

NEWS

LETTER

AUGUST 2021 | QUARTERLY

TLMOTO

 **TÉCNICO LISBOA**

“CADERNETA”

Afonso Cruz is in his fourth year of Materials Engineering at Instituto Superior Técnico. He joined the team through a college recruitment and started his path with the team in the Structures area, where he worked mainly on the battery box. Now, as the Project Manager, his focus is to manage all the technical areas and interconnect them!



HOW DID YOU HEAR ABOUT TLMOTO?

Through a former member who approached me during a recruitment, at the IST Central Pavilion, while they had TLM0ze exposed.

WAS IT HARD TO BALANCE UNIVERSITY AND TLMOTO?

A little bit, especially since I joined the team at the beginning of my college years. However, it was worth it, as I realized that with methods and routines it is possible to balance both without sacrificing too much performance in each.

WHAT WAS YOUR MOTIVATION TO REMAIN IN THE TEAM?

My main motivation was, by far, to see the work I was developing and to see that I was doing it as I had planned. Working with people who inspired me, who pushed me to the limit, was sometimes exhausting, but it made me a more capable person.

CAN YOU TELL US ABOUT YOUR JOURNEY INSIDE TLMOTO?

I started as all members start, with the recruitment process, entering the Structures area, where I got the basic knowledge to be able to develop structural components. I joined the battery box department, as the person in charge, where I worked for a year and a half. This position led to a great deal of contact with other areas of the team, which led to my transition to the position of Project Manager.

“CADERNETA”

WHAT CHARACTERISTICS ARE NEEDED TO BE PART OF THIS TEAM?

TLMoto, as an organization, values members who seek to work in a team, critical thinking, self-improvement and, most importantly, members who are not afraid of making decisions. We are increasingly trying to give decision-making power to our members, as we believe this will connect them to their role in the team and to the rest of the members.

WHAT DO YOU THINK WERE THE CHARACTERISTICS THAT MADE YOU BECOME A PROJECT MANAGER?

The fact of having contact with several areas gave me a good perspective of what is needed for the construction of the motorcycle. I think my temperament was also an important point in reaching this position.

HOW DO YOU HANDLE THE PRESSURE OF BEING A PROJECT MANAGER?

I try not to think about it too much. If the stress is not too high, it is best to take advantage of the productivity boost that comes with it; otherwise, I try to get out of context for an hour or two.

WHAT PROJECTS CAN WE EXPECT FROM TLMOTO IN THE FUTURE?

In the next project, TLM04e, we point to progress at the organizational level, both in terms of team size and in terms of internal processes; we are betting heavily on procedures and platforms that allow us to control the project in a more optimal way; we are also investing in the Human Resources area. In previous projects, the team's productivity was highly affected by lack of motivation, as a result of the pandemic and beyond, so we felt a great need to invest in this area.

PERSONALLY, WHAT WAS YOUR BIGGEST SUCCESS AND BIGGEST FAILURE WITHIN THE TEAM?

My biggest success: watching TLM03e working. From that moment on, I felt that we could get wherever we wanted.

My biggest failure: not being able to meet the deadline for assembling the battery pack.

“CADERNETA”

IN WHAT WAYS DO YOU THINK TLMOTO WILL HELP YOU ON YOUR PROFESSIONAL PATH?

Discipline, organization at both personal and professional dimensions, technical knowledge of mechanical design and organizational management.

WHAT DO YOU LIKE TO DO MOST WHEN YOU'RE NOT ON TLMOTO?

I love sharing knowledge with my friends, you always learn something new! I also love seeing bikes being tested.

DO YOU HAVE ANY MUSIC AND MOVIE RECOMMENDATIONS?

Movies I suggest are Forrest Gump, The Miracle of Cell 7, Schindler's List, Pulp Fiction and Memento. For music: Highly Suspect, Chris Cornell, Manuel Cruz, Donald Byrd, Coltrane, McCoy Tyner, Gill Scott-Heron...

WHAT'S SOMETHING YOU DO EVERY DAY?

I drink two coffees!

WHO'S YOUR FAVOURITE MOTOGP RIDER?

