Curtin Motorsport Team

QUARTERLY PROGRESS REPORT ISSUE #2

April - July 2026

- End of Design Phase
- Goals for Manufacture
- Manufacturing Progress
- Major Design Changes
- Recruitment Updates
- Sponsor Events
- Manufacture & Design Updates

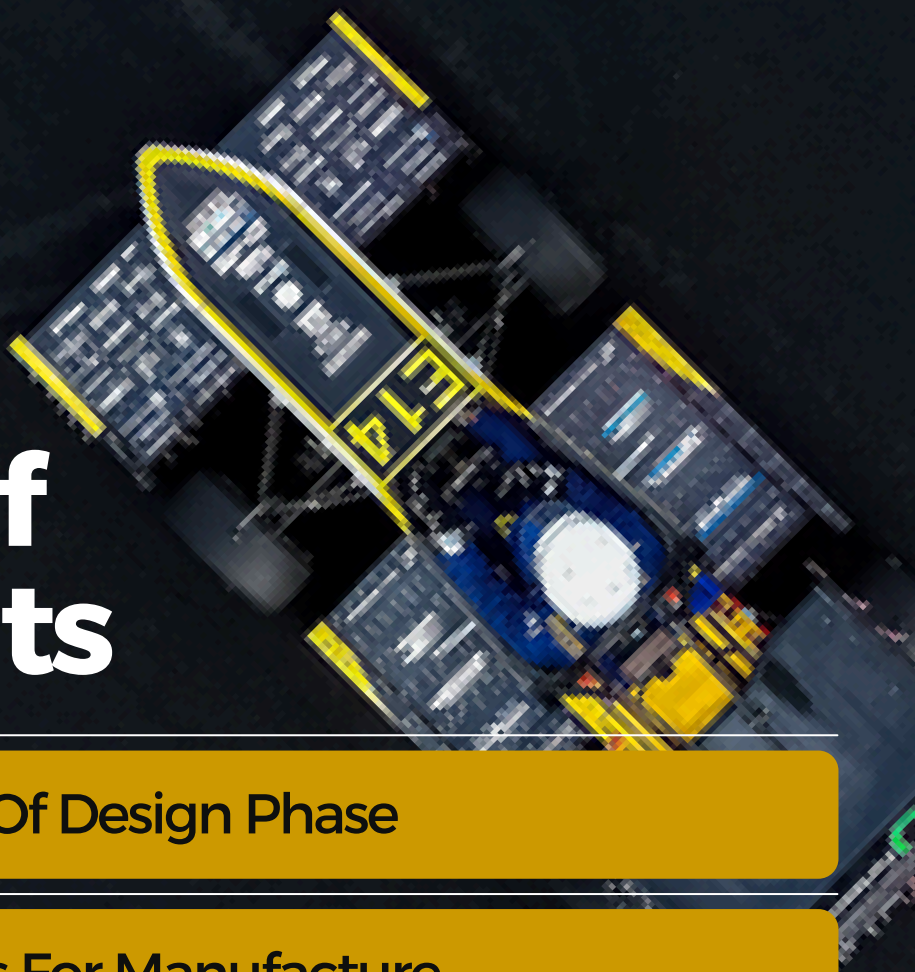
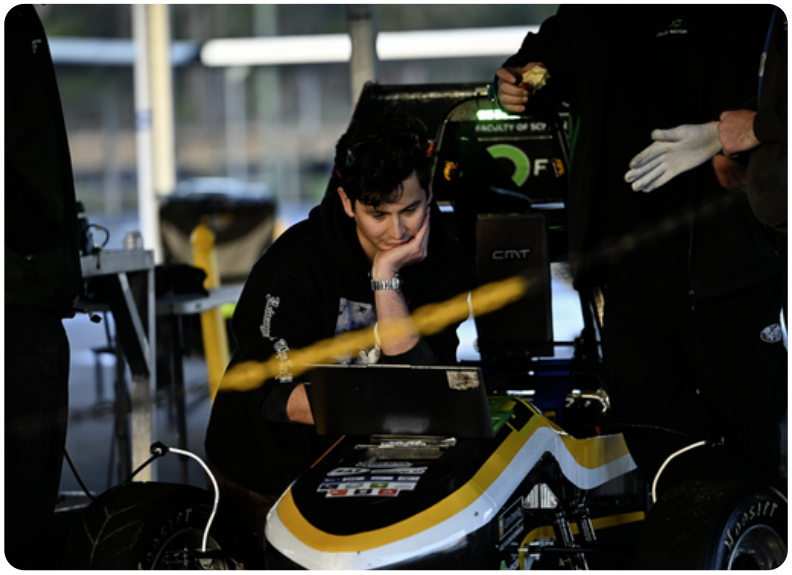


