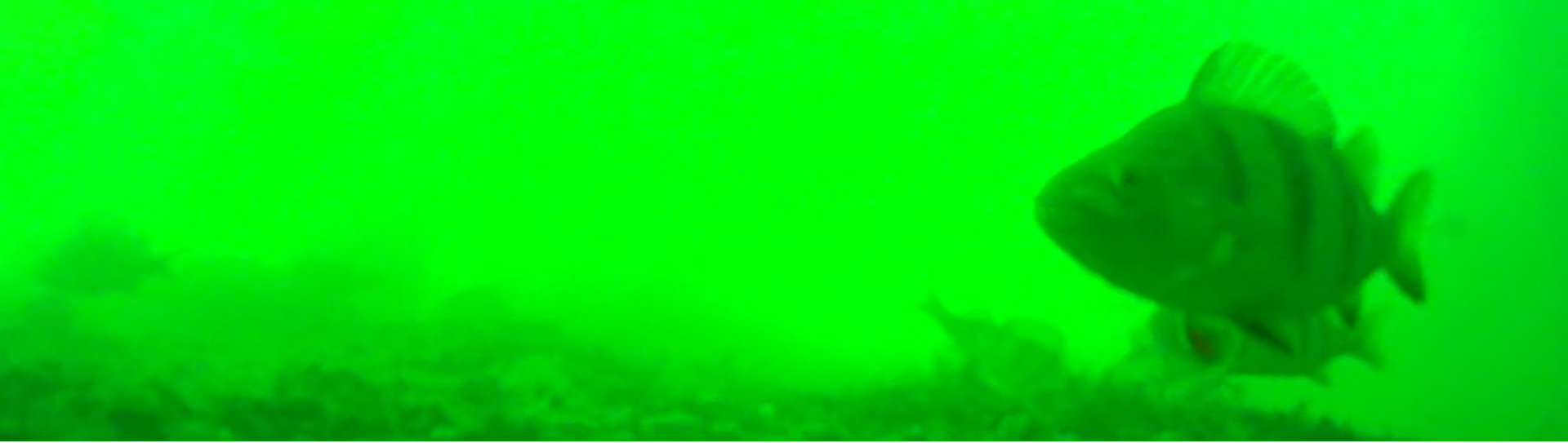


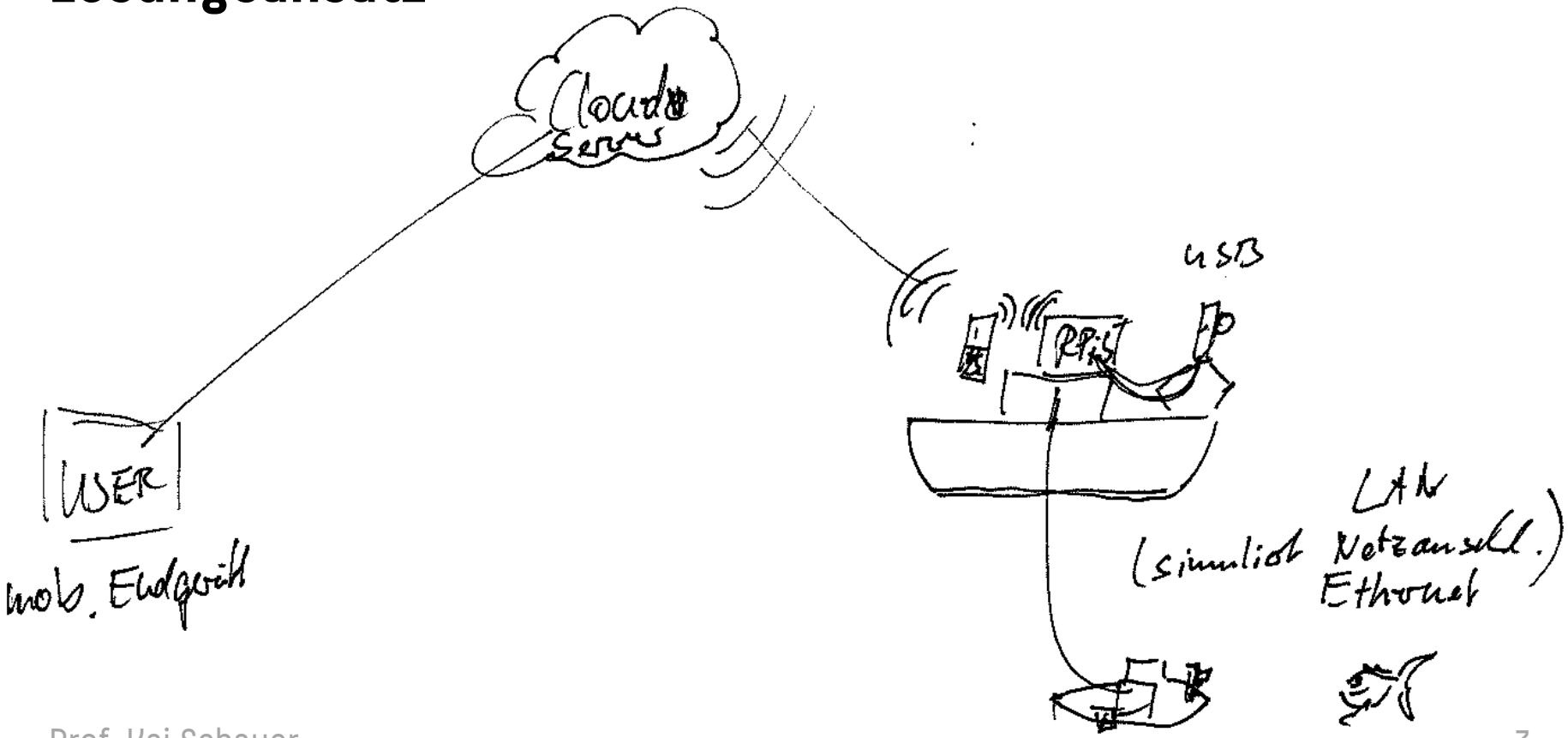
RPi remote control eines Tauchboots mit unbeschränkter Reichweite für Gewässererkundungen

