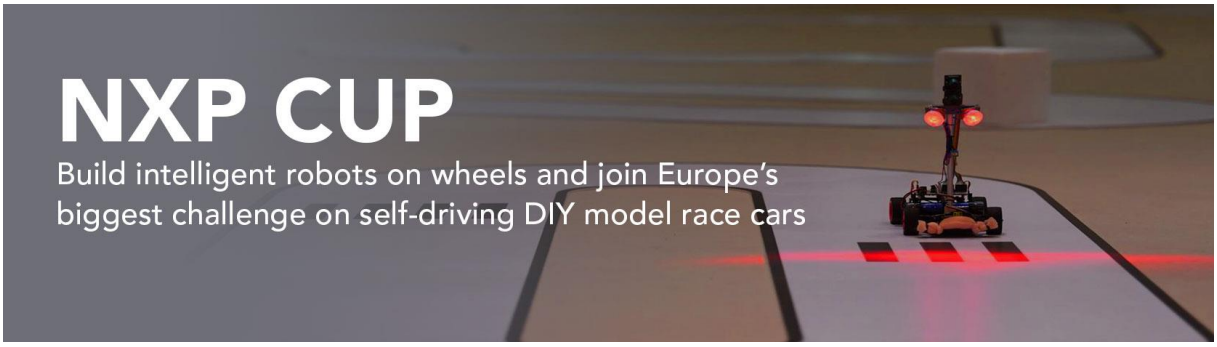

Insider details from Katrin, working student from technical projects at NXP

Based in Hamburg, Germany and earning a master's degree in microelectronic systems, Katrin has been working with the NXP Automotive team since March 2019. We are pleased to have her on board, testing our latest technology for new participants in the exciting NXP CUP.

What are you testing now for the next NXP CUP?

I have been working new car chassis and development boards for the NXP CUP. My goal is to provide drivers and basic software so participants of the NXP CUP could start easily with programming.
Specifically I'm testing the RDDRONE-FMUK66, which is commonly used for our HoverGames drone program which started in May this year. But it is also perfectly working for autos. On one chassis, I put a brushless motor in combination with the FMU running on PX4 firmware, making driving much more enjoyable. This is the latest and greatest technology on the market. With the help of PX4, I developed an algorithm to make the car drive by itself. After many tries and failures, we now have the algorithm done which allows the car to drive on the NXP CUP track. Moreover there is a new camera. The PIXY 2 Cam allows to configurate the tracking algorithm for optimal line tracking on the race track.

I know in the previous NXP CUPs there have only been brush motors, which is why I did some tests on the other chassis with a brush motor. It is great to see the students now have the choice to either continue with brush motors or take the next step and build on brushless ones.

Now we are testing a new board named FRDM-KL 46, which is a new version of the board we had during the last NXP CUP, FRDM-KL 25Z. This board is being tested on brush and brushless cars too. So I am curious to see how many students will change to the newer board solution.

What is the difference compared to last NXP CUP season?

It is the huge variety of options! We have many new items this year. There is the new PIXY 2 Cam which is way better and gives much more possibilities than the LineScan camera we had last year. Besides lines, it can also recognize blocks, colors and barcodes. The RDDRONE-FMUK66 is also new in the project. We want to show that it not only works on drones but also in our cars and generally in any robot that moves. With the new FMU we introduce a new standard that allows many new commands and transforms the car to a real robot on wheels. Last, there will be an all new car chassis from DFRobot. We are testing a prototype right now, and it is very promising. After last tests are done, students will be able to buy it at Mouser Electronics, either with brush motors or brushless ones. So in short: new car chassis (but of course you can still use your old one from Landzo) and latest boards from NXP for a better driving adventure!

In your opinion, what can the students look forward to in the next NXP CUP?

I would say this year will be fun because of all the new upgrades. The PIXY 2 is pretty cool. It does need to be programmed accordingly, to ensure that it works as you want it to work. In general, with the PIXY 2, students will have more opportunities.

Another cool thing will be how the cars drive. They have so much power and it makes the drive fun and a bit challenging. The new DF robot chassis can be assembled by yourself and it allows a whole spectrum of creativity. It also looks really good! As we have so many teams at NXP CUP, participants will have the chance to learn a lot from each other, some working on the FMU, others on the FRDM boards. That is very exciting to me.