

12-Channel-ECG

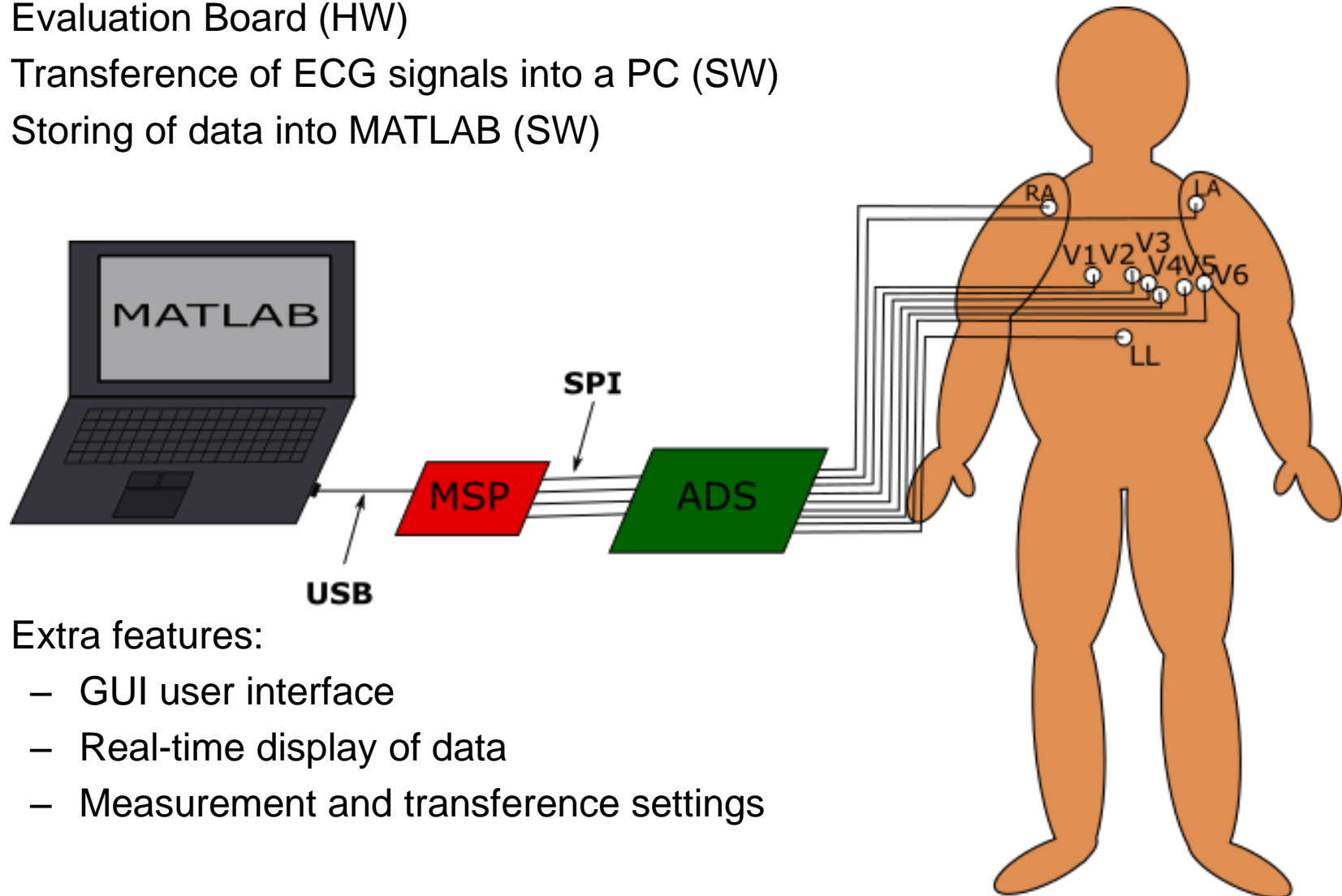
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