Functional Safety and System Dependability

Content

Software-controlled, embedded systems are ubiquitous. In cases where their behaviour and interaction with people, assets or the physical environment can lead to hazardous situations they are also safety critical: power steerings and Electronic stability programs (ESP) in vehicles, the braking system of trains, medical devices, in-flight control of airplanes, to name just a few.

There are numerous examples where wrong or unforeseen software behaviour has put lives or values at risk and even damaged them. According to the Bundesinstitut für Arzneimittel und Medizinprodukte (Federal institute for drugs and medical devices), in the years 2005-06 software faults were responsible for more risk incidence reports (22 %) than any other causal category such as design faults, physical faults, compatibility problems etc.

This lecture gives an introduction to dependability theory and to methods used in research and industry to assure, improve and assess the dependability and safety of software-controlled systems:

- Design and analysis methods supporting the dependability and safety of embedded systems
- Dependability/safety modelling
- Dependability/safety measures and analyses
- Software faults, software failure
- Mechanisms of HW/SW fault tolerance
- Risk analysis, risk acceptance criteria
- Safety norms

Dates

- lectures and exercises are online only during this semester
- Written examination: 21.07.2020, 11:30-13:30 (1010|131 AachenMünchener Halle (Aula))
- Retake: 25.08.2020, 11:30-13:30 (1420|001 Grüner Hörsaal AM)

The first lecture will be held on Monday, 21th of April, 2020. There will be no lecture held due to the current situation. The lecture will only be accessible by video recordings in the Moodle portal.

Announcements and Course Material

Announcements, slides, videos and other material can be found at the RWTHmoodle site of this course.

Registration

If this course is part of your curriculum, you should be able to register for both the lecture and the exam via RWTHonline. If you have any problems with that, please contact the academic supervisor for your curriculum.

Contact

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