# Aircraft MOD Status App

HORIZON®

STUDENTS: ANGELO BELICINA, HAOKUN CAI, MICHAEL KOTTWITZ, AKUL MEHRA

#### **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.

Modsum/SB Report											STATUS
MODSUM		EO		s	В	Fleet	AC		Status		TERMINATED - EC is incorporated on that
						(All) ▼	(All) •		(All)		particular aircraft or par
MODSUM 2	SB	Ą	EO A	AC å	Status	PN/SN	Date Incorporated		Hover for Info	F	FACTORY INC Modification was factor incorporated by the manufacturer.
4-102000	Null			400QX	FACTORY INC				0		CANCEL - EC has bee canceled on that partic
				401QX	FACTORY INC				0		aircraft or part.
				402QX	FACTORY INC				0		PENDING - EC has no
				403QX	FACTORY INC				0		been released to that particular aircraft or pa
				404QX	FACTORY INC				0		Which means the EC i
				405QX	FACTORY INC				0		effective but is still be
				406QX	FACTORY INC				0		written.  OPEN - EC is effective
				407QX	FACTORY INC				0		to that particular aircra
				408QX	FACTORY INC				0		part but is not incorpor
				409QX	FACTORY INC				0		N/A - Applicability is pa specific or is Not Application
				410QX	FACTORY INC				0		to the aircraft and/or pa
				411QX	FACTORY INC				0		installed.
				412QX	FACTORY INC				0		NOTE: If N/A is display
				413QX	FACTORY INC				0		and service bulletin sta
				414QX	FACTORY INC				0		of the aircraft cannot be
				415QX	FACTORY INC				0		determined by other documentation, i.e.,
				416QX	FACTORY INC				0		ModSum Manual,
				417QX	FACTORY INC				0		Engineering Document
				418QX	FACTORY INC				0		contact Horizon Air Engineering.
				419QX	FACTORY INC				0		Linging Gring.
				420QX	FACTORY INC				0		EOs with both OPEN a

[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

engineers have modified.

manufacturing company or the part is no longer used on the aircraft.

MODSUM: Modifications the factory has done on the aircraft part.

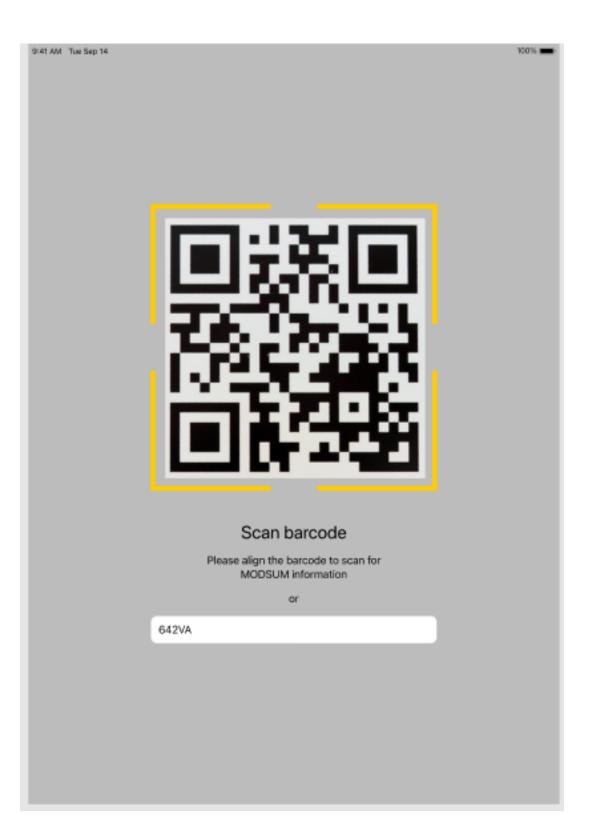
EO: "Engineering Order", a number that represents the aircraft

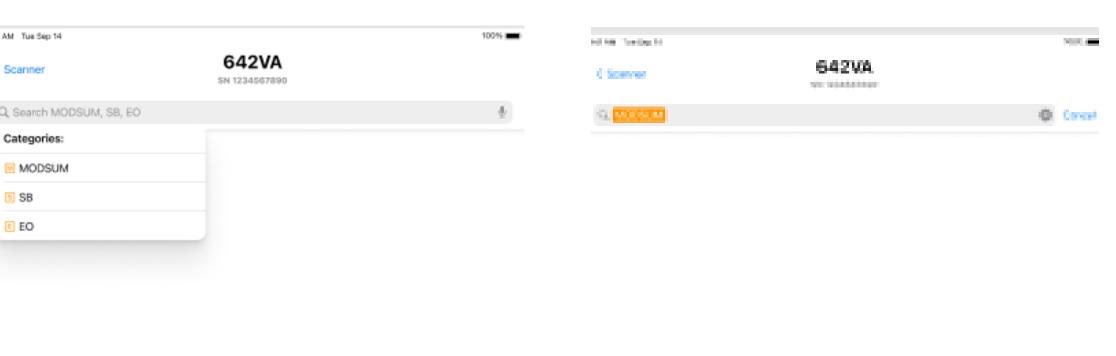
**SB:** "Service Bulletin", the status that informs engineers if they have the options to modify an aircraft part.

