

**Ulises Jurado | MSc,PhD**

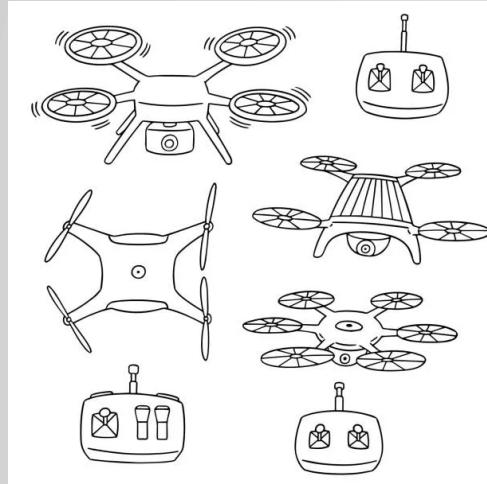
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# Portfolio

AUG 2022 – SEP 2024  
Lead Design Engineer



# Research Design & Development (RDD) in New Product Innovation (NPI), team & project lead and coaching young engineers



Concept Drawing



Concept CAD Design



Concept Rig Building, Integration,  
Programming and Testing



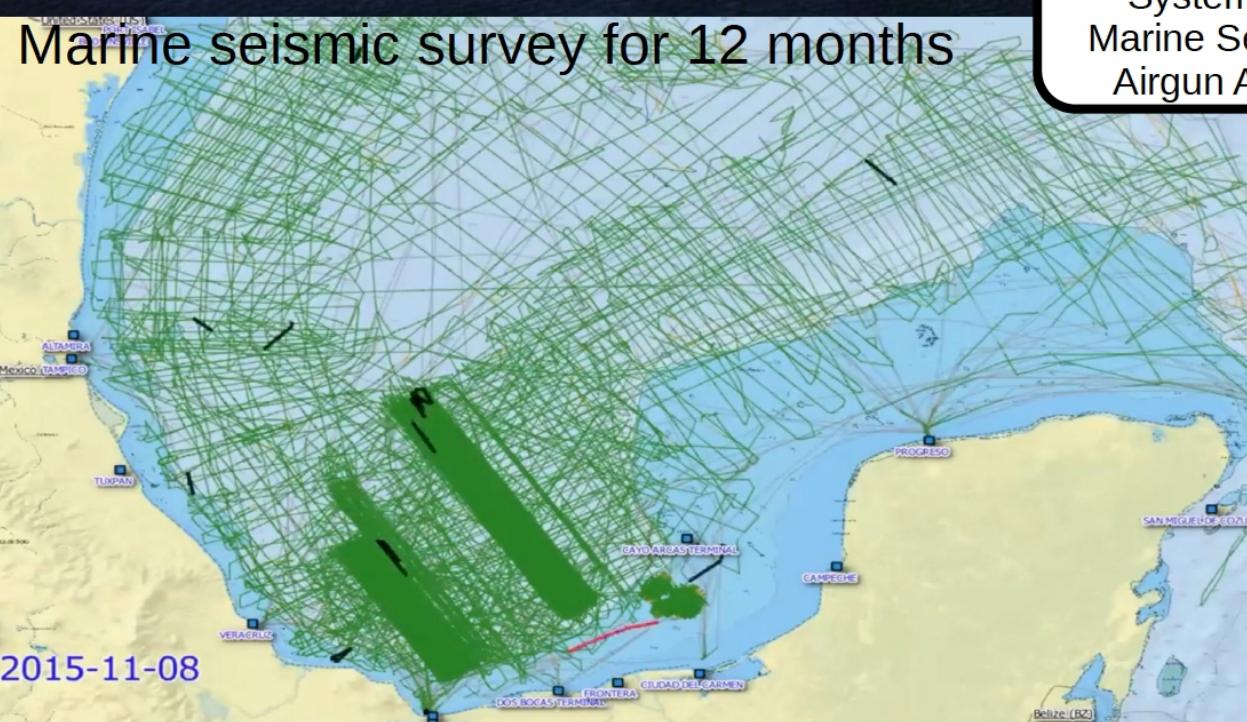
Innovate  
UK



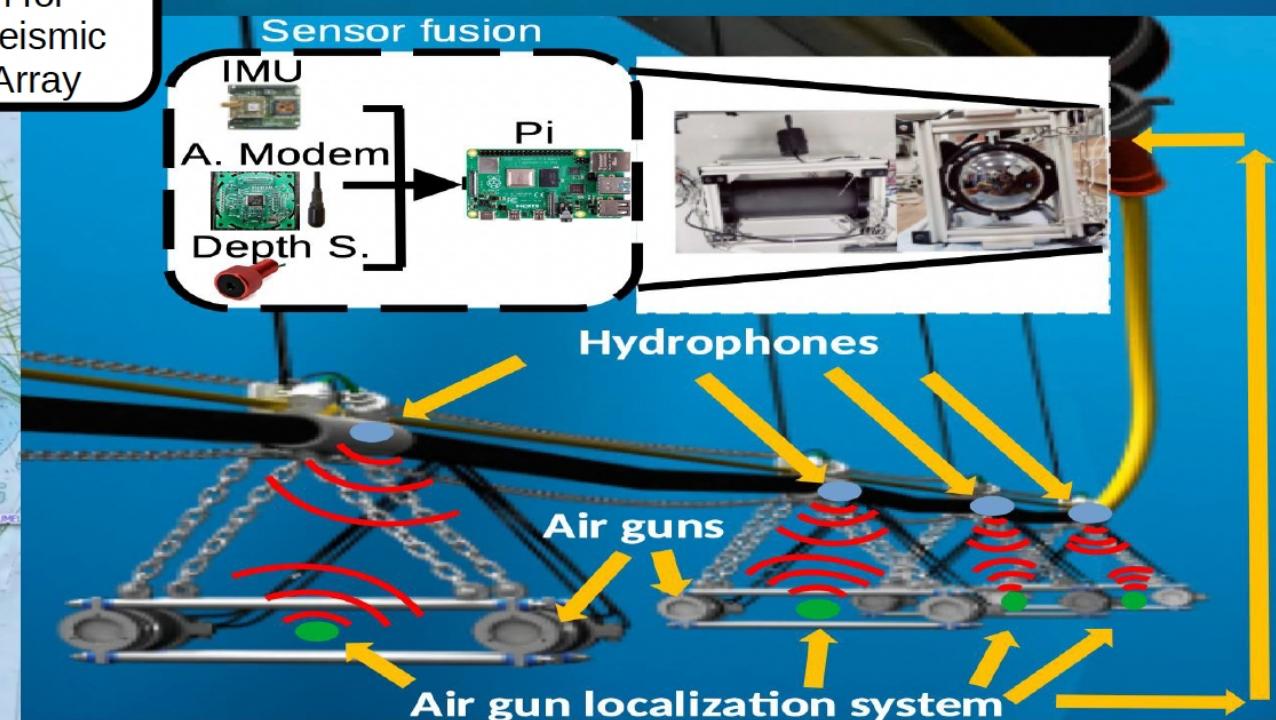
NOV 2020 – JUL 2022

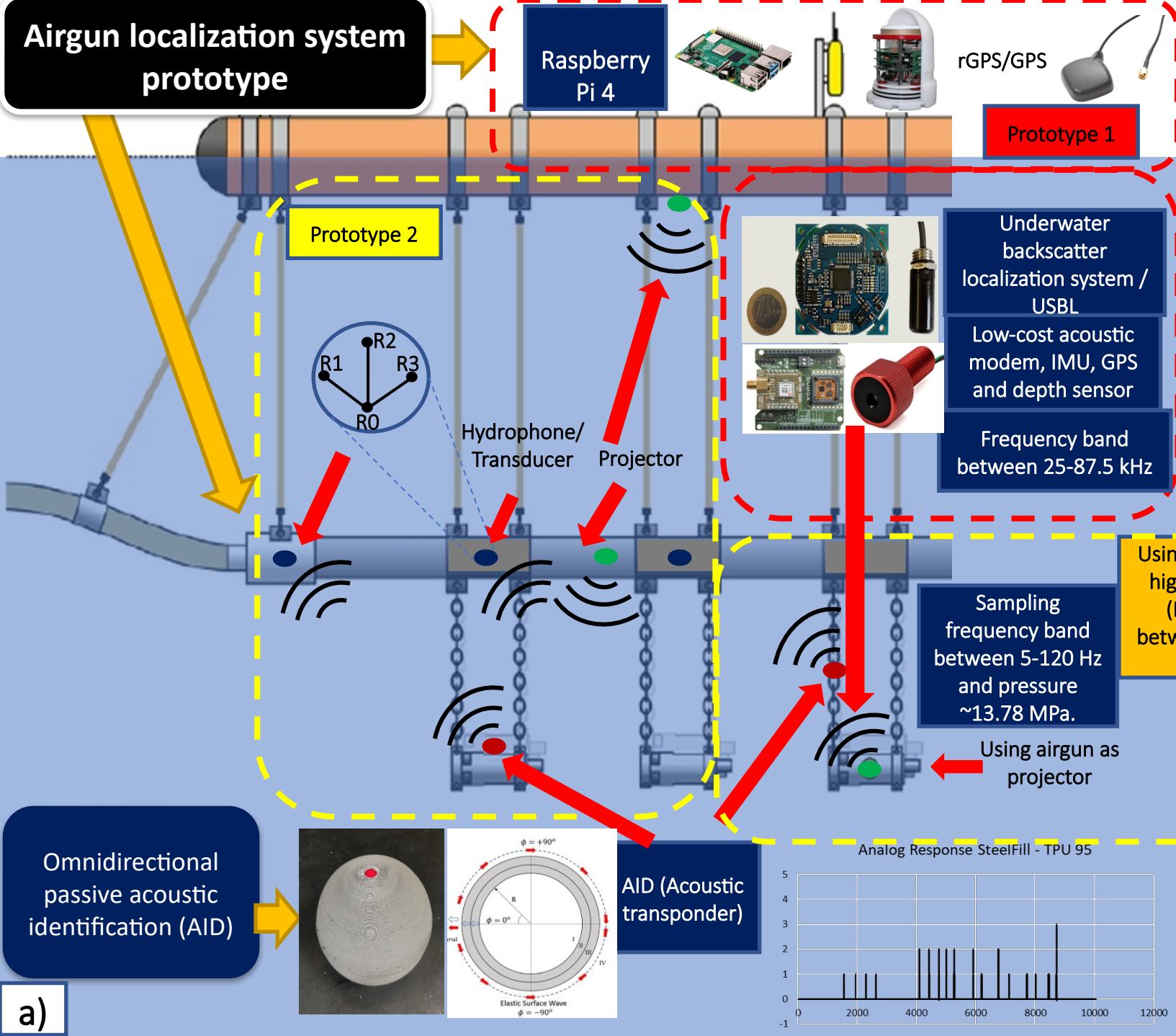
