

Design and construction of a testing bench for the ergonomics of a FSAE racecar

Subject: Automotive Engineering

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External project partner: Bern Formula Student, Biel

The Bern Formula Student was for its first time taking part at the international Formula Student competition in September 2015. To provide enough data for the development of the 2016 chassis, a testing bench and a complete study on the ergonomics were needed.

Aim of the project

Design, production and assembly of a testing bench in order to make a study on the ergonomics of a FSAE racecar. The position of the pilot has to be fully adjustable. The forces on the pedalbox as well as the moment on the steering wheel have to be measurable. The bench also should be usable for show purposes.



Bench

Conducting of the project

The project started with a design and optimization phase. When the concept was designed, the different parts were produced and assembled by the students themselves.

Tri-axial accelerometers were installed to allow measurements.

Results

The bench works properly and allows many set-ups to fit with different pilots.

Accelerometers allow «live data broadcast» on an Android system.

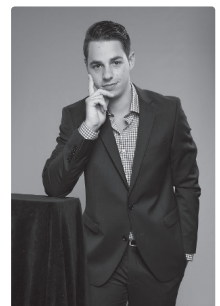
The test protocol was tested with two drivers. A complete study of the ergonomics will be conducted.



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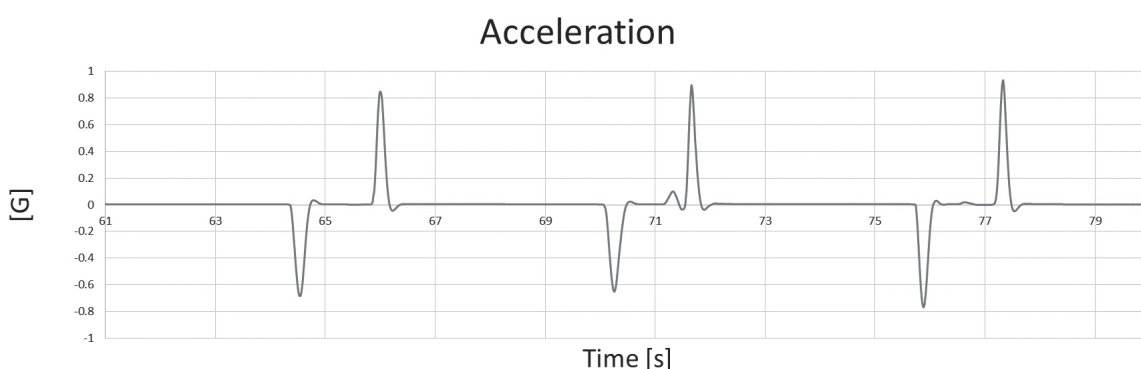
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Acceleration