Table of Contents

End of Design Phase



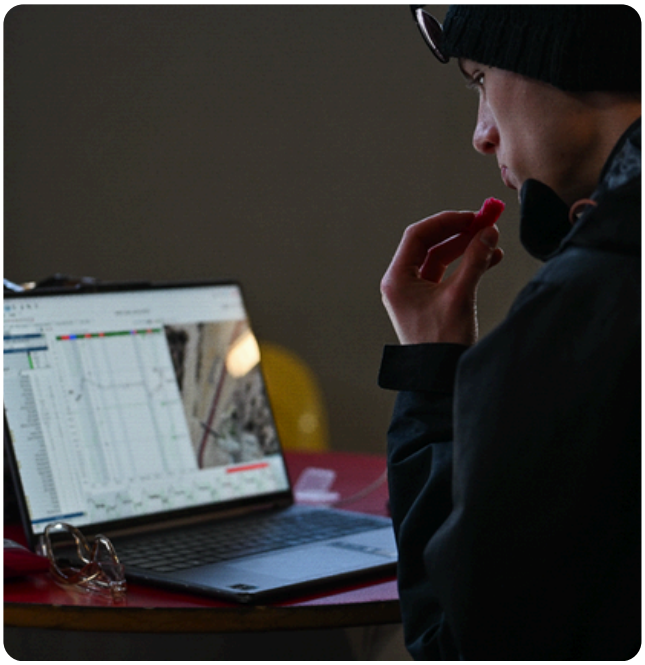
The 14th of June marked the end of design phase and the beginning of manufacture for the team. All designs were finalised by this date, ensuring they were rules-compliant and ready to send out for manufacture.

Following the completion of the design phase, manufacturing orders were placed for critical components. This milestone represented a significant step in the project timeline.

Validation and Analysis

Throughout the design phase, CMT25 has been tested in car parks, the hills and at Collie Motorplex. Its onboard systems record suspension travel; inverter, motor, accumulator and tyre temperatures; GPS position; and inertial data. These results allow the team to validate lap-time simulations and refine predicted system performance using real-world behaviour.

Before manufacturing begins, every component is analysed or verified using methods such as FEA, CFD, calculations or physical testing. This ensures the 2026 vehicle complies with Formula SAE-A competition rules while meeting the team's safety, reliability and performance goals.



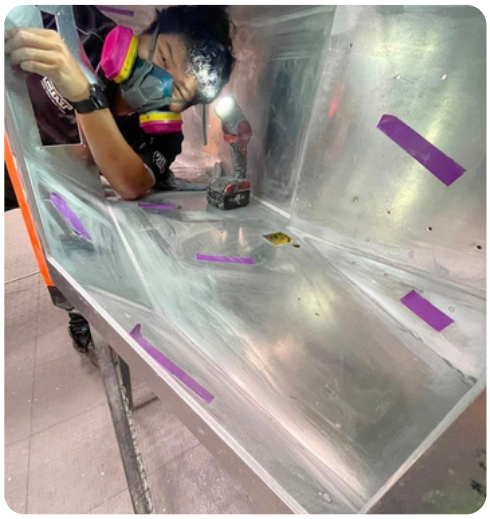
Design Reviews

Each year, CMT welcomes back alumni to provide feedback on designs, critiquing them and providing insight into possible areas for improvement. This year, the team welcomed back a large number of past team members to review the designs of each subsystem before any designs were finalised. As these past team members have formerly worked on the car, and are now professionals in industry, they are able to provide valuable and unique insight on problem areas. A huge thank you to all alumni who took the time out of their busy lives to attend the CMT26 Alumni Design Reviews.