KTP Associate – Project Engineer

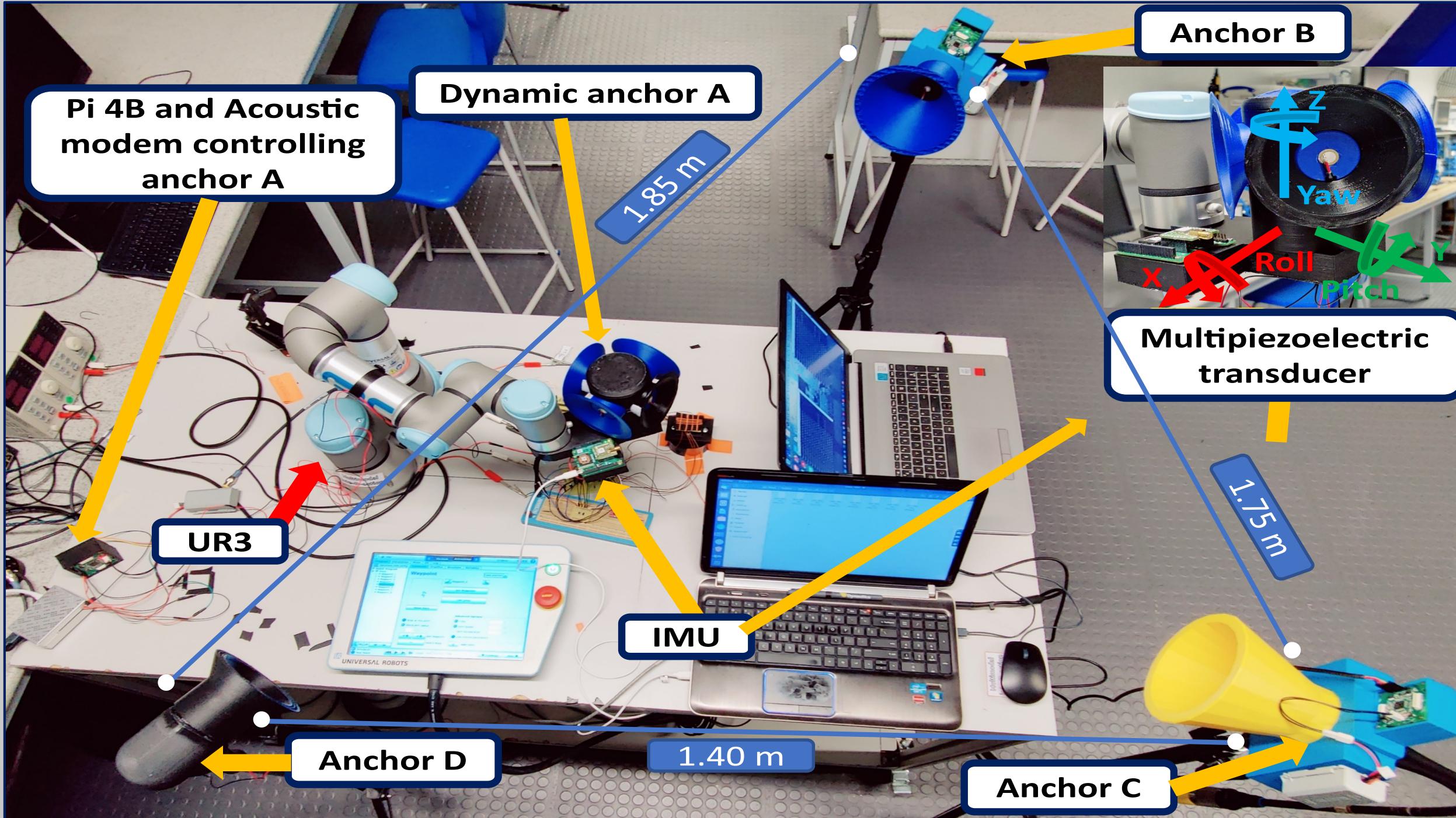
# Marine seismic surveys

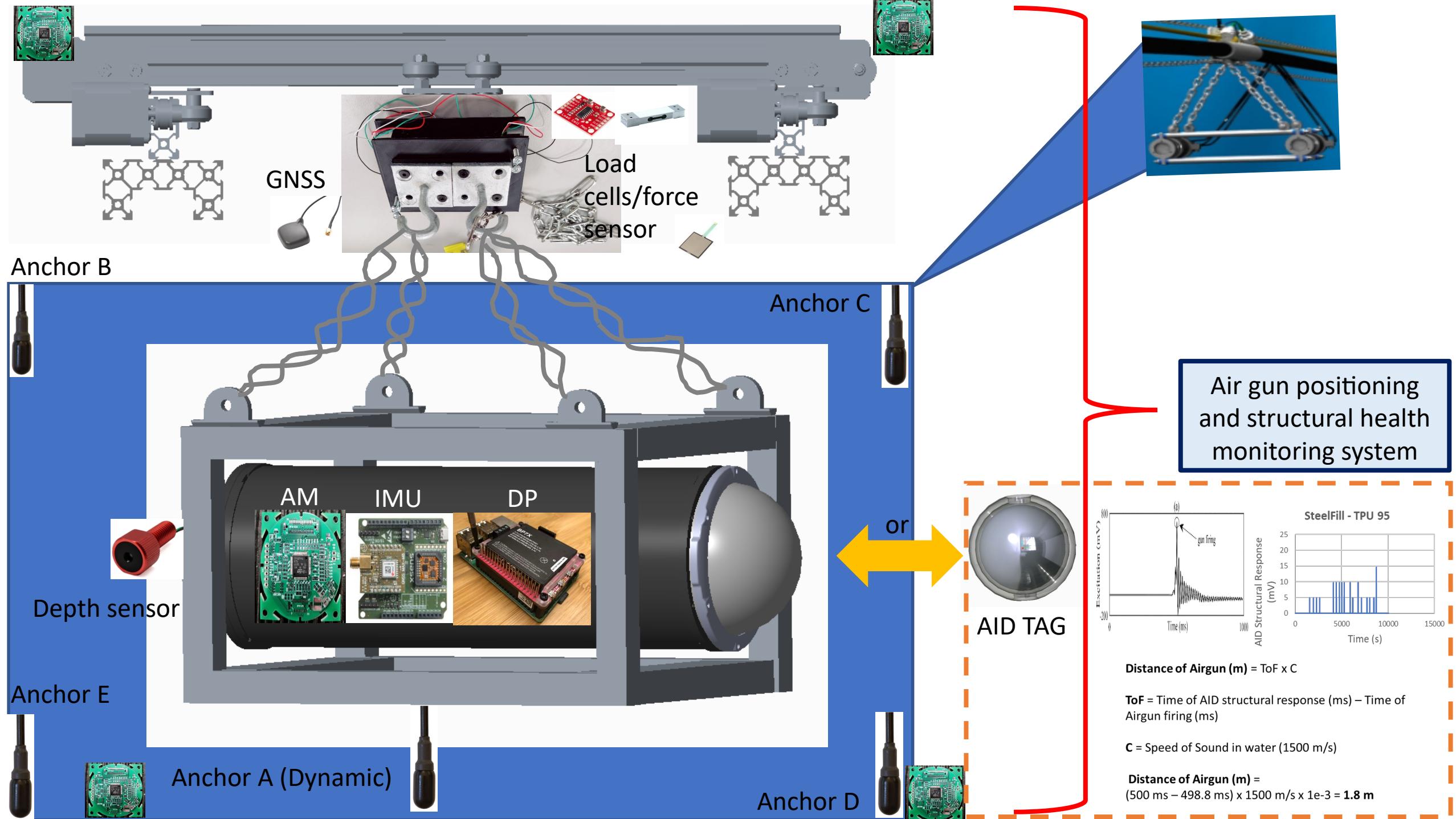


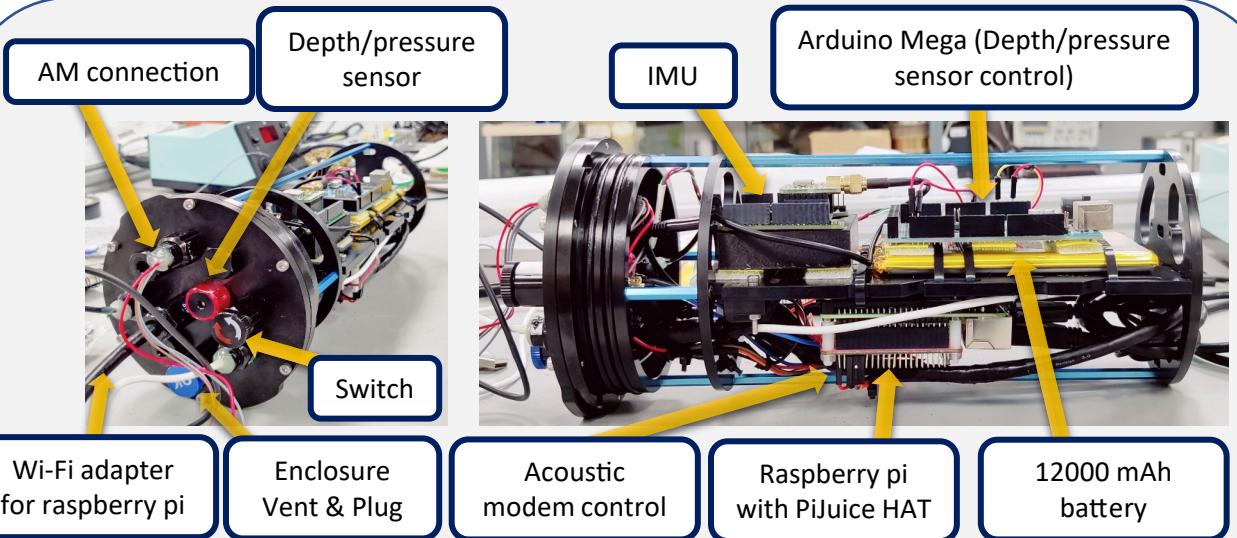
# Air guns shooting



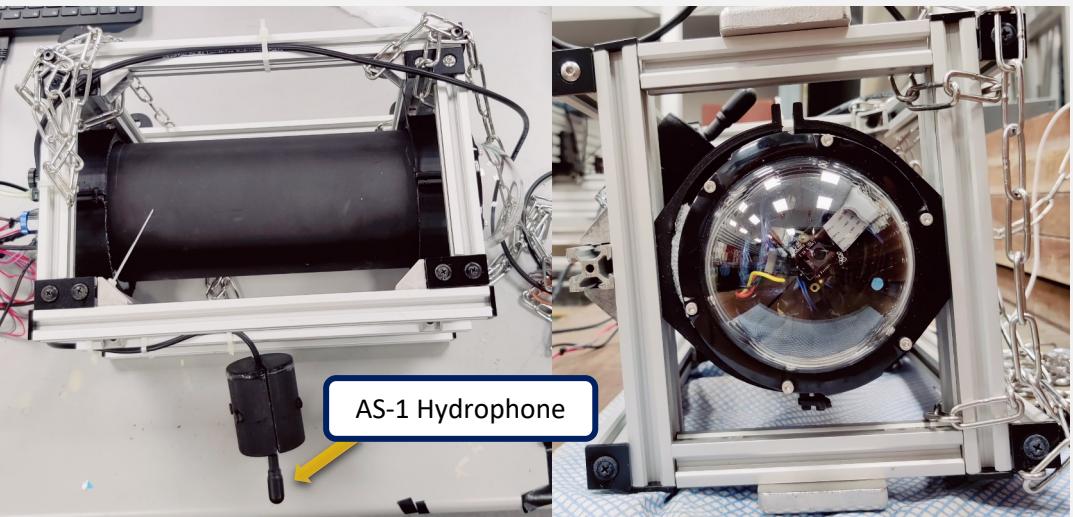






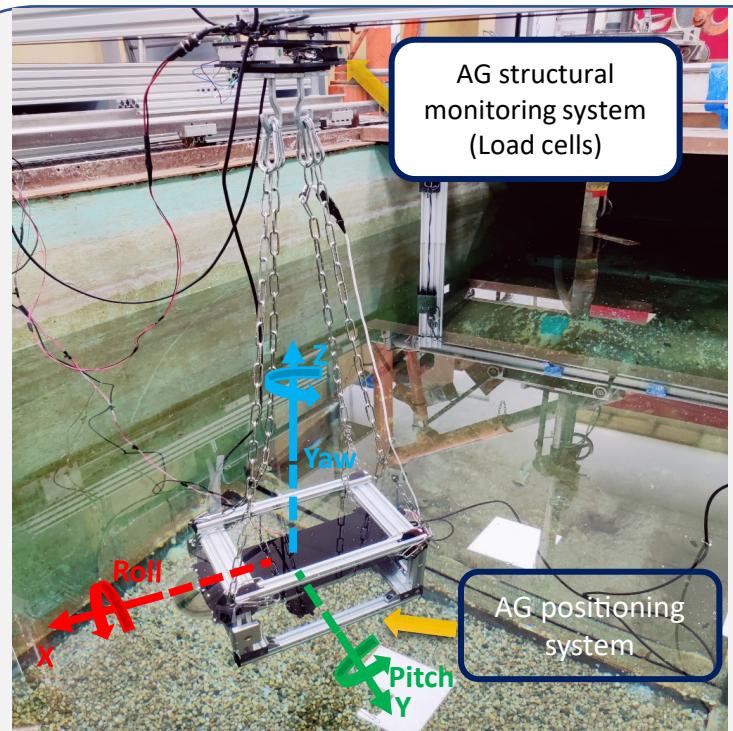


a)