Prof. Kai Schauer

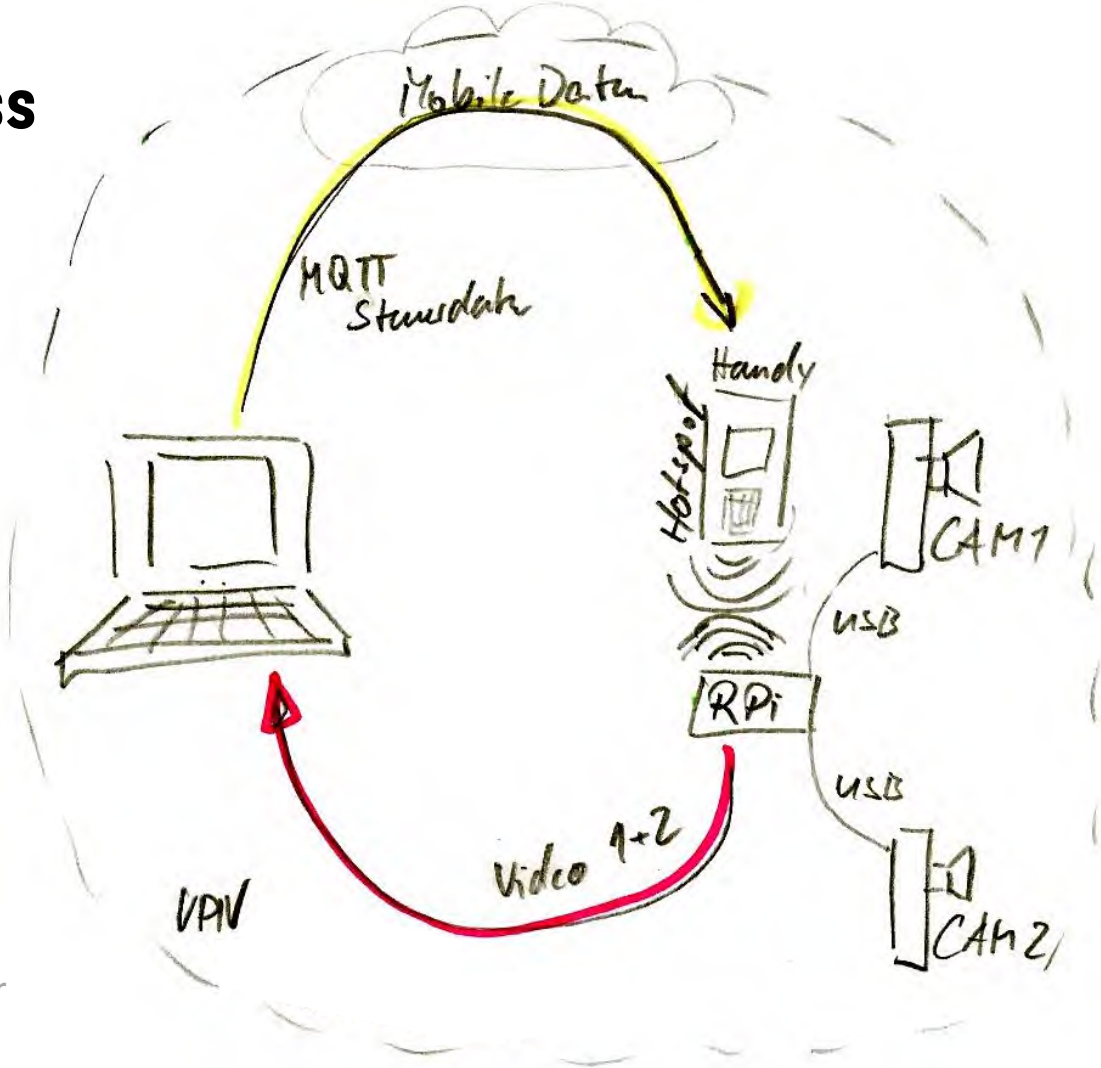
Motivation



Lösungsansatz

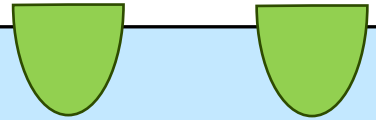


Datenfluss

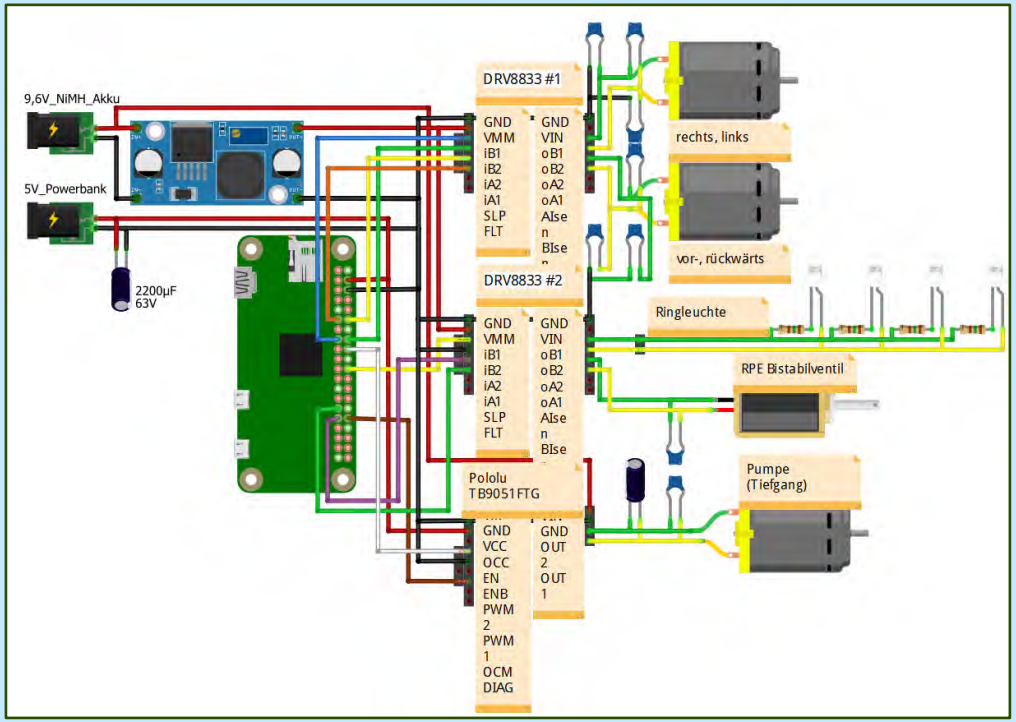

Mobile Daten
MQTT
Standard
Handy
Hotspot
CAM1
USB
RPi
USB
CAM2
Video 1+2
VPN

Elektronik





Tauchboot



Informatik-Themen

Systementwurf
MQTT-Broker und RPi
RPi Zero und Rpi Kommunikation
Rpi- und Router-Verbindung

Kamera-Videoübertragung
USB-CAM am RPi
RPiZero CAM
Nodes für CAM-Streams auf RPi)

Daten-Brücke
Sensordaten vom Smartphone

Dashboard & Steuerung
Steuerung via NodeRed-Dashboard

Tauchboot
Pumpe und Ventile
Motorsteuerung
LEDs zur Tiefenbeleuchtung
PCB-Layout
Energieversorgung

