

Prototype B - SALS

Cheldina, Fiona, Éowyn, Lily

Spectrophotometer for **Analysing Liquid Samples**



SALS

Convocation

User Needs:

- Test properties of a liquid by scanning it with a device
- Identify a liquid based on its properties
- Receive results quickly and easily

Description

- Requirements

- Analyze the turbidity of a liquid (i.e. water)
- Analyze a liquid's chemical composition based on its spectral distribution
- Identify a liquid by comparing its spectral distribution to a predefined or user-defined database with 'percent likeness'
- Hold a predefined database of spectral distributions of liquids for comparison
- Ability to create a user-defined database of spectral distributions of liquids

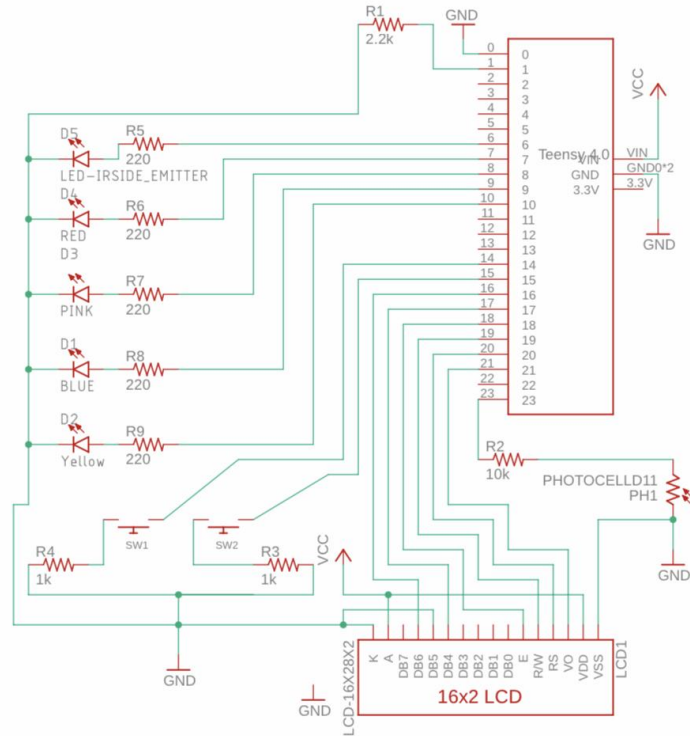
- Purpose

- To identify liquids and their chemical compositions
- May be used for testing water potability based on turbidity and chemical composition