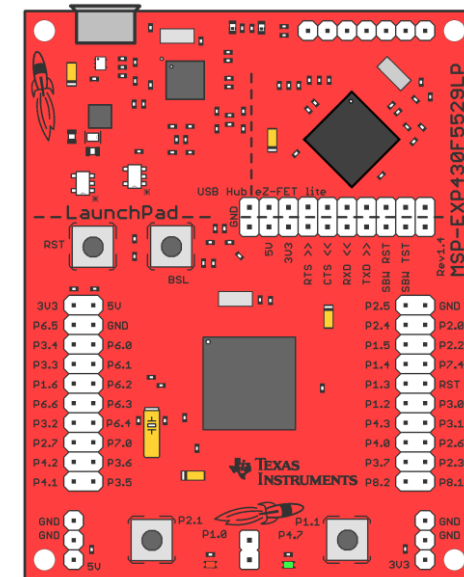
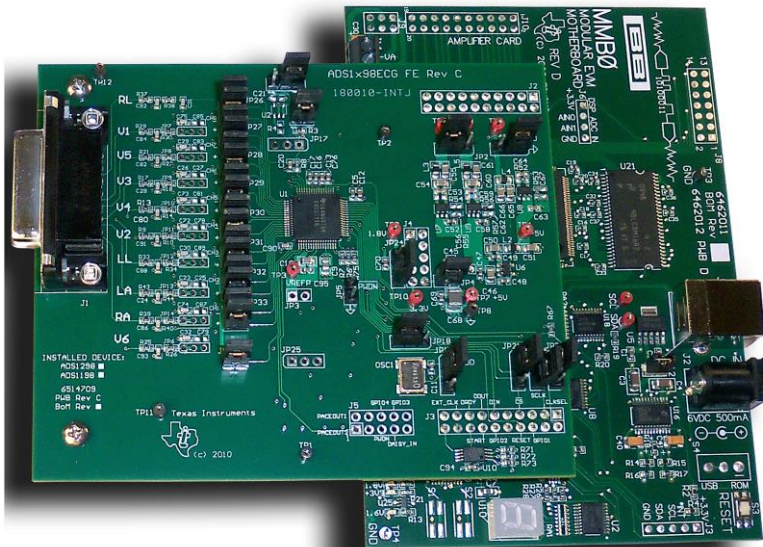
Patrick Döll and Idoia Badiola
Seminar/Project

