project:

Predator C Avenger

client:

General Atomics Aeronautical Systems, Inc. , an affiliate of privately-held General Atomics, is a leading manufacturer of unmanned aircraft systems and tactical reconnaissance radar, including the Predator UAS series and the Lynx SAR/GMTI sensor systems.

objective:

To facilitate the development of a stealthy subsonic jet inlet complete with boundary layer diverter. Positioned above the fuselage, the inlet must pass specific low-observable (stealth) ratings while managing expectations of performance for the jet propulsion system.

challenge:

To satisfy jet engine manufacturer requirements using Pro/ENGINEER Surfacing and ISDX to model the inlet and boundary layer diverter. A better stealth rating usually equates to lower aerodynamic performance while a better aerodynamic performance usually equates to a poor stealth rating. The challenge was to manage these changes to the model when the jet engine manufacturer requested changes for better aerodynamic performance while trying to keep a better stealth rating.

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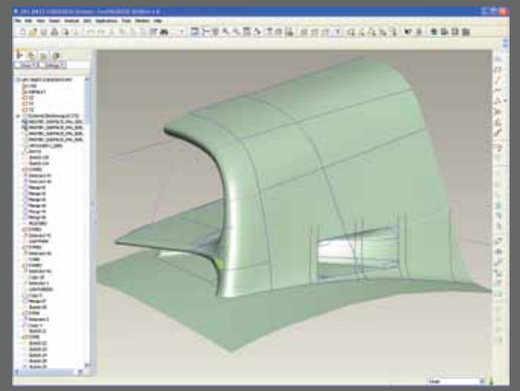

project:

Model the proposed inlet and boundary layer diverter while working with Pratt&Whitney Jet propulsion Laboratory engineers to improve on the "low observability" stealth rating while preserving the performance that the inlet and boundary layer diverter require.

solution:

One of the partners of MoveScience, went to California to consult with General Atomics Aeronautical Systems aerospace engineers. Within one week of using Pro/ENGINEER on-site, the first iteration of the new stealthy inlet that had been holding up the project was completed.

MoveScience over-delivered by not only modeling the inlet that previously could not be modeled, but also by executing it all within 40 hours. Working with Pratt&Whitney to obtain a better aerodynamic performance rating, MoveScience went on to implement a series of planned modifications to step down the stealth rating in an effort to improve performance per aerodynamics recommendations.

timeline:

Three (3) months for ten (10) separate concepts for managing-inlet and boundary layer air.

problem:

The client was significantly behind schedule because they were unable to locate the talent to surface model the exterior inlet and boundary layer diverter that would rest on top of the fuselage of their new aircraft, a stealthy (low signature), jet powered, long-range drone - later to be deemed the Avenger.

The development was being held up because there was not an engineer inside or outside the company who could model the radical stealthy jet inlet using Pro/E. A very highly-specified surfacing skill set is needed to capture the required, very specific form. Every contractor failed by wasting even more time and pushing the project back further.

Since MoveScience conducted a Pro/ENGINEER Surfacing class to General Atomics Aeronautical Systems in 2006, the General Atomics systems administrator introduced the surfacing instructor to the manager in charge of the Adelanto, CA engineering facility.

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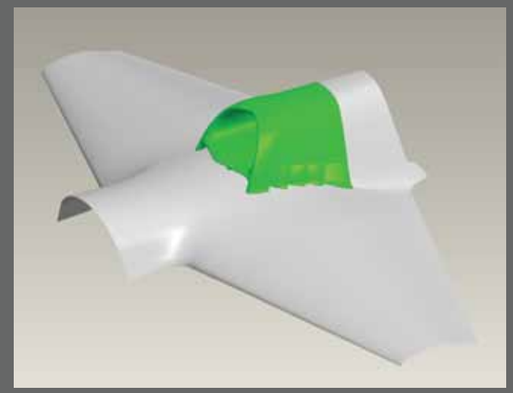

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