The Doctor (Valentino Rossi)

WHICH FOOTBALL TEAM DO YOU LIKE BEST?

Sporting CP

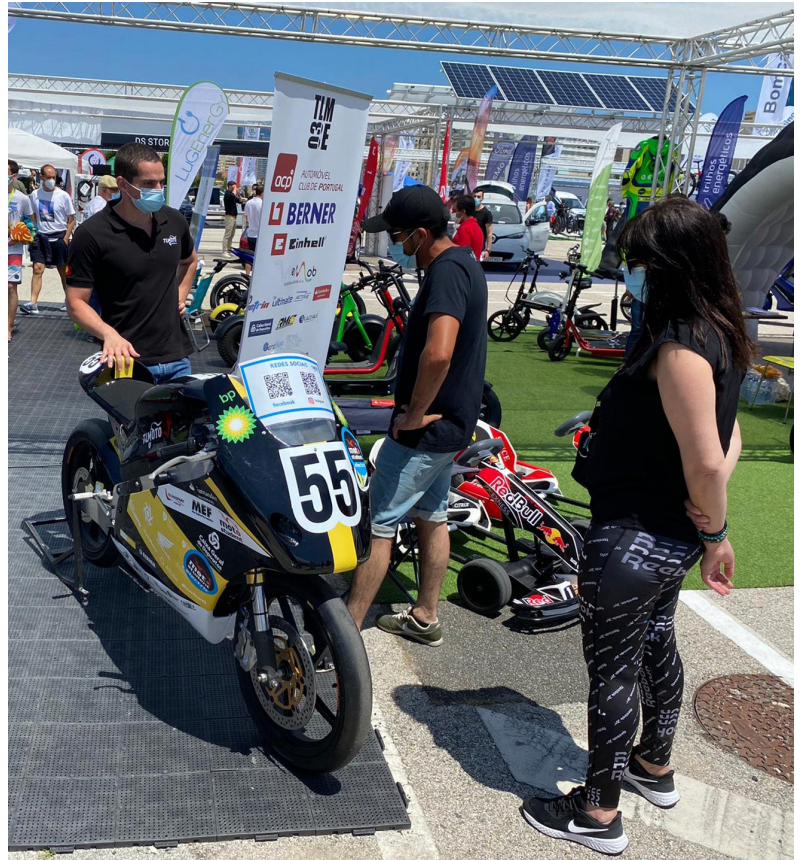
SOMETHING NOBODY KNOWS ABOUT YOU?

I'm a car fanatic, especially Japanese classics.

ENVE

On the first weekend of June, TLMoto team was present at ENVE - Encontro Nacional de Veículos Elétricos - which took place in Figueira da Foz, organized by UVE. These were two memorable days for the entire team, not only because it was our return to face-to-face events, but also for the opportunity to show the project and learn from others.

The days started very early, organized in shifts and the team divided into two groups: some were dedicated to mingling, and approached the other companies present, and others stayed with the prototype taken, the TLM02e, in order to make the project of TLMoto known and to clarify all possible doubts.



For a short time, it was also possible to see our prototype running. The team also made a point of clarifying the interested parties about its ecological vision and, consequently, about the role of electric vehicles for the future.

Everyone had the opportunity to meet various people, companies and projects, where they could exchange ideas and information, taking important lessons for future improvements in the next prototypes.

A weekend marked by the enthusiasm of the team's return to face-to-face events and finished with a greater exposure of TLMoto and a bag of essential knowledge for the project's growth.

A WEEKEND MARKED BY THE ENTHUSIASM OF THE TEAM'S RETURN TO FACE-TO-FACE EVENTS

TLM03E - FINAL PREPARATIONS

With the competition nearby, the team had some intense weeks and a lot of work. Firstly, the team made tests with the pilot, Jaime Coelho, so that he could get used to the behavior in curves, taking into account that the TLM03e already had more power than in previous tests.

Acceleration, braking and gymkhana segments were tested in accordance with MotoStudent regulations.

Modifications were also tested, including a new rear spring and a groin support for the driver.

From these tests, it was also possible to extract speed data and some changes in terms of adjustments, such as the preload of the rear suspension.

