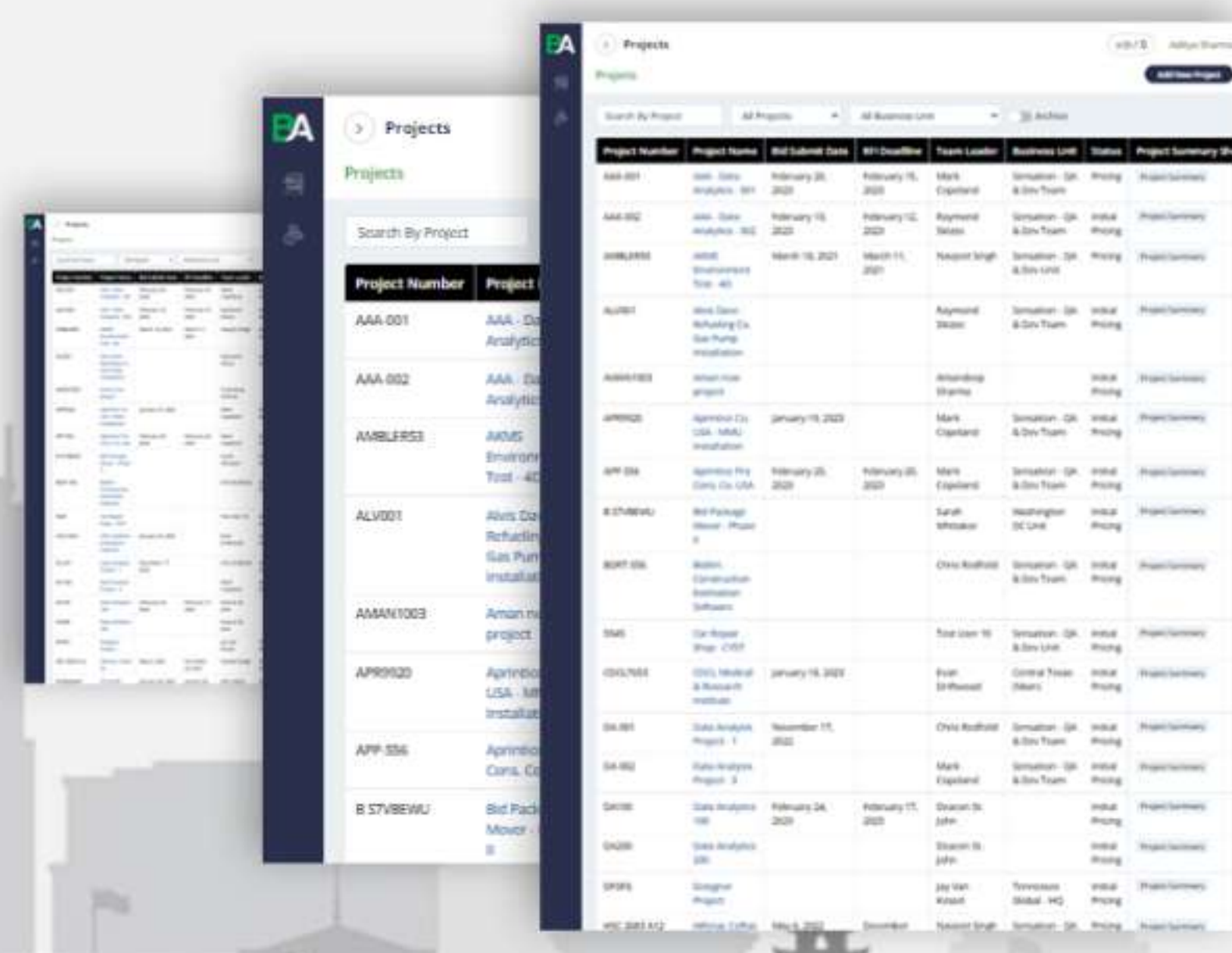




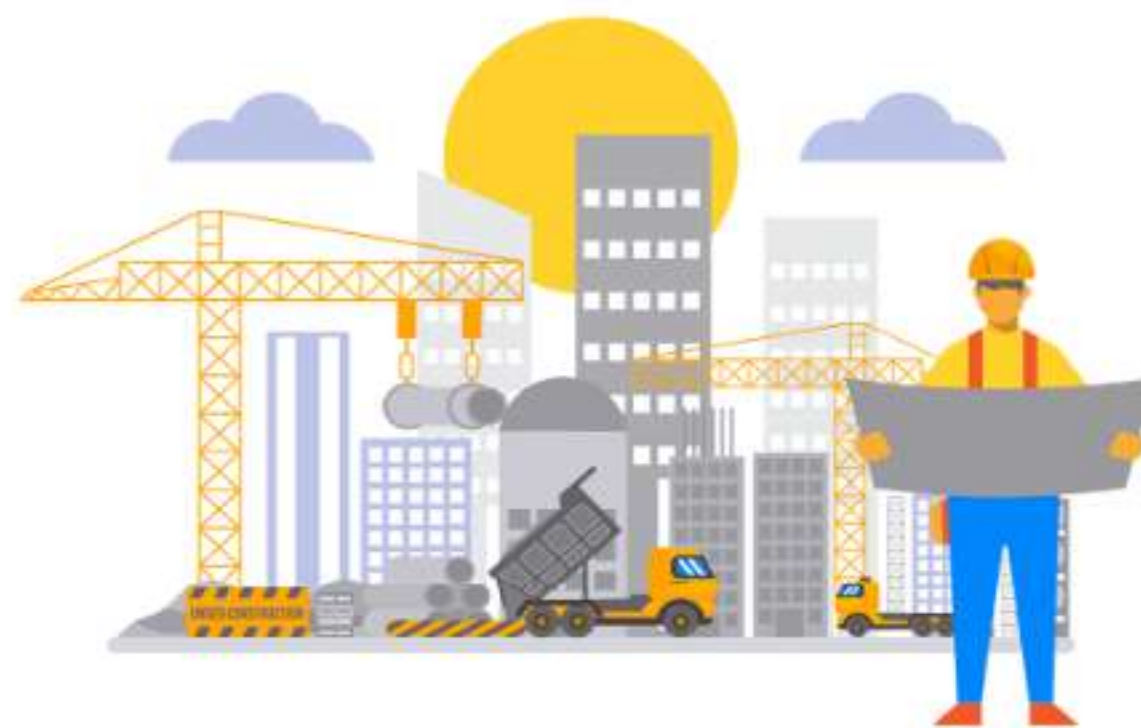
