PointCheck

Responsive UI Implementation

By: Bradon Ladd

Advisor: Professor James Foster

Client: HTS Ontario

A Brief Recap

- PointCheck is an internal logging tool used by HTS, a Canadian company, who installs and services enterprise level HVAC systems
- Application allows engineers to routinely enter and sync information in ‘checks’ about each piece of equipment like status, voltage, safety notes, and more
- Built using Flutter and Dart
- Data is stored in a Microsoft Azure database in JSON format
- Extra tools were needed, such as Google Chrome for debugging and VS Code for editing

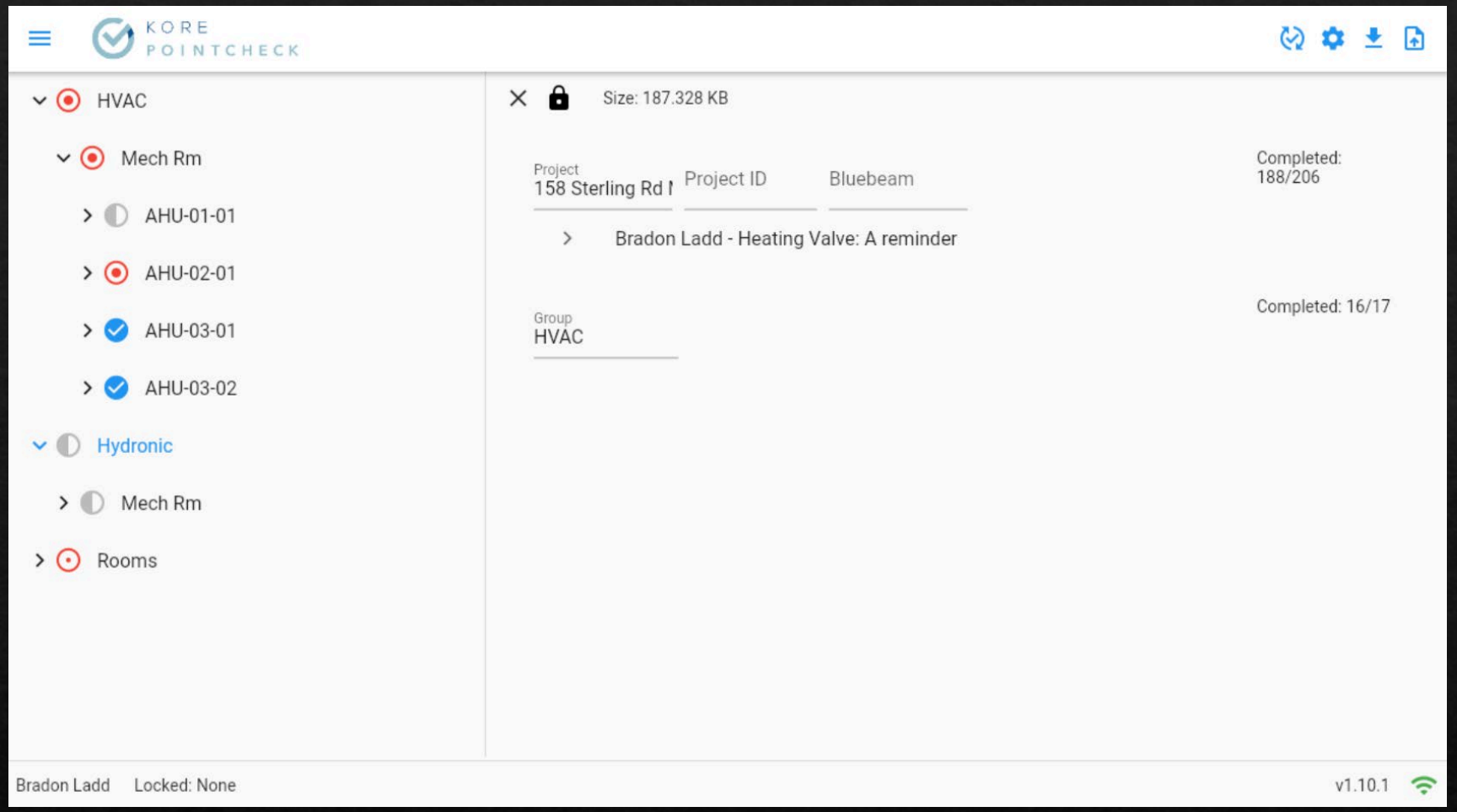


Original Proposal

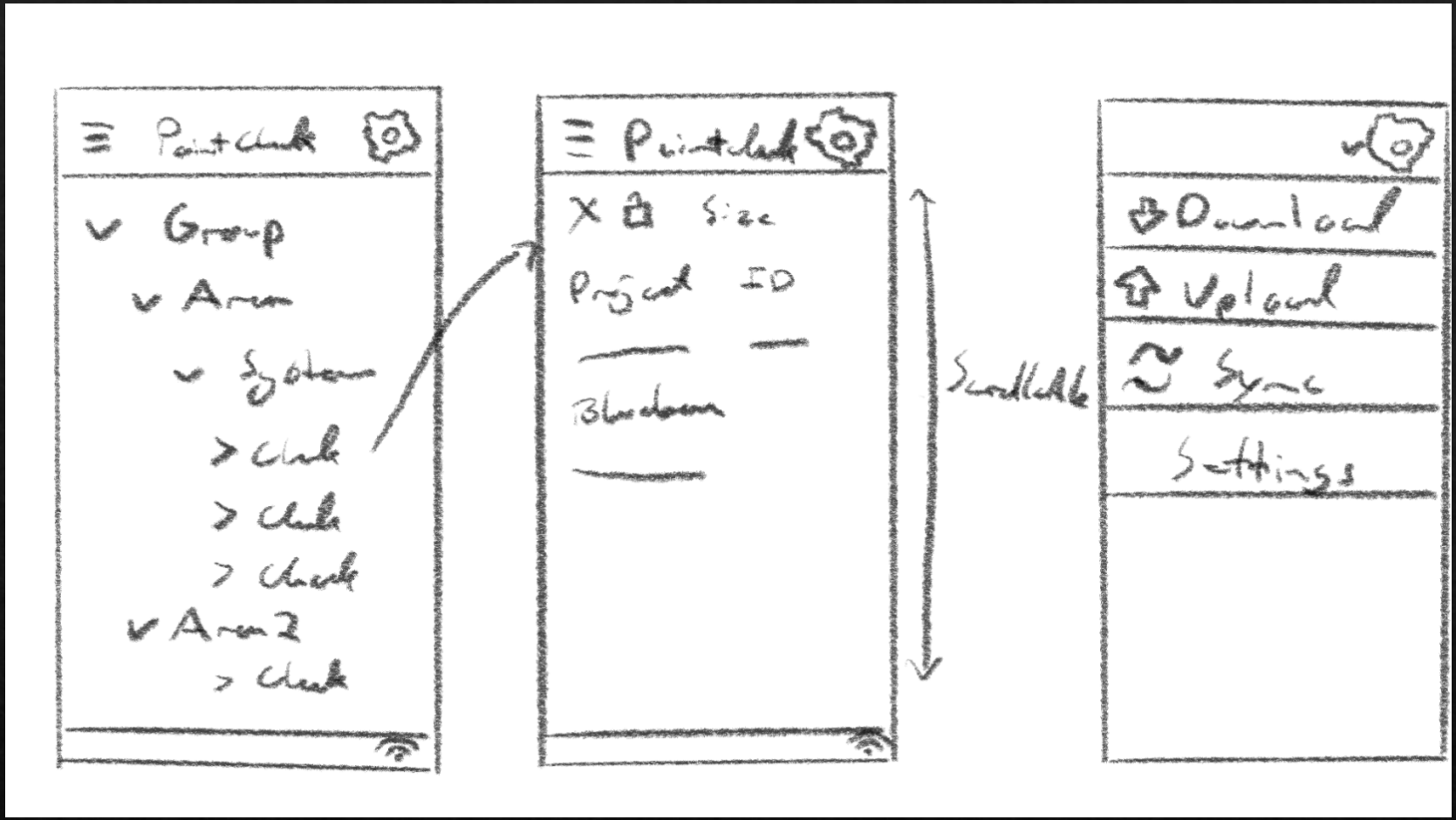
- Designing a responsive layout objectives:
  - Drawing and designing a desired UX
  - Implementing said UX in Flutter/Dart
  - Touching up any other elements that did not work well in a mobile layout
  - A stretch goal was defined in case time was available, but the project ended up taking the allotted time.

