

Using a Voice-Enabled Digital Assistant in a Gnotobiotic Mouse Vivarium Aids in Accurate and Efficient Data Recording under Sterile Conditions

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PROBLEM

Gnotobiotic mouse vivariums face an added challenge when collecting animal data as data must be recorded while working in a sterile hood or isolator. Current practice for data recording requires additional personnel to transcribe and/or extra personnel time to manually document after observations are made. Moreover, researchers must later transcribe all observations into digital files, thus requiring more personnel time and adding another opportunity for errors. Collectively, this process is time-consuming, inefficient for staff, and has the possibility of inaccuracies. Our team sought to find a solution where data could be entered into Sharepoint files in real-time using hands-free headsets to eliminate extra personnel hours and the possibility of data entry mistakes.



Figure 1: Gnotobiotic facility staff cannot record observations while working in an isolator.

SOLUTION



Figure 2: Implementation of LabVoice software has multiple benefits. LabVoice offers an AI-powered platform that enables creation of custom LabFlows that generate real-time data entry capabilities into spreadsheets using a hands-free headset. This process dramatically decreases the personnel hours needed to transcribe data. Additionally, the software has built in quality control steps to ensure data accuracy.

DESIGNER & DIGITAL ASSISTANT MOBILE APP

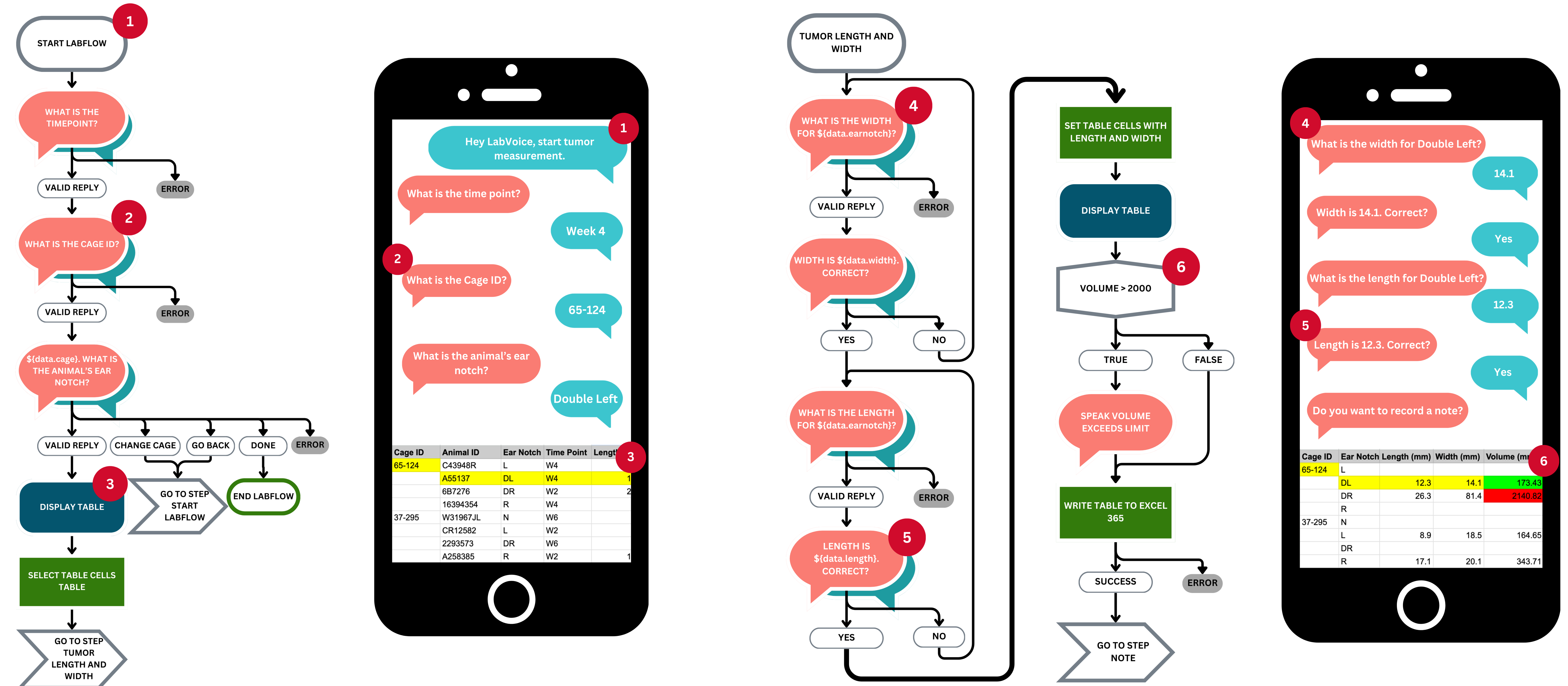


Figure 3: Using the online designer and digital assistant mobile app to record melanoma tumor measurements. Step 1: The user says an invocation phrase to tell LabVoice what LabFlow they want to access. Step 2: LabVoice asks the programmed questions and then finds the appropriate cell in the Excel table to enter the data based on the user's reply. If a wrong reply occurs, "Go Back" or "Change Cage" can be spoken to correct the response. Step 3: The display table step is used to visually ensure that data are being transcribed correctly. Step 4: LabVoice asks for tumor length and width measurements. Step 5: A validation step ensures that the correct measurement is recorded. Step 6: Additional validation steps can be used to notify the technician when data points are outside of acceptable limits.

