Development of a Low-Cost Electrical Conductivity Meter for Liquids

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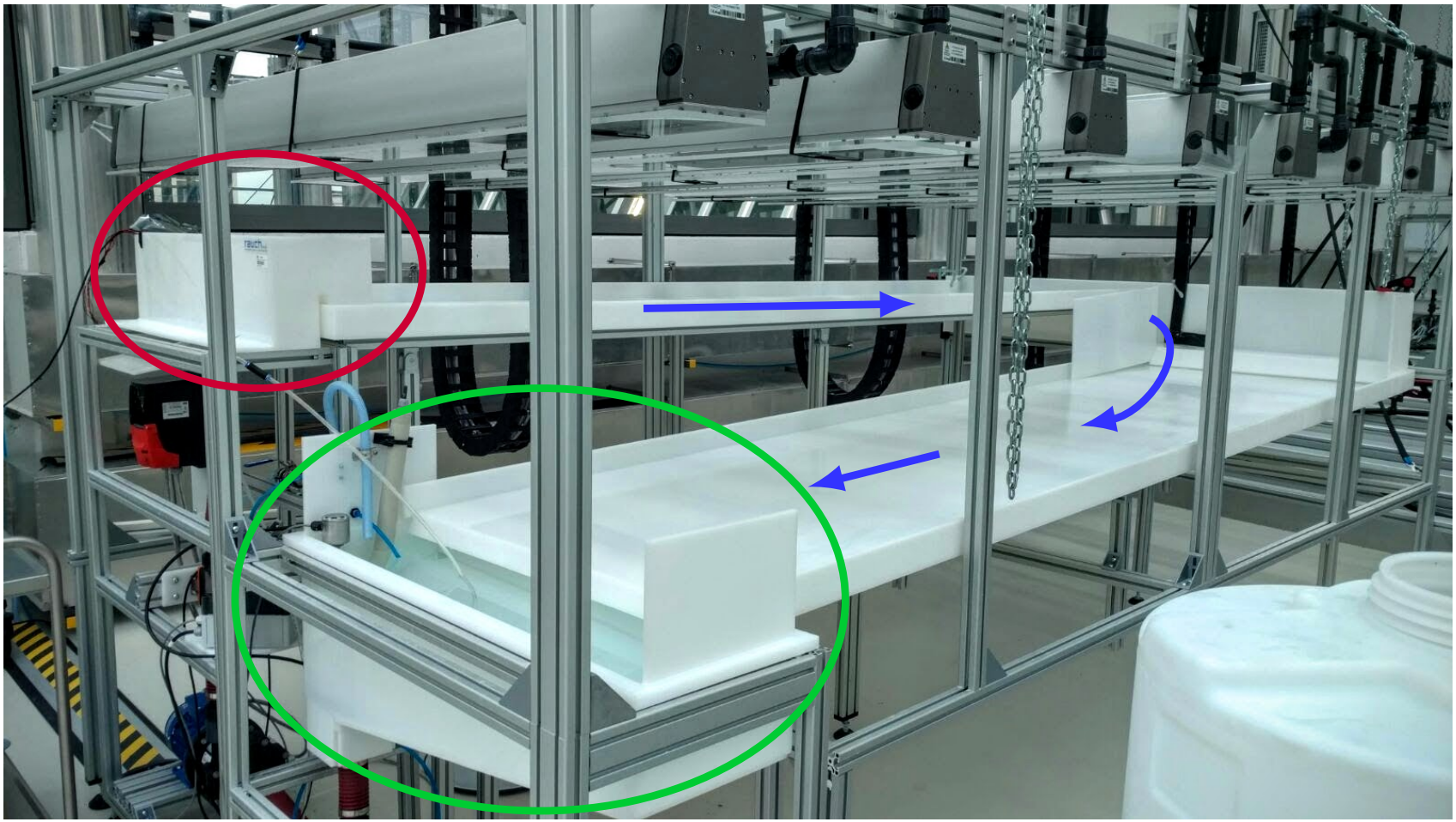
Outline