Original Proposal

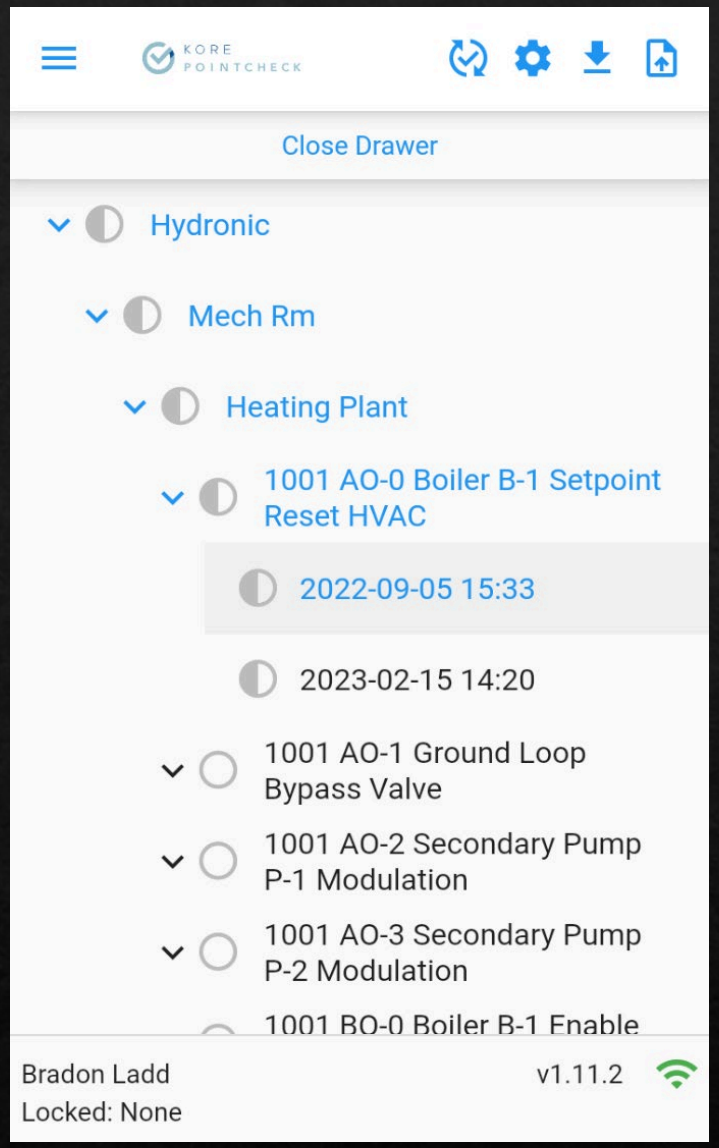
- Designing a responsive layout objectives:
  - ~~Drawing and designing a desired UX~~
  - ~~Implementing said UX in Flutter/Dart~~
  - ~~Touching up any other elements that did not work well in a mobile layout~~
  - A stretch goal was defined in case time was available, but the project ended up taking the allotted time.

