THE TALKING SYSTEMS

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ESSPL

Voice based systems are revolutionizing human-system interface making technology access a call away

In today's world of hi-tech communications, we are using a plethora of ways to communicate – we chat in WhatsApp, we send Twitter messages, we post photos in Facebook, we make video calls in Skype, we write emails and what not; the list goes on. But the multitude of choices come with a bane, we need to learn how to use each of those communication options. Each choice has its own "how-to" prerequisite before you can use it. Some requires a mobile app to be download, some requires you to remember an URL or some requires you to procure

Total smartphone units sold world-wide in 2017 rose to 1.54 billion from mere 122.32 million in 2007, an approximately 13-fold jump

certain device to use it. There's no 1-shoe-fit-all option.

But our urge to communicate is ever more increasing. As per Statista reports, between 2007 and 2017, there has been approximately a 13-fold jump in the sales of smartphones world-wide.

The rise in demand for communication is driving the technology innovation landscape to provide us with ever more accessible and simplified ways of interactions; voice recognition & processing being at the fore front.

In this article we'll be looking into the background and future of voice processing & how ESSPL is investing into it.
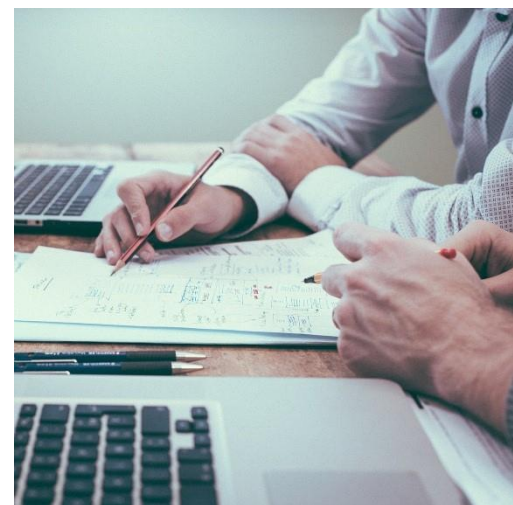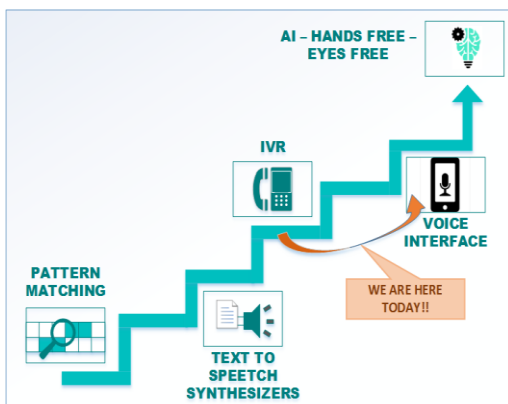
Voice Based Processing

Machine Learning & AI are pushing the boundaries of voice recognition and voice based interactive systems to new heights

Evolution

Voice processing is not a subject of resent origin; it has been of interest since World War II era.

It started with pattern matching, encryptions and decoding techniques to break enemy messages for military.

Then came Text-to-Speech (TTS) synthesizers, where computers could read out any input texts. These were used in voice driven e-learning, screen readers for differently abled people and helping people having Motor Neuron disease (MND) to talk. You may have seen Prof. Stephen Hawking using one such device in his lectures.

The next step of evolution created IVR (Interactive Voice Response) systems, which we hear every day on our phone while calling a customer support number or tracking flight ticket status. It allows a system to ask a series of logically branched questions in voice form and provide options for user to key in the responses from the calling device in order to complete a complex multi-step task without the need for a human assistance.

But now we are getting into the next stage of technology evolution where systems are beginning to recognize human voice, interpret their intent and take relevant actions.

Like voice searching Google to show you the list of nearby restaurants and guiding you how to reach there or updating you about today's weather so that you don't forget to carry the umbrella or turning on your AC to make you comfortable.

The future will be to AI driven systems, which will respond to complex human conversations and provide full emmersive experience between the real and virtual worlds and allow you to communicate in hands-free eyes-free mode.

A survey by Forbes shows that the main challenge towards adopting AI in the workspace is consumer trust. 41.5% respondent could not site a single example of AI they trust.

Voice - the new frontier

With the democratization of Machine Learning and AI technologies, there has been an increasing interest in the fields of Natural Language Processing (NLP) for interacting with software systems and devices. It is no longer restricted to research teams only, but is available to the entire community to join hands and find innovative ways to harness the power of technology.

Voice is the most natural mode of communication. It is the first thing that we learn, as a child, to draw attention and get our needs fulfilled.

So, if we learn how to interact with the computers and systems, running within, by simply talking to them and make them do what we want then it will be the next giant leap for mankind.

Google CEO Sundar Pichai announced during his Google I/O keynote that 20% of queries on its mobile app and on Android devices are voice searches.

Industry experts are predicting that 50% of all searches will be voice searches by 2020. Since people can talk faster than they type, Gen-Y are the fastest adopters.

The main driving force behind this phenomenon are the technology driven companies like Amazon, Google, Microsoft and Apple who are bringing out smarter mobile assistants like Siri, Alexa, Cortana and providing AI driven adaptive voice and cognitive service platforms for others to build amazing over-the-top (OTT) applications.