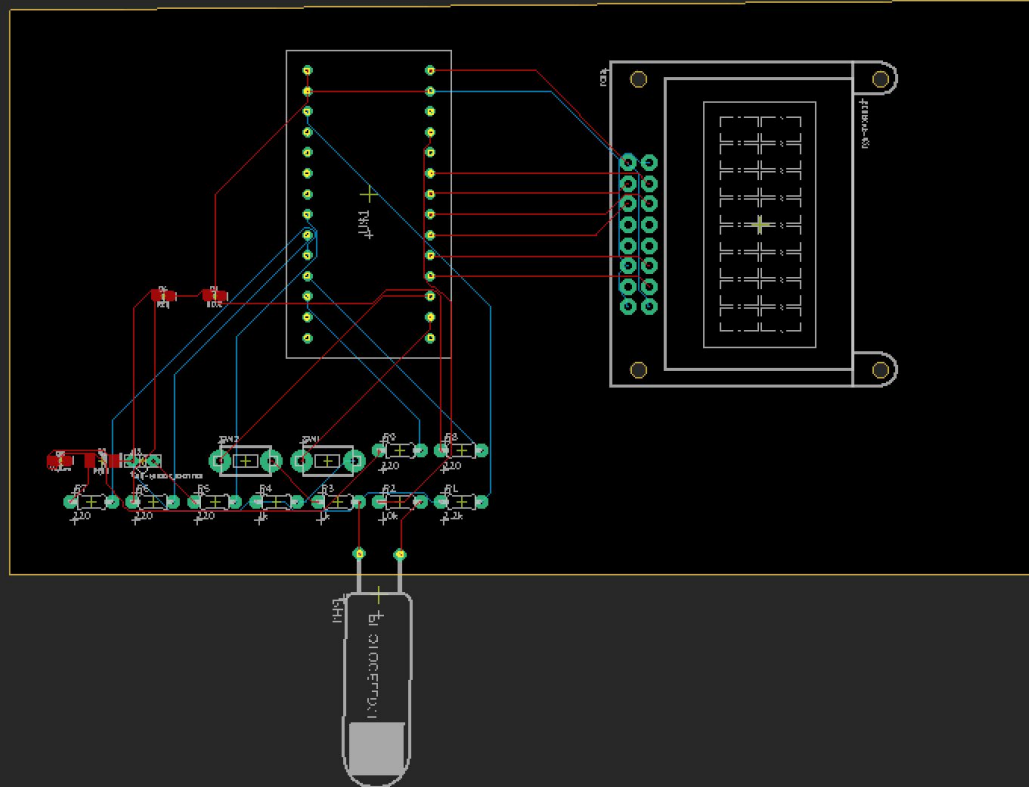
BOM

Part	Value	Device	Package	Description
D1	BLUE	LED-BLUE0603	LED-0603	Blue SMD LED
D2	Yellow	LED-YELLOW0603	LED-0603	Yellow SMD LED
D3	PINK	LED-PINK1206	LED-1206	Pink SMD LED
D4	RED	LED-RED0603	LED-0603	Red SMD LED
D5	LED-IRSIDE_EMITTER	LED-IRSIDE_EMITTER	LTE-302	Infrared LED (IR)
LCD1	LCD-16X28X2	LCD-16X28X2	LCD-8X2	Standard text-only 16x2 parallel input LCD
PH1	PHOTOCELLD11	PHOTOCELLD11	D11XX_H	Photo Sensor
R1	2.2k	R-US_0204/5	0204/5	RESISTOR, American symbol
R2	10k	R-US_0204/5	0204/5	RESISTOR, American symbol
R3	1k	R-US_0204/5	0204/5	RESISTOR, American symbol
R4	1k	R-US_0204/5	0204/5	RESISTOR, American symbol
R5	220	R-US_0204/5	0204/5	RESISTOR, American symbol
R6	220	R-US_0204/5	0204/5	RESISTOR, American symbol
R7	220	R-US_0204/5	0204/5	RESISTOR, American symbol
R8	220	R-US_0204/5	0204/5	RESISTOR, American symbol
R9	220	R-US_0204/5	0204/5	RESISTOR, American symbol
SW1		SWITCH_PUSHBUTTONEVQ-PE	TACT_PANA-EVQ	Buttons
SW2		SWITCH_PUSHBUTTONEVQ-PE	TACT_PANA-EVQ	Buttons
U\$1	TEENSY_4.0	TEENSY_4.0	TEENSY_4.0	