Goals for Manufacture

Sheet Metal Mould

The chassis team has overhauled how the CMT26 full monocoque is designed and manufactured. This new approach provides greater freedom over the chassis geometry, opening packaging options that were difficult to achieve using flat panels. It also improves dimensional accuracy and removes the bonded joints required by the previous process.



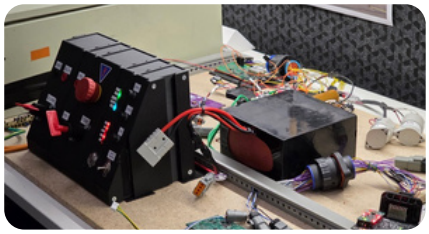
Previously, the monocoque was produced using a “cut-and-fold” method. Flat carbon-fibre panels were cured in an oven, cut into sections and folded into position within a jig. This created the basic chassis form before the sections were joined.

While effective, the cut-and-fold sections had to be bonded and reinforced with additional carbon-fibre layers at each joint, restricting geometry and adding assembly stages.

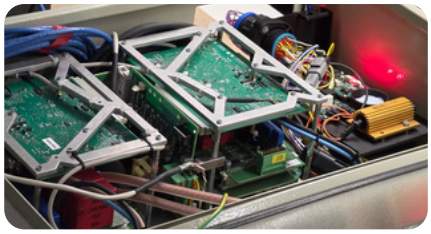
For CMT26, the team instead constructed a mould from precision-cut and bent sheet metal, removing the need for a separate plug. Carbon fibre can be laid up directly inside the mould, allowing the monocoque to be manufactured as one complete, consistent structure.

Integration Setup

The electronics team has developed a bench-testing rig to validate hardware and software before vehicle integration. By allowing systems to operate together in an accessible environment, the rig simplifies debugging and improves reliability once installed in CMT26.



Designed with maintainability in mind, the setup incorporates user interfaces, including warning lights, alongside an inverter and motor. This allows the team to replicate the complete motor-spin sequence and verify system behaviour before installation. Providing an essential platform for full vehicle integration testing.

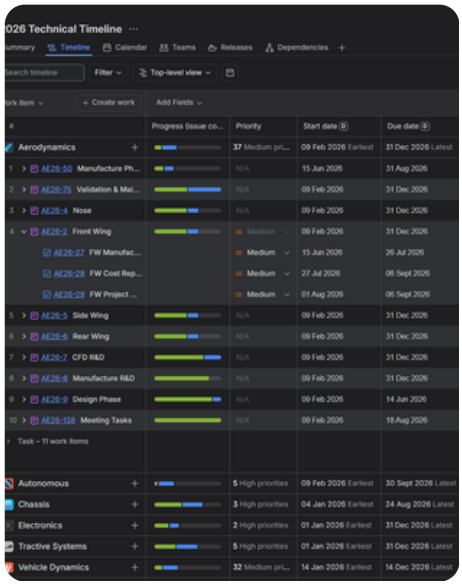


Manufacturing Progress

Manufacturing Milestones

With manufacture of CMT26 underway, the team is approaching several major milestones that will take the vehicle from individual components to a complete and functioning car. Each stage provides a checkpoint for confirming that its systems are ready before the project progresses.

- Project integration - 16 August: Aerodynamics, Vehicle Dynamics and Chassis components integration.
- Mechanical completion - 30 August: Major mechanical assemblies installed and checked.
- First wheelspin - 13 September: Electrical and tractive systems commissioned together.
- First drive - 27 September: CMT26 moves under its own power and dynamic testing begins.
- Mock inspections - 18 October: Practice scrutineering used to assess competition readiness.



Together, these milestones provide a structured path from manufacturing through to vehicle testing and validation. Each stage builds on the last, allowing issues to be identified and resolved before the next level of integration begins. This staged approach reduces risk during commissioning and helps the team prepare a reliable, competition-ready vehicle.

Project Coordination

The team uses Atlassian's Jira and Confluence to coordinate CMT26's tasks, deadlines and documentation. Jira assigns responsibilities, tracks deadlines and shows whether tasks are not started, in progress or complete, giving technical leads a clear overview of project activity.

Knowledge transfer is essential for a team composed entirely of students. Since 2013, members have created almost 20,000 pages of R&D, logbooks, tutorials, meeting records and project proposals. Confluence preserves this knowledge for future members.

