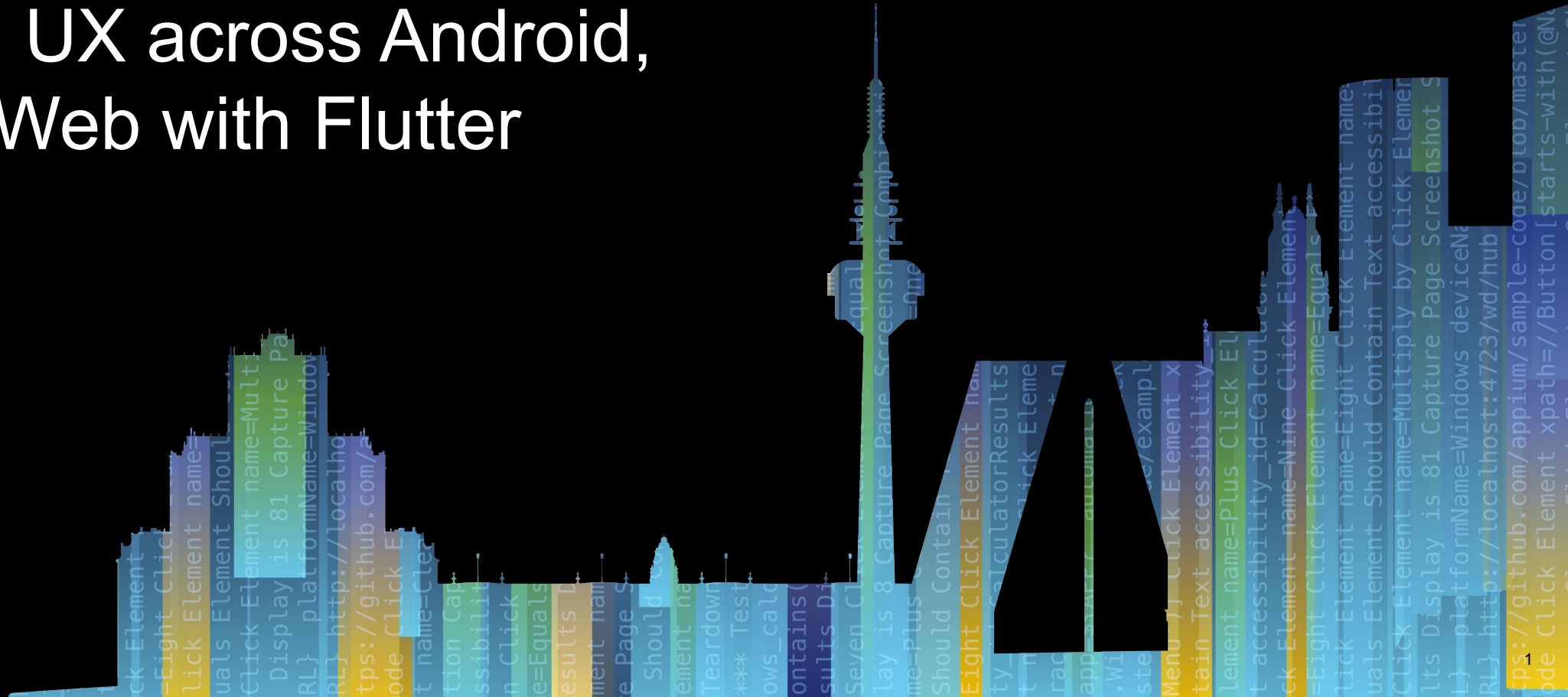


Common UX across Android, iOS and Web with Flutter

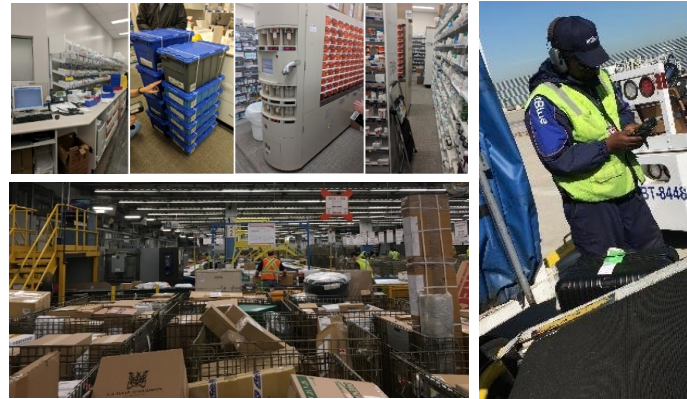
Luke Walton
Front End Developer



Innovation Design

- Award winning products and solutions from concept to production.
- 7 studios globally
- 61 designers, researchers and developers

