



**Farmer- Agri business
Communication through
Speech recognition**

How India's leading exporter of agri products established a bi-directional communication channel with farmers, to develop a sustainable agricultural community in India?

The Client – Overview and Business Context

Our client is one of the leading corporate in Indian agriculture with strong foothold in the country for over 100 years. They are one among the largest exporters of agri products in the country; they are engaged in supplying food grains, marine products, processed fruits, coffee, etc. to buyers across the world. With strong and enduring farmer partnership, our client has revolutionized the rural agriculture in India.

Our client holds an enviable reputation of being the most reliable Indian supply chain partner for global customers in the industry. This has been made possible only because of the client's unique strength in establishing extensive communication networks with farmers in India. With strong technical expertise and sound knowledge on Indian farming systems, our client has been a fore frontier of innovating solutions that strengthen their agriculture procurement supply chain.

Challenges

Being a leading and reliable supplier of Indian agri products to the global market is no easy feat. There are several environmental factors like unpredictability of the climate, government regulations and policies, lack of necessary and timely information to farmers, etc. affect our client's business. Adding to the environmental factors, increased product cost, farmer's inappropriate market price realization, and farmer's inability to sustain profit are the supply chain challenges that affect the procurement value chain.

To ensure an uninterrupted continuity in agri supplies, our client wanted to develop a sustainable agricultural community in India. Some of the major challenges faced by our client are:

- Farming community is plagued by illiteracy
- Farmers lack information about the current best farming practices, new technologies and other developments in the industry
- Current capacity of agent to farmer is 1:1000, so manual reach to farmers is not possible
- Using broadcasting channels like TV or Radio has limitations with regard to context, specificity and timeliness of information

Uniphore's Solution Approach

Our client has considered a number of ICT solutions to address these challenges; however farmer needs, organizational needs, social factors, technology penetration, adoption capability, etc. played an important role in choosing the right technology.

Uniphore, a pioneer in providing speech based enterprise mobility solutions understood the business challenges and operational structure of the client, developed a mobility solution that helped our client reach-out to its farmers on time. Our solution coupled both speech recognition and mobile technologies to enable our client create a push and pull blend based information dissemination voice platform. To start with, our client wanted to pilot it with 10,000 farmers in a state, and then scale up to rest of the country.

Our voice platform serves not just as a crop advisory service linked to the various elements of sustainable agriculture but also acts as a powerful tool that reflects on the crop condition and the specific farmer needs. This ensures customized delivery of the value adding information to farmers on time. Using this platform, our client disseminates a diversity of information to farmers on agricultural supply chain, nursery management, main field management, post harvest product management, market information, other crop market information, subsidies & local news, weather alerts, farmer testimonials, etc.

Key components of the solution

The key components of the solution are:

- **Farmer registration** – Our client has an extensive network of crop development managers (CDMs) who are further assisted by supervisors and field staffs to collect information about farmers in the region. CDMs collect these farmers' details and register them into the web application that serves as a back-end for our voice platform.
- **Information dissemination & retrieval** – A push based service which personalizes the information based on the region, seed variety, farmer tags and field properties which are obtained using an "Automatic Speech Recognition" (ASR) system. This component has two modules in it, 1. Information dissemination module and 2. Information retrieval module.

1. **Information dissemination module** – Using this module, CDMs are able to send advisory messages to farmers on a specified date and time. These messages are pre-recorded audio files that are uploaded in the back-end web application. These announcements can be scheduled to groups of farmers based on categories like region, seed variety, extension staff, etc. The reports on history of calls scheduled to farmers and the status of messages sent to farmers are viewed using the web application.
 2. **Information retrieval module** – CDMs send voice based surveys to farmers, to collect information on pesticide/insecticide usage, yield estimation, etc. Using ASR, the responses provided by the farmers are captured and converted to text and stored in database. By analyzing this information, the system automatically send personalized reminders and alerts to farmers. CDMs can also monitor this information and send advisory messages or even field agents to help farmers based on the criticalness of the situation.
- **Query handling system** - A pull based service that provides specific crop advisory, market information, weather information and query lodging which is handled by the CDMs. Farmers can call to the client's support number, identify them based on the region code and record their query. The queries posted by the farmers are listed in the web back-end application. CDMs are able to listen to the recorded query using the web interface, upload response in the form of a recorded file or choose response from a list of pre-uploaded responses. If CDM opts to connect to farmer, the farmer will receive call from the support number, farmer gets connected to CDM and CDM resolves the query. If CDM records the response, the farmer will receive the response during their preferred session next day.

Uniqueness of the solution

The uniqueness of this solution lies in the innovative tailoring of speech and mobility technologies based on the business and operational structure of the client.

- **Content network:** The content for the advisory messages are generated at multiple locally relevant sources such as - content development team, scientists from research Institute, local government officials etc. Our client's field staffs generate the requirements and issues during their

field visits that need to be addressed through the solution. This brings demand and supply in-line and helps our client to disseminate the advisory information to avoid misfortunes.

- **Smart & Simple:** Smart use of various speech based technologies like “Automatic Speech Recognition (ASR)” and Text To Speech (TTS) are put into use that streamlines the information exchange medium.
- **Special features:** The disadvantage with push based services is that the calls being scheduled at times which are not conducive for the farmers. This has been addressed through introduction of a “Call back facility” where the farmer shall be able to listen to the latest call that has been scheduled. A “missed call based registration” feature ensures near zero registration errors which is critical to ensure right information is disseminated to the right group.

Impact

Using the solution, our client is able to attain the following results:

- **Crop saving** – Millions of kilograms of crop has been saved by timely dissemination of precautionary measures.
- **Farmer empowerment** – a step towards development of an educated and knowledge endowed farming community. The farmer moves from being just a farmer to a better equipped individual with the information base that he acquires.
- Better utilization of the natural resources and awareness.
- The bi-directional communication helps our client understand the crop throw and production styles in different parts of the growing region.
- **Generation of goodwill from the farmer** – current market information helps the farmer in leveraging market situation, timely information about all preventive measures to be taken during epidemics or other environmental issues, etc.
- **Better control for the industry** – the agri produce can be controlled according the requirements of the industry. A need based approach so as to maximize utilization and minimize waste.

About Uniphore

The ability to use speech to communicate is a primary reason for the evolutionary success of the human race. Uniphore's solutions extend this insight to the evolution of human-machine interaction. Uniphore's solutions allow any machine to understand and respond to natural human speech, thus enabling humans to use the most natural of communication modes, speech, to engage and instruct machines. Enterprises across industry, size and geographies deploy Uniphore's solution to dramatically improve employee productivity and deliver superior customer service.

As a leader of voice-based solutions, Uniphore has pioneered the development of mobile applications with the combined capabilities of Speech Recognition, Voice Biometrics, and Data. Uniphore boasts a roster of high-profile, satisfied customers across multiple verticals – Financial Service Providers (mobile commerce & banking), FMCGs & NBFCs (sales force automation), and Agriculture, Healthcare, & Education (content delivery services).

Since its inception in 2008, the company has grown at an exponential rate, and today it supports nearly half a million registered end users on its platforms every month. For more information on Uniphore visit www.uniphore.com.

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