DEVELOPING LABFLOWS

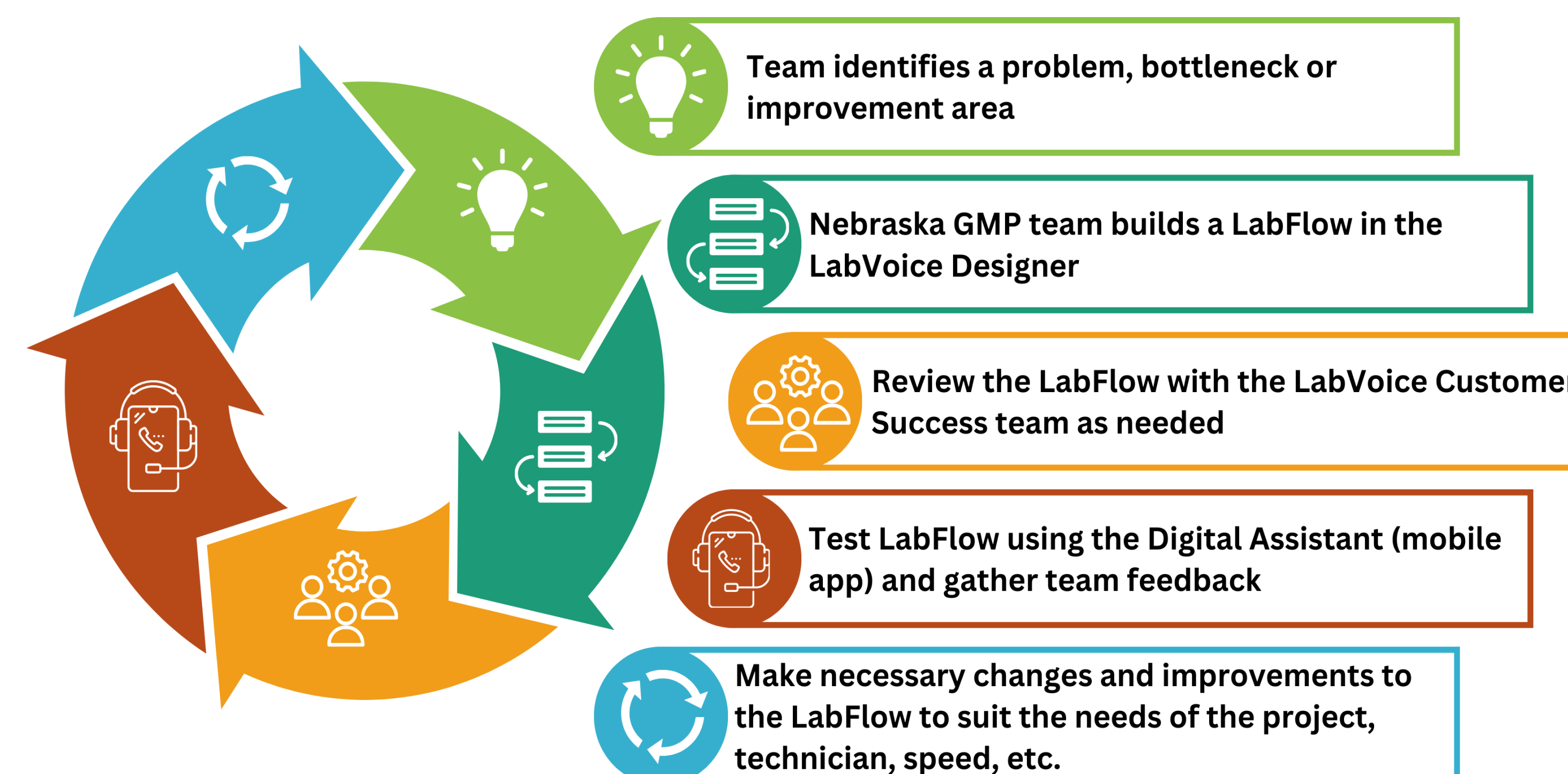


Figure 4: The development of a LabFlow to address laboratory bottlenecks is a recursive process as new areas of improvement are identified.

CONCLUSIONS

- LabVoice LabFlows developed for both husbandry practices and specific animal studies have enabled our gnotobiotic staff and researchers to independently and accurately collect data in real time while dramatically decreasing the personnel time needed for both the data acquisition and transcription steps.
- Using LabVoice LabFlows have saved us 10 hours of staff time per week, which is the equivalent of 5 times the return on our investment, thus resulting in a major cost savings for our facility.