Major Design Changes

Tractive Systems

Tractive systems has undergone major design developments. The key focus for this year is the transition from a single rear motor to rear wheel drive hub motors, which provide improved efficiency and allow for torque vectoring whilst challenging its project students with new engineering problems. These challenges include the development of an improved gearbox and cooling jacket design, opening the road to implementing torque vectoring, which significantly improves vehicle handling.

Electronics

The focus for the electronics team this year is reliability, with all systems focusing first on developing minimum viable products before introducing additional features. As a result, there are minimal design changes within the electronics for CMT26, with most changes revolving around improving manufacturability, maintainability, and overall robustness. One major change for electronics is the implementation of a custom dashboard for the car. This will allow for cleaner packaging, and removes the need for two separate displays used in previous vehicles.

Additional efforts have been directed towards improving serviceability throughout the vehicle. Standardised connectors, improved cable management, and more comprehensive system documentation have been incorporated where possible to simplify troubleshooting.

Autonomous

Autonomous is CMT's newest technical area. Development of the AV vehicle began in 2023 and has since been researched by thesis students. In 2024, perception systems were implemented for the LiDAR and stereo camera, followed by planning and actuation systems in 2025.

The 2026 project students are tasked with combining these projects into a unified software package. Their primary goal is developing the AV RC car as a testing platform for perception and planning, enabling debugging without running the full EV vehicle. This allows catastrophic issues to be identified earlier, minimising potential harm to the full-scale vehicle. The team is developing the RC car software to a reliable state so its implementation onto CMT-25 in 2027 experiences minimal issues, allowing greater focus on the actuation and control systems required to run a full EV vehicle.

Major Design Changes

Chassis and Driver Interface

As the team has grown, Chassis and Driver Interface has separated from Vehicle Dynamics to form its own technical area. Using the team's ergonomics jig and performance targets informed by lap-time simulations, students have developed a new package to accommodate the transition from an inboard motor to outboard hub motors. Reducing compliance and improving driver feedback have been prioritised over minimum weight.

Vehicle Dynamics

Vehicle Dynamics has undergone significant changes for CMT26, particularly in terms of the suspension system. Both the spindle and upright assemblies have been completely redesigned to improve structural performance, manufacturability, and integration. In the front of the vehicle, the suspension has been changed from a pull-rod configuration to a direct-acting one. This will reduce the complexity of the suspension, and make it more maintainable and accessible.

In the rear of the vehicle, the upright has been redesigned to house the gearbox. This improves the overall packaging, allowing for a more compact rear suspension assembly. By combining structural and drivetrain elements into the same assembly, this design also reduces the potential number of sources of compliance, increasing the stiffness of the design.

Aerodynamics

The aerodynamics team has experienced major breakthroughs compared to previous years. A large downforce increase of 30% with the 2026 package was made possible through optimisations in our CFD methodology, as well as a complete redesign of the aerodynamic package. These improvements allowed the team to better analyse airflow behaviour and refine each component for increased overall performance. To support the additional aerodynamic loads, carbon fibre tie rods were added to the existing mounting methods for all aerodynamic systems, improving stiffness and structural reliability.

Additionally, the team successfully implemented the Mylar method, which substitutes peel ply in the layup process and reliably produces a glossy finish requiring minimal post-processing. This reduces finishing time while improving the consistency and visual quality of manufactured components. Infusion layups have also taken greater prominence in an effort to reduce manufacturing costs compared to prepreg layups, while maintaining the strength and quality.

PLS Workshop Tour

On the 10th of June, CMT welcomed representatives from Platinum Sponsor, Pilbara Lithium Services (PLS), to the workshop for a tour and update on CMT26.

The group included Dale Henderson, CEO; Rebecca Parker, Principal Advisor; and Brent Chadwick, Head of Studies and Engineering. The visit allowed the team to share its progress and strengthen this valued partnership.

Throughout the tour, the team shared insights into critical components of the car, from our accumulator design and manufacture to the methodology of the carbon components that determine the physical characteristics of the vehicle.