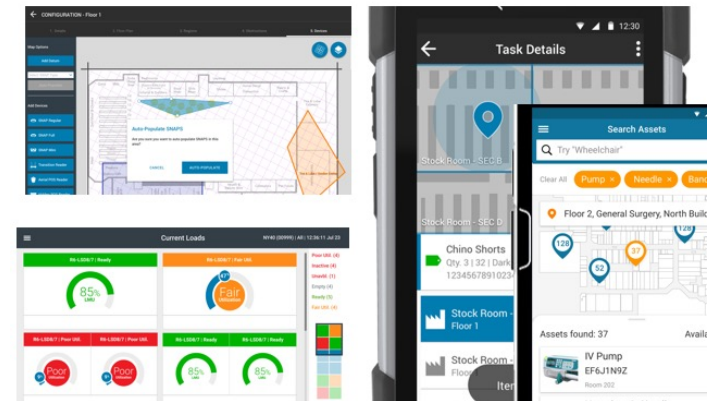
Customer Design Research



Physical Product Design



Human Factors Engineering



User Experience Design

Zebra DevCon 2023



State of cross-platform

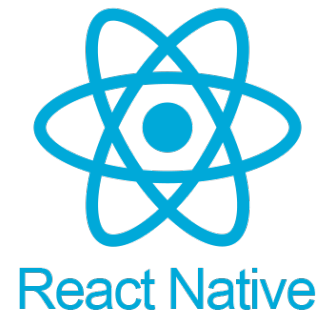


Cross platform history

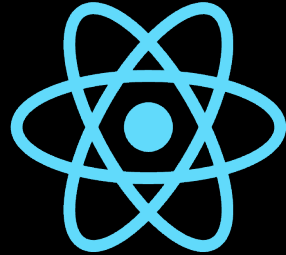
Wrap a WebView with APIs



Compile to native



React Native or Flutter?



- JavaScript
 - Dynamically typed
- Native components
 - npm / React Native Directory
- Popularity



- Dart
 - Statically typed
- Rich core libraries
 - pub.dev
- Growing community

Developer experience...

