



**UTFR**

UNIVERSITY  
OF TORONTO  
FORMULA  
RACING

# MONTHLY NEWSLETTER

ISSUE 03 / NOVEMBER 2023

## THIS MONTH

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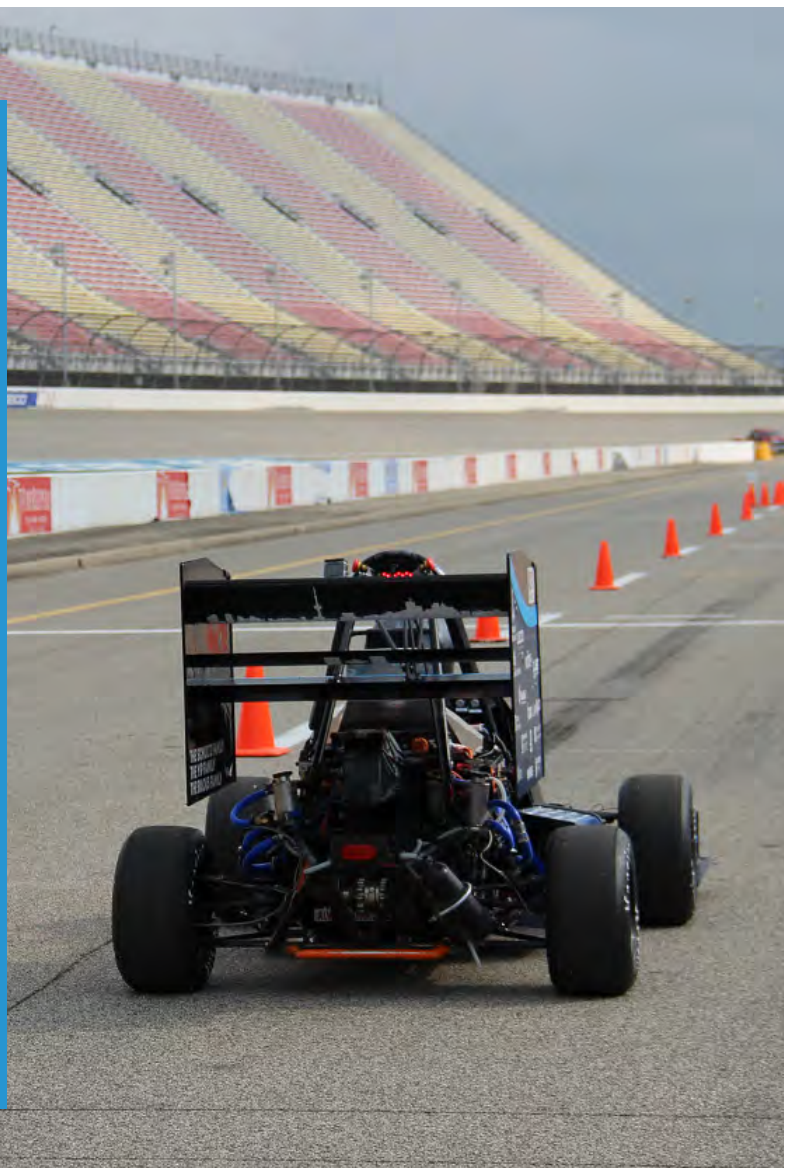
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# INTRODUCTION

Welcome to another edition of the University of Toronto Formula Racing team's newsletter - your gateway to the exciting world of speed, innovation, and motorsport! We are truly honoured to have you rejoin us and express our sincere gratitude for your support.



## THANKS

We wanted to say a big thank you for staying connected with our team! As always, please feel free to reach out if you have any questions or simply want to chat.







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## UTFR ATTENDS TORONTO SHOOTOUT



On September 30th, UTFR attended the Toronto Shootout to wrap up the 2023 Season. Toronto Shootout is an annual shootout lapping event which hosts university level formula racing teams to compete against each other, and to showcase their hard work throughout the year. Many members from UTFR volunteered throughout the day and connected with teams from across North America to further develop their engineering skills to implement on UT24.



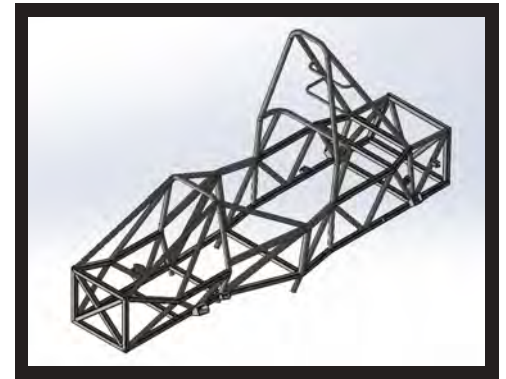
# SECTION HIGHLIGHTS

## B R A K E S



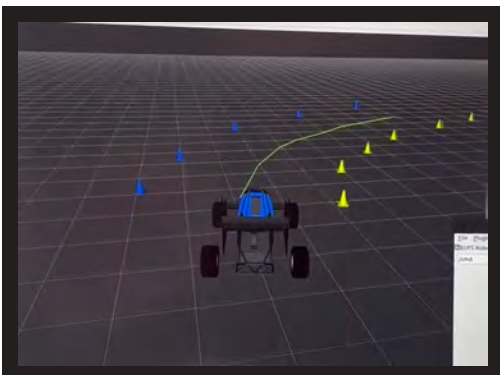
The UT24 throttle pedal's redesign is centred on enhancing driver interface and vehicle control. By adopting rotary potentiometers, we've adjusted the pedal geometry for improved driver comfort and precision in throttle input. In addition to the pedal changes, we used generative design tools to carefully craft the mount for the rotary potentiometer. This approach allowed us to strike the perfect balance between minimising the mass of the mount while guaranteeing it was strong enough to support the potentiometers. Additionally, custom-designed dovetail rails ensure effortless adjustment for drivers of varying sizes, delivering a solid and reliable pedal feel that bolsters driver confidence and elevates vehicle control.