Thanks to the donation of various laminating materials (such as carbon fiber, epoxy resin and various consumables) it was possible to carry out the infusions of the fairings, which allowed us to obtain parts 50% lighter compared to those made of fiberglass.



TLM03E - FINAL PREPARATIONS

Later, TLMoto had the opportunity to go to a power bank to make some improvements to the prototype.

This was a very important point for the success of TLM03e, as it is the best way to program the controller, because it allows you to do several iterations and get real-time results of the speed and power you are reaching.

It is also through the power bank that it is possible to extract the power curves to analyze them in more detail afterwards. The team would like to thank AG Racing for the space availability.

With MotoStudent getting less and less distant, it was very important to test the prototype to the fullest. So, given the concession of space by the Portuguese Air Force, the team traveled to the OTA air base in order to take the prototype to its limits!

After the tests were finished and the big day arrived, the team left to Aragão confident with the work done.



TLM03E

MAX SPEED: 162 KM/H

ACCELERATION : 0 AOS 100 KM/H IN 4 SECONDS

MAX POWER: 42KW

BATTERY: 8,5 KWH

MAX TORQUE: 95 NM

VOLTAGE: 125 V

MOTOSTUDENT

DIA 1 - A BUMPY START

TLMoto's presence at MotoStudent began with only three members present due to a problem in the car that brought the other members.

Day 1 started with check-in, where all the documentation needed to enter the competition was verified.

This was followed by the preparation of the TLM03e for Scrutineering, where minor adjustments were made to the prototype. Later on, with the team already complete, the necessary improvements were carried out and the team passed the tests without any difficulty.



MOTOSTUDENT

DIA 2 - AN UNEXPECTED HELP

During the morning of the 2nd day of competition, the team focused on preparing TLM03e for the last stage of Scrutineering, the dynamic tests. With this, some problems arose in our BMS, which were promptly fixed, and also in the controller. The latter completely stopped working, which led the team to think that everything was lost.

It was here that UMA Racing Team appeared and lent us one of their controllers. This ensured our continuation in the competition. With this new controller, we managed to pass the dynamic tests, having conquered another stage in MotoStudent. The rest of the time was spent preparing the bike for the first races of the following day: Gymkhana, braking and acceleration.



MOTOSTUDENT

DIA 3 - WORK REWARDED

The 3rd day started with the first tests: the braking test, followed by the gymkhana and the acceleration test. In the latter, we were in 9th place, with a time of 7:59 s. In the gymkhana, our team reached 14th place, with a time of 33:943 s. It was not possible to score in the braking test as, due to electronics problems, the bike braked too early and it was not possible to measure the speed.

During the afternoon, the first training session started well, but at the end of the first lap, one of the sides of the fairing came loose and broke, having been necessary to replace it by the substitute side. After this mishap, training continued, where we completed four laps. Unfortunately, MotoStudent was unable to register the values of free practice, and decided to withdraw this scoring opportunity from all teams.



MOTOSTUDENT

DIA 4 -A BITTERSWEET ENDING

After the training on day 3, the organization decided that the race would be shortened to 4 laps and therefore, it was decided to remove one of the bike's battery packs, as this would allow for a lighter and more agile bike. However, on the morning of the 4th day, the organization backtracked on the decision, forcing the team to put the pack back on.

The short notice period meant that it was not possible to prepare the bike completely. In the qualifying session, the BMS had problems, which did not allow us to complete a timed lap and, consequently, made it impossible for our team to be present in the final race.



ALTHOUGH THE RESULT WAS NOT WHAT WAS EXPECTED AND DESIRED, THE WHOLE JOURNEY TO MOTOSTUDENT SERVED AS AN OPPORTUNITY FOR ALL TEAM MEMBERS AND BROUGHT MANY LESSONS FOR THE NEXT PROTOTYPE, WHICH WILL BE, FROM NOW ON, PUT INTO PRACTICE. WE THANK ALL THE SPONSORS WHO HELPED US AND WHO MADE THIS DREAM POSSIBLE, AND THAT WE CAN RIDE TOWARDS THE FUTURE TOGETHER.



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CLUB DE PORTUGAL**



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