ZSB Series Printer

New experience for Zebra

Zebra 
DevCon 2023

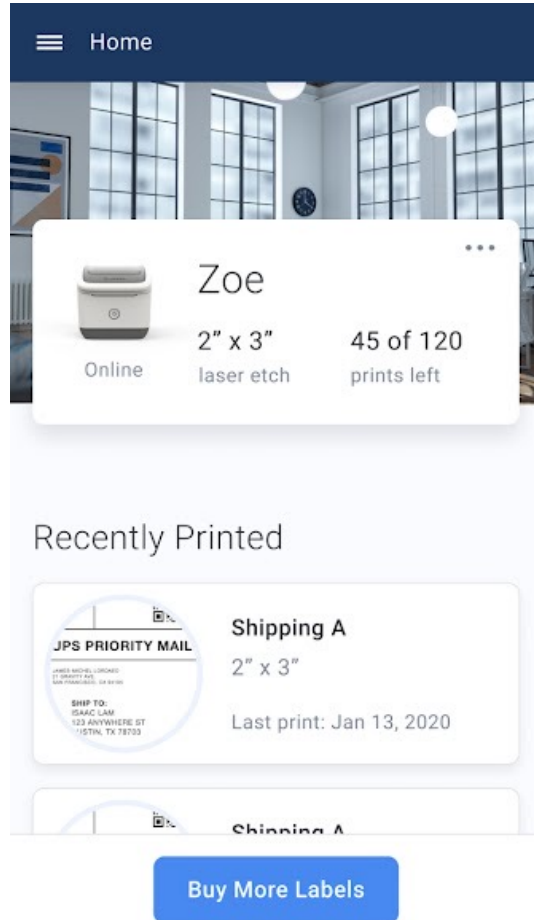


- Great UX
- Cross platform
- Native features
- Developer experience

The solution: Flutter 🎉

ZSB Series Printer

Our findings



Good 👍

- Flutter
- Performance
- User Experience
- Developer experience

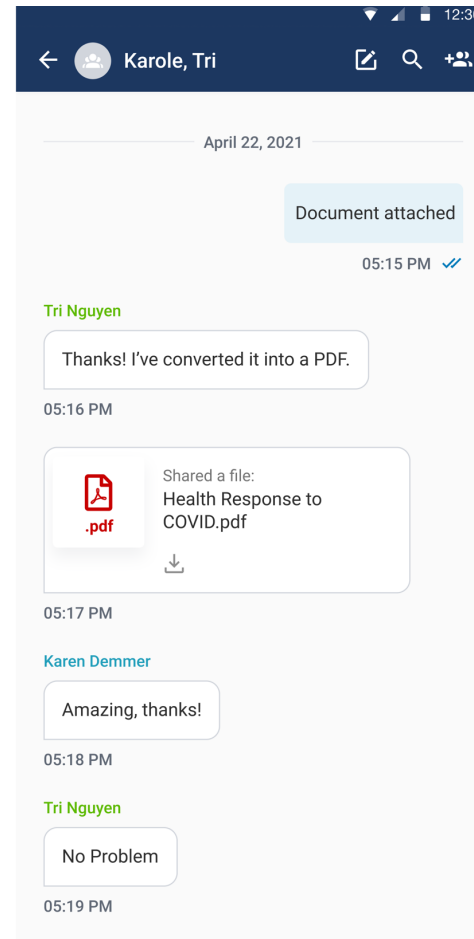
Less good 👎

- Accessibility
- Responsiveness
- UI customization
- State management

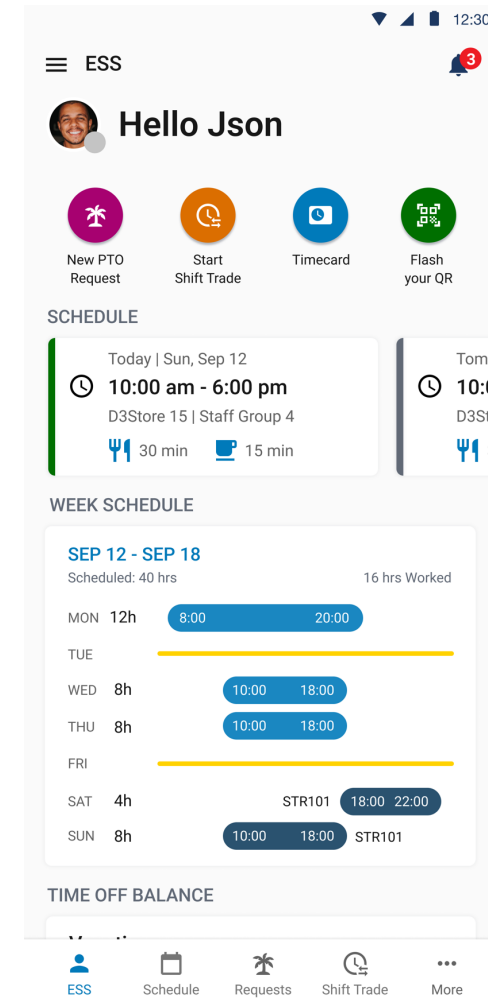
Zebra Workcloud

~70k lines to ~35k lines

- Accessibility
- Responsiveness
- UI customization
- State management



Workcloud Chat



Workcloud Scheduling Employee Self-Service



Flutter 101



What does Flutter look like?

Declarative UI

Hello Flutter!

