WWU Department of Computer Science

MxHub Web

An Aircraft Maintenance and Engineering Dashboard

Quinton Price

Walla Walla University
SEVENTH-DAY ADVENTIST HIGHER EDUCATION

ABSTRACT

MxHub Web is an airline maintenance app developed for Alaska Airlines that serves as a web version of their MxHub mobile app, providing a user-friendly interface for aircraft line technicians to access flight and maintenance information.

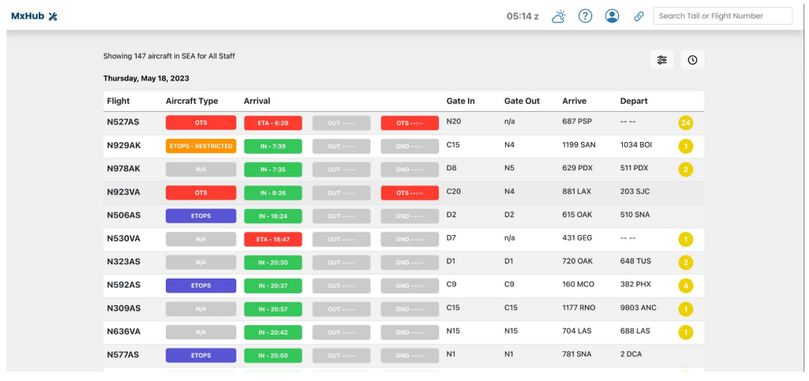
INTRODUCTION

This project revolves around the development of MxHub Web, a React web application designed to streamline and improve the aircraft maintenance process for Alaska Airlines. It serves as a web counterpart to the existing mobile app, MxHub, and provides an intuitive user interface for technicians to access critical flight and maintenance information. The MxHub iOS app plays a pivotal role in ensuring that Alaska Airlines' aircraft are properly maintained and safe to fly, and MxHub Web will bring that critical functionality to computers and non-iOS devices.

The app features a main dashboard that lists all of the flights within the specified parameters, controlled via a filter popup. Information such as ground time, flight departure and arrival times, aircraft type, aircraft tail number, and more are shown for each flight. In addition to this, a maintenance tab can be accessed for each flight, showing a detailed list of maintenance information and messages from the pilot. Weather and other critical information are shown in the navigation bar, alongside a search bar that can be combined with filters to view specific aircraft.

IMPLEMENTATION

Over the past summer, I had the opportunity to intern at Alaska Airlines and work on the MxHub iOS app, which gave me a great insight into how to structure the web version. I chose to create the app in React, as its modular, component-based architecture meant it would be easy to implement and refactor features. The app is supported by the same API that is used in the iOS app. I planned to implement single sign-on and Alaska Airlines' push notification payload service, but it was ultimately outside of the scope of the project. I will be working for Alaska Airlines full time after graduation and hope to continue this project.



MxHub Web reads data from the MxHub API, which is then passed through to data handler functions in the application. These functions pull the necessary information from the API response and map them into several class instances, organizing and cleaning up the information. The classes then have functions that handle the information and create useful variables for the front-end (ground time, flight ETA/ETD, tail number, etc.). Technicians can click on a flight to pull up a detailed maintenance list, giving them all of the details for a given plane.

CHALLENGES

One of the hardest parts of developing MxHub Web was trying to implement it into Alaska Airlines' software development platform. To maintain a high level of security, Alaska Airlines requires that applications use single sign-on authentication to access data. Implementing this proved to be difficult and makes accessing user information tricky. This is something that I will work on in my full-time work at Alaska Airlines after graduation.

SUMMARY

In conclusion, the development of MxHub Web, a React web application for Alaska Airlines, has resulted in an efficient and user-friendly interface for aircraft line technicians. It displays a multitude of information from engineers, pilots, and mechanics that are critical to aircraft maintenance. MxHub Web successfully improves aircraft maintenance processes, enhancing operational efficiency for Alaska Airlines.

REFERENCES

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- https://stackoverflow.com/
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