Supervisor: Dipl.-Ing. Lennart Leicht

- Development of an adapter board for a Texas Instruments 12-Channel-ECG-Evaluation Board (HW)
- Transference of ECG signals into a PC (SW)
- Storing of data into MATLAB (SW)



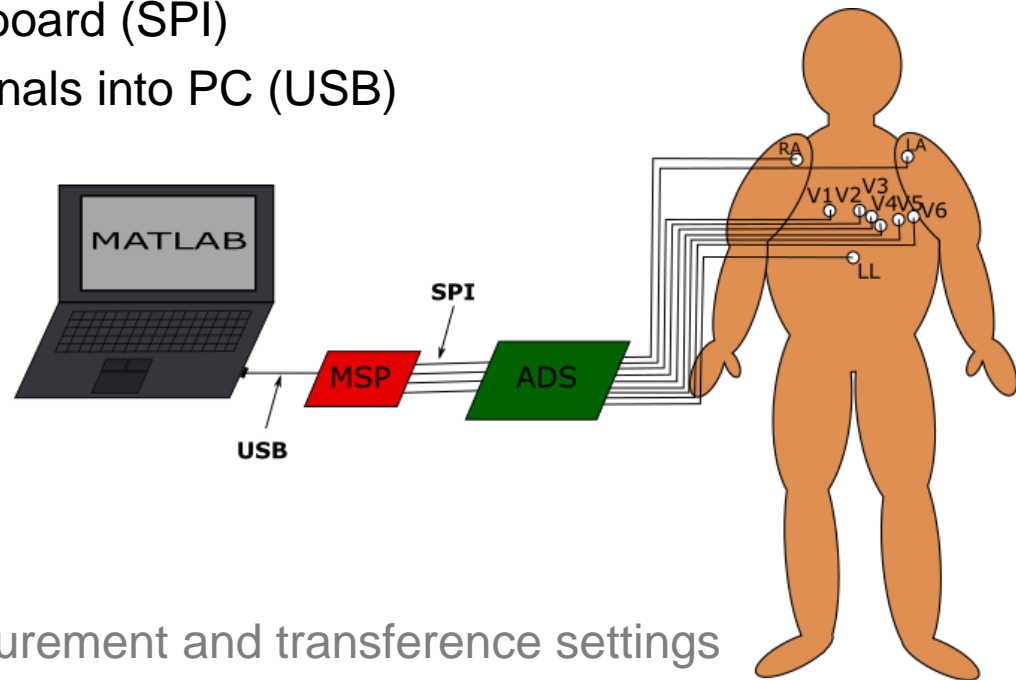
- Extra features:
 - GUI user interface
 - Real-time display of data
 - Measurement and transference settings