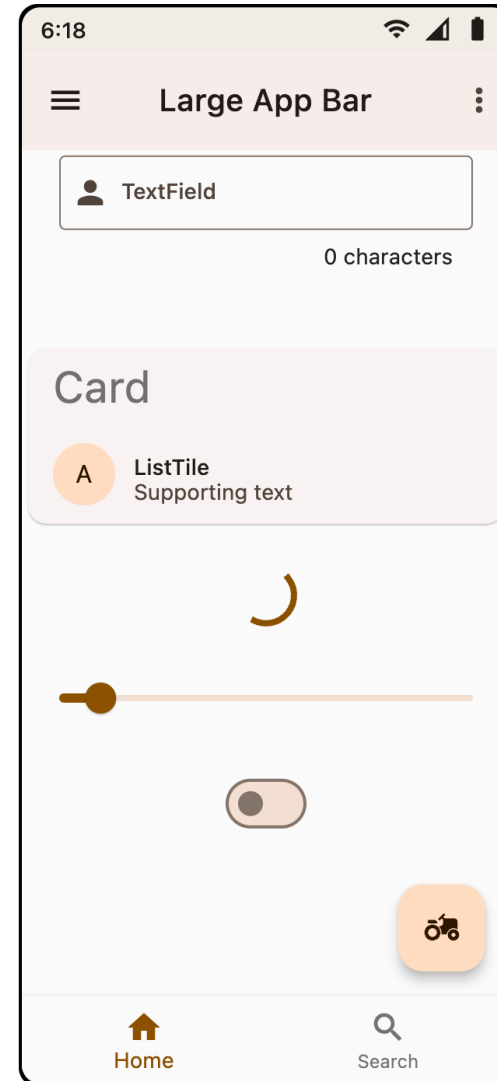


```
1 import 'package:flutter/widgets.dart';
2
3 void main() => runApp(const Example());
4
5 class Example extends StatelessWidget {
6   const Example({super.key});
7
8   @override
9   Widget build(BuildContext context) {
10    return Column(
11      mainAxisAlignment: MainAxisAlignment.spaceAround,
12      children: [
13        const Text('Hello Flutter!'),
14        Image.asset('assets/dash.png', height: 200),
15      ],
16    );
17  }
18 }
```

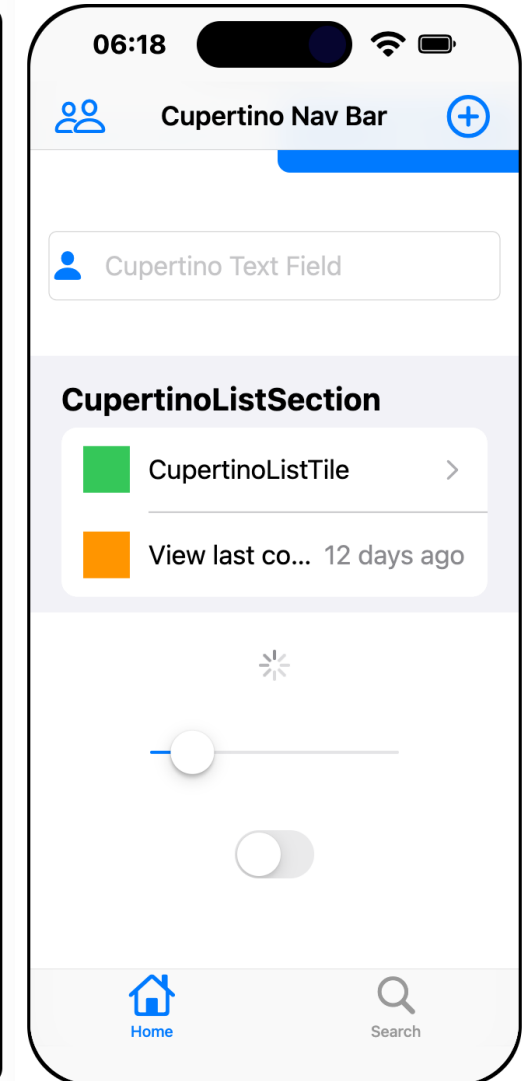
Core components

Material and Cupertino

- Foundation
- UI Components
 - Adaptive Constructors



Material (Android)



Cupertino (iOS)