- Introduction
- Objectives
- Design
- Results
- Outlook

Introduction



Objectives

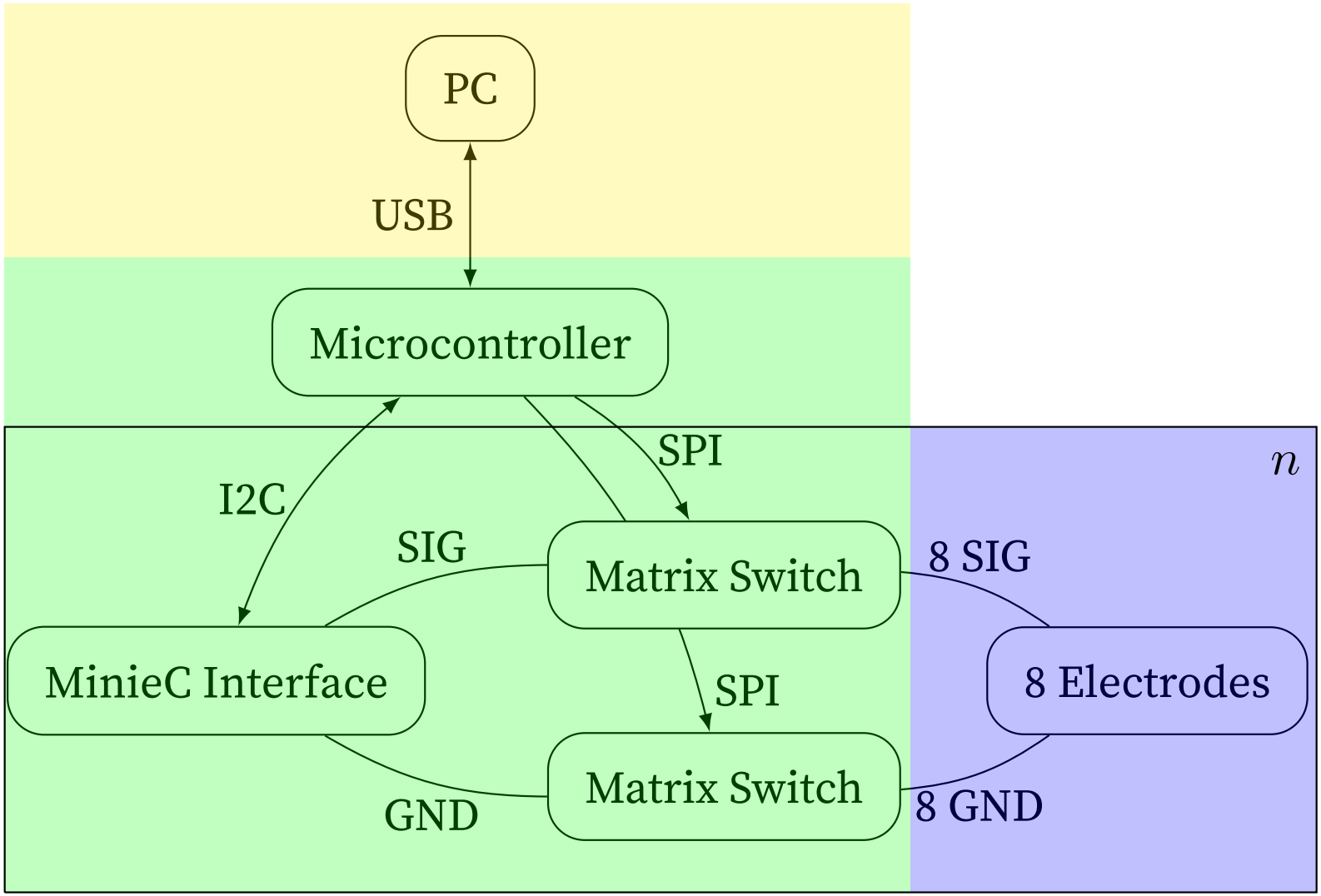
enable experiments to validate simulation

- add saltwater impulse to freshwater stream
- measure changes in salinity over time
  - at multiple points
  - fast

