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Problem Statement

- The current process Horizon Air technicians have for acquiring data is time consuming and can be inaccurate.
- Horizon Air database takes long periods of time to gather information.
- Search engine is hard for technicians to understand.
- Retrieving data from database requires two technicians.

[1] Current Search Function of aircraft technicians use.

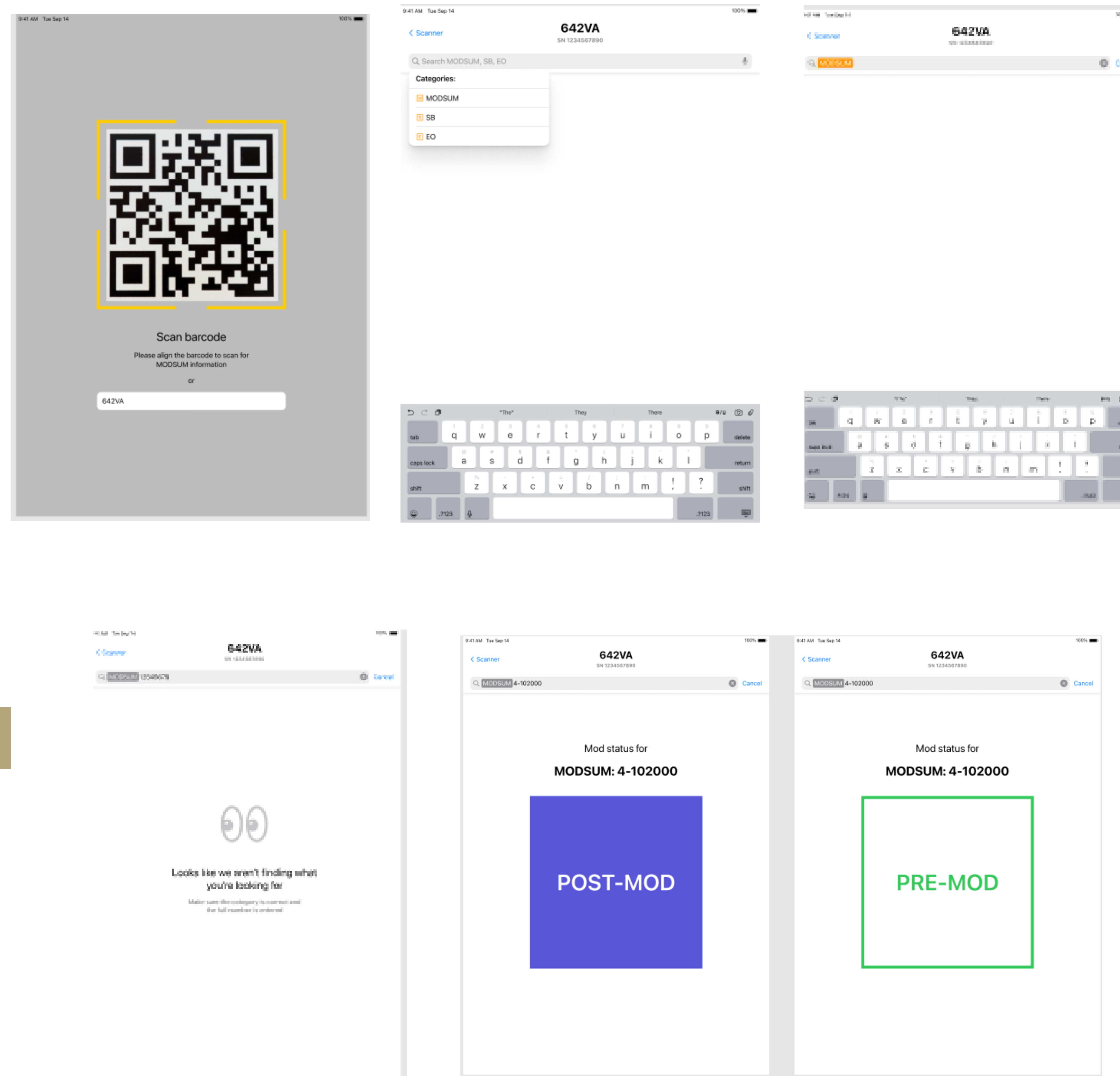
Terminology

- Post-MOD:** An aircraft part has been modified by the manufacturing company.
- PRE-MOD:** An aircraft part has not been modified by the manufacturing company or the part is no longer used on the aircraft.
- MODSUM:** Modifications the factory has done on the aircraft part.
- EO:** "Engineering Order", a number that represents the aircraft engineers have modified.
- SB:** "Service Bulletin", the status that informs engineers if they have the options to modify an aircraft part.

Requirements

- Create an application to be used by aircraft technicians in the field to be able to gain access Horizon Air database via mobile device.
- The app should have an easy search function for aircraft technicians to use.
- The app will be able to retrieve information from Horizon Air database efficiently via scanning a QR code or entering MODSUM number.

Front End Design and Implementation



[2] Ui Designs for the application.

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Front End Implementation

Coding Language: Swift

Tools: SwiftUI, UIKit, AVFoundation, Code Scanner, Combine

- The users will be promoted to allow permission on their mobile device for the app to use the camera function to allow scanning of the QR code.
- The option of entering the MODSUM code is available for being able to search for the Mod Status via MODSUM, SB, EO.
- Once a category for search function is selected, and entering the correct information into the search bar, the app will present information from the Horizon Air database if an aircraft part is Post-Mod, Pre-Mod, or the information is not available.

Back End Implementation

- Implemented an API that runs using .NET 6.0 that retrieves information from the Horizon Air database based on the QR code a user has scanned.
- If a user has chosen to enter an EO, SB, or MODSUM the API will collect one of those categories and retrieve the information about the specific aircraft part.
- QR generator that creates QR codes containing the data on different aircraft parts to scan for the MOD status.

Conclusion and Future Work

The current method Horizon Air aircraft technicians use for gathering data is inconsistent and requires more of a time investment than needed. With our app, we were able to make quality of life changes to the workflow for technicians through:

- Creating an app that is readily available to technicians on their mobile devices they use in the field.
- A search engine that is easier to understand and can efficiently gather and present aircraft data that is needed.

The future for our app is the possibility is that it will be used as a feature in the employee HUB app that is being developed by Horizon Air/ Alaska Air.