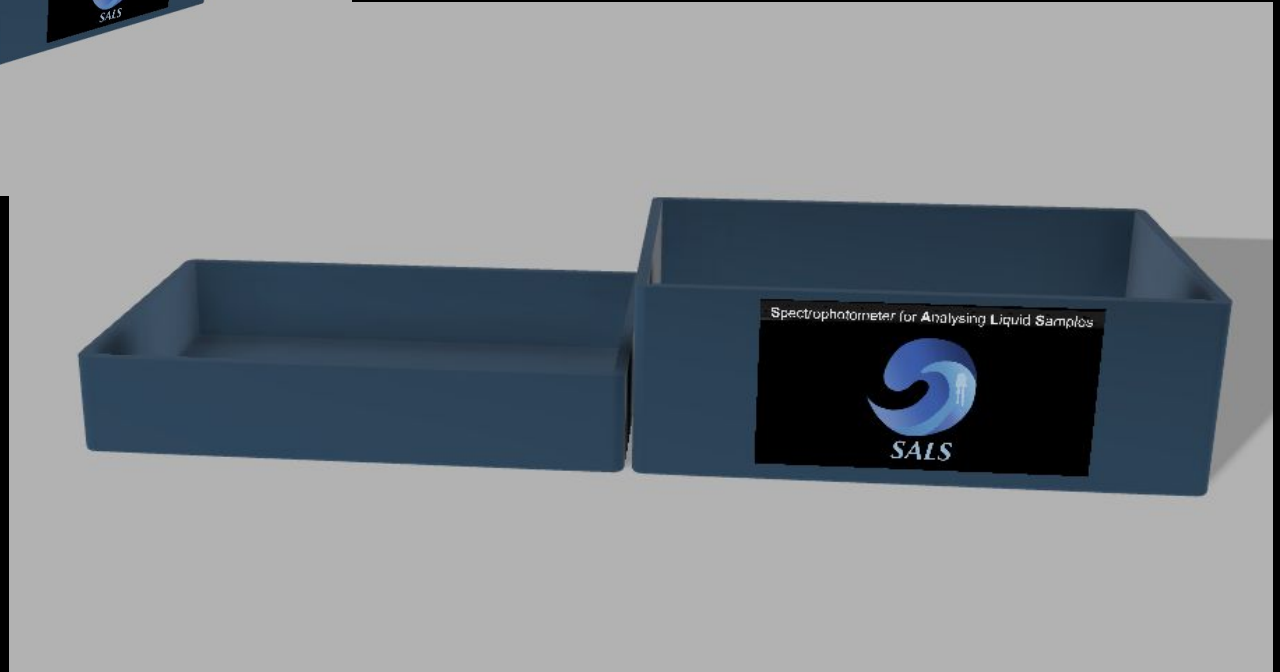
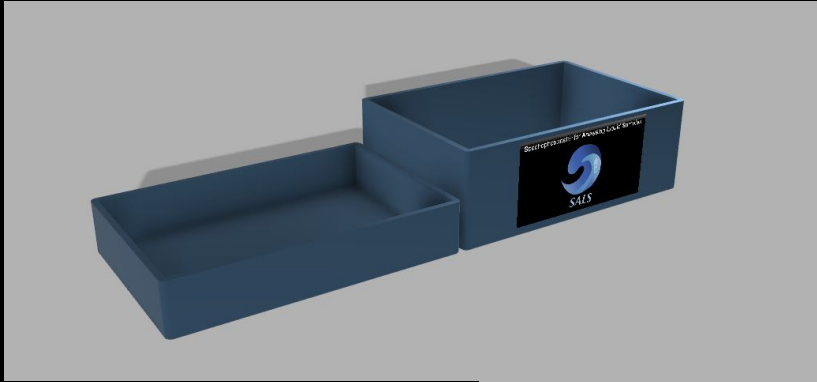
Schematic