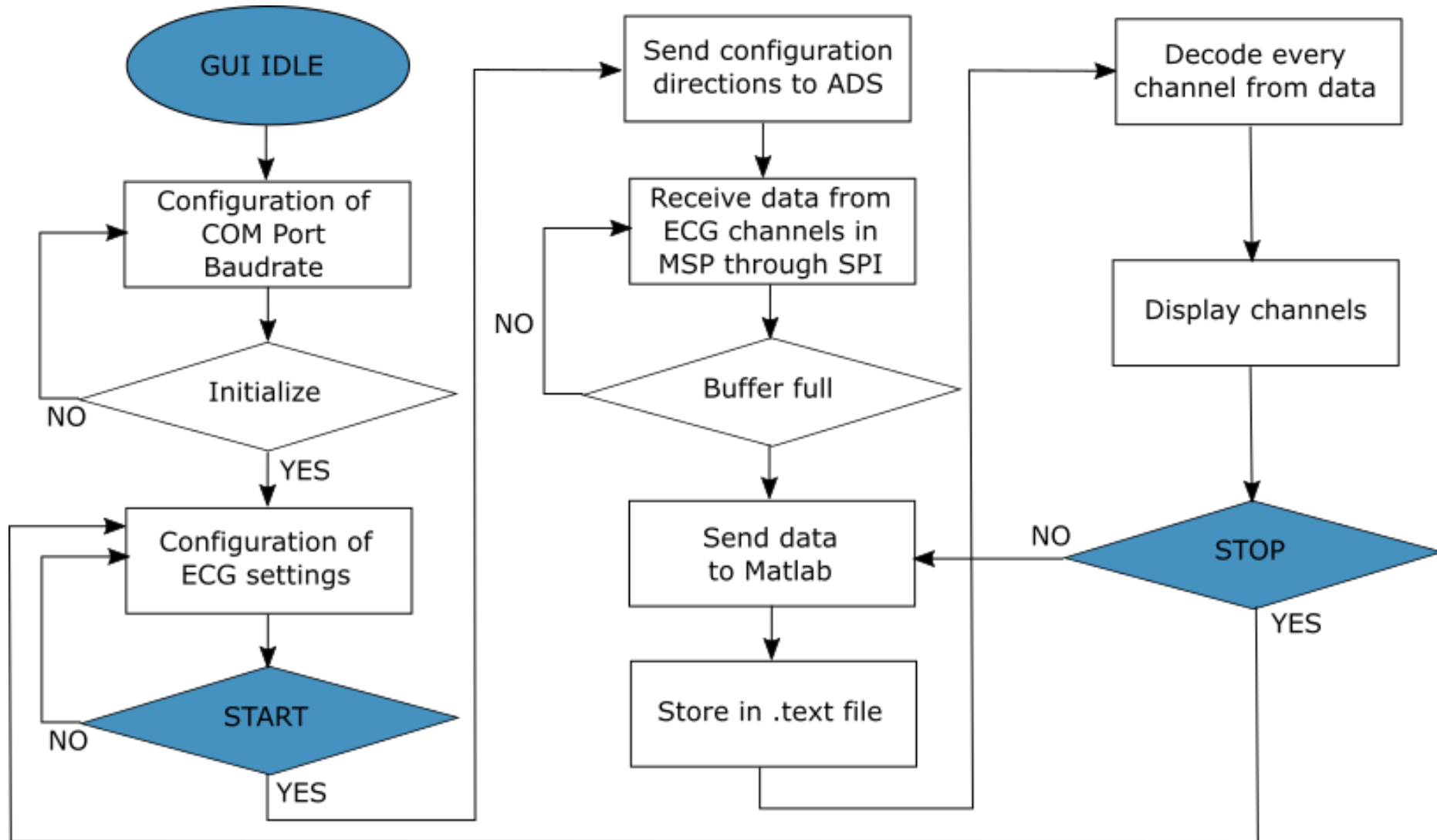
Feature	ADS1298ECG FE
Speed	Up to 2.25 MHz
Data rate	Up to 32000 SPS (HR)
Resolution	Up to 24 bits
Serial communication	SPI
Extra features	Programmable gain
	Normal measurement, Noise measurement, Tpre measurement, Test signals

