Design and Development of Research Aviation Training Device

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As a result of the inevitable amalgamation between computer science and aeronautics, the aeronautical informatics has become a new discipline. The role of flight simulation in aeronautical informatics research and education is as important as the one in aeronautical engineering, which has been already studied and applied over the past decades. Although there are numerous Aviation Training Devices (ATDs) available on the market, it is still hard to find a particular one designed for research and education purposes. It is significant for aeronautical informatics researchers and students to have a specially designed flight simulation system, with which they can obtain some basic flight training and verify their designs in a realistic environment.

In this research, we designed and developed a Research Aviation Training Device (RATD) for the Aeronautical Informatics Research Group at Clausthal University of Technology based on the requirements of researchers and students. The RATD not only arouses the interest of students in aeronautics, but also provides means to teach them basics of flight and aeronautical informatics. It comprises a training syllabus and a corresponding brief flight training manual to support basic flight training with generic cockpit elements. It enables Man-in-the-Loop simulator testing with its open architecture software infrastructures. It further includes a hands-on tutorial that demonstrates simulator-based development and testing of flight systems.

Freitag, den 06.04.2018, 11:15 Uhr in Raum 106, IfI (D 3), Julius-Albert-Str. 4.