

Application-Report - Electro race car



Application:

LA eRacing e.V. requires a very robust yet small rotational speed sensor for an electro race car. This sensor has to determine the rotational speed on small gears with a high resolution.

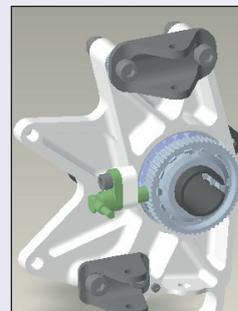
Task:

In order to determine the speed of the race car, the rotational speed of the wheels should be measured by using a sensor. This would also enable distance and reach to be calculated.

A further point is the so called „Torque Vectoring“. If the exact rotational speed of the wheels is known, the torque of the two motors can be specifically adjusted and hence the drive torque of the wheels can be corrected. This means that when a car is understeered in a curve, the outside wheel can be driven more strongly to get back to a straight track. In addition, the rotational speed is necessary for torque control to prevent the rear wheels from slipping while accelerating.



Race car "Elly"



Wheel carrier front right

Solution/ Result:

The decision was made to use the 1-channel hall difference sensor [SDN11.FE00.E1R](#). This sensor is perfect for the requirements considering its small installation size and its resolution. In addition, it also is IP67 certified and therefore well-suited for the car.



1-Channel Hall-Difference sensor
SDN11.FE00.E1R



LA eRacing:

LA eRacing is an independent club of the university of Landshut, Germany. The presently active 100 members are composed of interdisciplinary students of the Landshut University.

The involved faculties include business administration, electrotechnology and industrial engineering, information technology, interdisciplinary studies, mechanical engineering and social work.

The objective is an own development of an electro race car which will be used to participate in Formula Student racing events. This enables the members to use both their technical and business knowledge in practice. In addition, the cooperation in the team strengthens the teamworking abilities of each member.

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