#### 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.

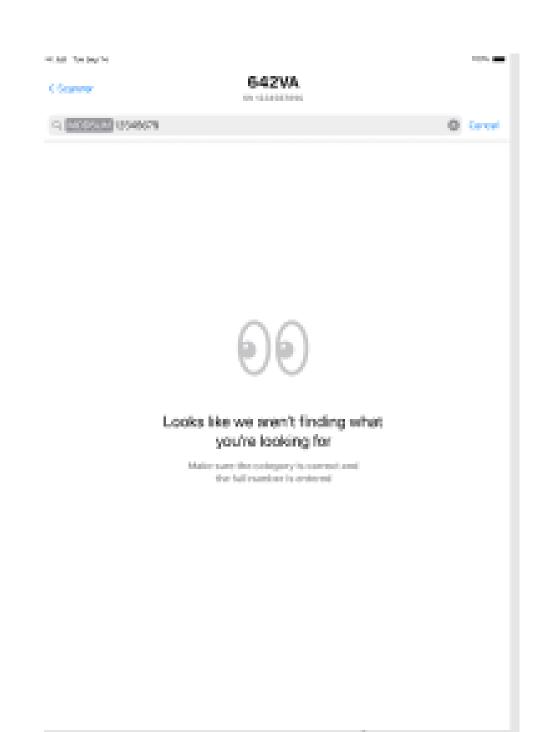
### Front End Design and Implementation

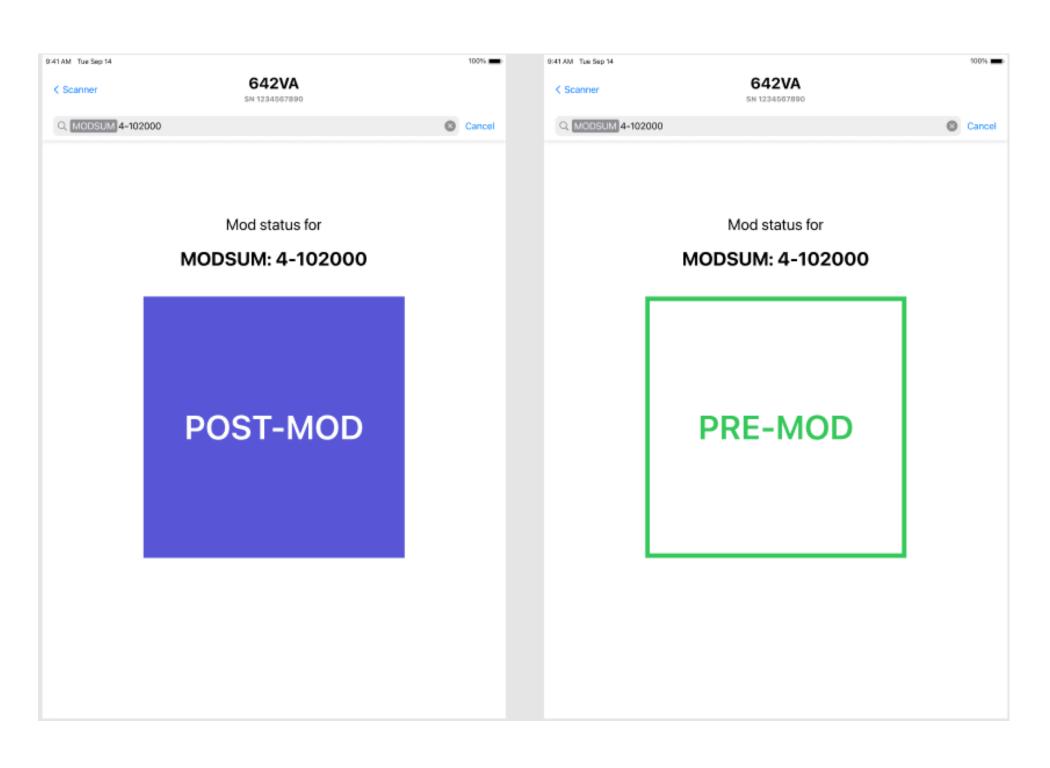












[2] Ui Designs for the application.

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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**

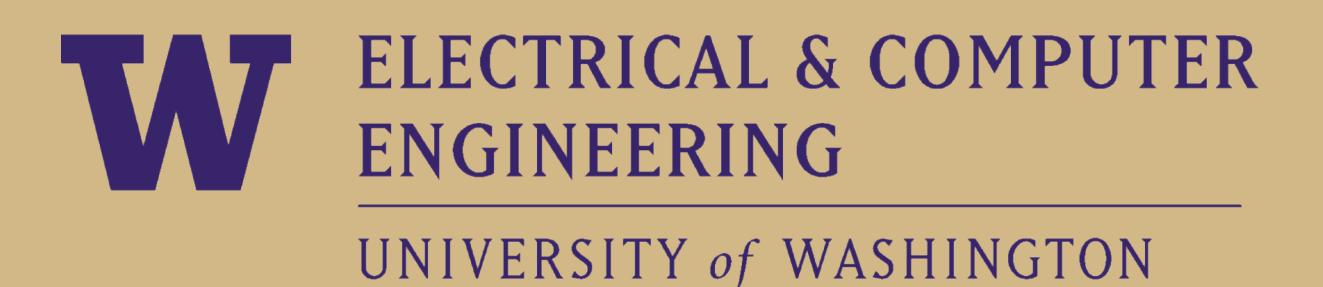
- Implemented an API that runs using .NET 6.0 that retrieves information from the Horizon Air database based on the QR code a user has scanned .
- If a user has chosen to enter an EO, SB, or MODSUM the API will collect one of those categories and retrieve the information about the specific aircraft part.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



ADVISORS: Payman Arabshahi, Harsha Vardhan

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