The market demand is on the rise and we have the technology in our hands to make it a reality; it's the best time to be here and bring innovations to lead the way.
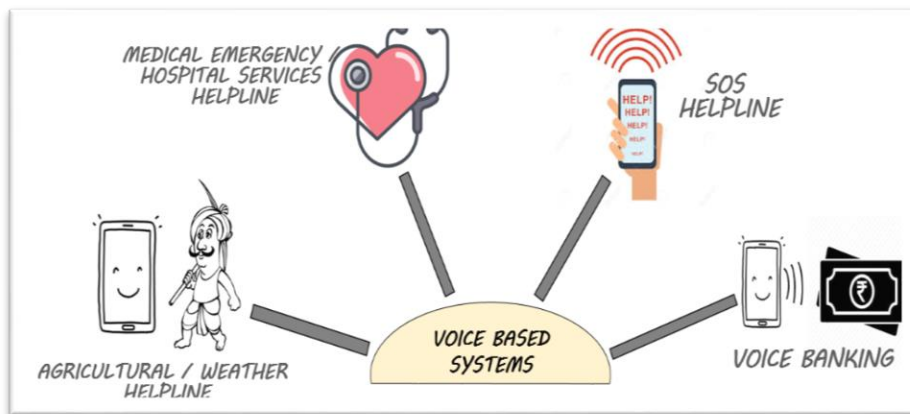
Amazing possibilities

The advantage of voice is in its ability to remove all prerequisites to access a technology. If you can speak and have a smartphone, you can connect & access the vast body of human knowledge.

Following are few of the amazing things that can be done using voice as our interface to applications.

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Agricultural Helpline

In the 3rd world countries, agriculture is one of the primary contributor to national GDP. But this sector is also primarily dependent on natural forces like monsoon, pest attacks and natural calamities;

people to converse in their local language, then usability and adoption of these kind of services will be increased many folds.

approximately 25% of all damages & losses due to natural disasters is on the agricultural sector world-wide.

Voice based systems can help farmers query and access advance weather information & warnings or seek guidance on the usage of pesticides or get aware of newer GM seed varieties, which are resistant to harsh climatic conditions and so on. If one can add multilingual ability to enable

Medical Emergency/ SOS Helpline

With the rise in crime rate, personal safety is becoming the top priority. There are apps that come with SOS features but none are voice enabled. What if you are in a situation where you have no time to lose, you may be injured or facing a medical emergency like heart attack; at times like these, we need the easiest means to reach out for help.

Voice enabled systems, which can get activated through your voice commands & communicate back and forth between you and the help/security agencies or with your dear ones without wasting time in typing, clicking and swapping, are best placed to help you.

Mommy-gram, an Alexa app, Grand winner of Alexa Life Hacks challenge, allowed kids to stay connect with their Moms, even when apart. Kids simply talk to Alexa and those messages arrive as texts to Moms, which they can respond to in the form of notifications, played out by Alexa device to the kids.

Innovations are already underway, it's only a matter of time.

Bank-by-voice service is started by Regional banking giant U.S. Bank allowing Alexa, Siri & Assistant to do balance enquiry, pay credit card bills and mortgages; fund transfer is not enabled but with Zelle, a Bank-to-Bank transfer system in US, it will soon become a reality

ESSPL IN VOICE INTERFACE

Voice enabled Business Intelligence has the potential to let people talk to their dashboards and access their data, anytime - anywhere

Voice BI

ESSPL has been closely working with industry leaders in supply chain & logistics domain for past 20 years and has been providing them with a multitude of solutions in supply chain visibility, operational planning & processing, optimization and business analytics.

To leverage our SCM domain understanding and expertise in BI technologies, we have been intensely researching on the applications of voice interface in the fields of BI analytics & visualizations.

We have developed a prototype solution, **Voice Assist**, on Alexa skills platform, which can allow people talk to their BI dashboards, slice 'n' dice data and create data visualizations all with the help of voice commands.

Our innovation lies in the fact that Alexa cannot provide rich UI based responses but we have integrated our smart Digital Boardroom solution to Alexa service in such a way that it can interpret voice commands into BI actions and enable application to visualize data real-time. It can sit on top of your existing data warehouse and provide voice based visualizations securing your existing data investments.

It can transform how Boardroom meetings are done today. Value of data is immense in strategic discussions but making a non-member (like Data Analyst) sit in boardroom poses a threat to information sabotage. But our voice based solution can act as an autonomous data assistant in the boardroom and help in visualizing trends and presenting data intelligence by simply talking to it.

It can be on the mobile and accessed anytime – anywhere.

Alexa based Voice BI, a prototype solution developed by ESSPL, can allow people talk to their BI dashboards. It can sit over an existing BI infrastructure and provide on-screen visualizations real-time from anywhere - anytime

Conclusion

Voice is transforming the way people are accessing information. With the availability of AI and cognitive services as platforms, more number of innovators and technology providing companies alike are joining the bandwagon to find innovative ways of human – system interaction.

Although at present the consumers are not fully trusting AI for their important and critical activities but with the maturity in the technology and security enablement, user adoption will definitely improve.

Big technology companies are heavily investing on the advancement and democratization of the voice and cognitive services. Microsoft announced in their annual developer conference, Build 2018, that they are allocating $25 million endowment and a five-year mission to invest in accessibility technologies using artificial intelligence and machine learning. These signs definitely strengthen the belief that such technologies are here to stay.

ESSPL being a technology focused company in supply chain domain, has already been investing in emerging technologies, which can meaningfully create value for its customers. We, through our over-the-top innovative solution templates like Voice BI, are helping our customers protect their existing investments while leveraging from our innovations.

About Author

Hritam Chakraborty, is the **Head of Solutions & Innovations** function of ESSPL (www.esspl.com), responsible for providing thought leadership towards providing and packaging supply chain domain solutions using existing and cutting edge technologies like voice integrated systems, Blockchain and RPA. He has worked in the IT services for close to 20 years and has been a Delivery Manager and Senior Technology Architect in Microsoft stack and platform services. He is passionate about coding and find solace while experimenting with technologies or playing with his daughter.

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