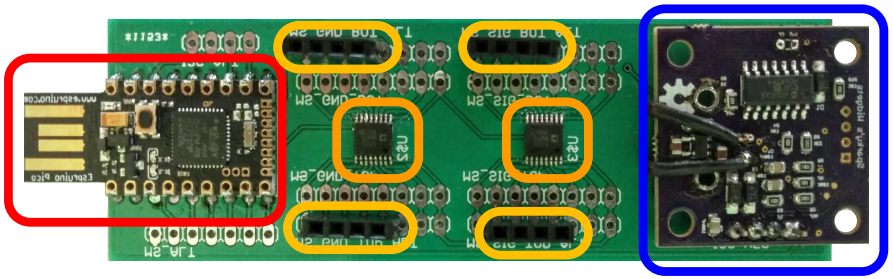
Requirements

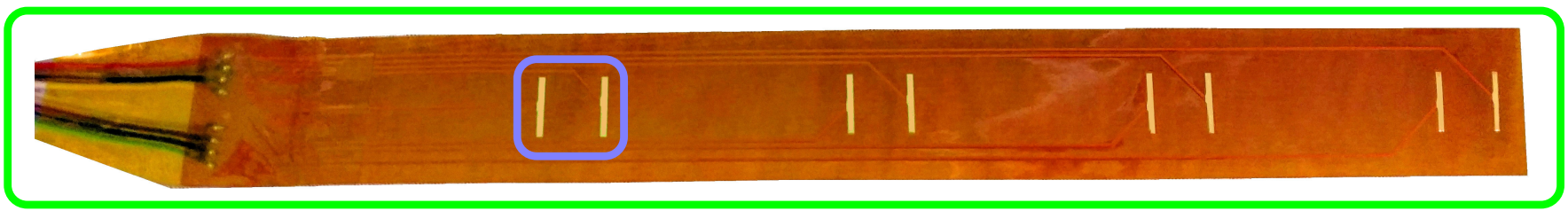
- spacial resolution: 10mm
- sensitivity: 0.1%
- range: 0 to 2.5%
- cost per sensor: < €25
- deployable in the algae reactor
- easy to use

Design


PC
USB
Microcontroller
SPI
n
I2C
SIG
Matrix Switch
8 SIG
MinieC Interface
SPI
8 Electrodes
Matrix Switch
GND
8 GND

finished Hardware

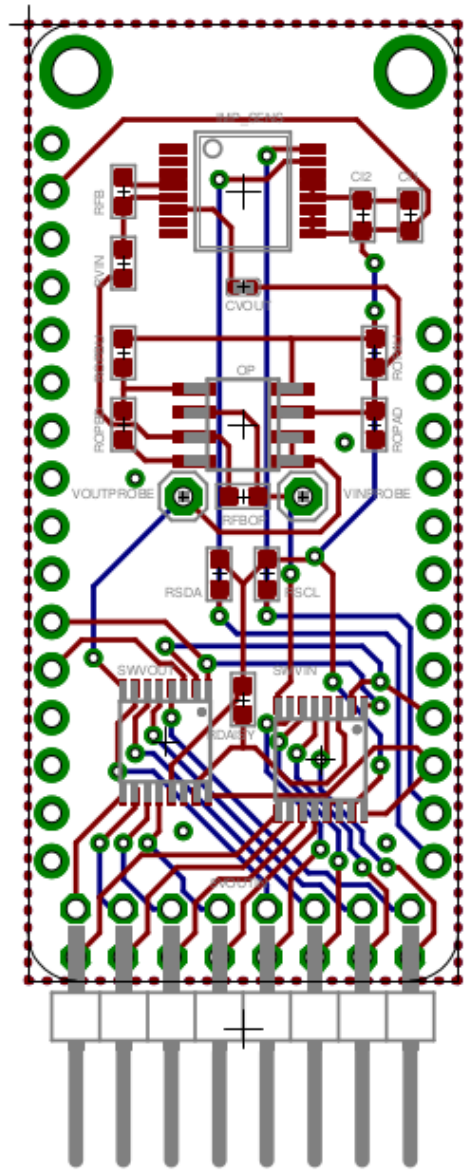




Results

Demo

Outlook


RFB
CVIN
CVOUT
OP
VOUTPROBE
VINPROBE
RFBOP
RSDA
RSCL
SWVOUT
SWVIN