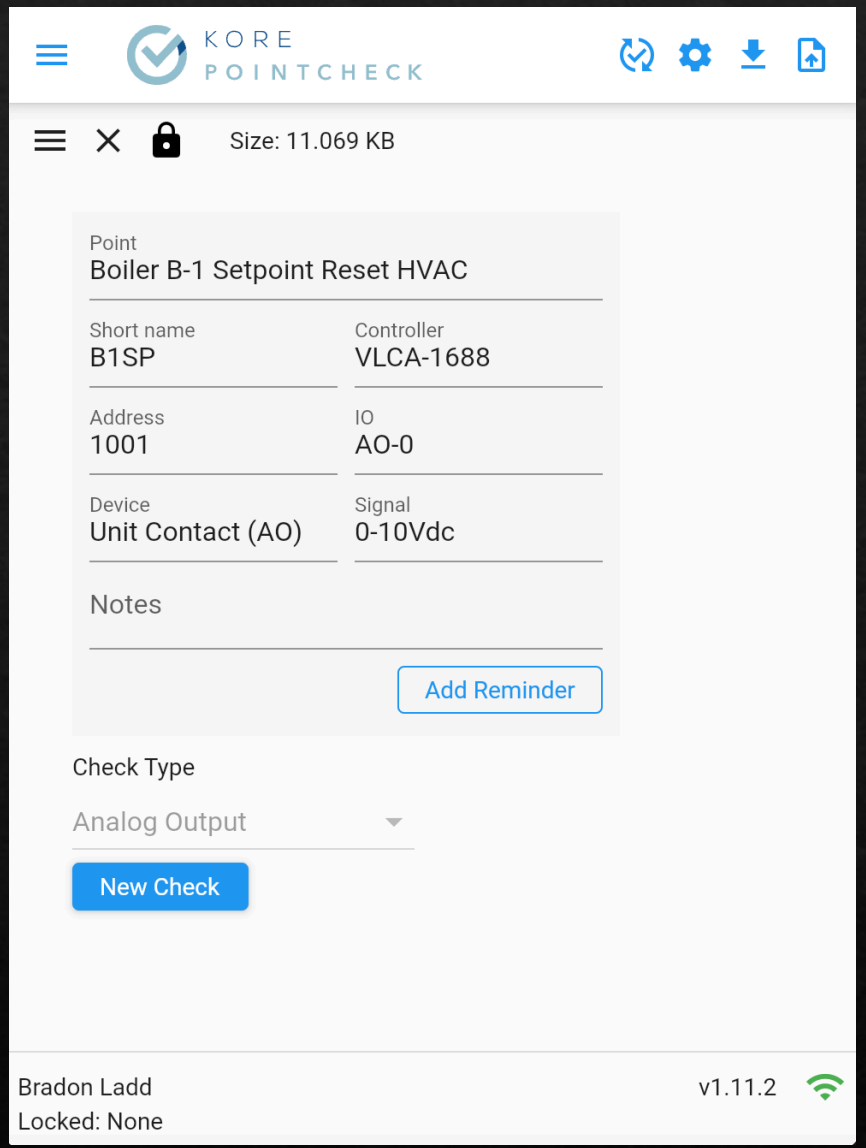


Web layout prior to the re-design. Elements were static and would not comfortably resize with screen size changes.