## F R A M E



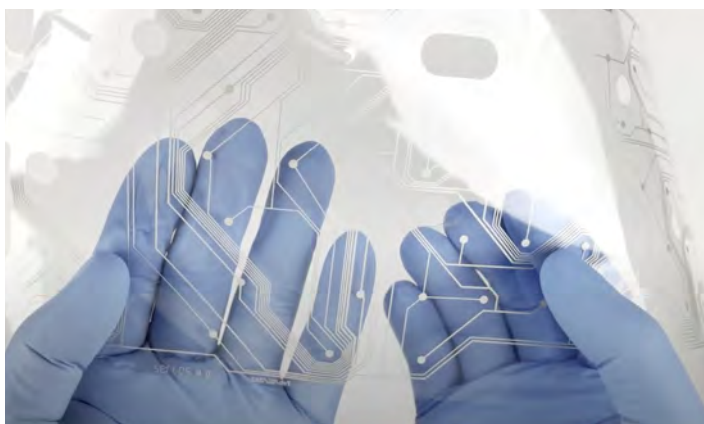
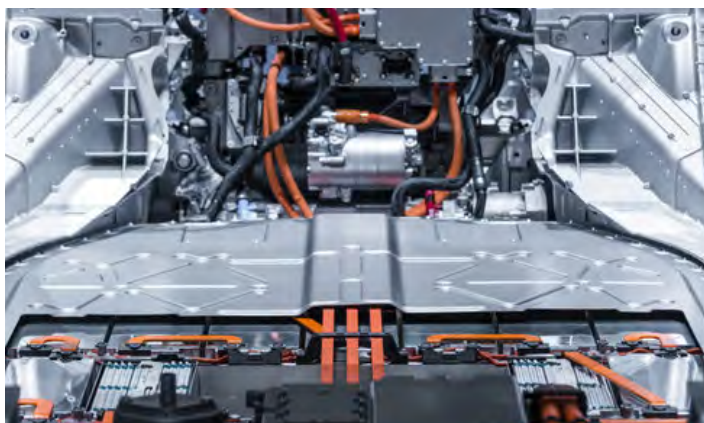
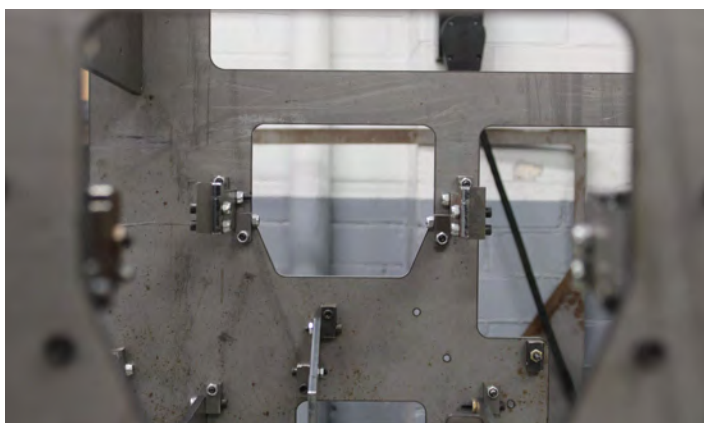
The frame is one of the most integrated designs on the car, encompassing all of the mechanical and electrical assemblies, and acting as the last and strongest line of defence for our drivers. This month, our chassis team worked diligently to finalize the design of our UT24 frame along with its accompanying jig, and sent them for manufacturing. With the help and support of our generous sponsors Gardel and VR3, we were able to laser cut our jig pieces which allowed us to proceed into the manufacturing phase of our design cycle.

## M A P P I N G + P L A N N I N G



Our mapping and planning teams have been diligently working on the initial phases of our Simultaneous Localization and Mapping (SLAM) algorithm and our local path planner. We are excited to announce that these developments are progressing rapidly, and we are now gearing up to conduct thorough performance validation in our simulation environment, paving the way for upcoming hardware testing.

# SPONSOR SPOTLIGHT



We would like to extend our gratitude to Gardel. As our trusted laser-cutting sponsor, Gardel plays a pivotal role in the production of critical components, including our chassis jig, various chassis elements, and indispensable brake rotors. Their unwavering dedication to precision and innovation significantly enhances our racing team's performance. We deeply appreciate their invaluable support, as Gardel's partnership continues to drive us closer to our goal of victory.



We are pleased to partner with Sensata, who generously provided us with high-voltage contactors and brake pressure sensors. Their high-voltage contactors have not only reduced our weight by nearly half a kilogram but also enhanced the efficiency of our race car. Additionally, the brake pressure sensors from Sensata are instrumental in the implementation of regenerative braking algorithms, which is a crucial element of our strategy.



MG Chemicals has graciously increased their support and is now our newest silver sponsor! Their extensive catalogue of in house manufactured chemical products tailored for the electronics industry have been immensely valuable as we develop our third electric vehicle. We look forward to working with this distinguished Canadian organization in this coming year.



LOOKING  
FORWARD

UT24  
WORK  
CONTINUES

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he month of November will be dedicated to refining the final components of our UT24 design. In parallel, we are starting the manufacturing phase of our UT24, with the welding of our steel-tube frame chassis this month.

