

Project overview

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- General quality of solutions is very good
 - For most groups, only small issues remaining/to be fixed
- **If you have not yet submitted a revised solution, please do so!**
- Correction of re-submissions going on
- Possible number of revisions is unbounded

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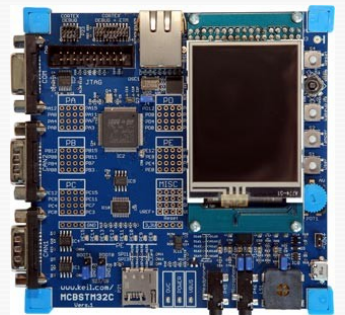
Project overview

- Group projects to put material from the first half to practice
- Groups of 3-4 people
 - Larger than for the elevator lab
 - E.g., groups from the lab could merge for the project
- **You have to sign up yourself on the student portal**

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Provided hardware

- MCBSTM32C
- STM32F107VC
ARM Cortex M3
- 256KB Flash,
64KB RAM
- LCD + touchscreen
- ...
- Programmable
using MDK-ARM



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Provided hardware (2)

- Peripherals + further components to be added as needed for projects
 - Switches, buttons, ...
- Some groups wanted to use alternative hardware

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Provided hardware (3)

- **Boards will be available beginning of April**
- (Slight) problem ...
- Time until then:
To be used for analysis + design

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Lab sessions

- We provide help during lab sessions:

Fridays, 15:00 - 17:00
Room 1313

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Project examination

- By presentation
 - 2nd half of May, or when ready
 - expected: **~ 30min,**
slides + demonstration

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Project topics

- Generally:
You can decide quite freely what you want to do
- We propose a number of possible topics
- Topics will usually require you to collect additional background knowledge

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Audio effect system

- Reads audio using A/D converter, applies filters and effects to digital audio data, then converts back to analogue signal
- Requires implementation of signal processing algorithms, e.g., FFT
- Graphical editor where different effects can be plugged together + configured
- Quite open-ended

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Calculator

- Design and implementation of a programmable pocket calculator
- LCD display for output, touch screen or buttons for input
- Function plotter
- Simple programming language for the calculator
- Requires knowledge about programming GUIs, compilers, etc.
- Quite open-ended

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Voltmeter/test device

- Voltages, currents, resistance, capacities, frequencies
- Recording of data series
- Graphical presentation of measured values; oscilloscope functionality
- Proficiency in working with hardware required

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Geo-caching tool

- Device that maintains a database of geo-caching locations
- Connected to a GPS receiver
- Can add arbitrary locations to the database (either by measuring, or by specifying coordinates)
- Can lead user to a stored location by displaying distance, compass, height, etc.

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Network analyser

- Device for analysing + bug-fixing IP networks (ethernet)
- Automatic collection of information about a network
 - Determine range of network addresses used in a network
 - Availability of servers (e.g., DHCP)
 - Scanning
- Knowledge about networking required

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Alarm system

- Implementation of alarm system e.g., protecting an apartment
- System connected to various sensors
 - Observing doors, windows
 - Motion
 - Connected to camera (webcam)?
- Some hardware proficiency needed

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Joint projects with other courses

- **Welcome!**
- In particular, groups also taking Bengt Jonsson's course might want to do a joint project
 - E.g., implementation of parts of software in Simulink/Stateflow
- Wireless sensor networks course?

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Homework (to do before next Monday)

- Choose groups and sign up on student portal
- Think and decide about project topic