Initial sketches detailing the drawer system and vertical information layout

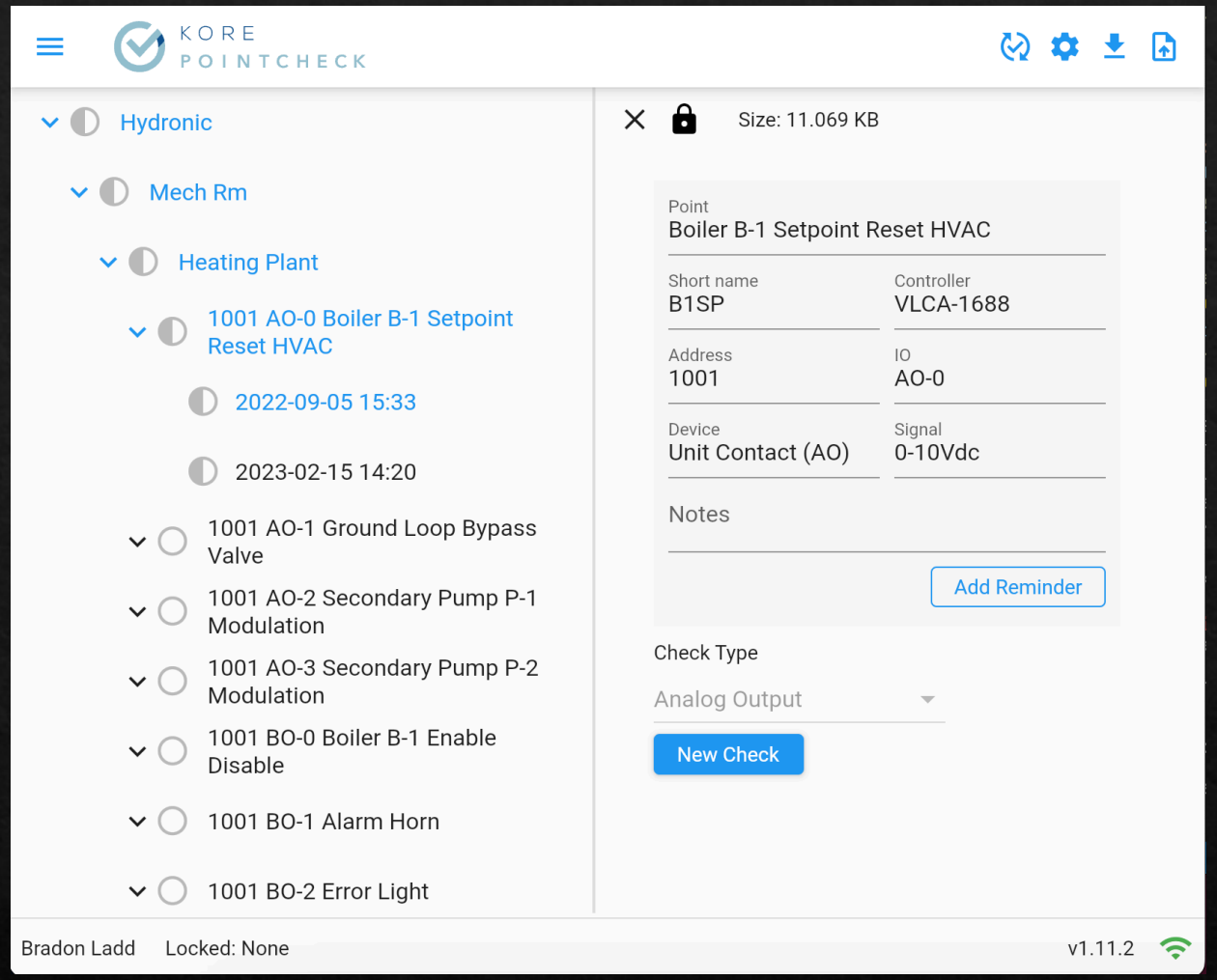

KORE POINTCHECK
Close Drawer
Hydronic
Mech Rm
Heating Plant
1001 AO-0 Boiler B-1 Setpoint Reset HVAC
2022-09-05 15:33
2023-02-15 14:20
1001 AO-1 Ground Loop Bypass Valve
1001 AO-2 Secondary Pump P-1 Modulation
1001 AO-3 Secondary Pump P-2 Modulation
1001 BO-0 Boiler B-1 Enable
Bradon Ladd
Locked: None
v1.11.2


KORE POINTCHECK
Size: 11.069 KB
Point
Boiler B-1 Setpoint Reset HVAC
Short name
B1SP
Controller
VLCA-1688
Address
1001
IO
AO-0
Device
Unit Contact (AO)
Signal
0-10Vdc
Notes
Add Reminder
Check Type
Analog Output
New Check
Bradon Ladd
Locked: None
v1.11.2

Mobile Size

Major Revisions

- Rather than the UI respond to every available width, we instead opted to have the window resize to specific ranges of screen widths (in pixels)
  - 0-800 (mobile): Information is split between two screens, accessible by a drawer toggle. Only one pane shows at a time. Information pane is laid out vertically.
  - 800-1200 (tablet): The panes are shown side by side, but the information pane is laid out vertically.
  - 1200+ (web): The standard web layout is used. Information pane is laid out horizontally to fill the width of the screen.


KORE
POINTCHECK
Hydronic
Mech Rm
Heating Plant
1001 AO-0 Boiler B-1 Setpoint Reset HVAC
2022-09-05 15:33
2023-02-15 14:20
1001 AO-1 Ground Loop Bypass Valve
1001 AO-2 Secondary Pump P-1 Modulation
1001 AO-3 Secondary Pump P-2 Modulation
1001 BO-0 Boiler B-1 Enable Disable
1001 BO-1 Alarm Horn
1001 BO-2 Error Light
Size: 11.069 KB
Point
Boiler B-1 Setpoint Reset HVAC
Short name
B1SP
Controller
VLCA-1688
Address
1001
IO
AO-0
Device
Unit Contact (AO)
Signal
0-10Vdc
Notes
Add Reminder
Check Type
Analog Output
New Check
Bradon Ladd
Locked: None
v1.11.2

Tablet Size

Challenges

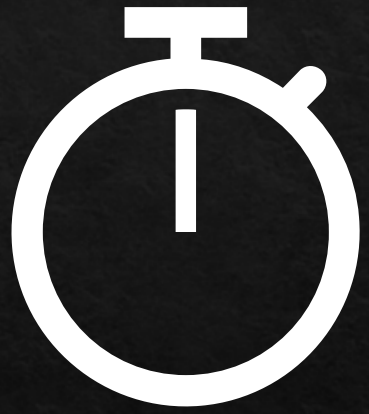
Flutter/Dart Hurdles

State Management issues

Layout rendering bugs

Testing solutions

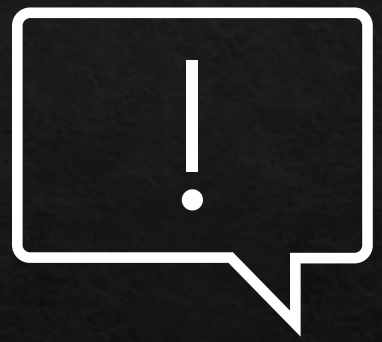
Challenges



Burnout/Time Management

Managing the project on top of a busy school schedule proved to be the biggest hurdle

Challenges



Communication

Understanding feedback on the PR

Learning how to communicate with customer

Thanks!