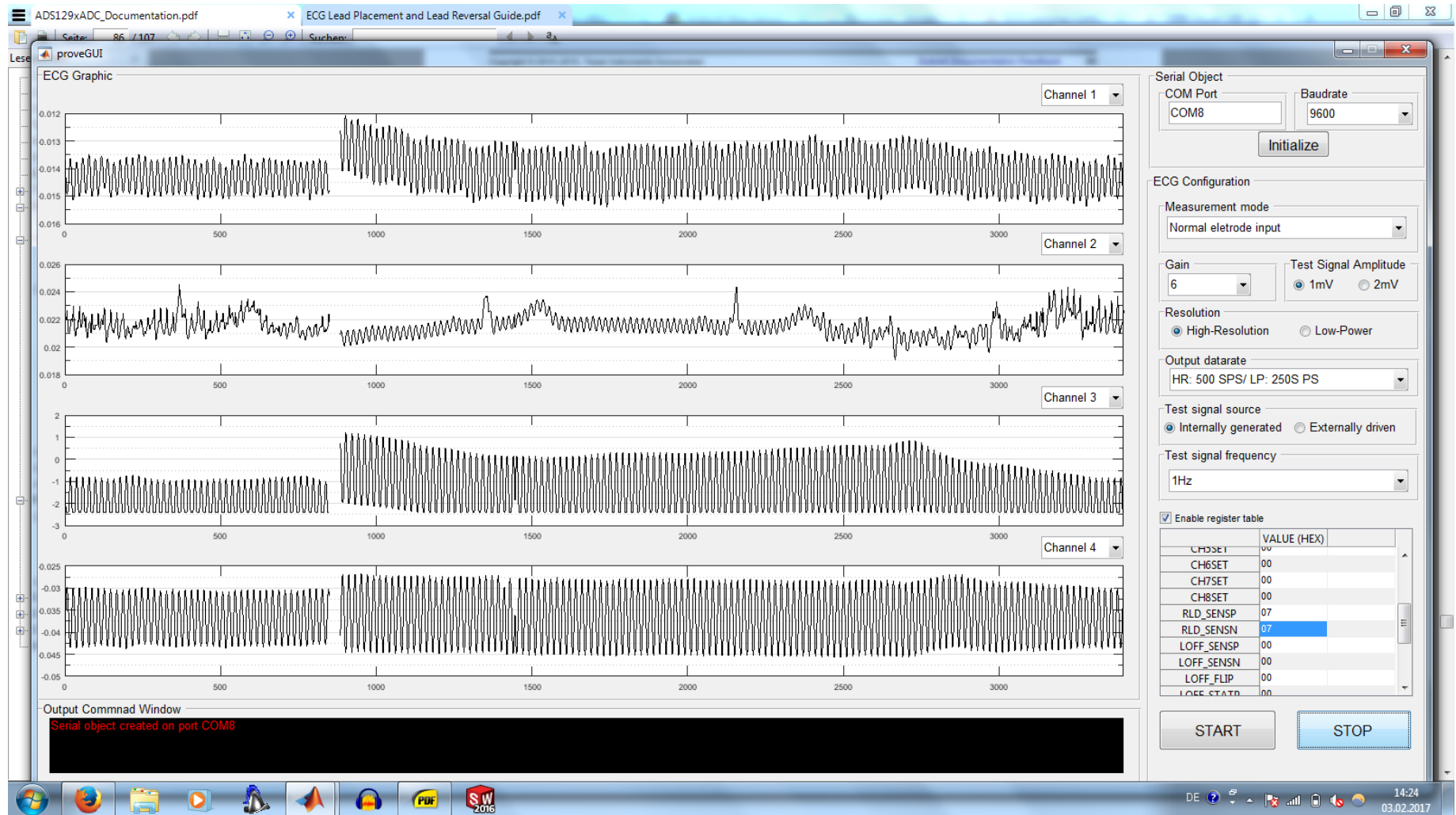
Feature	MSP-EXP430F5529LP
Speed	Up to 25 MHz
Non-volatile memory	128 kB Flash
RAM	8 kB
Timers	4x 16-bit
Serial communication	2 I2C, 4 SPI, 2 UARTs
ADC channels	12-bit SAR, 16 channels
Extra features	USB
Price	\$12.99