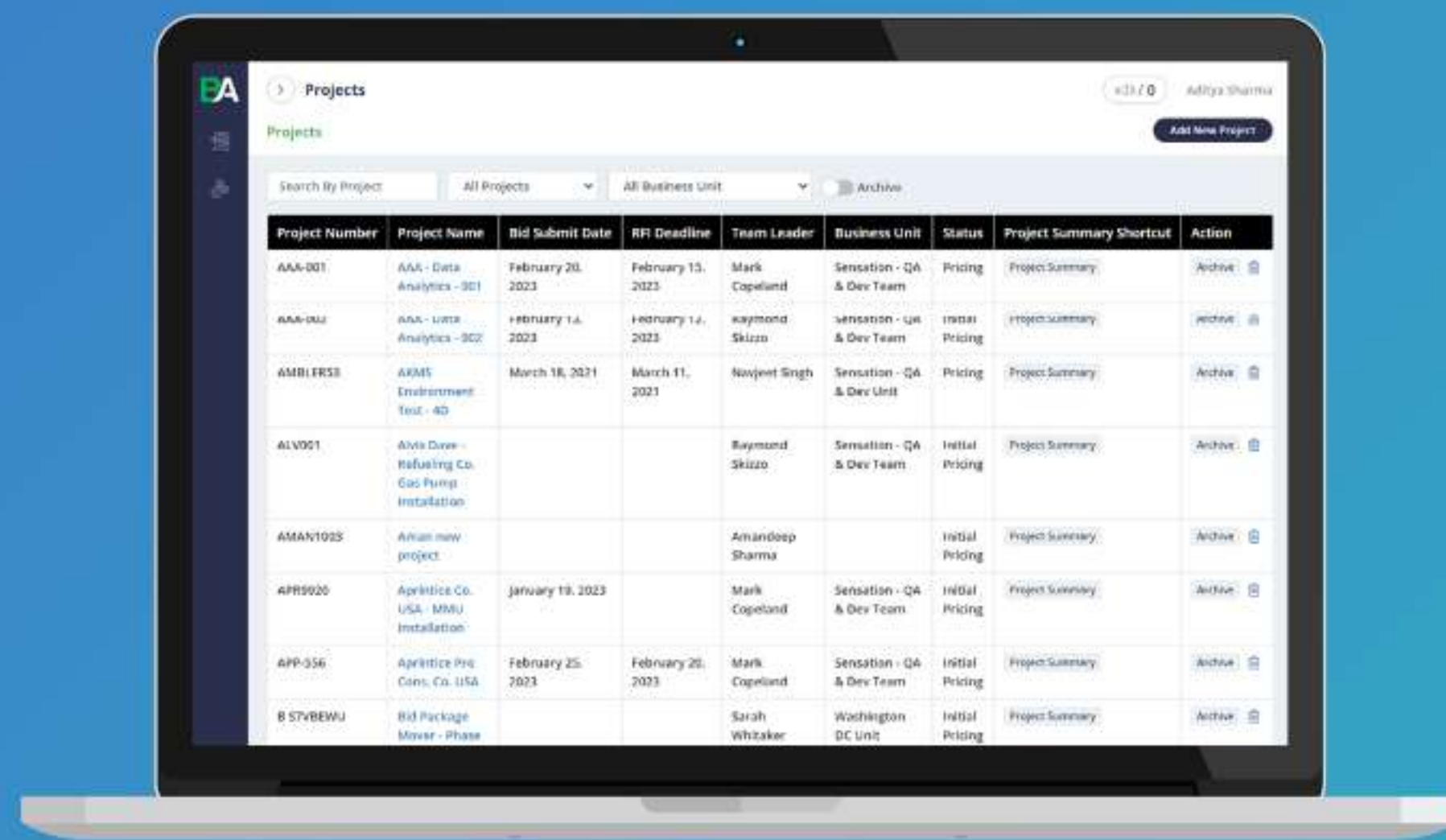
Success Stories

