

Visualizing Real-Time Digital Signal Processing Data with Syncfusion® Components



Essential Studio® for WPF and Essential Studio for Windows Forms

Benefits

- Clear, maintainable code.
- Reliable, collaborative technical support.
- High-performance, high-frequency charts.

Summary

David Bowser, a Technical Advisor at KBR, needed to rewrite a debugging and analysis application used for jet-engine inspections for the U.S. Air Force. The open-source data visualization tools used in the previous solution were no longer supported. For the new application, he chose Syncfusion WPF and Windows Forms components for their real-time charting support.

Challenges

For years, the software used to visualize real-time data from jet-engine inspections relied on open-source components. However, when David was tasked with rewriting the software, the open-source tools no longer supported the charts. He needed charting components that could visualize data as soon as it was pulled from embedded processors and older chipsets.

Solution

David initially became familiar with Syncfusion through its Blazor components, which he used on a personal project. From his experience, he thought Syncfusion components were intended more for business applications, where data is constantly updated but not quite at the rate it is in digital signal processing. However, after some collaboration with the Syncfusion support team, he found that Syncfusion charts could handle the high-frequency data just fine.





After performing his due diligence to thoroughly research and compare other component vendors, Syncfusion remained the most qualified choice. He also liked that Syncfusion continues to support long-established platforms while providing tools for the newest development frameworks. “Syncfusion’s good at that,” said David. “You know they support all the new stuff that comes out. There’s backward compatibility, so we can still run old versions we need to.”

David ultimately implemented Syncfusion WPF and Windows Forms charting components in the testing application to visualize response signals. These charts and graphs help technicians determine whether a part can continue service or if it needs further evaluation and testing. David also used the Syncfusion Radial Slider component to give technicians an intuitive UI tool to calibrate parts of a robot that help perform the inspections.

Results

On the development side, the most significant benefit of choosing Syncfusion has been the maintainability of the code. “Our products tend to be out there for many, many years,” said David. “We need to make stuff that’s going to continue and that we can move forward with new versions, compilers, and so forth.”

Plus, Syncfusion support has been a consistent and reliable partner in pushing these components to function in these unique, engineering-specific use cases. “Having a good, strong support team that’s willing to adapt as we’re developing has been really helpful,” said David. “Whenever there’s a question, they come back with a sample.”

On the end-user side, Syncfusion charts have provided richer information than the previous open-source charts could, helping technicians and engineers gain deeper insight into their analyses.

Looking ahead, David plans to migrate a Windows Forms portion of the testing application to WPF, where more Syncfusion WPF components may play a role. Furthermore, the reporting and post-analysis module of the application is written in Blazor, for which Syncfusion has been a leading component vendor since its release. While Syncfusion Blazor components are not currently used in that part of the app, they could be added to it in the future. The status of Syncfusion as an approved supplier for KBR means that any part of the company, not just David’s team, can employ Syncfusion components in its solutions worldwide.