Trägerboot
GPS
Kartendarstellung auf Dashboard
Steuerung
Energieversorgung

Tool der Wahl → **NodeRed und MQTT**

NodeRed-Dashboard

Trägerboot



Tauchboot



Verbindung zum Trägerboot unterbrochen

Offline seit 0 Sek

▶ Track Start

■ Track Stop

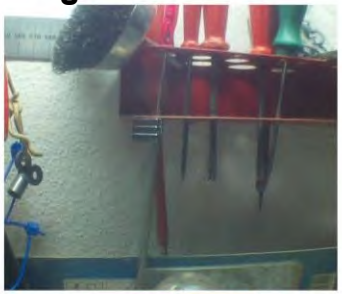
GPS-Position



Roll

Pitch

Trägerboot



● Record Foto

Licht Ventil



V/R: 0 R/L: 0

Tiefe 0

Tauchboot



▶ Track Start

■ Track Stop

GPS-Position





Roll

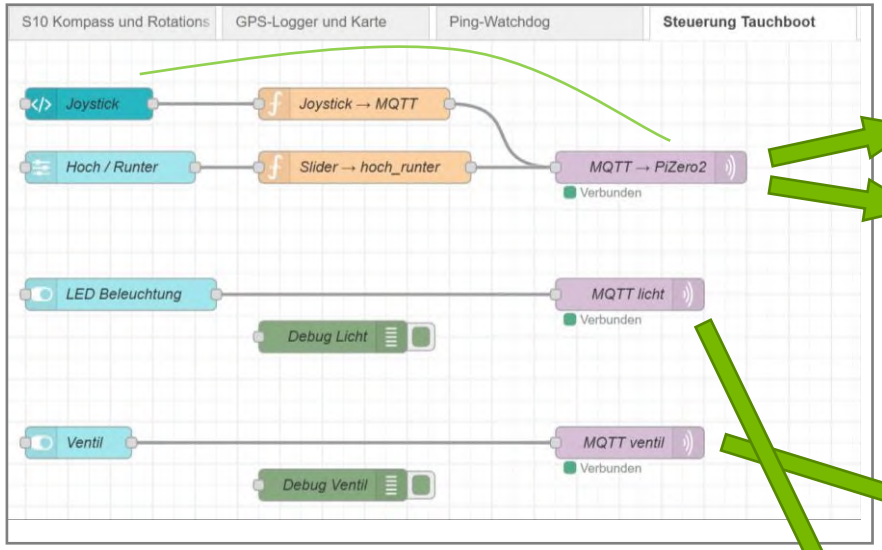


Pitch

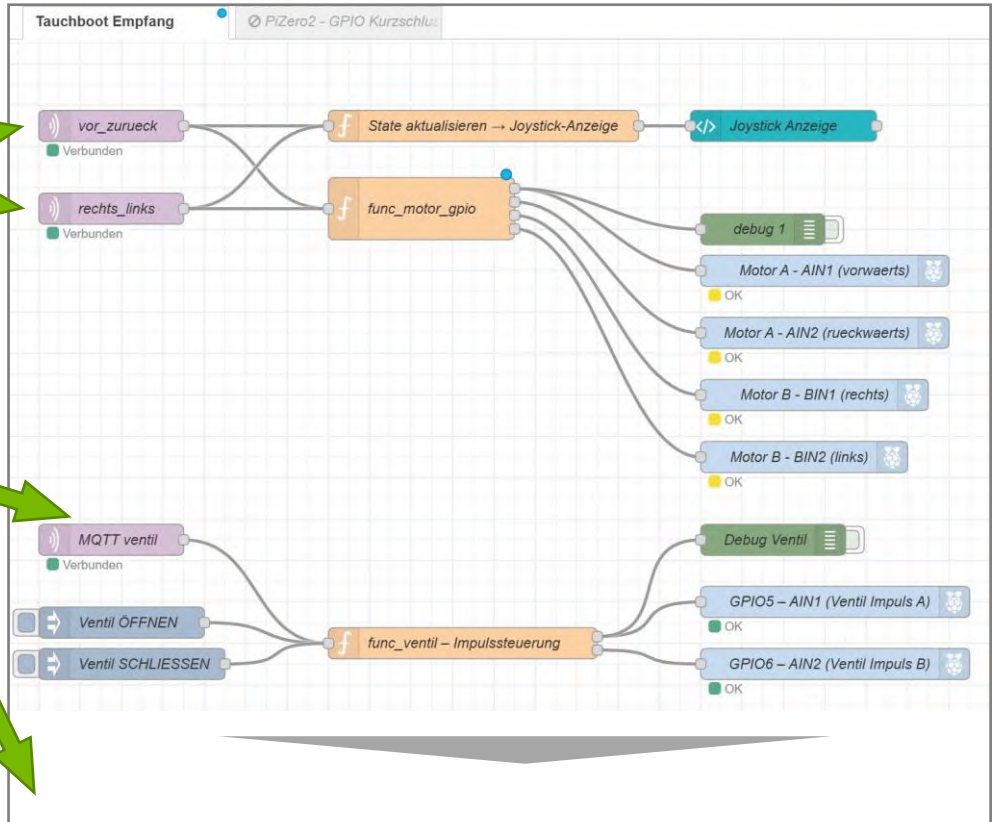


NodeRed-Flow

