

PRECISION SKIES: A PREPAR3D EXTENSION

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Precision Skies: Intro

- Sandia National Labs partners with the Air Force to conduct real-life flight tests. These tests are expensive, so flight simulation is a valuable tool for conducting tests.
- Goal:
 - Design a dashboard that can provide an array of real-time flight metrics to aid in reviewing simulated flight scenarios.





Precision Skies: Development

- Initial Challenges: Our initial task was to set up a base project that connected to Prepar3d. We encountered significant hurdles trying to navigate Prepar3d with its complex SDK and API. Our transition from the Unix environment to C# and Windows Forms in the Visual Studio environment was also difficult.
- Real-Time Data Retrieval: Our next step was to identify variables to be included in the Dashboard and design a function to retrieve real time data, format it, and verify its accuracy.
- Data Visualization: With the data complete we used the LiveCharts API to build the graphs and we finished the UI with Windows Forms.





Precision Skies: Future Work

- The product can be deployed as is, however some future improvements might increase its usability.
 1. User can set custom data to a graph and can add any number of graphs they need.
 2. User can save the current environment to a "toolbox" to easily load their own custom dashboards when the program boots.
 3. A UI rebuild to accommodate this dynamic design.
 4. A function to ensure when values are inspected/scrolled/zoomed-in on one graph, all other graphs will display the same data values.
 5. Two new buttons: One to pause Prepar3D from the dashboard and another to pause retrieving data from Prepar3D without deleting the current values in the graphs. (this is what the current disconnect button does)
 6. Search the P3D SDK for any solutions to implement if the user selects a time stamp in a graph, the loaded simulation recording will switch to that same timestamp.