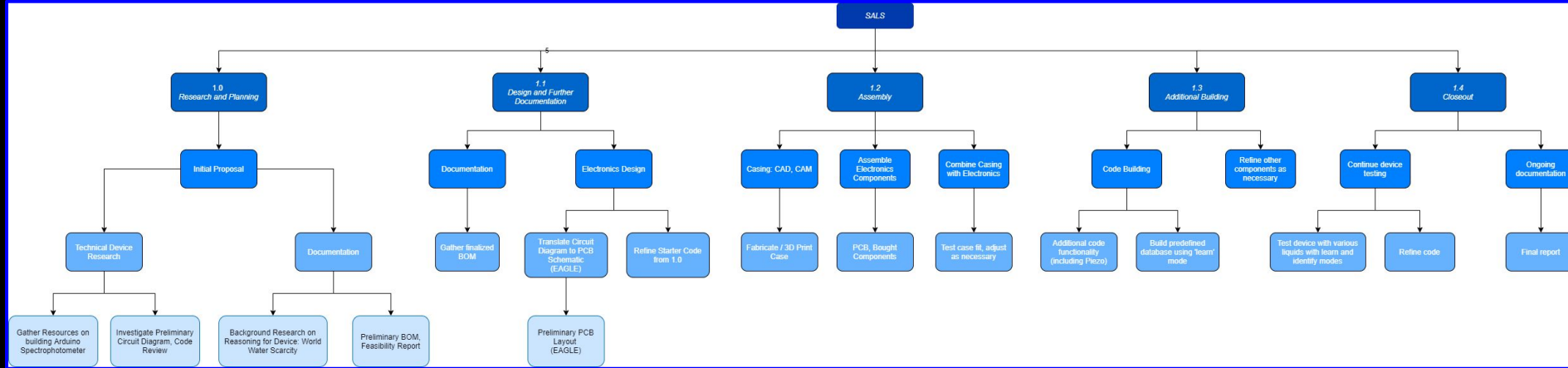
PCB



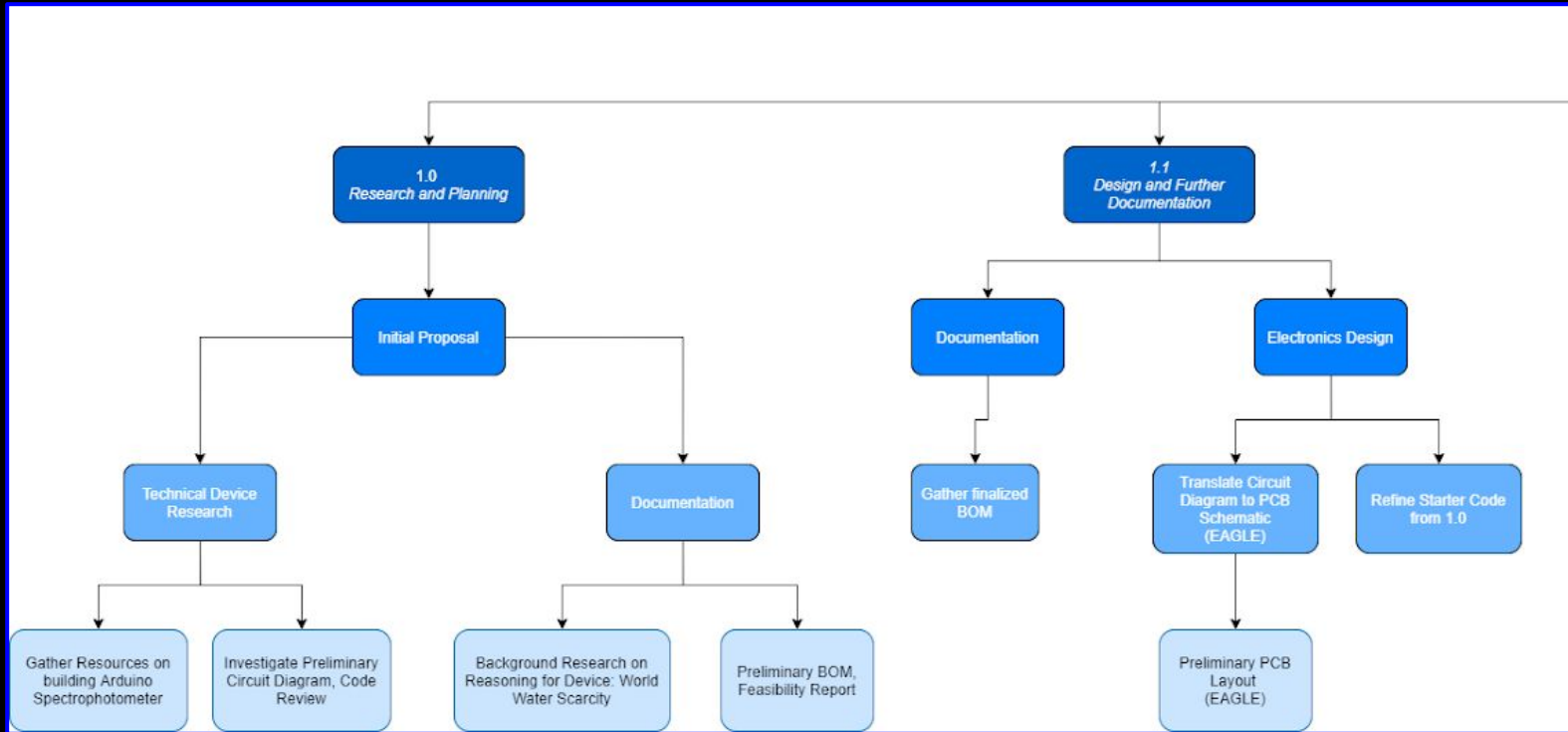
CAD Case



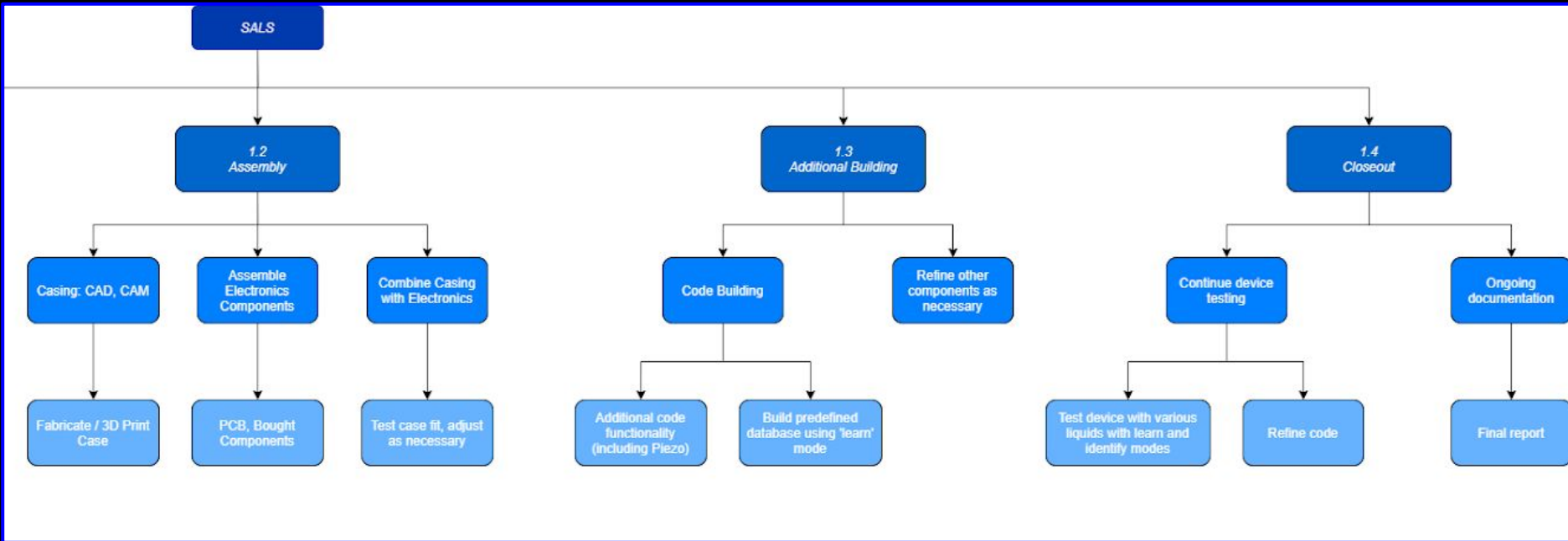
Updated WBS



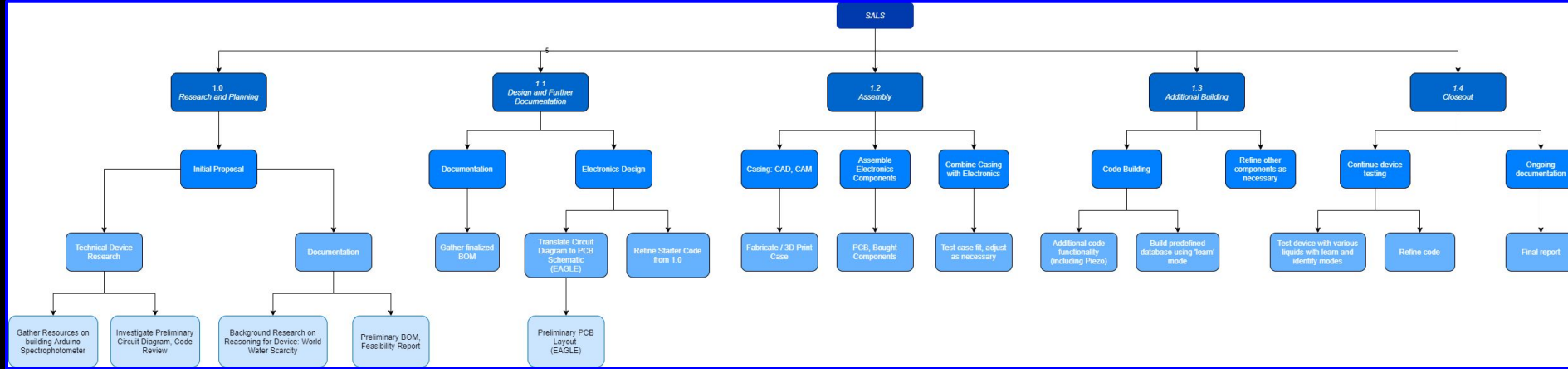
Updated WBS



Updated WBS



Updated WBS



Future Steps

- CAM processing/Part printing
- Skeleton code -> actual development
- Code Testing
- Database development (sample liquids)
- Holistic Device Testing and sampling

Inquisition

<https://makezine.com/2008/11/18/safety-spectrometer/>
[ResearchGate](#)

https://web.archive.org/web/20130129025325/http://www.creative-technology.net/MAKE_Resource.html

[Case Specifications](#)

<https://gypsyware.wordpress.com/2012/07/30/espectrometro-livre/>

https://engineering.tamu.edu/files/documents/technical-reports/aggie-challenge_report_low_cost_spectrophotometer_1.pdf