

# Drill-Tech Mobile

Tyler Witzke, Graydon Benson, Eli St. James, Dillon Matthews  
Schulich School of Engineering, University of Calgary

## Abstract

Our project sponsor, Pason Systems, is a leading energy services and technology company. They develop and deliver high-value software, hardware, and services for the oil and gas drilling industry in 12 countries. The team was tasked with developing a mobile version of Pason Live™ which has the following functionality:

- Fully-customizable, real-time data visualization of drilling metrics.
- Integrated system alerts, event filtering, memo tracking and data exports.
- Cloud-based data repository.

## Motivation & Objectives

We worked closely with our project sponsor to develop an ideal scenario for the company going forward:

- Simplify and modernize Pason's mobile applications.
- Create uniform code base for all customer facing applications.
- Promote intuitiveness with mobile-first features and design elements.
- Promote research into new developer tools such as React Native and integrated unit testing.

## Alternative Solutions

The team perused multiple alternatives before deciding to create a React Native application.

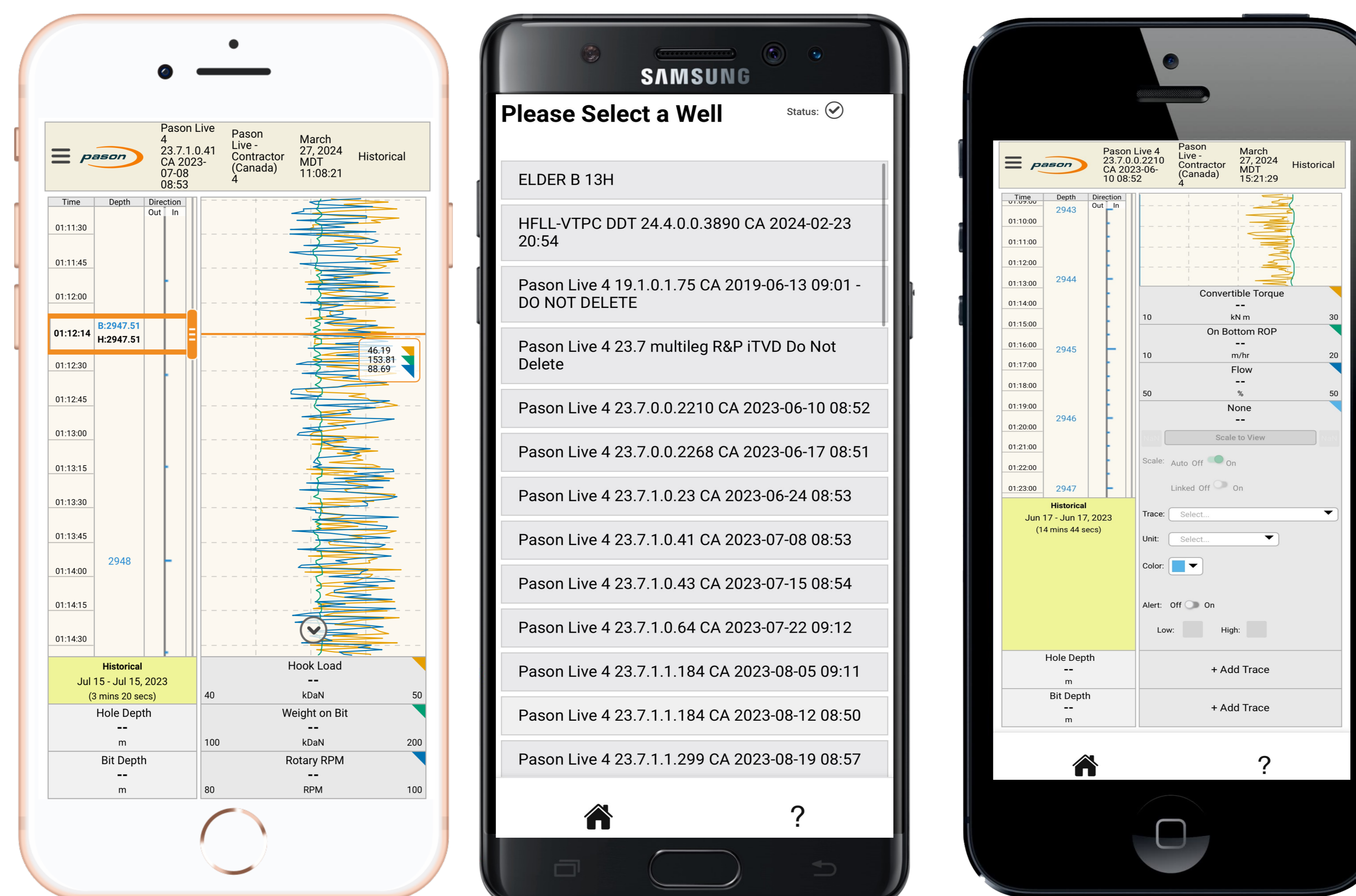
- Standalone apps for iOS (Swift) and Android (Kotlin) would mean creating new codebases entirely, further complicating the development environments of our sponsor.
- Apache Cordova was also explored as a hybrid mobile/desktop open-source framework to convert the existing UI into a mobile web-app, but with numerous API integrations complicating deployment.

Ultimately, access to the existing desktop application source code developed entirely in React, and the use of existing backend environments meant that a React Native implementation would be the best option to develop for Pason's future ambitions. Much of the work came from from overhauling the UI to better respond on mobile devices and integrating new gestures.

## Results

The team had great success with the project. We were able to achieve the goals outlined by the team and our project sponsor:

- Created a fully functioning iOS/Android application that is tailored to the mobile experience.
- Created new mobile-first scroll, zoom and swipe gestures to enable easier navigation of data traces.
- Enabled seamless updates & upgrades with a single repository between mobile and desktop web applications.
- Created automated Unit Tests to cover application functionality.



## Methods and Materials

- The entire app is written using React Native.
- Testing is done using automated Unit Tests.
- Our app is accessible through an AWS test environment via Unbound server.
- Expo Go is used to simulate actual usage as a mobile web-app across any platform.



## Sponsor Information

Tony Schellenberg, Pason Systems  
[tony.schellenberg@pason.com](mailto:tony.schellenberg@pason.com)