Ken A Collins – Portfolio

Ken@KenACollins.com | linkedin.com/in/KenACollins | github.com/KenACollins

Accedo.tv: Electronic Program Guide

You probably don't think about the software that runs on your smart TV or set-top box but it is a unique environment with its own challenges in terms of hardware constraints and usability. One example: the entire user interface can only be navigated with the up, down, left, right, and OK key presses of a remote control.

Let's take a look at what goes into the electronic program guide screen.



Requirement: Provide smooth animations as user rapidly scrolls through electronic program guide.

Challenges:

- Set-top box hardware limitations of 16-bit memory and lack of GPU for rendering.
- Provide programming details across 100s of channels, 4 week period, 24 hours/day.
- React in real-time to fetch additional data from third party source as user scrolls.

Solution:

- Constructed DOM in layers to avoid z-index and allow use of transform: translate() animations to take advantage of hardware acceleration.
- Through experimentation, calculated implications of a long key press to ascertain optimal amount of data to load in each request of third party API over Node.js.
- Defined behavioral differences between casual and rapid scrolling, skipping the loading of program details (lower portion of screen) when guide is moving too fast to see details.

Regeneron: Design System

Custom application development was expensive. Developers working in silos would each reinvent the wheel building apps that utilized the same elements – buttons, dropdowns, accordions, tooltips, etc. – with no standards for implementing common styling or branding.



Requirement: Identify common elements across applications and build a reusable components library.

Challenges:

- Thorough cataloging of common components needed to be gathered.
- Needed way for developers to try out components prior to installation.
- Library had to be an npm installable package but reside in a private registry.
- Solution: We built a reusable components library for our design system and Storybook made it possible to render the components on the screen and provide us a way to document how to implement and what properties are supported. A user can change parameters passed, and see a live re-rendering of the component.

Regeneron: Research Data Portal

Scientists needed a way to locate research data hiding in lots of places.



Requirement: Need a central place where all data sources matching a search term can be presented.

Challenges:

- Each data sourcing system required separate login.
- Mismatch in domain names generated cross-origin resource sharing (CORS) errors.
- Search term could be found across domains, systems, and reports.
- Solution: My team built a portal that pulls together data across platforms. The landing page displays common domains in tiles, top navigation narrows the focus, and advanced search digs deeper to produce results that found the search term in domain names, scientific abstracts, and across systems, and can even guess what the user is thinking when only a few characters are entered.

Regeneron: Screening & Genotyping

Regeneron had a huge problem. It was highly dependent on two employees in a labor intensive manual process of choosing assay sets of modified alleles for distribution across Taqman plates, and if one of these lab managers was on vacation and the other was out sick, experimentation ground to a halt.

∮PΤ	Manage Assay Sets / Create Assay Sets							실 KC Ken	Collins -
	CREATE ASSAY SETS							Create Assay Set	
•	Testing Method	Plates Needed	ed Multiplexed Assays						
	Genotyping		Assay Name		Channel 1	Channel 2	Channel 3	Channel 5	
₩≥	MAIDs Clear All X 125 X 1112		Wnt2b-627	9	0	O	0	Channel 5	
		+ Add Plate	Neo	9			Channel 3	0	
	120 ATG to STOP. ONGOING-DONOR PRO	D	LacZ	9		Channel 2		0	
	ATG to Ston®sMEDY/trans		125TU			0	0	0	
	122 GENE: RAGE CHR: -		125TD		O		0	0	
	612 Note: This MAID will NOT express la GENE: GS2L CHR: -	C	+ Assay						
	 ✓ F1 	-							
	✓ F2		Description						
	F3+ Archive NO		Please add your de	escription.					
						0/500			

Requirement: Capture and collect data on assay sets, which presently resided in the heads of two lab managers, to speed productivity and optimize distribution of biological material.

Challenges:

- Articulating the lab managers' knowledge into a user interface.
- Collecting data on the creation and management of batches and assay sets.
- Generating files to feed to Hamilton machine for optimizing Taqman plates.

Solution: I challenged my front-end team to build the UI before the design was finalized, and to mock APIs as the back-end team was not ready to deliver. Over an iterative agile scrum process, we build screens for creating and managing batches, assay sets, and to view assay inventory. We originally produced Excel and PDF files, then offloaded to back-end.