

Fashion CAD

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Industry Partner: Hinchman Indy Racing Uniforms

OBJECTIVE

Streamline Hinchman Racing Suits' manual pattern-making process by digitizing custom racing suit patterns using TukaTech CAD software. The project focuses on reducing production time, increasing accuracy, and enhancing scalability while preserving the craftsmanship synonymous with the Hinchman brand.

TESTING RESULTS



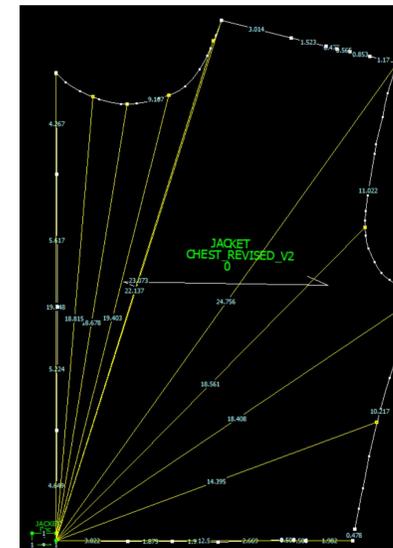
We used TUKA3D's simulation environment to assess fit accuracy and tension across the suit design. Test results guided digital revisions, improving overall precision before physical prototyping.



CONCEPTS AND EXPERIMENTATION

Our solution focuses on using TUKA design for accurate digital pattern making. After testing various methods, we achieved the best results by photographing patterns on a white background and importing them into TUKA design using a calibrated frame.

To ensure precision, we created a coordinate system that assigns x- and y-values to key points on each pattern, especially along curves. Using TUKA design's Virtual Digitizer and Draft tools, we traced these points and refined the curves to align with the original measurements. This method allowed us to closely replicate the physical patterns in digital form, streamlining the pattern-making process and reducing the likelihood of human error.



CUSTOMER PROBLEM AND BACKGROUND

Hinchman Racing Suits currently uses a fully manual process to design custom suits—a time-intensive method involving hand-modifying base templates to match customer measurements. With over ten components required to build each suit, inefficiencies in this workflow lead to long lead times and increased material waste.

The demand for custom-fitted racing suits continues to grow, but Hinchman's manual process restricts their ability to scale and meet this demand efficiently.

Our team identified TukaTech's suite of digital pattern-making tools—TUKA design and TUKA3D—as a robust solution. By integrating these tools into Hinchman's production process, we aim to digitize and automate suit creation while enhancing accuracy, visualization, and customization without compromising quality.

REQUIREMENTS AND FINAL DESIGN



Our final design focused on digitizing eleven key jacket components using a fixed coordinate system to ensure geometric accuracy. Patterns were photographed and traced in TUKA design using the Virtual Digitizer and screen calibration tools.

The image shown is a 3D AI-generated model of our digitized racing suit, visualized in TUKA3D. This simulation enabled us to assess fit, identify tension zones, and revise designs prior to physical production—streamlining the process while preserving Hinchman's high standards for quality and customization.

CONCLUSION AND RECOMMENDATIONS

Our final recommendation is for Hinchman to fully integrate TUKA design and TUKA3D into their workflow. The digitization process we developed, including our coordinate system and Virtual Digitizer method, provides a replicable, scalable approach that maintains Hinchman's commitment to fit and performance.

TUKA3D proved to be a valuable prototyping tool, helping visualize fit and identify corrections before fabric is ever cut. TUKA mark's material optimization and grading tools also offer possible major efficiency gains.

While Hinchman may initially continue manual cutting, long-term investment in TUKAcut or TUKAjet systems could eliminate this step and maximize savings. We also recommend further testing across more body types to ensure inclusive fit.

Overall, this modernization significantly reduces labor, improves accuracy, supports scalability, and preserves Hinchman's legacy of craftsmanship in custom racewear.