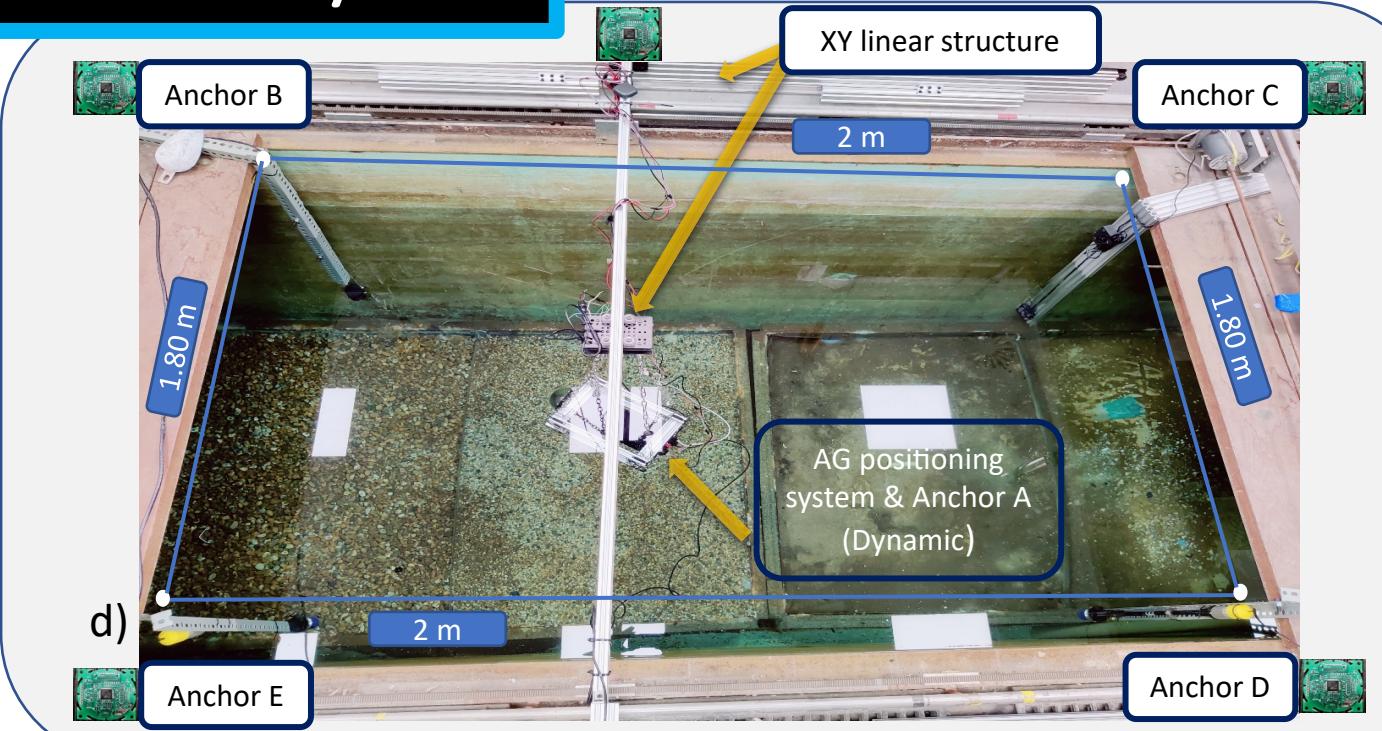


b)

## AG localization system



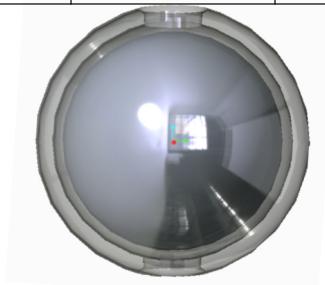
c)



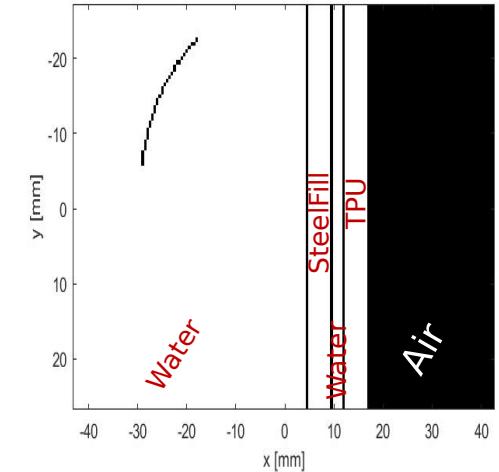
d)

# 3D printing of acoustic identification (AID) tags material properties and 3D printing

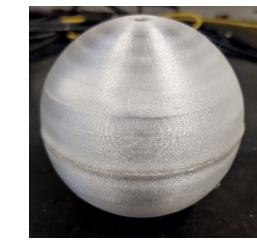
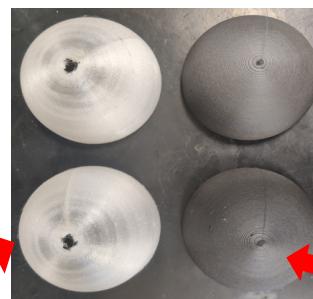
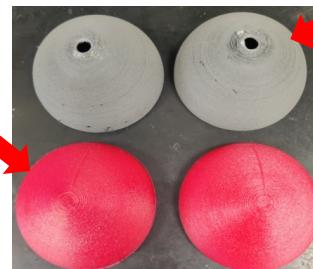
	Materials				
	Ultimaker Tough PLA	ColorFabb SteelFill (PLA)	ColorFabb XT-CF20	TPU 95 A	PC (Polycarbonate)
<b>Material properties</b>	<b>Value</b>				
Density (g/cm <sup>3</sup> )	1.43	3.13	1.35	0.95 - 1.06	1.22
Humidity absorption (23°C, 50%RH) (%)		0.3		0.18	
Tensile modulus (MPa)	1820			26	2134
Tensile stress at yield (MPa)	37	23	76	8.6	
Tensile stress at break (MPa)	37			39	76.4
Elongation at yield (%)	3.1			55	
Elongation at break (%)	3.1	1 to 3	7.5	580	6.4
Flexural strength (MPa)	78	30	110	4.3	111
Flexural modulus (MPa)	2490	3000	6200	78.7	2410
Izod impact strength (at 23°C)(kJ/m <sup>2</sup> )	9	10	6 to 60	34.4	14.9
Hardness (Shore D)	79			46	82



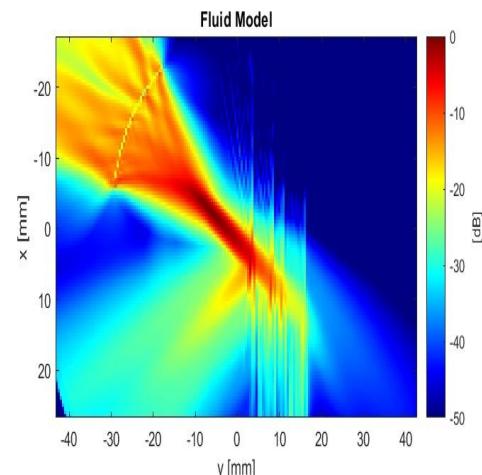
PC (D = 8 cm, Thickness = 2 mm)



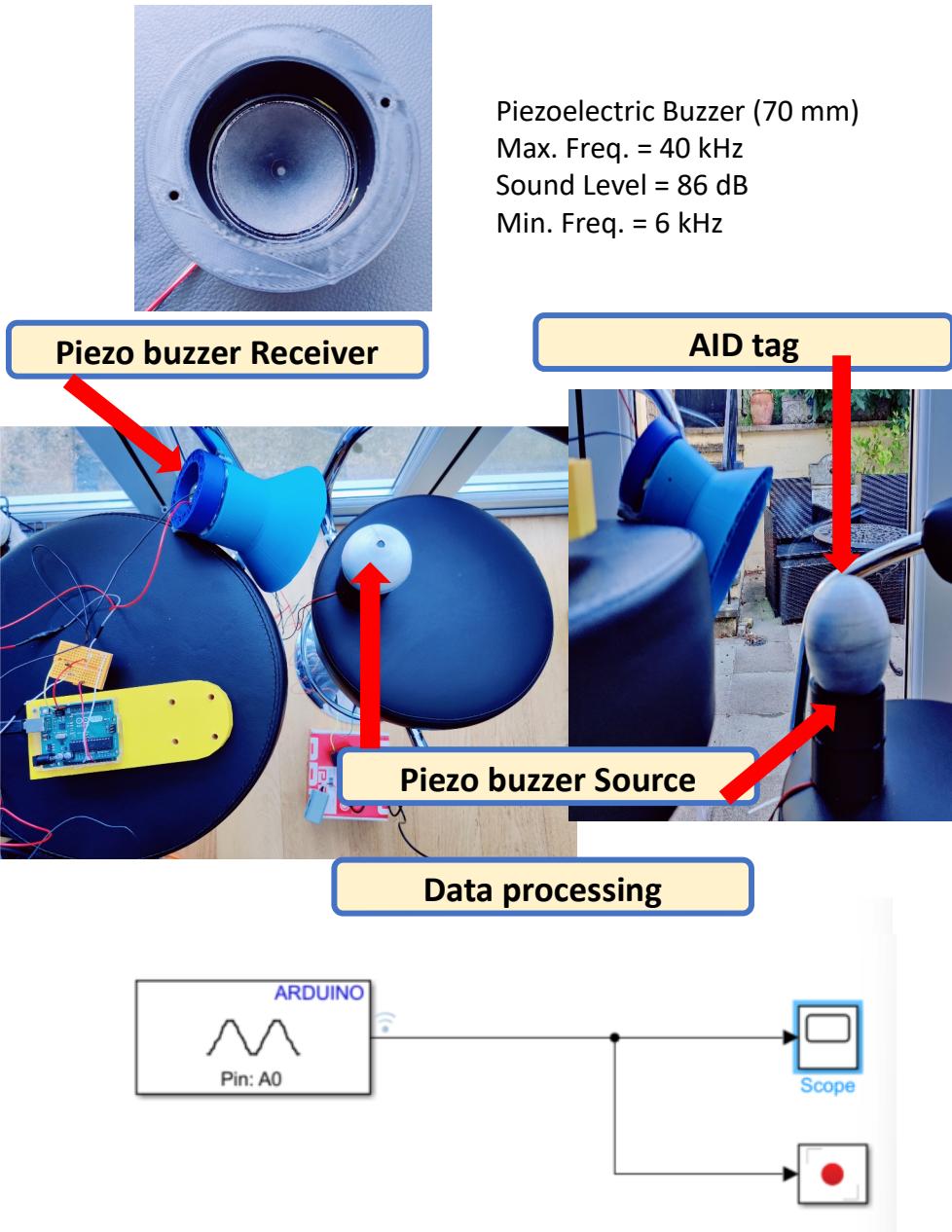
ColorFabb SteelFill (D = 8 cm, Thickness = 2 mm)