Accessibility

Make experience great for all users



Hearing



Physical



Visual



Cognitive



Age



Situational



Cultural

Accessibility

Achieving AA and AAA

- Responsiveness
 - Screen size
 - Font scale
- Localization
- Color contrast
- Alternative I/O
 - Switches
 - Screen readers



AbleNet Blue2 switch



Android TalkBack



Apple VoiceOver

Accessibility

Simple semantics

- Eliminating vision barriers
 - Content, Actions, State

```
IconButton(  
  icon: const Icon(RflxIcons.edit),  
  tooltip: 'Edit entries'  
)
```

Built-in

```
MergeSemantics(  
  child: Row(  
    children: [  
      Text('Count: '),  
      Text('$nmr', style: s2)  
    ]  
  ),  
)
```

MergeSemantics

```
Semantics(  
  child: GestureDetector(  
    child: ProfileImage(),  
  ),  
  label: '$user's profile picture',  
  button: true,  
  hint: 'open profile page'  
)
```

Semantics

```
ExcludeSemantics(  
  child: DecorativeWidget(),  
)
```

ExcludeSemantics

Conclusion

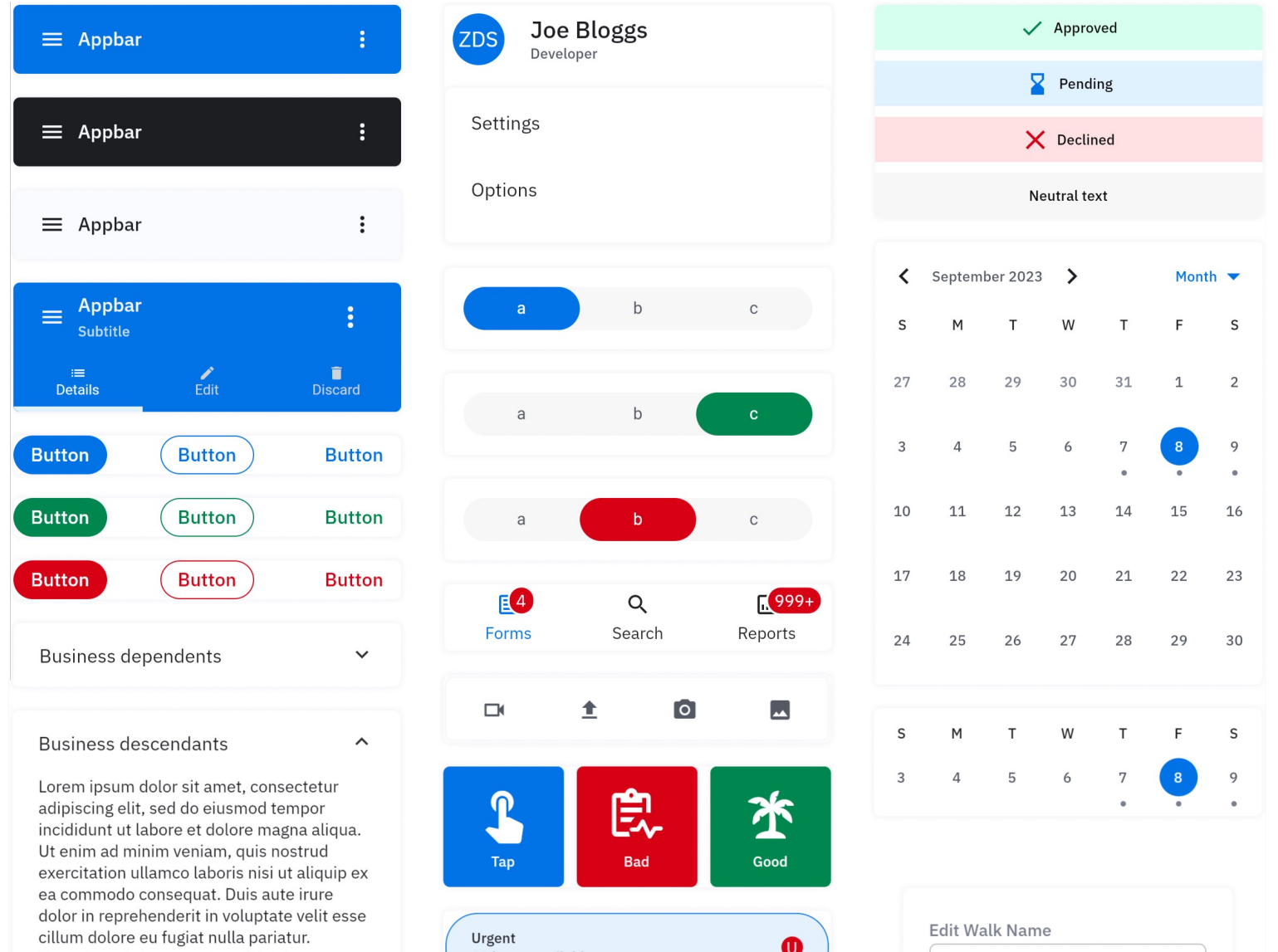
- Flutter makes great apps
 - Android, iOS, Web, Windows, MacOS, Linux
- Good performance
- Great user and developer experience
- Continuous improvements
- Almost total feature parity with native



