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Intelligent Voice Assistant for Substation Job Planning by Field Workers

datch

Startup
Datch
San Francisco, CA

Host
Con Edison

conEdison, inc.

Technology Solution

Existing utility work planning processes can require field employees to spend time manually entering data and work plans using enterprise and third-party software, imposing an administrative burden that takes away from valuable work time. The ability to dictate job task requirements in the field would speed up the process of filling out work plans, completing work orders, and moving on to the next task.

Providing field workers with Datch's technology creates the opportunity to replace legacy work planning processes, like manual data entry or hand-written notation as shown here.

In this pilot project, intelligent voice assistant technology developed by Datch, Inc., was deployed in a test integration with Con Edison's existing third-party work planning application, Engage. The Datch Assistant app enables workers to interact with multiple databases simultaneously through a single interface that draws on AI techniques to support intuitive and natural conversations. Voice commands can then replace tedious frontline work processes, such as the manual entry of work plans, work orders, maintenance logs, safety reports, and other records.

Project Overview

Con Edison and Datch collaborated on this pilot to demonstrate and test the efficacy of using voice commands to conduct field-related administrative tasks in an effort to alleviate the burden of manual data entry while creating a richer system of records within Engage. The target work group within Con Edison was field supervisor and substation manager staff.

Con Edison selected specific staff members to perform the field demonstration tests with the goal of minimizing distractions, enabling consistent workflow analysis, and facilitating comparison to traditional methods. These staff baselined the current work process by conducting a series of timed, documented tests using the traditional method.

The Con Edison-Datch project team collaborated to securely integrate the Datch software with the appropriate utility enterprise resource planning (ERP) systems, first walking through the work process and describing which data fields and types to collect—such as names, numbers, codes, or freeform text—and the system structure. Datch's natural language processing training algorithm was applied to conversationally map the process before moving to the integration phase with

Con Edison's third-party work order management and job planning software.

In the field demonstration, Con Edison staff previously involved in baselining the work planning process used the Datch Assistant app to fill out job plans for work at Con Edison substations. To gauge the success of the proof-of-concept pilot, user experience, accuracy, and speed were identified as metrics for comparing the Datch work plan capture to that of the traditional method.

Results & Learnings

The process of mapping Con Edison's work planner process into the Datch interface was straightforward. This setup was quite typical for new Datch processes, which can be defined and trained rapidly—usually within in a few days. A key challenge involved timely integration with Engage, the third-party ERP system, on top of Con Edison's Maximo ERP database, while meeting the security requirements for both.

While ERP integration challenges were addressed within the compressed pilot schedule, the project team did not have sufficient time to fully test or confirm the Datch Assistant app's efficacy in reducing administrative burdens relative to the current job planning process. Key initial learnings are summarized below, with continued user testing and iterative optimization planned.

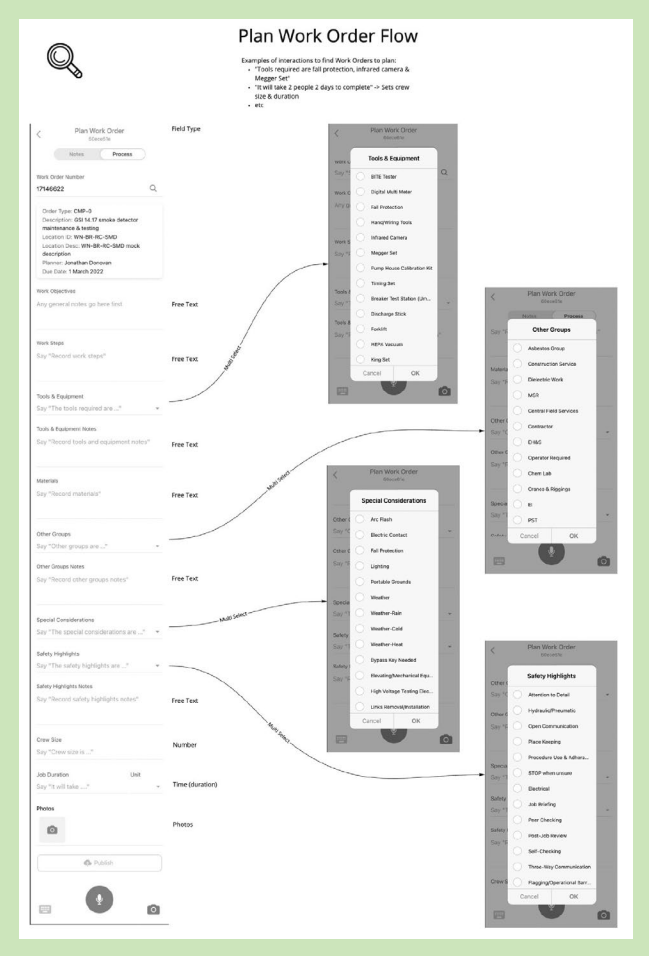
Integration. Understanding the security requirements of utility information technology (IT) systems (and third-party providers where applicable) is essential in planning efficient integrations. Some required fixes that became evident during the user testing stage of this pilot could have been identified and addressed earlier through proactive engagement of several IT stakeholders.

User feedback. Experiences in implementing, training, and comparing the Datch application against a manual data entry process—one that workers are comfortable with and have already optimized—highlight the importance of deeper user engagement. For example, the current process uses pre-populated fields in the work planning data collection application, and some Con Edison staff members employ "templates" as a starting point. These enhancements streamline data entry and are being implemented through Datch. Further, job planners employ various slang or shorthand terms for assets, processes, etc. Due to the short duration of this demonstration, the self-learning algorithms did not have sufficient time to adapt to the use of jargon.

Implications & Next Steps

The project team has continued with iterative testing and refinement of the Datch Assistant to help work planners adjust to using the app, explore features, and assess the potential for time savings and other benefits compared to current manual data entry processes. Con Edison intends to collaborate with Datch and EPRI to explore additional job planning tasks and other workstreams that may lend themselves well to using voice to record information in the field.

To support future applications and multiple parallel process implementations in daily utility operations, Datch is bringing in additional IT resources and plans on engaging subject-matter experts in each integration area, especially relating to security protocols, prior to beginning the integration process. Early engagement of end users for the voice assistant app also is essential to map out the work planning process and capture jargon, shortcuts, and other approaches currently used to optimize workflows suited to individual work style.



Workflow processes integrated in the Datch Assistant facilitate data entry by voice, through structured conversation.

Datch plans to build canned utility processes and data into the Datch data entry to match efficiency gains realized using the traditional method of data capture, as well as to develop new features to improve the Datch interface and make worker tasks easier and less administrative. This includes enhancements proposed by Con Edison such as assisted mode, to guide users through tasks without having to consult a screen; and

context sharing, to allow specific knowledge being captured by teams in one process to be shared with other processes or systems in order to reduce friction even further for field workers.

Resources

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TESTIMONIAL: Datch

The Datch team is proud to have worked with Con Edison and other project team members, and we appreciate their assistance and patience with the complexity of the integration and user testing and in helping us iron out problems rapidly when they arose. We look forward to continuing the current pilot, adding new processes, completing a rigorous assessment of the user experience, and improving functionality to match expectations.

TESTIMONIAL: Con Edison

This proof-of-concept demonstration is pushing the industry forward by illustrating the transformative possibilities of using voice assistant technology to complete common tasks by utility field workers. The Datch app, if fully integrated into current work processes and able to accurately translate complicated jargon, shows significant promise across various use cases at Con Edison.

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