Land Rover 4x4 in Schools World Finals 2016



Our Adventure

RNDr. Monika Molokáčová "Passion, Style, Efficiency - 3 ordinary words which make team Columba Racing extraordinary. Well done, boys! Thank you."

Atmosphere

Michal Pándy

The atmosphere at the competition was simply extraordinary. Jaguar Land Rover provided a friendly environment where each of the nationalities could contribute to the overall feeling of the contest. **The fact that I could meet a great number of motivated peers or even some of the most acknowledged vehicle designers of the planet kept me in constant excitement.** The bonds that were created throughout the 4x4 in Schools challenge have a significant meaning in my own life today. I hope that every student will one day have the opportunity to experience the beautiful thrills of an event of such quality.

Programming

Juraj Mičko

Land Rover 4x4 in Schools competition is related to far more fields than just engineering, so the competing teams can demonstrate their perfection and excellence in various areas. In programming and electronics, there is a large room for inventions concerning the control unit. Thinking about adding a wireless receiver for communication with smartphones? Or building in a GPS receiver for tracking the car's exact location? Everything is up to the team's decision and strategy. We've had equipped our car with combined gyroscope and accelerometer sensor and contrived a clever system for measuring, filtering and processing the data to get precise information about the slope of the track. The opportunity to present ourselves and explain our technical achievements to the judges was greatly appreciated.



Presentation

Pavol Drotár

4x4 in Schools wasn't just plain engineering. The competition required us to present our team as a professional vehicle manufacturer. We had to set up a complete stand with posters and information about our work. It was also challenging to design an attractive looking portfolio to document the achievements and improvements made on the car as well as in marketing or sponsorship. We had to turn on our creativity and we created a logo for our team, marketing bookmarks and designed a website. The team's image was supplemented by the color of our car and our uniform t-shirts.

In my point of view, presentation and branding were a crucial aspect of the competition. I have seen all the teams doing well and we were impressed by their suits, sweaters or even team hats. There is a great potential to improve our team in this area and make the overall look nicer, more aesthetic and interesting.



The challenge

Zoltán Hanesz

Land Rover 4x4 in Schools challenge is an international competition, where teams of high school students are required to construct a small 4x4 vehicle, explain their engineering process to expert judges, create extensive marketing of their product and most importantly prove, that their car is the best on the track. The 2016 World Finals event was hosted by Jaguar Land Rover in the Ricoh Arena in Coventry, UK. Our team Columba racing took part in this competition for the first time. During the competition, every team is judged on various criteria. Before the main event, everyone has to submit their vehicle to the judges along with their portfolio, which is also evaluated. During this time, the car is tested whether it meets technical regulations. On the competition day teams have their own pit area which they set up a day in advance and is also evaluated along with verbal presentation, engineering, track performance & trailer tow performance.

Electronics

Ádám Urbán

Every team starts with a basic RC car chassis with motors, 4 wheels and a Radio Transmission control unit. This chassis is already capable of completing the track, however the team needs to modify it in order to fulfill the technical criteria. The team can decide whether to use this chassis or start from scratch. We have decided to keep the construction of the chassis and the motors. We did however change the wheels in order to get a better traction and designed a 3D model of the body shell. The car also needs to be able to autonomously detect certain conditions on the tracks and react accordingly (e.g. turn on the front lights in tunnel or give warning signal by blinkers and horn when the tilt angle is above a certain limit). For the processing of signals from the sensors we had to design a custom Printed Circuit Board with a Microcontroller Unit which would then operate the appropriate lights and the horn.



The place

Jakub Mach

The competition itself was set in the city of Coventry about 140 kilometers from London. There we arrived in the afternoon and transferred to a local bus on route to our hotel. We were accommodated in the DoubleTree by Hilton hotel in the Ricoh arena, the home of a local rugby team called Wasps. The competition itself also took place in the arena.

During our stay we, together with the rest of the competitors, have been treated to several excursions with the intention to present us the local area as well as the Jaguar Land Rover company itself, first of which was a tour of the Coventry historical centre. We had an opportunity to see the remnants of the Coventry's St. Michael's Cathedral and the competition was officially opened with a speech by the mayor of the city in a historical courthouse.

The next point in our program took us to the rural English area surrounding Anne Hathaway's Cottage, a historical dwelling in which the wife of William Shakespeare supposedly lived, where entertainment and food in the form of a barbeque was prepared.

Naturally we were also shown around the Ricoh arena, with an interview of a former professional rugby player, and the main production plant of Jaguar Land Rover in Solihull, where we received the privilege of seeing the assembly process of new vehicles, their testing and received some information about study programmes offered by the company to prospective employees.



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