and medicines for various conditions. The hospital then took the technology further to the operating room and the intensive care unit, as well as the hospital rooms of young patients. Doctors are now able to verbally trigger photos to be taken during procedures, such as colonoscopies, and label them as they do their work. ICU nurses also benefit from this technology with the ability to request blood samples and properly categorize them.

Additionally, inpatient room applications are now assisting parents with discharge instructions, providing them with much needed, yet often repeated, information, which frees medical professionals to handle more crucial tasks. Other inpatient, voice-enabled technologies that may be on the horizon would allow patients to adjust lighting or temperature in their rooms, serving as a virtual assistant to those who may not be able to get out of bed and reducing the need for nurses to handle these more mundane tasks.

Understanding Different Types of Patients

Another more advanced concept has been voice-recognition technology, which recognizes garbled speech patterns that come from people with impediments caused by stroke, Parkinson's disease, and some forms of autism. A software company called Talkitt has been leading in such efforts. This type of system would convey the intended speech to medical professionals in a more understandable format, reducing stress for the patients and clearing any communication barriers. Social isolation, based on lack of proper communication, has demonstrated connections to depression and early death, so this technology is of utmost value.

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Voice-activated Home Care

Seniors who live at home is another demographic that will greatly benefit from voice-recognition and voice-activated technologies. They will now be empowered to request medical assistance and transportation, receive medication reminders, have access to their own doctor's advice and rehab instructions, as well as connect to home-automation devices. A program, piloted by AstraZeneca, provides post-discharge coaching for heart attack survivors. People with mild Alzheimer's will be able to retrieve common information that they often cannot recall. Those who are frail or have other medical conditions will be able to control features around the house such as lighting, curtains, television, and other devices that the healthy typically take for granted. The easy-to-use voice-activated controls may also reduce injuries, while increasing quality of life. The ability to live in a safer environment and age more gracefully will be possible, reducing the need for home attendants and relocation to nursing homes.

Conclusion

Based on some recent updates to the Federal Meaningful Use Program and technologies such as Amazon's open source Echo (Alexa), voice-activated software and voice recognition technology will become more common in hospitals. The goal is to make technologies that support physicians more user-friendly and less distracting. While Amazon's Alexa platform has already been utilized in healthcare solutions, Google Home, a competitor product and new-kid-on-the-block in home-based voice recognition, is already capable of setting reminders, providing nutritional information, and interacting with other devices around the home. Based on the latest advancements, speech-recognition technology is now approaching human-like capabilities, opening the field for applications at doctor's offices and home care environments. Considering that healthcare voice recognition is still in its infancy, there are already many useful applications and they continue to grow exponentially.

If you'd like to learn more, please contact us at technology@omnicomhealthgroup.com.

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