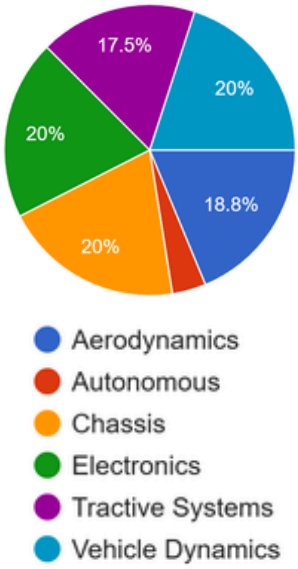
The tour also showcased exciting future developments, such as the autonomous and hub motor systems that will be implemented in future years. These autonomous systems will be an integral part of CMT's vehicles for the remainder of the decade, and PLS's support will be critical in the success of this ambitious goal.

The team is grateful for this partnership, and with the support of PLS, we are excited to see what the future holds!

Recruitment Phase 2

As the first phase of recruitment is officially over, the team is currently preparing to accept recruits into Phase 2. The final assignment for Phase 1 is the main deciding factor for the recruits that are accepted into Phase 2. This assignment is largely focused on CAD, with recruits having to model parts, assemblies, and complete drawings in Solidworks, the main software used by the team. Recruits are also assessed based on their participation in Phase 1, including attendance for lectures and workshops, and overall engagement with the process.

As recruits move into Phase 2, their learning will become more directed towards the systems on the vehicle. Each recruit has the ability to decide which technical area they wish to be a part of, with everyone receiving a small technical project from that area. These projects are designed to teach the recruits skills that will be useful if they make it on the team, as well as being useful to current team members for current or future vehicles.



	2025	2026
→ Phase 1 Registrations	172	200
→ Phase 2 Acceptance	55	65

To learn more about our recruitment program, visit our website!

Community Engagement

The team has been involved in the community over the past few months through a range of events that supported both community engagement and fundraising goals. In March, we had a display at the Curtin Careers Fair to showcase the race car and network with students interested in motorsport pathways with FSAE. This was followed by a successful community dinner fundraiser at Grill'd Carousel in early April, which facilitated interactions between team members and new recruits. Later in April, we returned to Bunnings Cannington for another sausage sizzle fundraiser. The high-traffic day was a great success as the team completely sold out of stock and generated a net profit of approx. $1,300 to support our build cycle. Additionally, we partnered with Perth Aersopace Student Team (PAST) at Curtin to hold a Games Night for our respective team members. The event had a wonderful turn out, and was pivotal in working towards our goal of developing relationships with other university STEM clubs/organisations.

The major highlight in May was Curtin University's Open Day, hosting an estimated 200 to 300 visitors between the university foyer and the CMT workshop, where the team guided prospective students and their families through our design and fabrication processes. To leave a lasting impression, we distributed collectible CMT trading cards - expectedly, we ran out of stock pretty soon! Additionally, to support mental health awareness and team fitness, members participated in the Push-Up Challenge throughout late May to early June. Together, we achieved a total of 50,000 push-ups over 24 days to raise funds for Lifeline.

Looking ahead, the team will attend a five-hour workshop at Car Paint Shop covering the painting process, paint types and surface preparation. Members will also trial sealing and painting techniques on new carbon-fibre panels destined for CMT26. Other upcoming activities include a technical workshop with ALS Tribology and the annual Sponsor Drive Day.

Design & Manufacture Updates

CMT25 Track Days

After a huge effort from the team, CMT25 is in a working and reliable state for testing and validation. Track days with last year's vehicle are extremely important as they allow for the training of new drivers, data acquisition for future design, testing of subsystems, and much more.

The team has had a large number of track days over the past semester, which has provided valuable insight into design issues and improvements that can be made. It has also given the large number of prospective drivers in the team to practice their driving for competition at the end of the year.

