

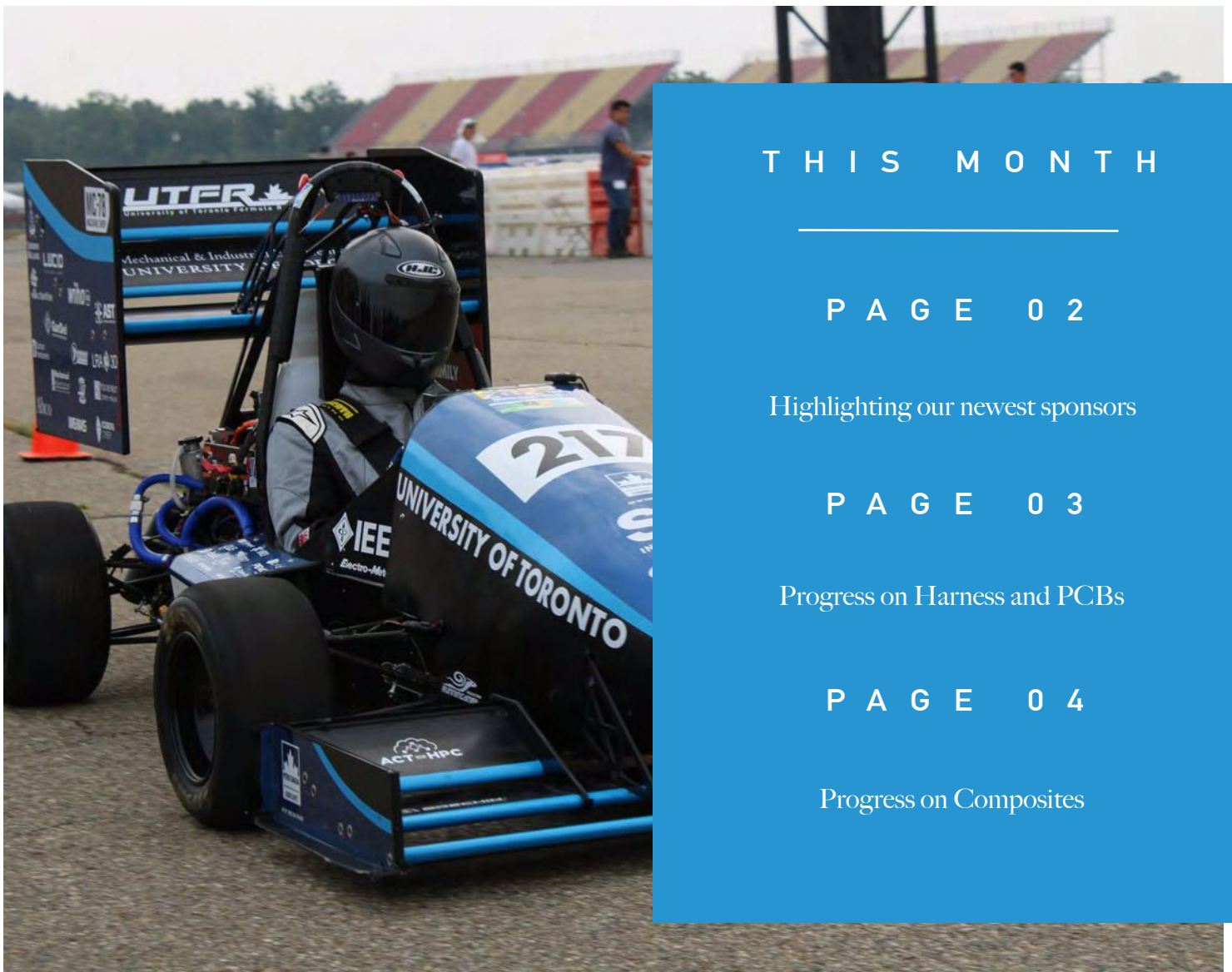


**UTFR** 

UNIVERSITY  
OF TORONTO  
FORMULA  
RACING

# MONTHLY NEWSLETTER

ISSUE 04 / DECEMBER 2023



THIS MONTH

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**UTFR** 

U N I V E R S I T Y  
O F T O R O N T O  
F O R M U L A  
R A C I N G

# INTRODUCTION

Welcome to the final UTFR newsletter for 2023! From the UTFR team, we thank you for joining us on this journey and we deeply appreciate your ongoing support. As the year draws to a close, our team continues to be dedicated to developing UT<sub>24</sub>, with November packed with manufacturing. Join us as we delve into an overview of our November progress in the development of UT<sub>24</sub>.