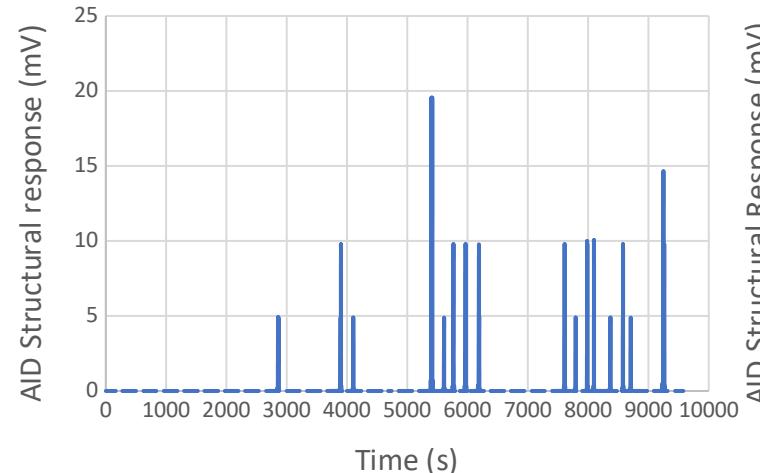
Multi-layered medium reflection and transmission response modelling



# AID Structural response

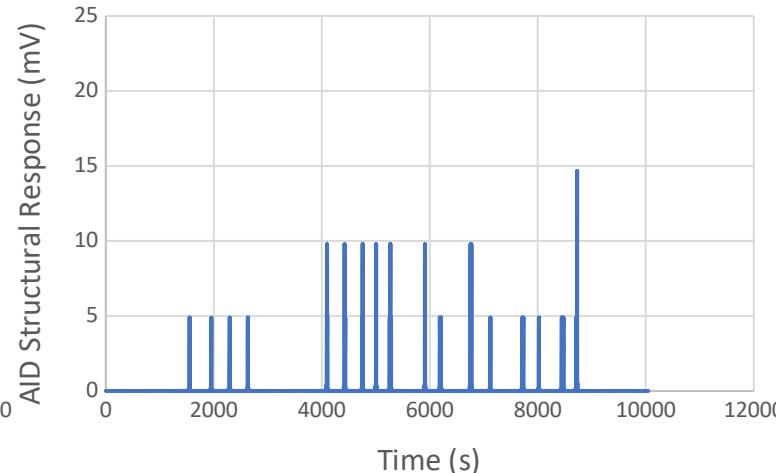


AID PC - XT CF20



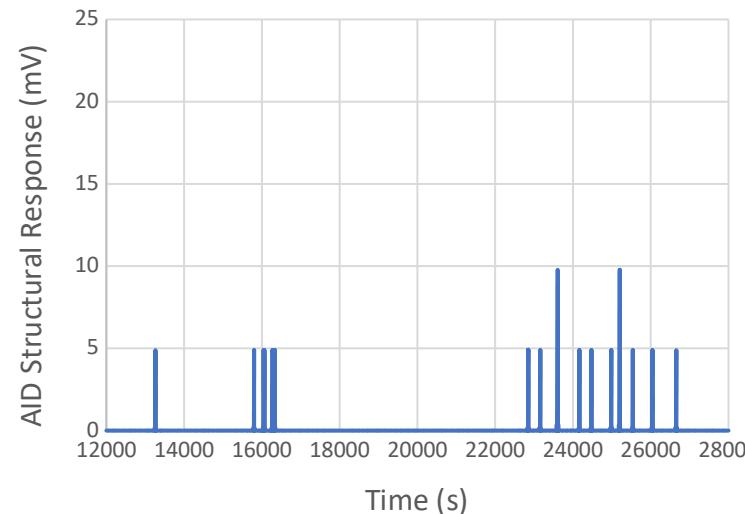
AID Average Structural response = 8.980 mV

SteelFill - TPU 95



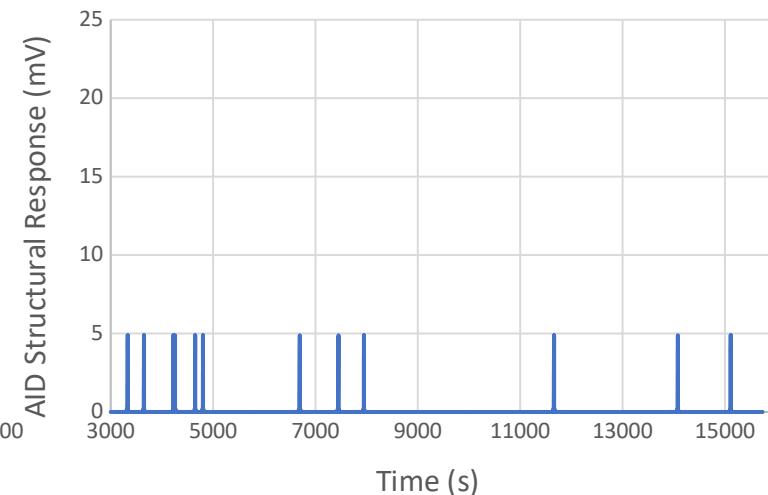
AID Average Structural response = 6.856 mV