ZDS-Flutter

pub.dev/packages/zds_flutter

- Current design components
- Production tested

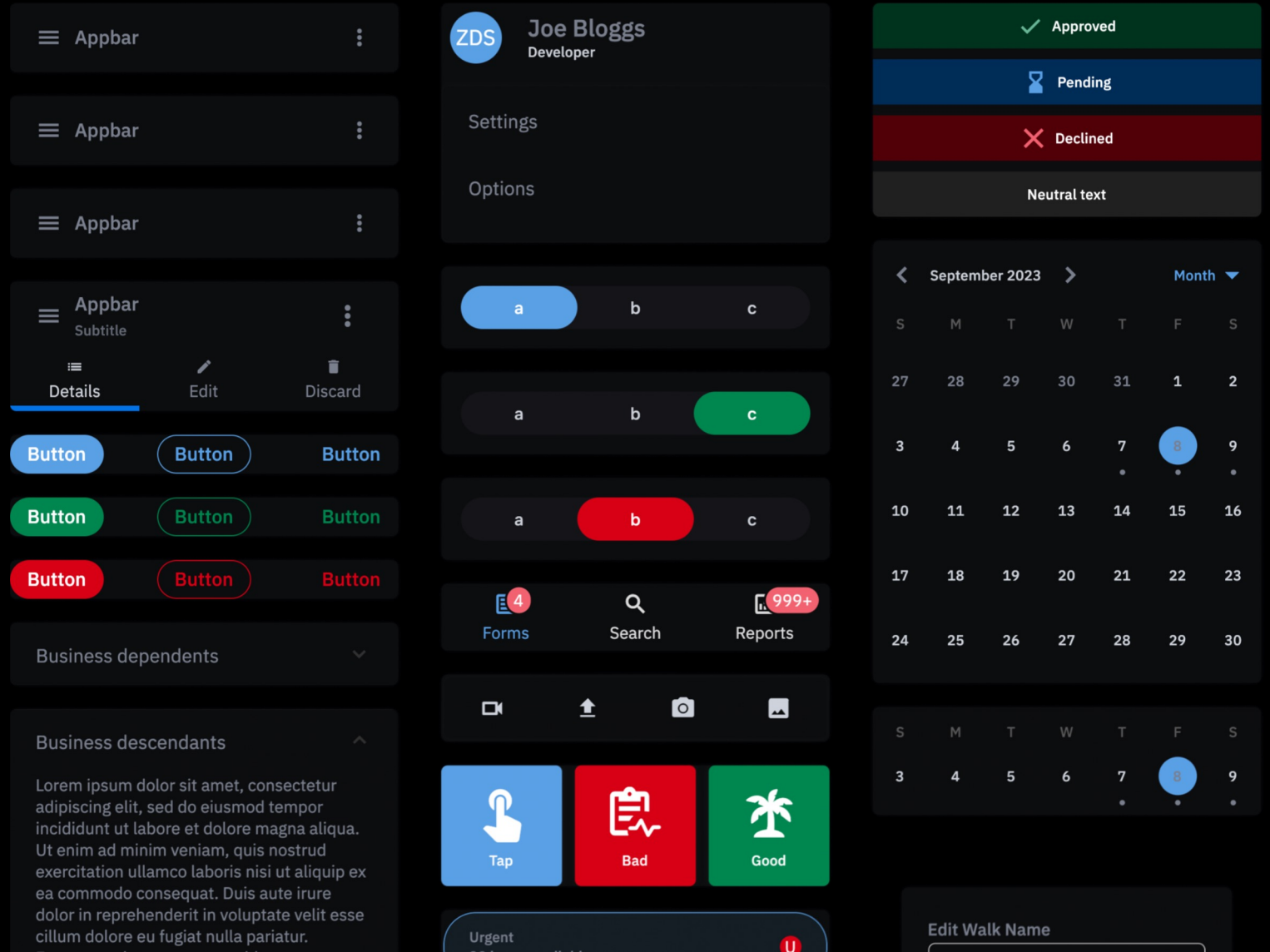


The image displays a collection of UI components from the ZDS-Flutter package. On the left, there are several AppBar examples in different colors (blue, black, white) and styles (with subtitle, with bottom navigation). Below these are three rows of buttons in various colors (blue, green, red) and styles (solid, outlined). A dropdown menu is shown with the text 'Business dependents'. A card component is also visible with the text 'Business descendants' and a paragraph of Lorem Ipsum. On the right, there is a user profile card for 'Joe Bloggs Developer' with settings and options. Below that are three horizontal button groups with different colors and styles. A bottom navigation bar is shown with icons for 'Forms', 'Search', and 'Reports'. At the bottom right, there are three large buttons labeled 'Tap', 'Bad', and 'Good' with corresponding icons. The far right shows a calendar for September 2023 and a list of items with status indicators: 'Approved', 'Pending', 'Declined', and 'Neutral text'.

ZDS-Flutter

pub.dev/packages/zds_flutter

- Current design components
- Production tested