- Microcontroller (C)
 - Acquisition of data from board (SPI)
 - Transference of ECG signals into PC (USB)



- PC (MATLAB)
 - Storing of data
 - GUI User Interface
 - Modification of measurement and transference settings
 - COM Port, Baudrate, Gain, Resolution, Output Datarate
 - Measurement mode: Normal Electrode Input, Noise Measurement, Temperature Sensor, Test SignalsResolution:
 - Test-signal mode settings: internal/external, amplitude, frequency
 - Real-time display of data





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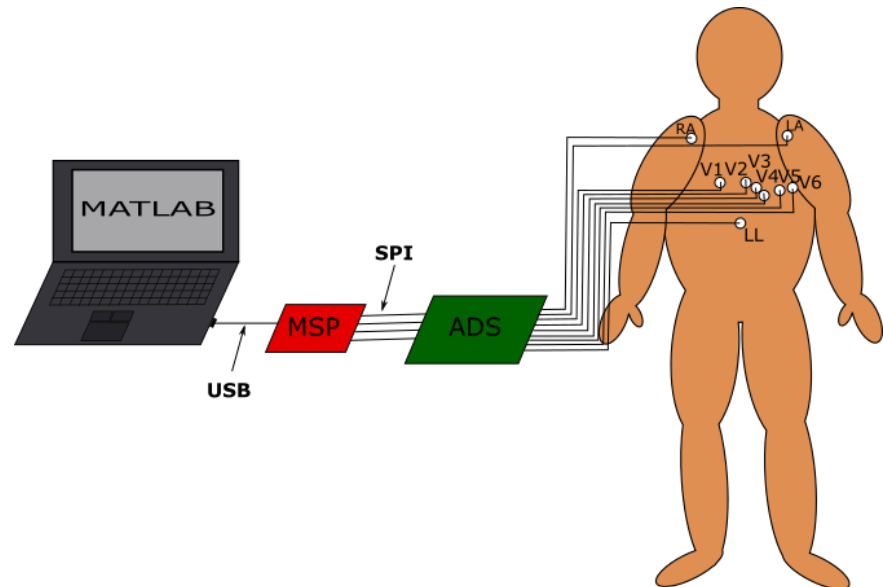
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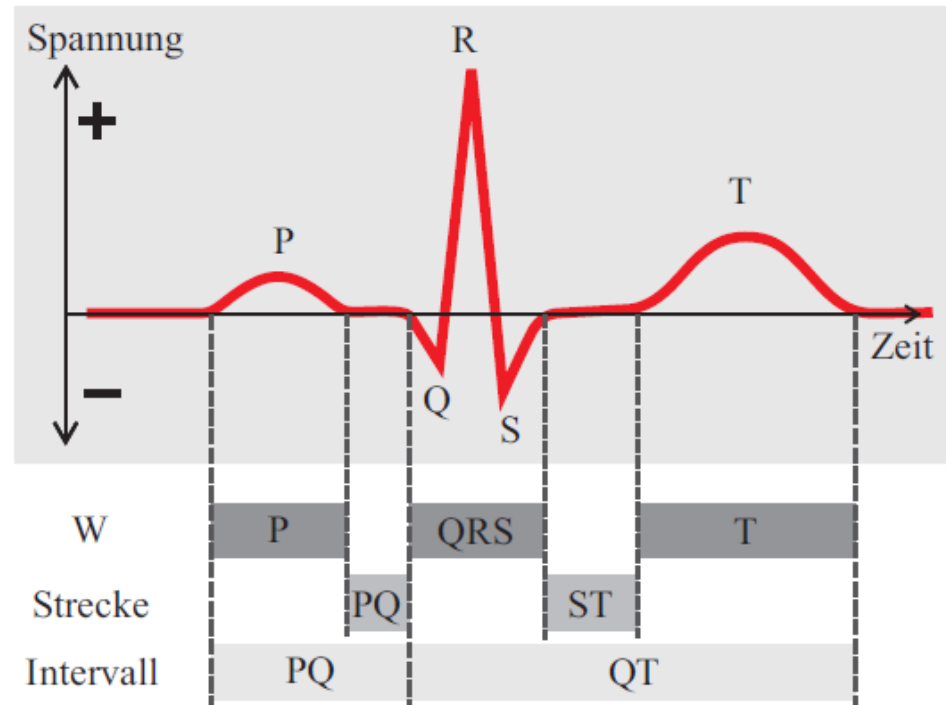
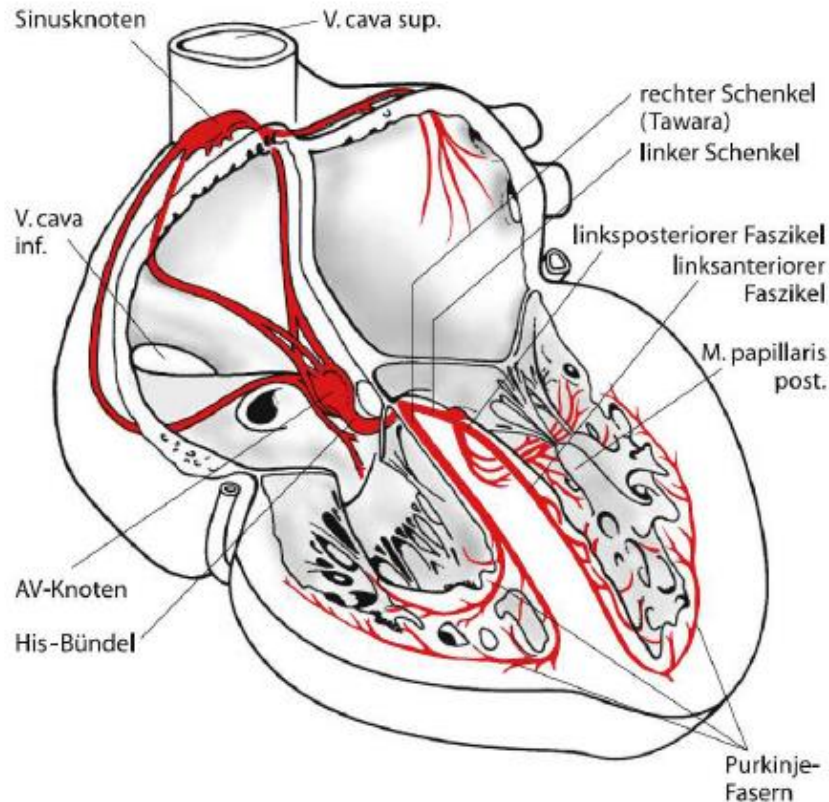
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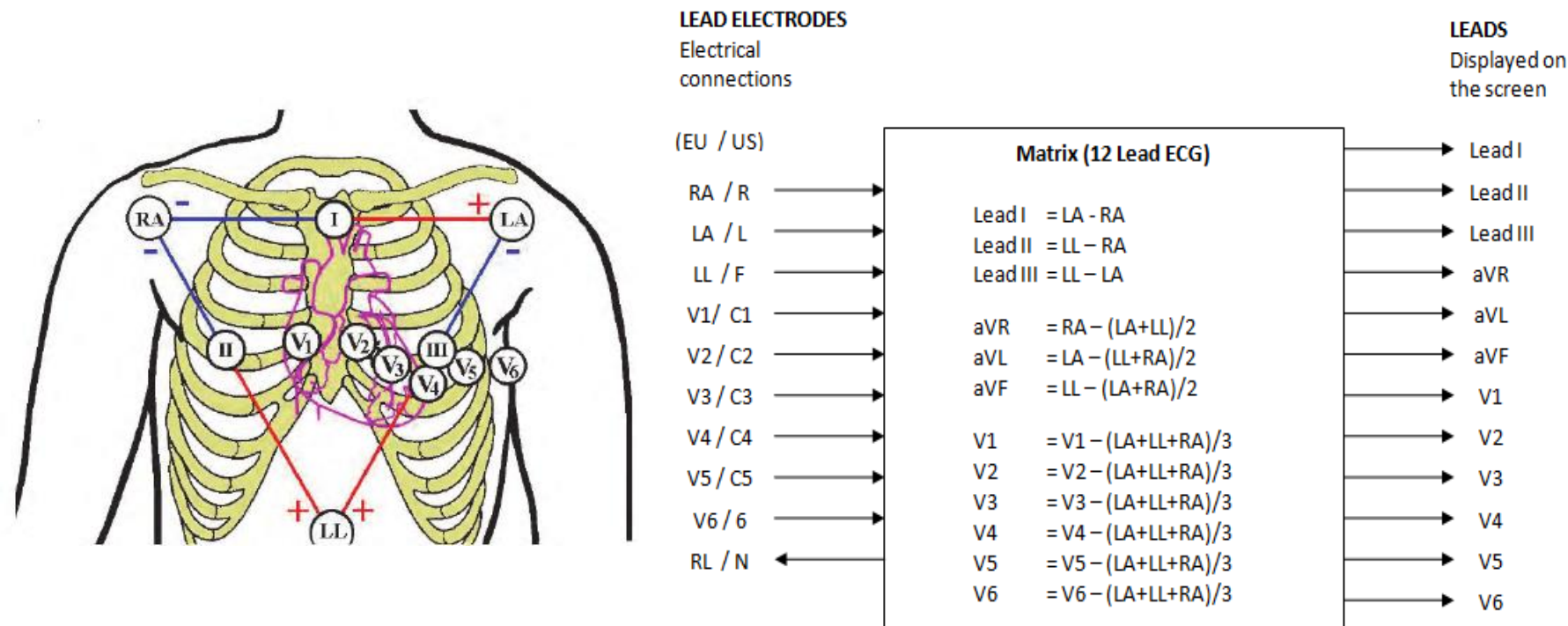
Thank you
for your attention!