Construction and Estimations



Construction Estimation Tool

It's a web based construction estimation tool where the vendor can create a detailed scope of any planned construction along with the cost of each and every section. The calculation of estimates is as easy as it can be which makes this software stand out among others.



Client's Requirement

Client approached us with a situation with their business firm that operates in the construction industry by generating construction cost estimates for their customers. The situation was frustrating for the client as they relied heavily on Excel sheets for maintaining cost estimates for each construction item, process and govt. Induced taxes.

They wanted a system that eliminates the need of continuously dealing with the lack of features that come with expiring plans of Excel, eliminate the need of formatting each Excel sheet per project and to get rid of the hassle of sharing links of a sheet within the organization.

Our Strategy

RESEARCH & PLANNING

To build the construction estimation application for managing costs, quotes and estimates, we bought a strategic requirement gathering process in place. We study the ideas and other important aspects in the client meeting. We used different strategies throughout the process so that he could achieve the best results.

Our strategy was to make a tool which can be used with utmost ease. The calculations and maths involved in this business domain was the most trickiest part. Hence we focused on making these cumbersome calculations as easy as possible while building the software.



DESIGN



UX



DEVELOPMENT

Challenges

During the development of this efficiency hungry software, we went through some hurdles and challenges due to the immense scale of calculation processes and real-time syncing:

- ✓ The client wanted the estimates of each specification to sync across the platform and update the quantity and cost based dollar amount in real-time for all users onboard and every input sheet that accepts amounts needed to be ready to export at any given moment with latest amounts on it.
- ✓ The bid summary module that took input from multiple large scale modules in the software, calculated the govt. induced taxes using add-ons and allowed manual keying-in of amounts to change estimates on the go, needed to update the amounts on all other modules and sync-back in real-time was a challenge as it required recalculating the whole project based on each manual input done on it.
- ✓ Since the nature of business is as such that there are 50+ users per project continuously working on the same module within a project and there are multiple teams working on each project at the same time and everything needed to sync within milliseconds, we had some performance issues due to the load put on a single module by multiple users at the same time.

