



AMZ News

CHRISTMAS GREETINGS

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alvier in Technopark Zürich

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Photo shot with *alvier* and *pilatus driverless 2020* at the Swiss Museum of Transport

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Design Phase

With the start of the Christmas season, the design phase is slowly but surely coming to an end. The lack of Christmas feeling and markets did not stop us from giving our best to make the most of the already driving car *alvier*. Concepts were developed, some were discarded and others are being realized. Since the detailed concepts freeze on November 14th, we have been working hard to finish the last bits of our projects which need to be sent to manufacturing.

At the same time, various testing days were organised to gather data for evaluating the current concepts. The analysis of the data, which is still an ongoing task, will allow the team to get every last bit of performance out of *alvier*.

Outlook

Despite regular office hours not being possible during most of the current season, we were able to maintain good team spirit, have a laugh during virtual

meetings and focus on the tasks at hand. Motivation was never an issue and the flow of information is always provided thanks to the efficient use of communication and collaboration tools. Thanks to our generous sponsors, the new projects can be put into production very soon which allows us to mount them on the car and test them earlier compared to previous years. This, in turn, will consequently lead to optimal systems that are specifically designed to work on *alvier*.



alvier on one of the last testing days

© AMZ

Christmas Greetings

The Christmas break will be a short one but nevertheless, we are eager to complete the design phase and use the momentum to start the new year in a proper fashion. There is still a lot of work

to be done until then so we better start now! In the name of the entire electric team, we want to thank all of our sponsors without whom the whole project would not be realisable! We wish you a Merry Christmas and a Happy New Year!

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Move to the new workshop in Dübendorf

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Goals

After a virtual beginning to the new season, we are now coming together to celebrate the most beautiful time of the year. In the upcoming months, our driverless team will continue to work on *pilatus*, with some exciting new challenges. This is the time to thank our generous sponsors for their continued support and trust. Our team is thankful for the incredible opportunity to continue the driverless legacy.

While we are separated in space, we are united through Slack, Trello and the mosaic panels of Google Meet, which we used to collectively create our goals for the 2021 driverless season. In our pursuit to uphold the legacy of *pilatus*,

we aim to stay in first place of the competition by improving our lap times in all dynamic disciplines of the competition. Specifically for Trackdrive, we want to be able to beat the human driver. Additionally, we set ourselves the goal to be rigorous with static disciplines. There we will convince the judges with a solid business plan, a cost report and thoughtfully developed technical design concepts.

Modules

Third time's the charm; since 2019, where we first worked with *pilatus*, it has been our trusted companion. The complex autonomous racing problem can roughly be separated into three

segments which are also reflected in our team structure. In an effort to give you an insight into our software pipeline, we will shortly introduce its components. In the *Perception* module, LiDAR and camera data is fused and analysed with the goal of predicting the track markings reliably and with a far lookahead distance. The *Estimation* module calculates and maps the driveable area using SLAM algorithms. This precise model of the car's environment is then used in the *Control* module to calculate and strictly follow the optimal race line. Additionally, we have introduced the *Simulation & Data Analysis* module, which is working on photorealistic simulation and the accessibility of our terabytes of data.



Move

Both AMZ driverless and electric have recently moved their workshops to the newly built Innovation Park in Dübendorf. From now on, AMZ will work there alongside other exciting projects and teams of the ETH Zurich like ARIS (Akademische Raumfahrt Initiative Schweiz), E-Sling and Swissloop. We would like to thank ETH Zurich for

providing us with a new space for our workshop!






Outlook

Through these changes, our dedication and passion for autonomous driving persist. In the name of the driverless team, we wish you a relaxing winter break, happy holidays and a successful new year. Stay healthy!

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