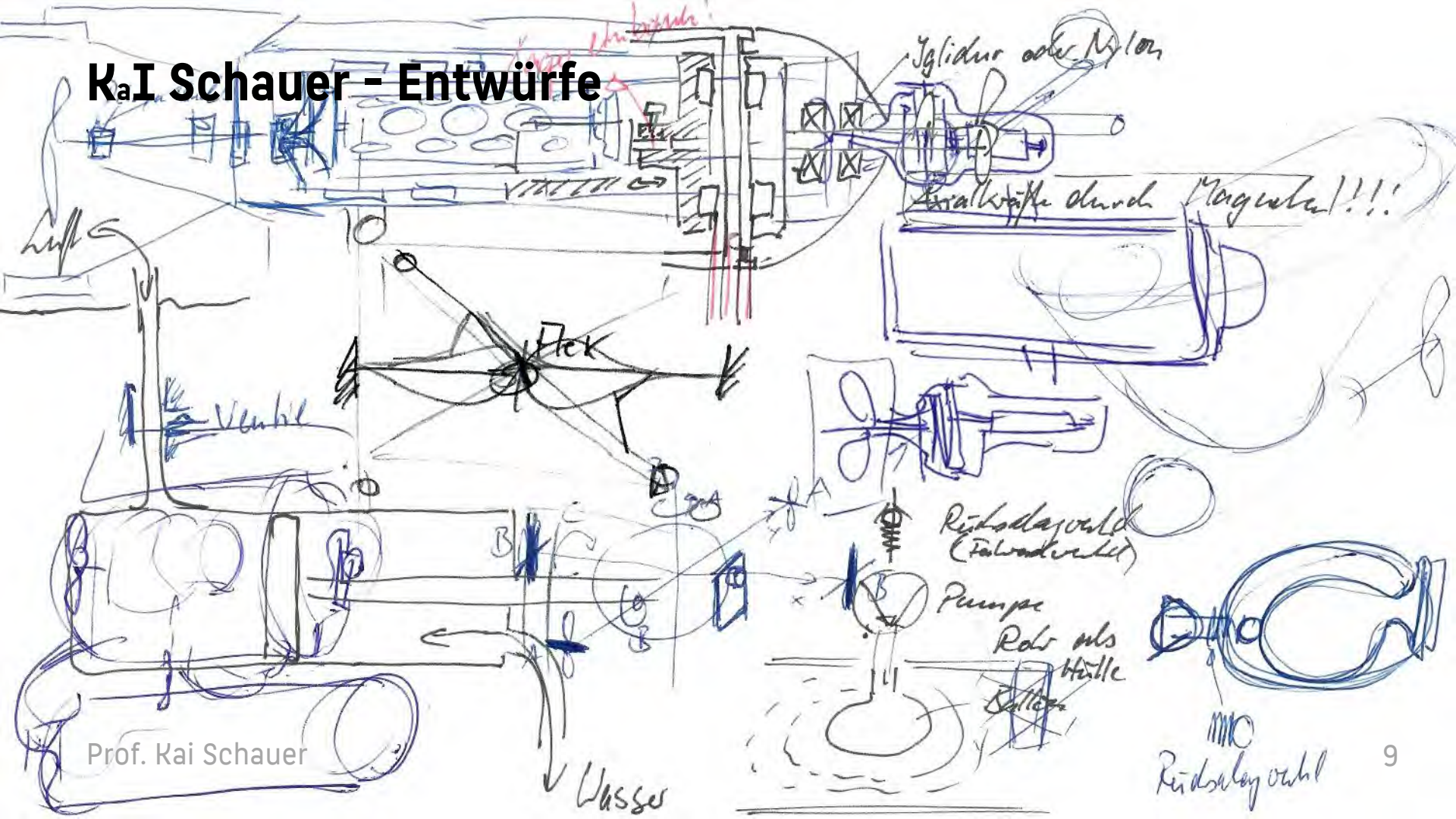
Trägerboot



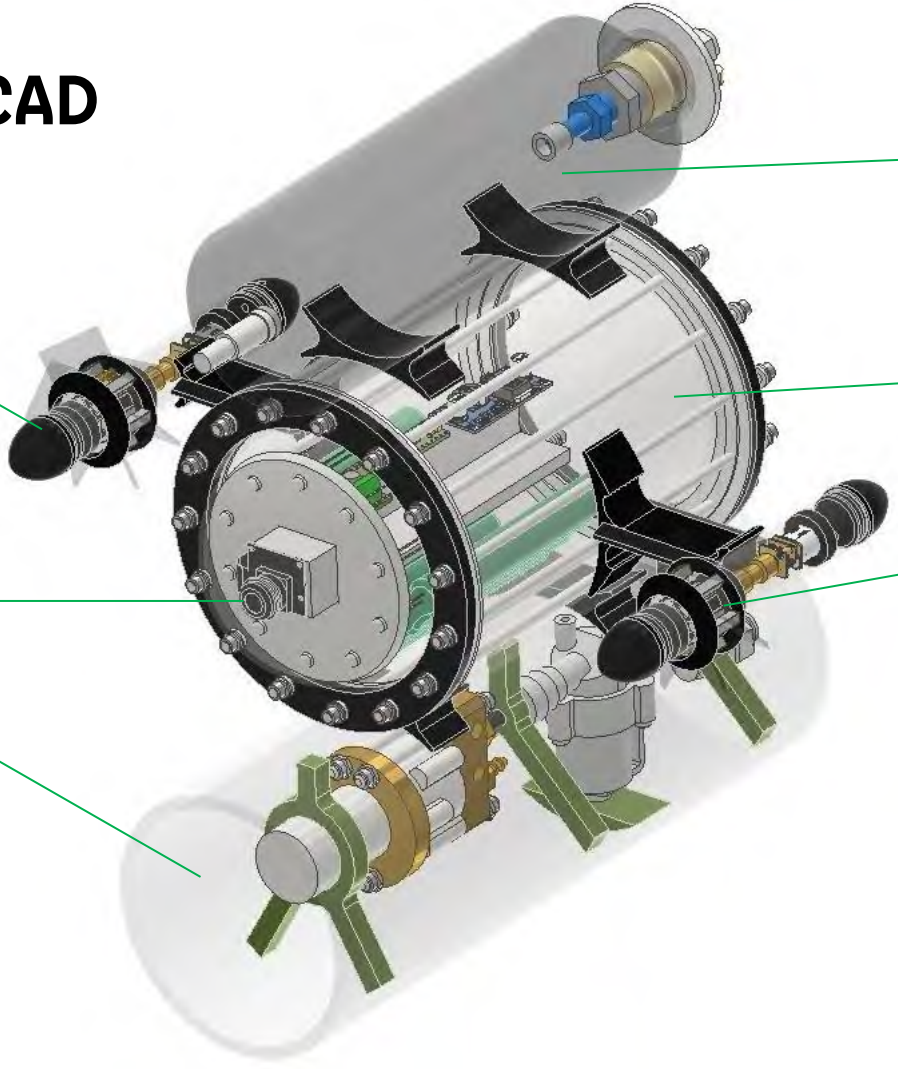
Tauchboot



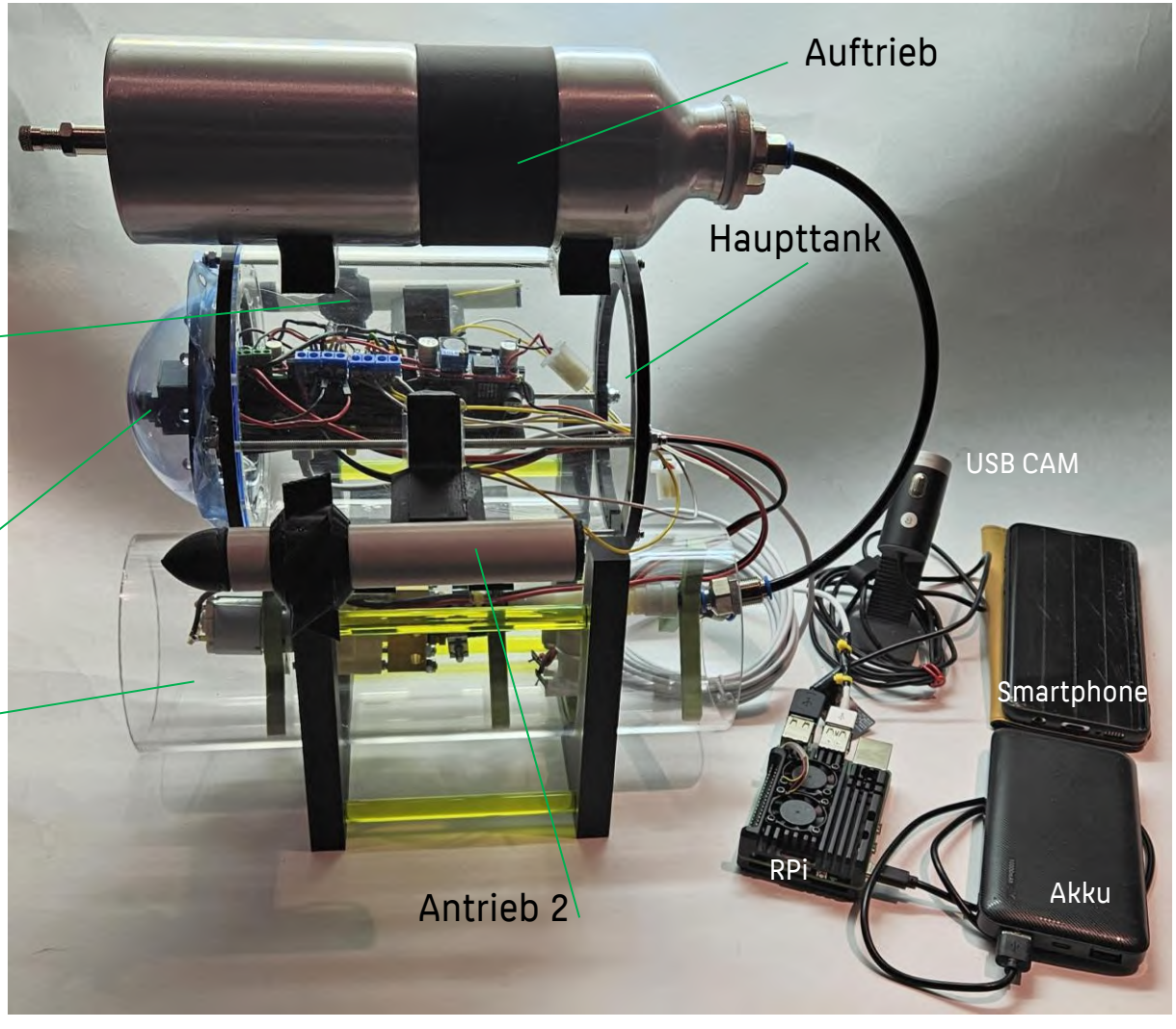
KaI Schauer - Entwürfe



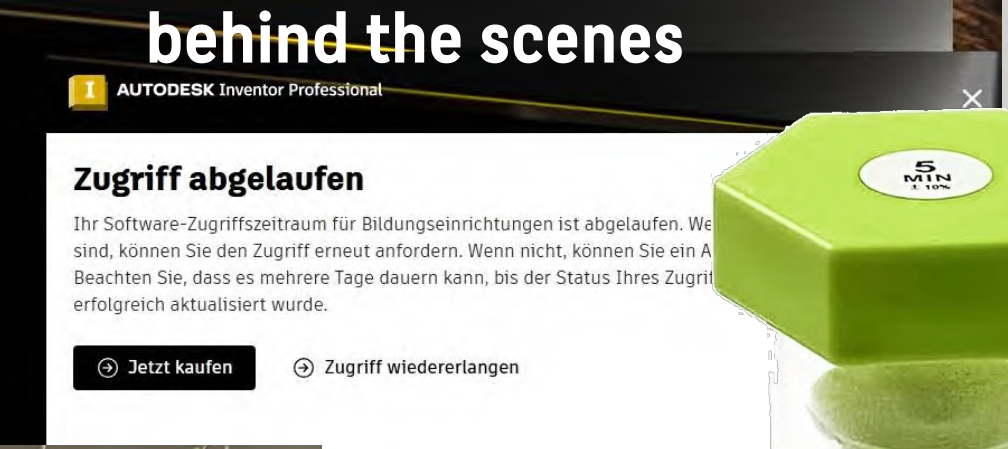
KaI Schauer - CAD

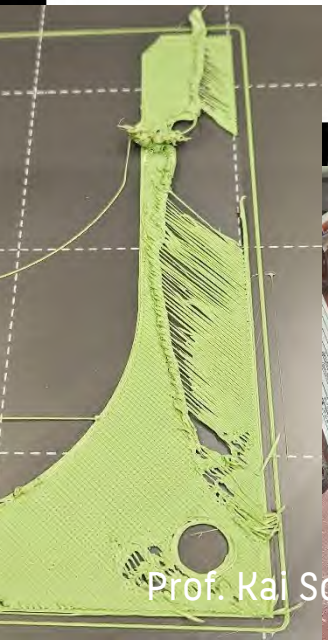


work in progress



behind the scenes















Vielen Dank

Ingenieurinformatik - Die richtige Entscheidung