ECG = Electrocardiogram



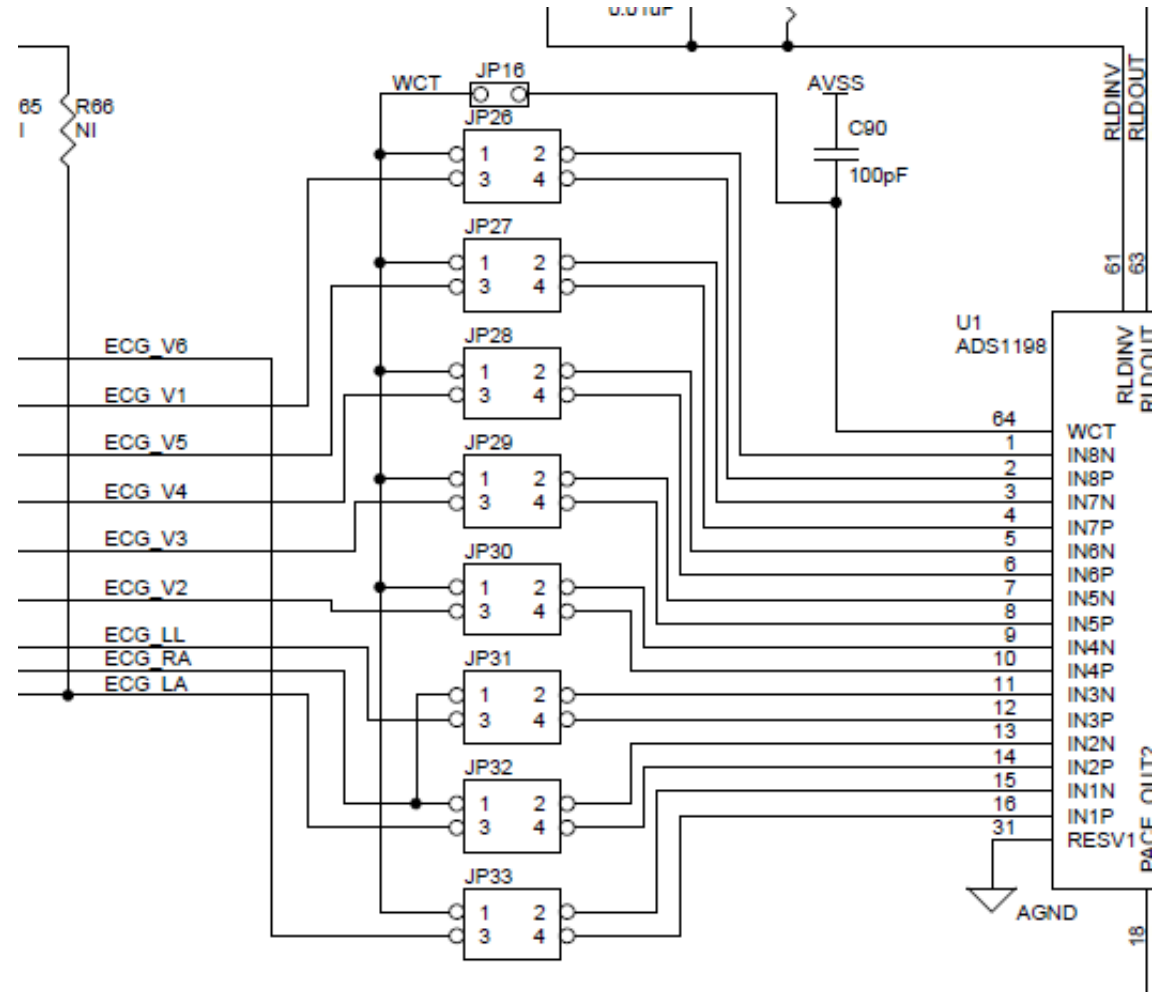
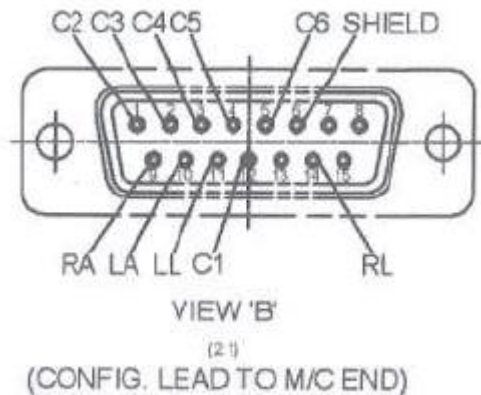
Source of the pictures: Biomedizintechnisches Grundlagenpraktikum, "**Herzrhythmus – Rund ums Herz und das EKG**", MEDIT RWTH



Source of the pictures:

https://www.researchgate.net/profile/K_Tonchev/publication/221914488/figure/fig3/AS:304730996789254@1449664939670/Fig-3-Electrodes-placement-in-standard-12-channel-electrocardiography-Obviously-the.png

<http://www.medteq.info/med/ECGLeads>



Source of the pictures:

"ECG Implementation on the TMS320C5515 DSP MDK with the ADS1298 ECG-FE". Page 18

"ADS1298ECG-FE/ADS1198ECG-FE, ECG Front-End Performance Demonstration – User Guide", Page 57