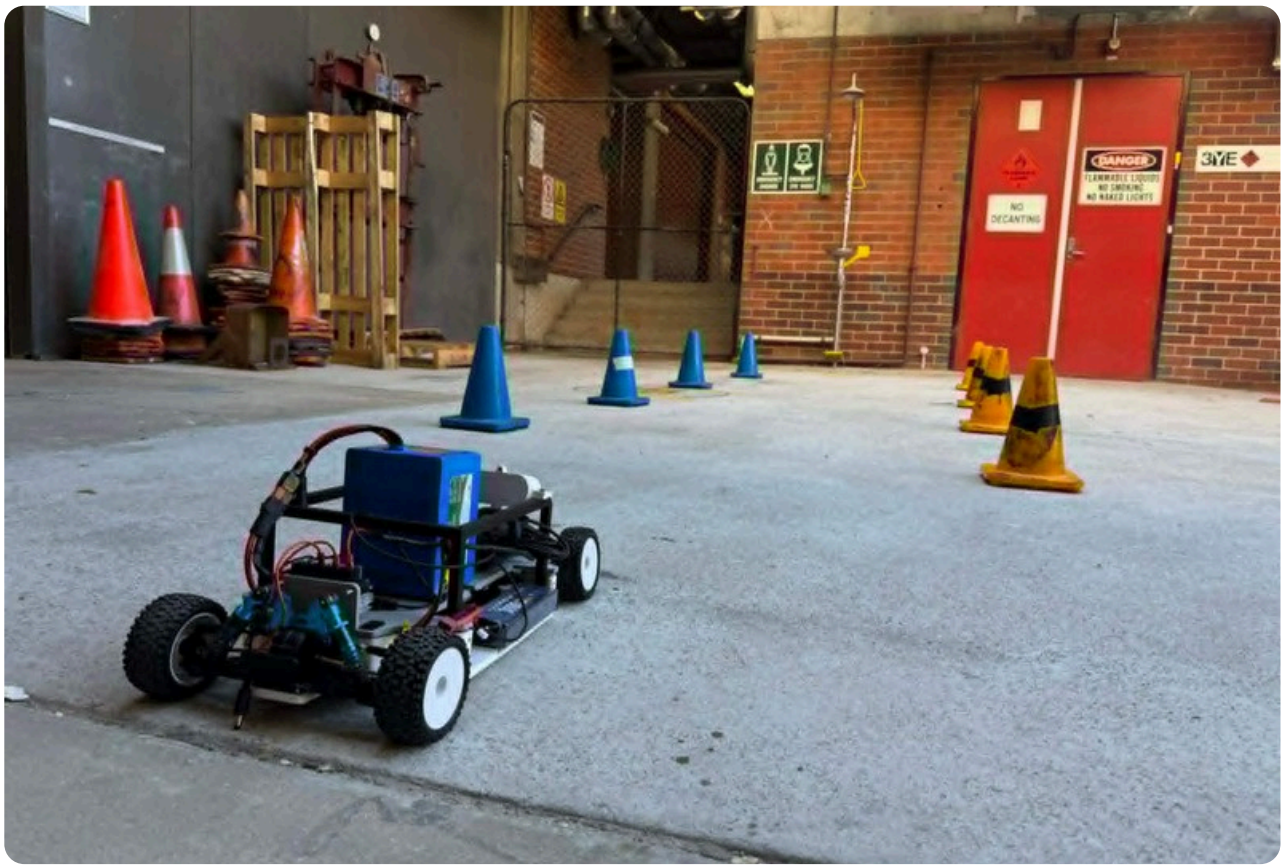
We are looking forward to holding our Sponsor Drive Day this August!

Design & Manufacture Updates

Autonomous - First Drive

The autonomous team has made amazing progress this semester, meeting their first drive deadline on the 12th of April. This deadline is a major milestone for the autonomous team, as it marks the successful integration of all critical systems. The objective of the first drive was to drive through a straight track layout, with cones marking the boundaries of the track as per FSAE-A autonomous rules.

Since this first drive, the autonomous team has had a number of successful track days. These track days have made progress towards demonstrating loop closure, which will be the next major milestone for the autonomous team.



Collie Motorplex

Late June, the team completed an intensive four day trip to Collie Motorplex.

The primary objective was to execute comprehensive test plans across multiple technical areas, gathering critical research and development data to directly validate and influence the design of CMT26.

The trip started extremely well, with the vehicle driving on track from the first day of arrival, allowing the team to immediately maximise track and testing time for data acquisition.

Despite the strong start, the team encountered trackside challenges, such as the charging system of the high voltage accumulator. The team proved their excellent problem-solving and resilience, and worked tirelessly to diagnose and resolve the issue, eventually returning the vehicle to the track to complete the remaining testing schedules. CMT25 was able to complete its first full Endurance run!

The extensive data captured across the many technical areas and subsystems provides an engineering foundation for the development of CMT26, as the team gets ever closer to the FSAE-A 2026 competition.

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