

## Early Phase Design Study of a Sliding Door with Multibody Simulations

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**Abstract :** For the systems like sliding door, designers should predict not only strength but also dynamic behavior of the system and this prediction usually becomes more critical if design has radical changes refer to previous designs. Also, sometimes physical tests could cost more than expected, especially for rail geometry changes, since this geometry affects design of the body. The aim of the study is to observe and understand the dynamics of the sliding door in virtual environment. For this, multibody dynamic model of the sliding door was built and then affects of various parameters like rail geometry, roller diameters, or center of mass detected. Also, a design of experiment study was performed to observe interactions of these parameters.

**Keywords :** design of experiment, minimum closing effort, multibody simulation, sliding door

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