



# AMZ News

THE NEW PROJECT



alvier in Zürich

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*alvier* in the wind tunnel

### The New Electric Team

September was once again the month, in which the new team, consisting of 15 mechanical and one electrical engineering student of ETH Zürich, 4 students from the University of Applied Sciences in Lucerne and 7 new freelancer students, embarked on their journey to work on this year's focus project. Due to the current circumstances, this season will be the first one in the history of AMZ, in which the team will not develop and create a completely new car but rather work on detailed analysis and enhancements of last year's car, *alvier*. This will guarantee exceptional competitiveness for the events in the upcoming summer. Nevertheless, the team is eager and willing to push *alvier* further to its limits to get AMZ back to winning days.

### The Beginnings

As a result of the strict measures taken by the government, the start of the season was different compared to prior years. In the first few weeks, there was an active exchange of knowledge and experience between the new students and alumni which put forth some creative ideas worth delving into. Due to the tight schedule, this would not have been possible in previous years allowing the students to focus on their specific interests to improve the car.

Instead of the usual team-building weekend, a trip to mount Uetliberg was organised, during which the team got to really know each other and worked on small challenges together in order to build team spirit. These impressions allowed them to come up with general rules of conduct and goals which they will work side-by-side with in the coming

months in order to realise the best possible output as a team. Another highlight worth mentioning was the first test day of the new season, at which the entire team got to see this season's premiere of *alvier* on the test track for the first time in the new season. This was a new experience for most of the new students and certainly served as an additional burst of motivation.

### Validation

Since *alvier* was not able to show its potential at races this summer, we decided not to build a new racing car. However, this does not constitute an emergency solution. On the contrary, having a driving car at the beginning of the season offers a number of new opportunities that we wanted to take advantage of. In the rush of event preparation in the spring, there is usually





alvier on the test track

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not enough time in a conventional season to validate the implemented concepts accurately. This autumn we now have the possibility to make up for this. In addition to extensive tests on the track, we had the opportunity to thoroughly test *alvier's* aerodynamic package in the vehicle wind tunnel of RUAG in October. The insights gained provide us with an excellent basis for

improving our development tools and significantly increasing the downforce with a revised aerodynamic package by next summer.

### Outlook

Two weeks ago, on October 17th, there was the General Concept meeting of the electric team. Interesting work

packages of the different modules were presented then. As a team, the modules decided on the most promising to implement on *alvier* this year. In the weeks to come, these concepts will be evaluated further in order to present them at the Detailed Concept meeting on the 14th of November. Afterwards, these concepts will be put into production if deemed fitting.

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***pilatus driverless 2020*** on the test site

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### The New Driverless Team

AMZ is incredibly proud to also announce the formation of a new driverless team for the 2021 season. Through class presentations, exhibitions, social media outreach and the organization of an open house, students were encouraged to learn about AMZ, the race cars, the Formula Student competitions and the community. The team was able to inspire students from even beyond the engineering and computer sciences to join AMZ.

### The Beginnings

In the current phase, it is important for the team to understand the requirements of the competition as well as the state of the technology at AMZ driverless. Alumni and tech leads play a critical role in transferring their

experience and knowledge to the new team members. During a show run on one of our test tracks, the team got the opportunity to analyze *pilatus driverless'* live performance and limitations through our monitoring and visualization tools.

The safety of the AMZ team members is the number one priority during the pandemic. With appropriate precaution and safety measures, the students still work together and function as a team. The driverless team is as passionate as ever about building the fastest autonomous race car. Right now, as you are reading our newsletter, team members are eagerly analyzing the limitations of previous seasons, wrapping their head around the state of the technology and coming up with new concepts on how to push *pilatus'* performance to the edge. Meanwhile, others are reaching out for new

sponsorships, organizing online workshops and executing PR strategies. Running a Formula Student team requires a large set of expertise and coordination to tackle the technological and economical aspects. The AMZ would like to take this opportunity to thank all sponsors, mentors and ETH Zürich for their generous support.

### The Final Driverless Season

The 2021 season is likely going to be the last season with an FS driverless competition that everyone is familiar with since its inception at FSG 2017. Due to rule changes in 2022, the AMZ driverless and electric teams will merge into one. In the 2022 season, a new race car will be built that will be driven both autonomously as well as by a human driver. The autonomous hardware will





*pilatus driverless 2020* driving autonomously

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then also guide the decision making and design phase, making the competition more challenging than ever before.

spirit, leadership and fun is coming up. The team is excited about this season and about fast and faster race cars!

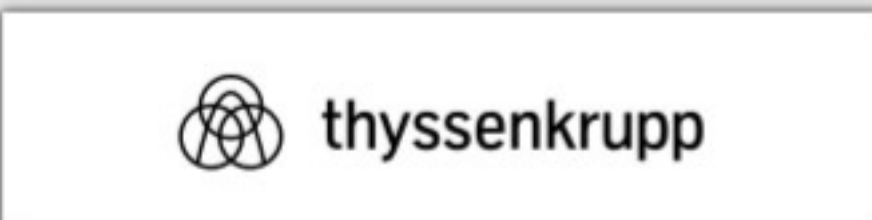
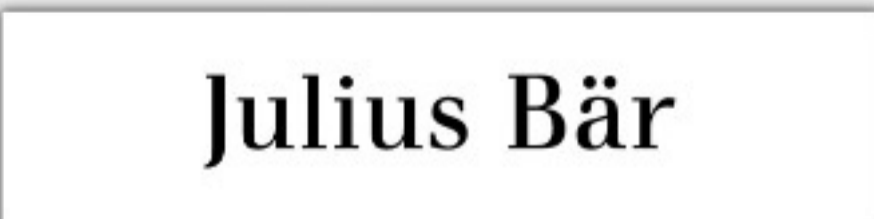
### Outlook

At AMZ, we are looking forward to what lies ahead. A season of technical and social learnings, of euphoric ups and tragic setbacks, a season of team

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