Solutions

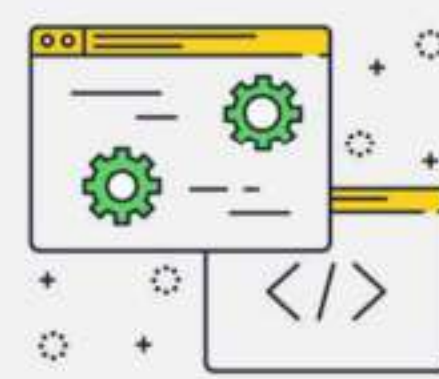
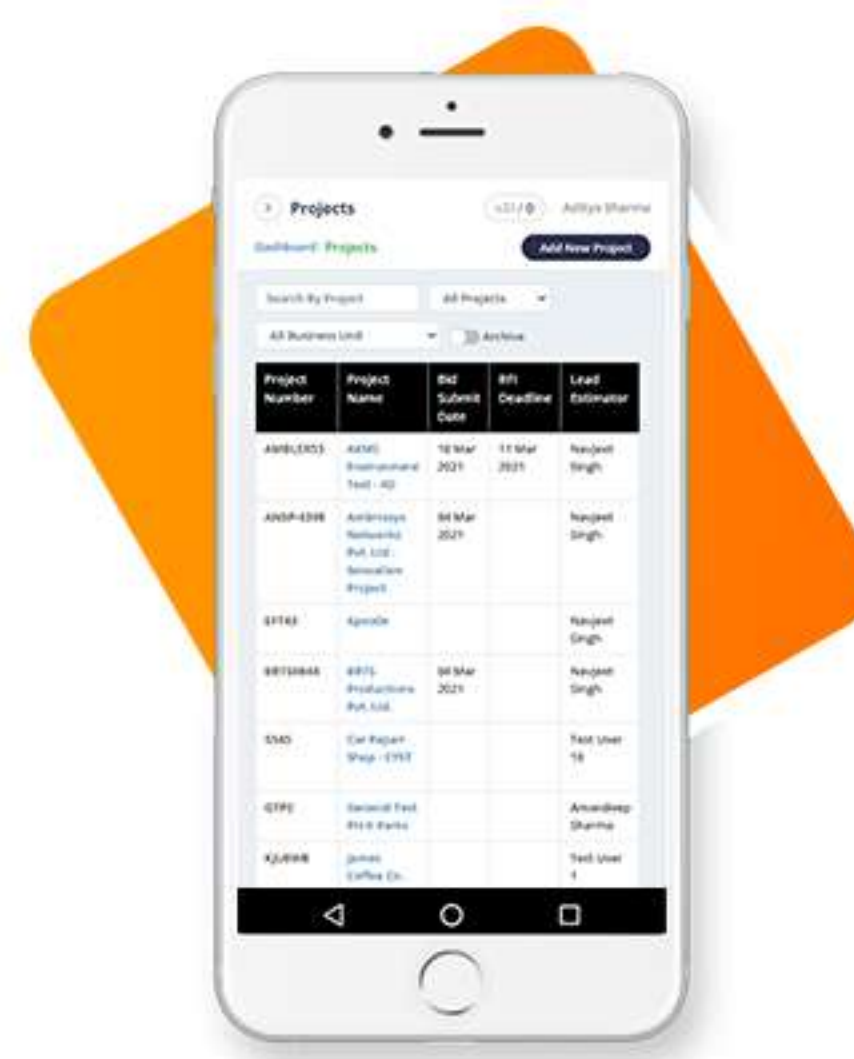
What we built and How we deal with the Challenge

- ✓ In order to make sure that amounts and calculations are synced across the software for all users onboard, we found the Signal-R as the best solution to fulfill the requirement of cross-syncing and implemented it on all crucial modules of the software that had multiple users working at the same time.
- ✓ Since bid summary was a one point module that gathered all the data from large scale modules, allowed user to make changes on bid summary to update all other modules on a single click, we implemented iterative calculations to make sure that the calculations are pin-point accurate on top of the Signal-R that synced the bid summary + other major modules at the same time.
- ✓ To Mitigate the performance lag under heavy load, just upgrading the AWS server configurations was not enough as a solution. Hence we did some code optimization on all the APIs, we optimized the frontend code so the DOM does not get very heavy as the modules in the software deals with hundreds of rows and columns continuously taking input and updating the same using Signal-R. We also did indexing in the database for mitigating performance anomalies.

Features

The Key features of PreCon-Pro

- 01 Real-time data syncing for all users onboard**
PreCon-Pro handles complex calculations and updates them in real-time for users on board with Signal-R, eliminating the need of reloading the webpage every time an estimate changes.
- 02 Flexible specification management for construction industry**
The construction specifications change every 2 years in the US market, PreCon-Pro allows the authorized user to manually change the master format list of specifications in a matter of few clicks and keep the master format up-to-date according to the latest standards in the industry.
- 03 Exportable summary sheets & project summary**
PreCon-Pro allows their users and sub-contractors to export any crucial information on well themed and organized Excel sheets with a single click so they can have the estimate sheets handy at all times.
- 04 Ability to store versions of each update in estimates**
Administrators can save versions of the estimation sheets at any given moment, allowing them to keep track of the changes coming from the contractor side or the customers. Each version is saved with a date & time stamp and can be restored with ease.
- 05 Flexible roles & permissions**
System allows the administrators to use roles and permissions with immense level of flexibility, admin gets to decide the level of access a role can get per project within the software as the roles & permissions are set at software level but are modifiable at project level.
- 06 Iterative calculations for better final outcome**
The project summary module allows the user to cross-sync the amounts using iterative calculations. Any changes done on estimation sheets syncs to project summary which is the final step of estimation, users can make changes directly on project summary and everything syncs back to other modules.
- 07 Advanced add-ons for tax & additional cost calculation**
PreCon-Pro allows the administrators to set add-ons which lets the user fill-in general standards set by the US laws and based on that, the taxes and additional costs are calculated on project summary. Users can set these add-ons as default at software level and each add-on is editable at project level.



Technologies and Tools

Angular 10, Dot.Net Core, HTML, SQL server

More Case study