PC - Though PLA



AID Average Structural response = 5.640 mV

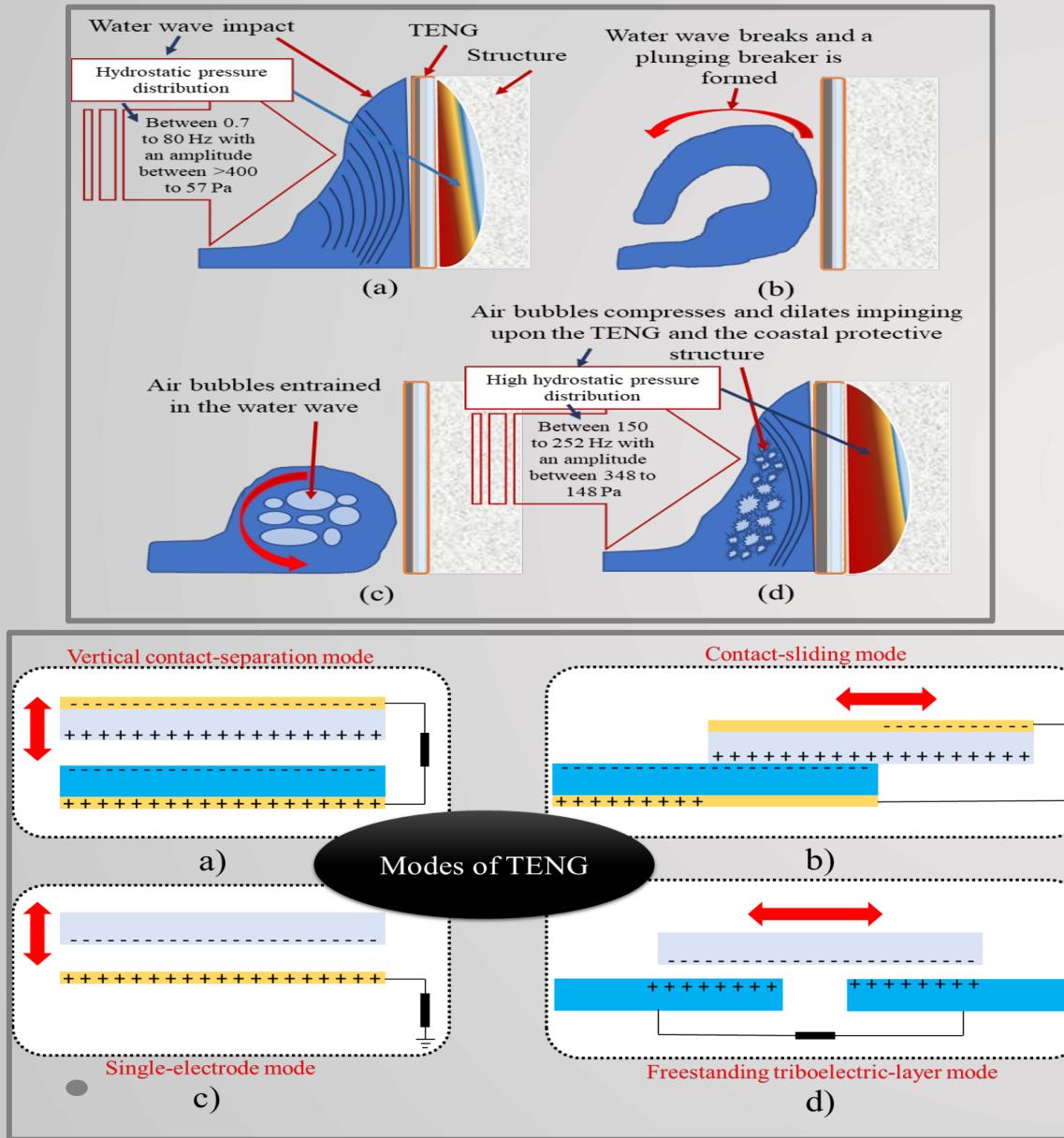
Though PLA - TPU 95



AID Average Structural response (mV) = 4.887 mV

**SEP 2016 – OCT 2020**  
**PhD – Engineering and the Environment**





## Triboelectric materials

### Tested

Conductive cloth tape (Silver)

Aluminum (18 µm)

Copper (100 µm)

### Conduct

Positive ↑

### Insulators

Negative ↓

Paper

Polytetrafluoroethylene (Teflon) PTFE tape (90 µm)

Polylactic acid (PLLA) (Polyester)

Cellulose tape (63.5 µm)

Polytetrafluoroethylene (Teflon) PTFE tape (100 µm)

carton paper

Polypropylene (PP) (46 µm)

Polyethylene foam (2 mm)

Polyvinyl chloride (PVC) (100 µm)

Polystyrene (1 mm)

Polyethylene terephthalate (Polyester) (PET) (60 µm)

Polydimethylsiloxane (Silicone rubber compound)

Polytetrafluoroethylene (Teflon FEP, PTFE) (25 µm, 100 µm, 300 µm, 1 mm)

Polyimide (Kapton) (127 µm, 50.8 µm, 25.4 µm)

Polydimethylsiloxane (PDMS) (125 µm)

### Triboelectric liquid-solid interfaces combination

#### Liquid

Positive ↑

DI water

Tap Water

Seawater (0.6M NaCl)

#### Solid

Negative ↓

Polydimethylsiloxane (PDMS) (125 µm)

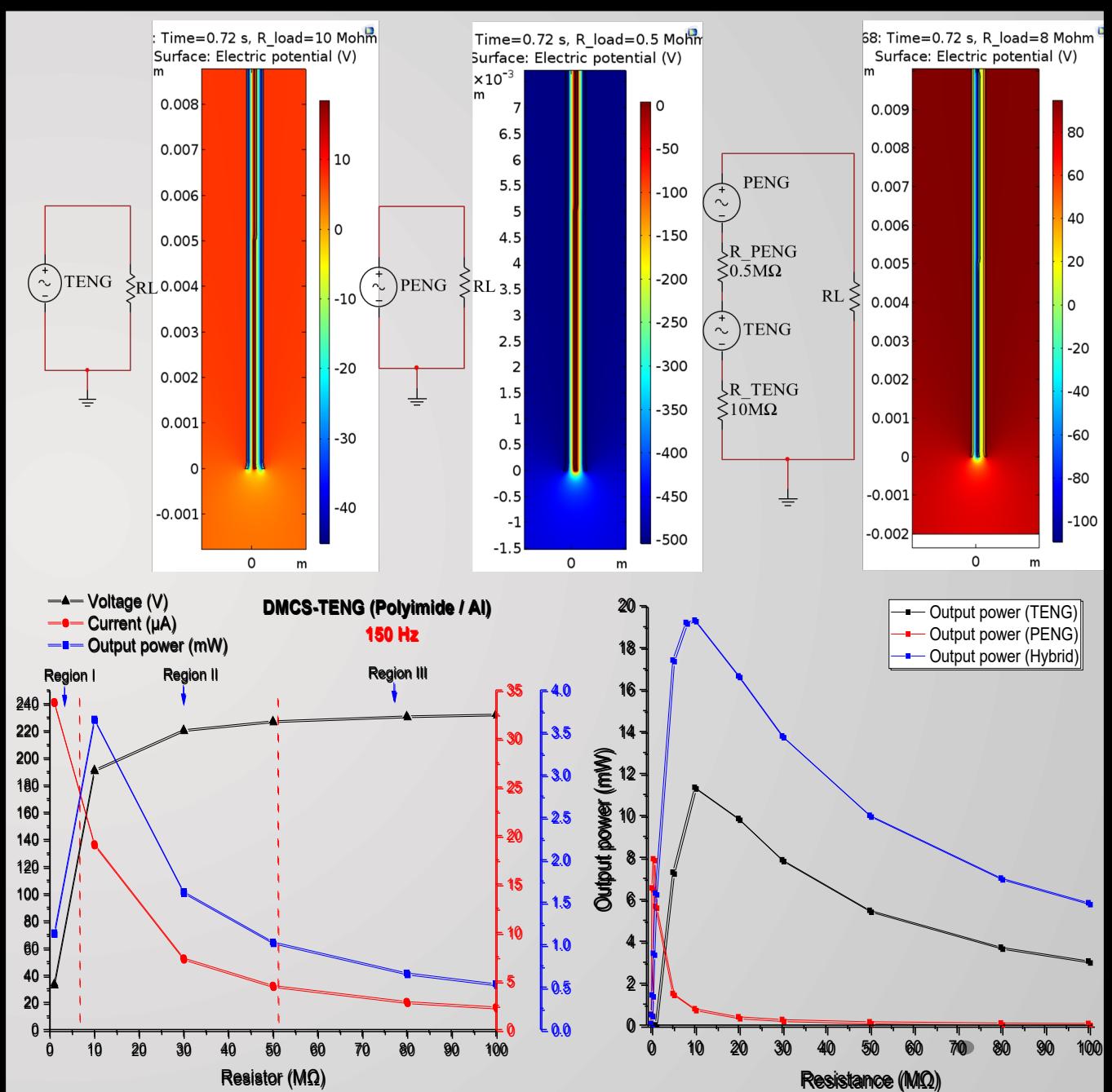
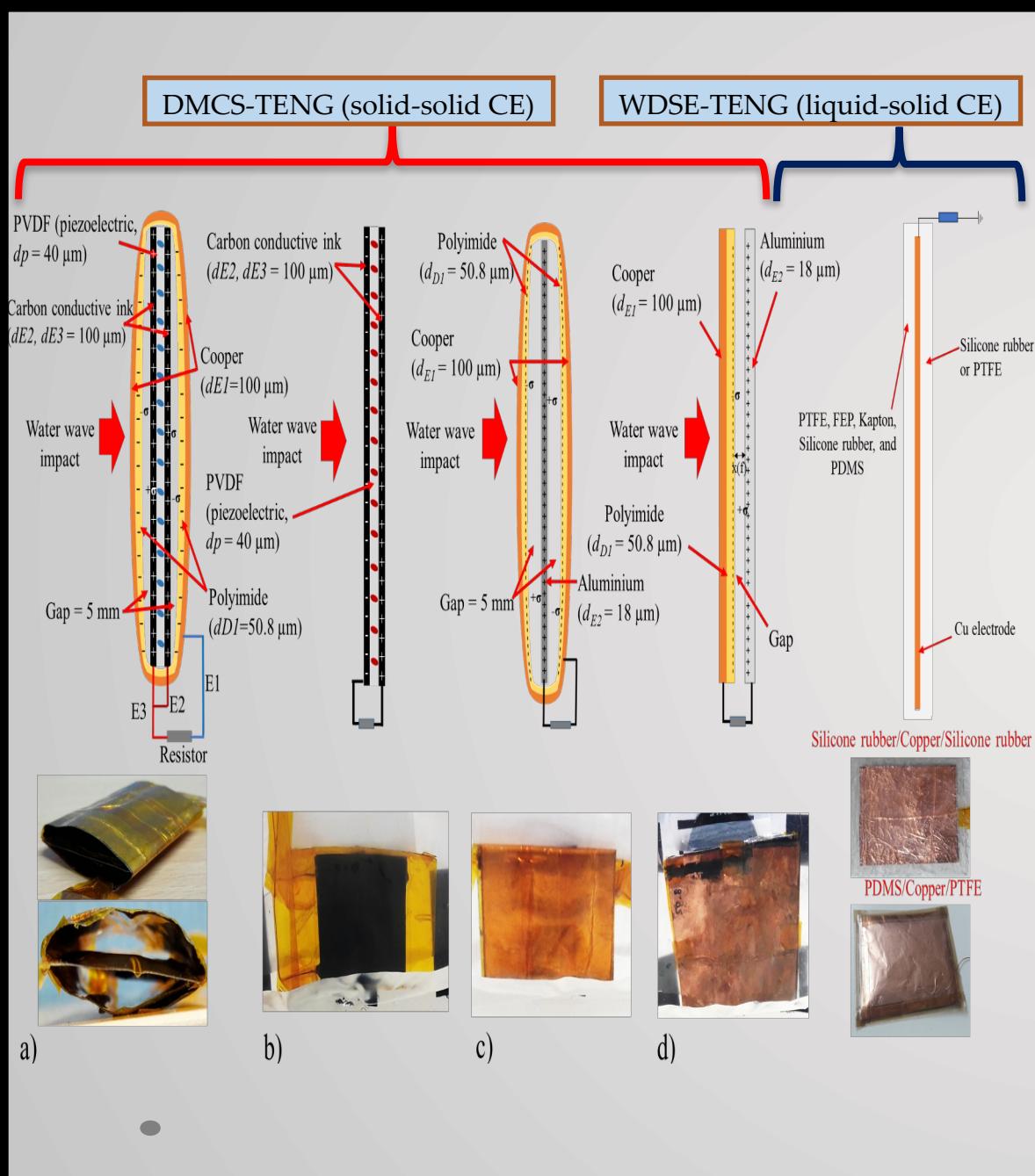
Polyimide (127 µm)

