HW 3

- **HW#3 Port HW#2 Application into Linux RT(Due 16/12/'18)**
- Download VirtualBox and create a Linux machine with 1 processor.
  - The homework will be implemented on this virtual machine.
- Build Linux Kernel with real-time patch (PREEMPT_RT)
  - Select a suitable Linux Distro, install on the virtual machine
  - Download and apply the real-time patch.
  - Build the patched kernel and deploy
  - Boot the and report the uname –a result.
  - Build a document explaining step-by-step procedure you followed
- Port HW2 Application into Linux
  - Use existing source files
  - Write a makefile for building the application
- Configure scheduling
  - The Controller threads should run at real-time priority level 10
  - Main and Console threads should run at normal scheduling policy.
  - Select RT scheduling policy, and justify with an explanation in comment lines

Additional requirements are on the next page →

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- Handle unexpected delays from Simulator calls
  - Read and write functions may block for a long time
  - Deadlines for controller tasks may not be met
  - In case of missed deadlines:
    - Report warnings on console
    - Keep running
- Protect the console access, and keep the console clean!
  - Output only from console class, and report **only measured data** at 2 Hz
    - Example: *Pressure: 1.02, Temperature: 22.1*
  - Report deadline misses immediately, but **the controller classes should not report on the console**. The console class should report the warnings.
    - Example: *WARNING: PressureController deadline miss by 2 milliseconds*