

Documentation Medical Hardware GUI

Overview

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1 Technical and Budget Planing

1.1 Time

2 monthes for Software and Hardware Development 01.08-01.10.2020

1.2 Hardware

- Microprocessor: Raspberrypi 4 8Gbyte RAM
- Microcontroller: 2 X Arduino Nano
- Interface: 10" Touchdisplay
- Peripheral: 8 channel 32 bit ADC, 7.2 A Stepper Driver
- Sensors: 2 Temperature, 2 absolut Pressure, Humidity
- Actors: WS28XXX Led stripe, Step Motor

1.3 Electronical Planing

1.3.1 Requirements

- Electrical Supply (12V/60W,5V/10W)
- Electromagnetic Protection of TouchScreen

1.3.2 Scheme

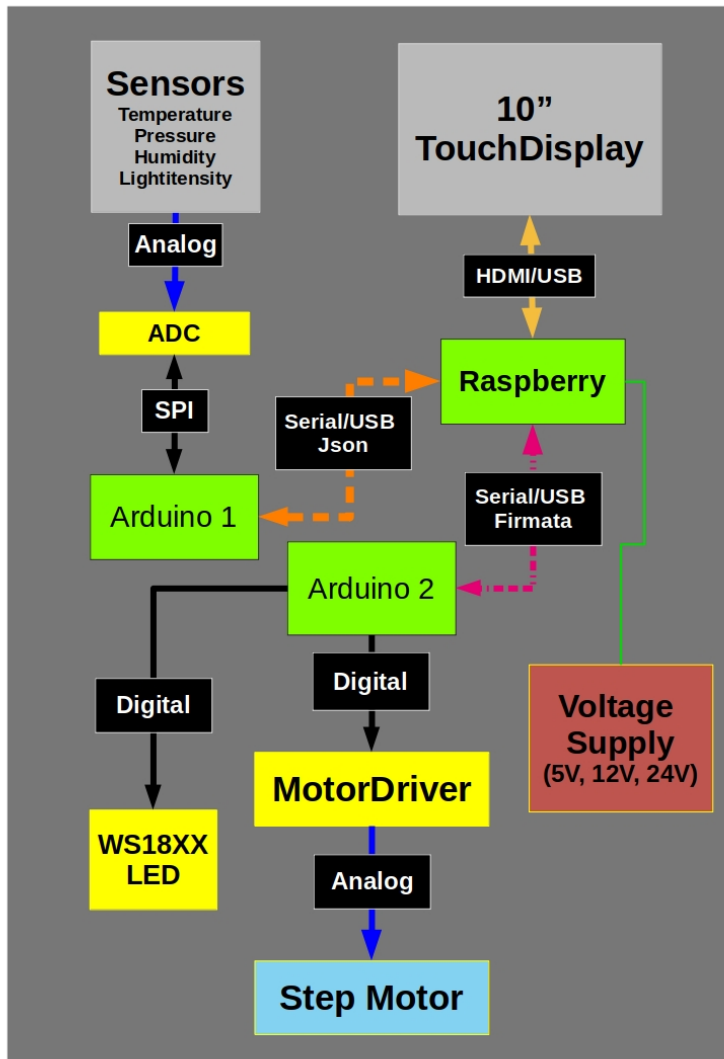


Figure 1: electrical Scheme

1.3.3 Communication Protocols

- Raspberry \Rightarrow Arduino 1 \Rightarrow Firmata over USB (johnny-five)
- Raspberry \Rightarrow Arduino 2 \Rightarrow Serial over USB Baudrate 51800
Arduino.json bibliothek
- Arduino \Rightarrow ADC \Rightarrow SPI (spi.h)