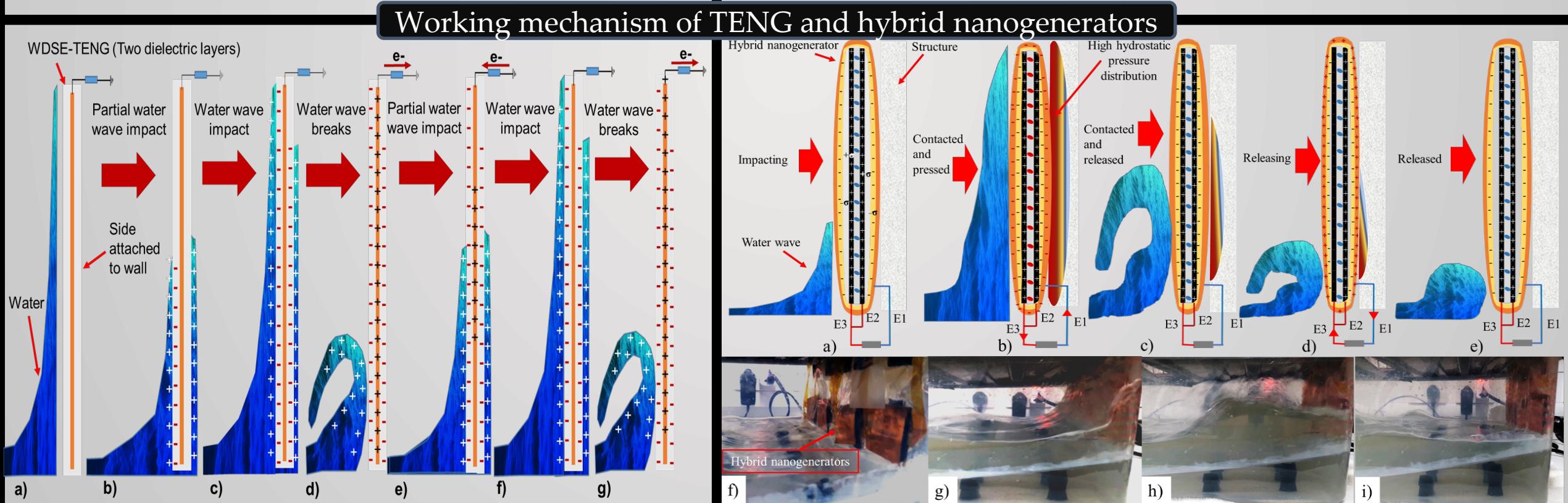
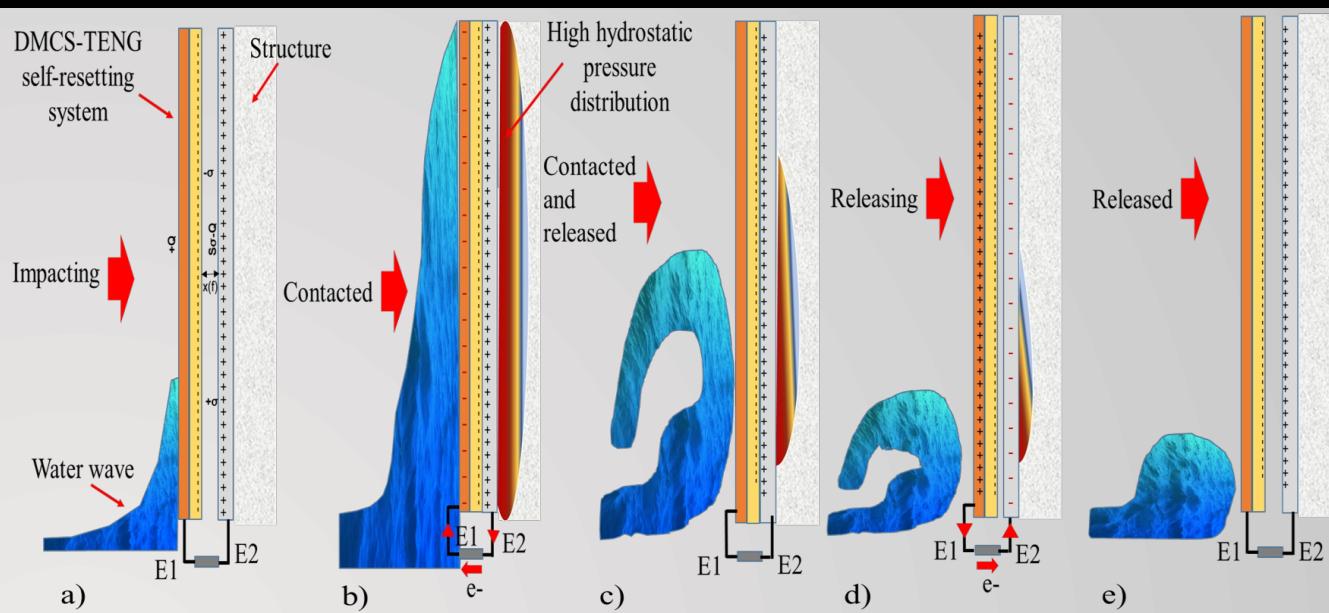
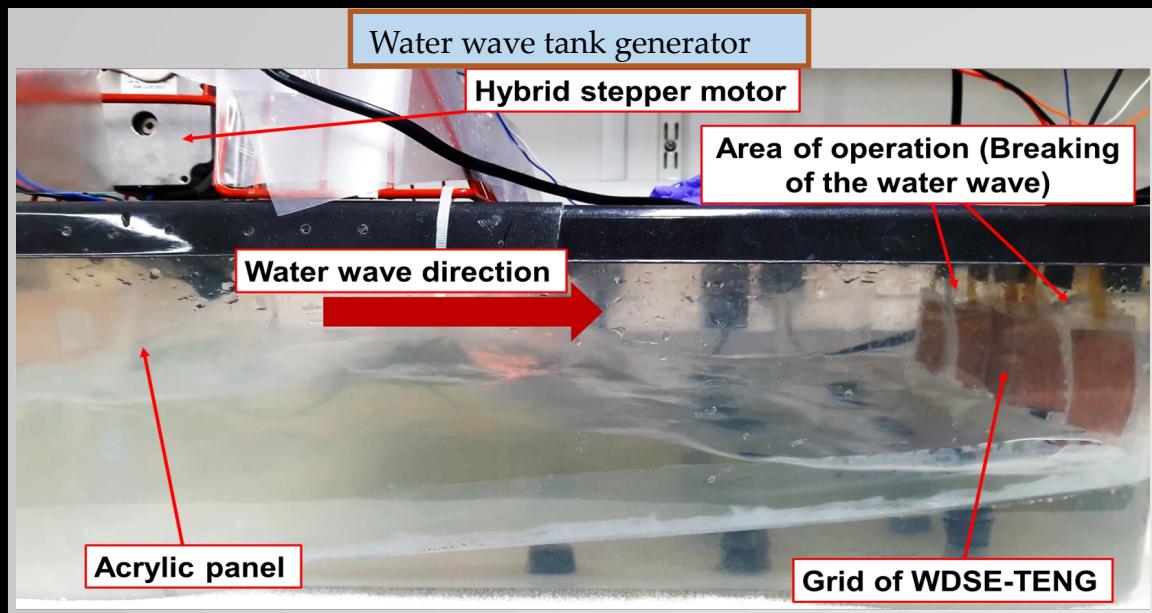
Polytetrafluoroethylene (PTFE) (100 µm)

