



ELISA Plate Reader Mobile App

Client Overview

The client is a recognized leader in labeling and detection technologies across research and diagnostic markets. They have strong portfolio of proteins, antibodies, peptides, small molecules, labeling probes dyes and kits providing life science researchers tools for target identification/validation, high content analysis, gene expression analysis, nucleic acid detection, protein biochemistry & detection, and cellular analysis.

Challenge

The Client wanted Optra to design the ELISA Plate Reader mobile application based on image analysis technology to provide quantitative results. Few challenges faced while developing the Solution included:

- Uneven illumination of the images due to external light effects.
- Conversion of light based system to image based algorithm.
- Orientation of the plate reader during the image capture was one key challenge.
- With respect to Android devices maintaining the image quality was a challenge as different mobile devices has different camera resolutions.

Solution (ELISA Plate reader mobile app)

Optra's expertise and existing experience in building imaging algorithms and mobility applications helped to resolve the challenges and turn around with a feasible and executable solution. Logistic regression equation was implemented to predict optical density based on the labelled data in addition to the Hough transformed based algorithm to find the parallel edges.

The ELISA Plate Reader mobile application was designed to read at 5 wavelengths (405, 450, 495, 562, and 595 nm) covering most colorimetric ELISA applications as well as enabling coomassie (Bradford) and bicinchoninic acid (BCA) protein assays. Optra team successfully implemented and built its own camera functionalities. The analysis is thus performed in different color models to convert the light based system into an image based system. The secured app login and access to app through social media were also provided. Few screens developed for the mobile app are-

Login Screen



Home Screen



Benefits

- Functionally- validated in multiple sample matrices right from serum and saliva to urine and feces
- Specific to low reactivity with structurally related molecules
- Sensitive - better quantification thresholds measure low endogenous levels with ease
- Flexible - adaptable to automated equipment for higher throughput systems'

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Technology Environment

- ✓ Operating System – Android, iOS
- ✓ Programming Languages – Java, Objective-C, Swift
- ✓ Version/Source Control Tool – SVN, GitHub
- ✓ Drop box for data sharing

About Optra Systems

Optra Systems is an ISO-certified global organization with deep domain expertise in medical devices, lab automation, life science informatics and healthcare IT solutions. The company provides a fully-scalable, cost-effective OptiShore™ delivery model. This enables customers to choose the optimal balance between on-site, on-shore, and off-shore development that will best address their budget and collaboration requirements. With Optra Systems, customers are able to shrink their time-to-market by leveraging practical, building-block based solutions. Committed to clear communication and total transparency, the company consistently meets or exceeds its clients' expectations. Offering a full complement of expert engineering and consulting services, Optra Systems is aligned to real business needs applied over the entire product development lifecycle. The robust, scalable and efficient IT infrastructure of the company, together with its outstanding project management team, consistently ensures superior results. Optra Systems' global delivery model helps its customers cut costs by about 50% without compromising on quality and realize a 200% improved production cycle.

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Contact Optra Systems Today

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