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Summer term 2014
Problem Set 1
Due: Tuesday, 13th May 2014

Embedded Systems

Please indicate your **name**, **matr. number**, **email address**, and which **discussion session** you have been allocated to. We encourage you to collaborate in **groups** of up to **three** students. Only one submission per group is necessary.

Problem 1: Registration

For the organization of tutorials and discussion slots, you have to register with us by sending an email until **Wednesday, May 7, 23:59** at `es14@react.uni-saarland.de` containing the following information:

- Your name, matriculation number, email address, and UdS card number (to get access to our lab, which is needed for later projects)
- The names of your collaborators
- Your preferred tutorial slot (Mondays, 14:15-16:00 or Tuesdays, 10:15-12:00)
- At least 3 time slots ($\geq$ 1 hour) for discussion sessions (Thursdays, 12:00-16:00 or Fridays, 10:00-16:00).

You may also send just one email per group containing the information of all members.

To get a certificate, you also have to register at the HIS POS.

Problem 2: Install MATLAB

For the following exercises, you need the software MATLAB by MathWorks. The university provides you with a license that can be used within the IP range of the campus. More information is available at `www.hiz-saarland.de/informationen/arbeitsplatz/sw-lizenzen/mathworks-tah-campuslizenz/` (german).

You can request a license at `unisb.asknet.de/cgi-bin/product/P10011574` (the last item). In order to register at the software distribution website ("Softwareportal"), you have to send a fax to the operator of the site containing a form and a student certificate. You can send the fax from our group's office, building E1 3, room 505.

Problem 3: Simulink and State-Flow warm-up

Consider the two models `model1.slx` and `model2.slx` that are available on the course website. Open the models in MATLAB and answer for each model the following questions:

1. Which physical system does the model represent?
   Hint: Use the simulation feature of Simulink and inspect the data captured by the scopes.
2. Is there (physically) unrealistic behavior? If your answer is yes, how would you adapt the model to represent the physics more accuratly?