The image displays a collection of UI components from the ZDS-Flutter package. On the left, there are several AppBar examples with different titles and actions. Below these are three rows of buttons in blue, green, and red. A dropdown menu labeled 'Business dependents' is shown. In the center, a settings page for 'Joe Bloggs Developer' includes sections for 'Settings' and 'Options', and a row of three buttons labeled 'a', 'b', and 'c'. To the right, there is a calendar for September 2023 with a date '8' highlighted. Below the calendar are three buttons labeled 'Tap', 'Bad', and 'Good'. At the bottom, there are partial views of an 'Urgent' notification and an 'Edit Walk Name' form.

Zeta

pub.dev/packages/zeta_flutter

- Cross-platform, curated design system.
 - Flutter, Web components
- Early alpha release

Zeta Heading Large

Zeta Heading Medium

Zeta Heading Small

Zeta Title Large

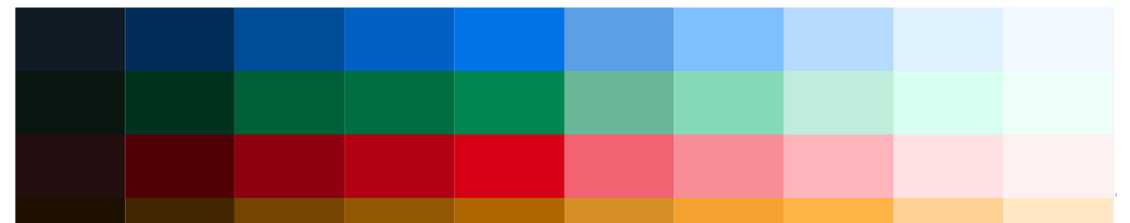
Zeta Title Medium

Zeta Title Small

Zeta Body Large

Zeta Body Medium

Zeta Body Small



Thank You

github.com/thelukewalton/devcon23

ZEBRA and the stylized Zebra head are trademarks of Zebra Technologies Corp., registered in many jurisdictions worldwide. All other trademarks are the property of their respective owners.
©2023 Zebra Technologies Corp. and/or its affiliates. All rights reserved.