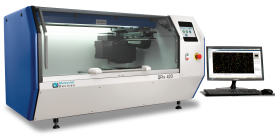
CASE STUDY

Remote-controlled colony picking: Customizing the QPix software to enable ultimate user control of hardware and software

Introduction

The design and execution of biological experiments can sometimes feel like more of an art, rather than a science. This often stems from deviations in experimental protocols caused by human manipulations, which can introduce small fluctuations into the experimental workflow that are never re-captured in the published protocol. In this case study, we highlight how our Advanced Engineering Workflow Solutions (AWES) team collaborated with one of our customers ("Company X") to take the artwork out of their science by providing full application program interface (API) control to our QPix™ Colony Picker software.



QPix Colony Picker

Customer challenge

One of the goals of this customer is to minimize the introduction of human errors by automating as many lab experiments (includes over 40 different standard experiments ranging from ELISAs to flow cytometry) as possible. This ranges from automated pipetting to experimental protocol creation over the cloud. Defining the protocol parameters and settings remotely ensures that the protocol is strictly followed, minimizing human errors. To further refine these protocols, all experimental parameters are recorded, including many which are often overlooked such as actual air temperature and humidity. These records are stored in a single database alongside the instrument data, resulting in an extremely comprehensive and multiplexed data package.

In order to achieve this goal, the QPix System had to be modified such that it could be incorporated within the framework of being able to define, execute, and review/refine protocols remotely. In addition, it was critical for Company X that we were able to provide comprehensive support for such a customized solution in a timely manner.

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Solution

In order to allow Company X the ability to define their protocols remotely, our AWES team customized the QPix software to allow for full API control. This provided our customer the ability to integrate their protocol design software directly into our QPix software to drive the instrument based on each protocol's unique needs. Furthermore, the open API also enabled Company X to access all images and experimental data recorded for unique downstream analysis as needed.

Benefits

Opening the API for full hardware and software control allowed Company X to be able to program a wide range of unique colony screening and picking commands into the QPix system, resulting in a seamless integration into their remotely-controlled automated laboratory setup.

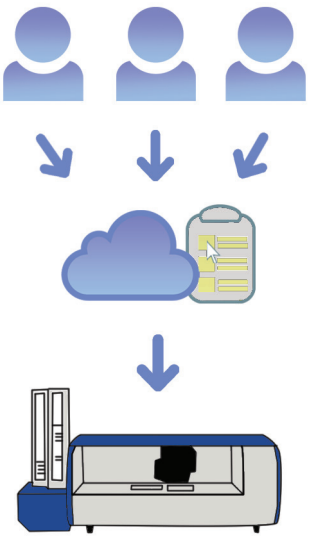

Figure. To enable users to define experimental protocols remotely over the cloud, the QPix software was customized to allow full API control. This allowed a wide range of unique colony picking and screening commands to be able to programmed into the QPix system.

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