## T H A N K S

As this marks the last edition of 2023, UTFR extends warm holiday wishes to you and your team. Your continued support has been invaluable on our journey. We would also like to take this opportunity to express our gratitude for our dedicated team members whose hard work has been instrumental in bringing our vision to life. We look forward to reconnecting in 2024.

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SPONSOR

SPOTLIGHT

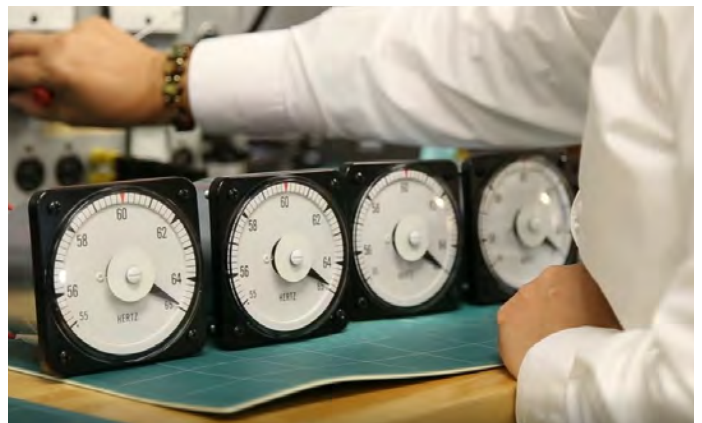
FESTO

We want to extend our gratitude to Festo for their generous support! The pneumatic components they provided have been integral to the development of our driverless emergency brake system. Their support has been instrumental in propelling our project forward, and we look forward to continuing this success.



Electro-Meters

A heartfelt thank you to Electro-Meters for their unwavering support! Their contribution of the SP Series 1000W programmable DC power supply is an invaluable addition, which will be immensely helpful when we bench test the UT24's electrical system this upcoming winter.



# SECTION HIGHLIGHTS

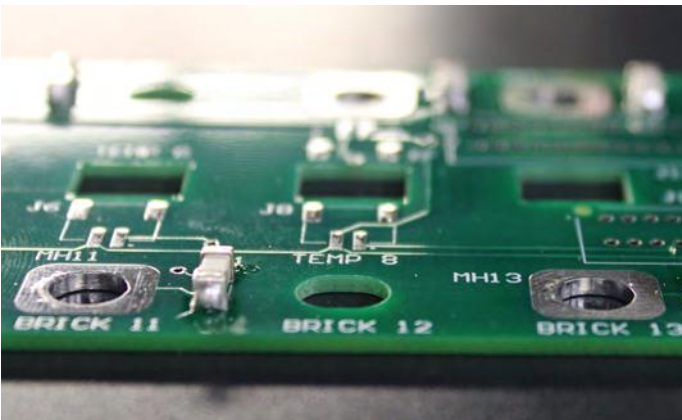
## H A R N E S S

**H**arness plays a crucial role as a communication link between controllers while powering critical components. This year's focus was centered on creating a harness that embodies both durability and lightweight design. Alongside our continued use of military-spec wiring known for its robustness and flexibility, we introduced new techniques. These included concentric twisting to enhance flexibility and alleviate strain, and the integration of service loops and back shells to reinforce the harness structure. Our design approach, coupled with various strategic measures, resulted in an impressive 25% weight reduction.



## C O N T R O L L E R S

**T**he Controllers team is thrilled to share the commencement of printed circuit boards (PCBs) assembly for UT24! These PCBs serve as the car's nervous system: collecting sensor data, powering low voltage components, and controlling the Accumulator Isolation Relays that connect our car's accumulator to the rest of the tractive system. Our PCBs, crafted with Altium, are tailored to meet our unique specifications and needs. This year, we have added functionality to our PCBs to actuate our driverless brakes, steering and safety systems. Remarkably, we've managed to either maintain or reduce the size of all PCBs even with the added capabilities.





# SECTION HIGHLIGHTS

## AERO - WING

Crafted from composites, our internal wing is engineered to uphold stiffness and strength without compromising on weight. While composites manufacturing is often labour-intensive, careful planning in mold design and assembly methods has enabled the integration of computer programming manufacturing. This streamlined approach has not only optimized our process but also emboldened us to confidently introduce new components like the undertray and high voltage box.

# LOOKING FORWARD

December remains dedicated to ongoing manufacturing and assembly tasks. As we close up the fall semester, our team is looking forward to our annual post-exams holiday social.

In the new year, you can expect an exciting winter term filled with events planned to showcase our progress.

As always, thank you for accompanying us on our journey towards completing UT24. Stay tuned for more updates!

