Go with the Flow: Commercializing a BioTech Instrument with JKI

By Mike Schwartz, Program Director, Fluxion Biosciences

A Start-up with a Great Idea

In 2007, my company, Fluxion Biosciences™, was just starting up in a shared lab on the UCSF Mission Bay campus. Our small team of scientists had designed an innovative, powerful tool to support life-saving drug development and biological research. This BioFlux™ system would provide an environment more like the human body than other experimental apparatus, and would consume a smaller amount of the substance under study. It would be able to control the flow of a fluid containing live cells, and capture and analyze details on how the cells behave in flow conditions. BioFlux would make life sciences experiments more affordable, faster and easier to conduct, and more accurate.

The Challenges of Commercialization

We knew we needed to get BioFlux out to market quickly in order for our nascent company to survive. We had prototyped the software for BioFlux in NI LabVIEW™ and we wanted to reuse and enhance that software rather than start over from scratch on a new platform. We didn't have the LabVIEW expertise to commercialize BioFlux, but we also didn't want to hire someone we couldn't keep busy after the initial software development.

From Prototype to Award-Winning Product with JKI

JKI worked closely with us to build the software that controls the BioFlux instrument, acquires images of the cells from a camera on a microscope, and analyzes the images to count cells, calculate velocity, and observe adhesion and other properties. They took our barebones requirements and turned them into a commercial-grade software application in a very short time, freeing us up to work on other critical aspects of our business. About five months after

INDUSTRY
BioTech

OBJECTIVE
Quickly and cost-effectively create software to control our BioFlux system, which measures real-time behavior and characteristics of live cells when they are subjected to controlled flow conditions.
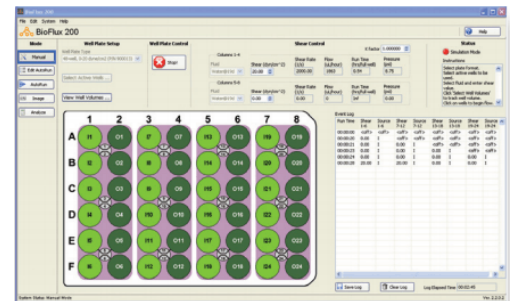
THE SYSTEM

Fluxion's BioFlux instrument

NI USB-6009 DAQ board QImaging camera

Metamorph software for image and data analysis

Custom LabVIEW software by JKI to control the complete system

The BioFlux Instrument Control software, written in LabVIEW

hiring JKI, we shipped our first BioFlux system, complete with both software and hardware. It only took about four months after product release for the software to pay for itself; we were thrilled to realize such a fast ROI!

The BioFlux software is very intuitive and easy to use, which is particularly important since its users are usually biologists and researchers, not programmers. JKI designed a software user interface that is simple and straightforward, so our customers "get it" right away. In part because of its exceptional user interface, BioFlux won a prestigious R&D 100 Award the next year, an honor bestowed upon the most significant new technologies commercialized worldwide.

Ongoing Success

Today our sales continue to grow, and BioFlux has been commercialized globally. It's now sold in the US and Canada, Europe, and most of Asia, and is being used by some of the world's most successful pharmaceutical companies and research institutions, including UCSF, Stanford University, the University of Pennsylvania, Johnson & Johnson, Pfizer, Amgen, and Genentech. JKI remains our "virtual software team" and they continue to augment the BioFlux system whenever we need new features, an arrangement that works out well for us both economically and in product quality. We love how fast they can turn around any changes we need to make, and our customers are impressed that we usually deliver their requested fixes and features within just a couple weeks.

As we plan new modules for the product, we are confident that JKI's scalable architecture will be able to accommodate any functionality we need, and that the team will continue to deliver high-quality commercial software fast. We'd definitely recommend working with JKI if you need to get an instrument to market quickly with top-quality software.

> *We specifically needed a team with exceptional architecture skills and who had experience building commercial grade software. They needed to be able to run with a project with minimal specification and supervision, yet still deliver a high quality, scalable product on a tight deadline. JKI fit the bill perfectly.*

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