Fluorinated ethylene propylene (FEP) (24 µm)

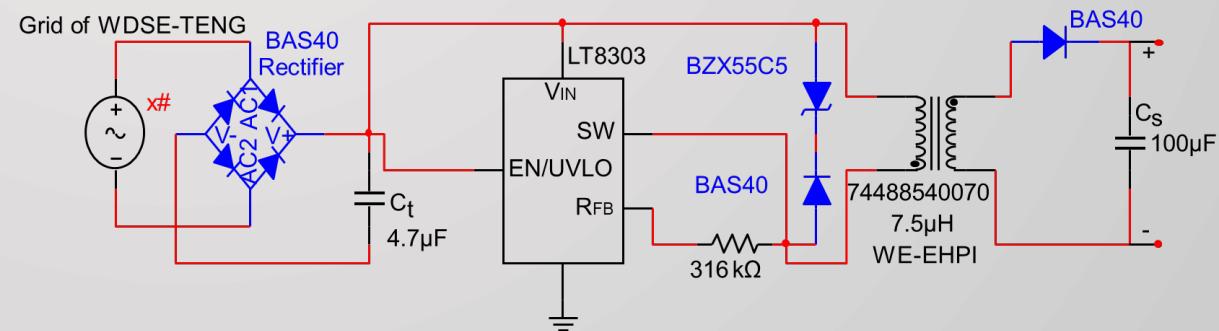
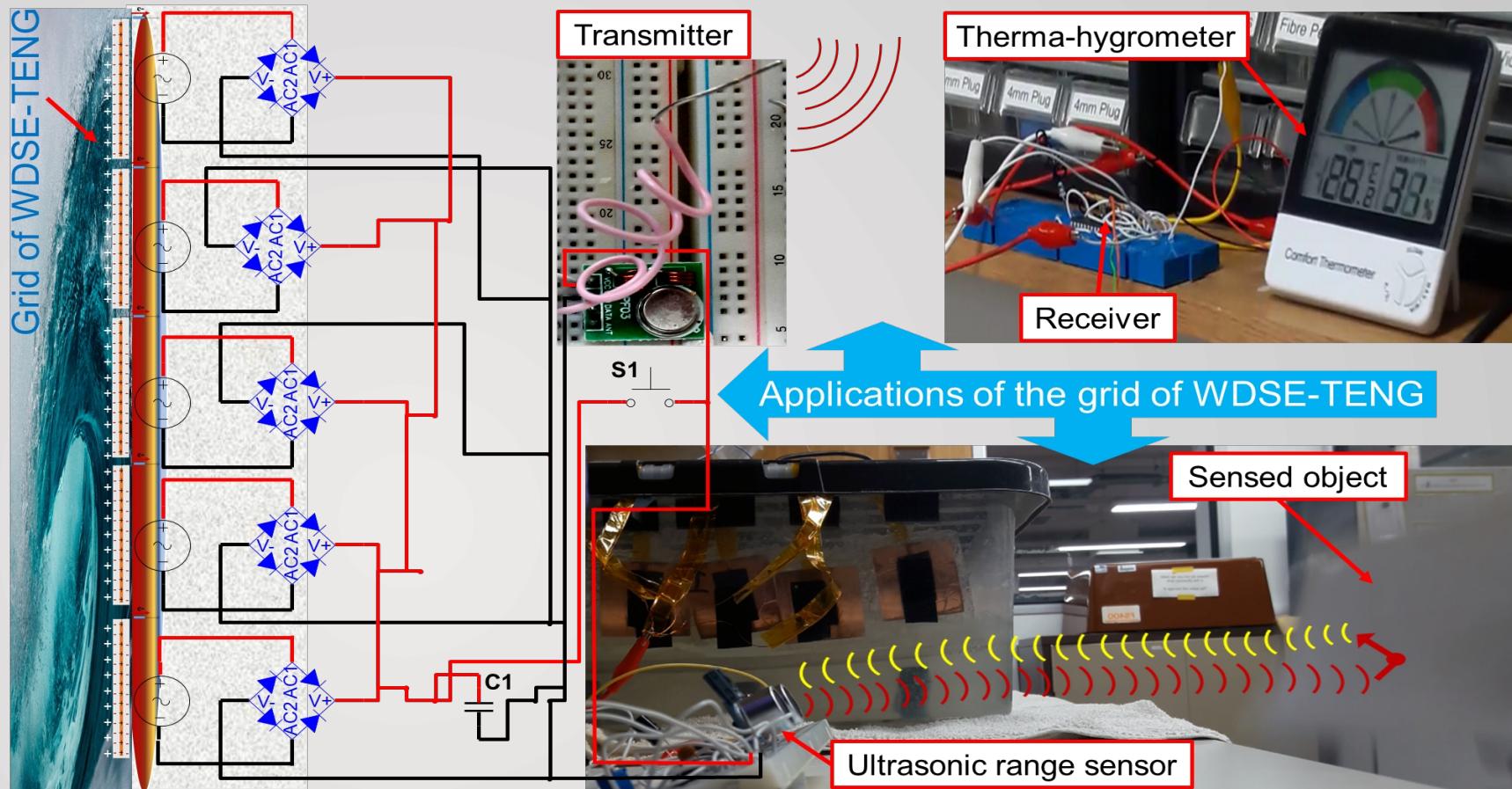
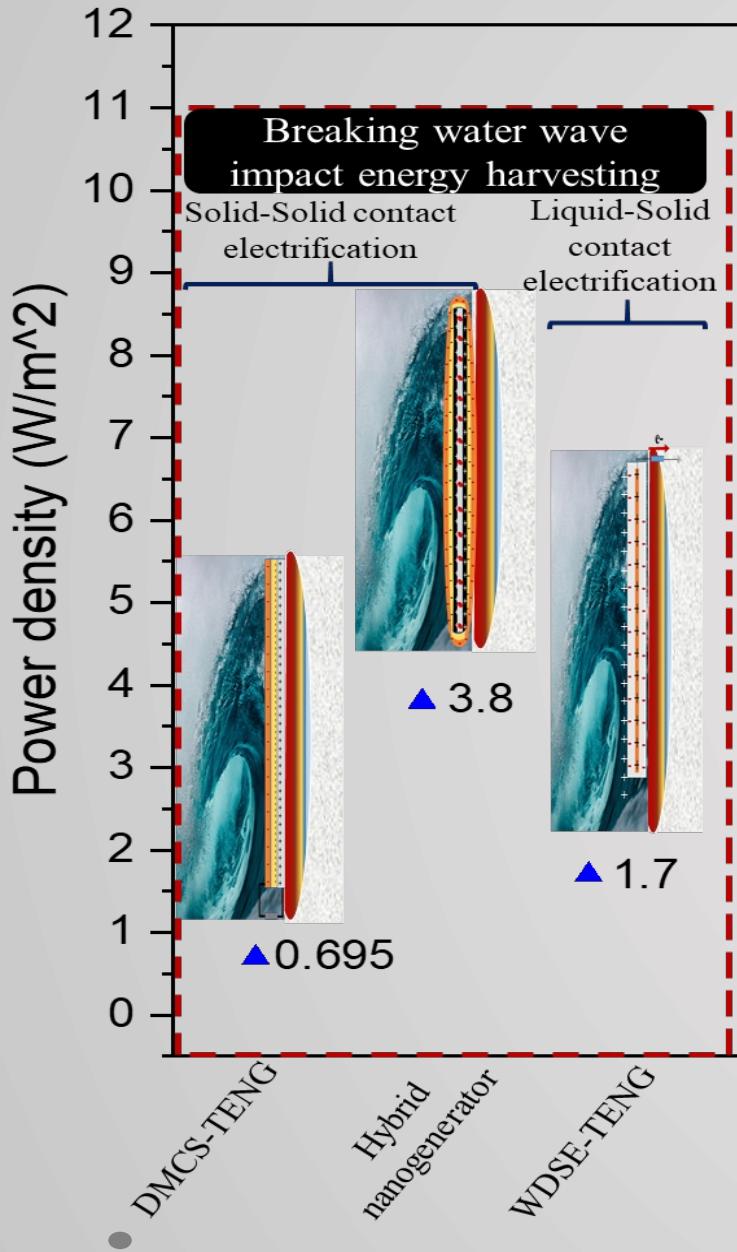
Silicone rubber compound (Acetoxy, Elastomer) (150 µm)

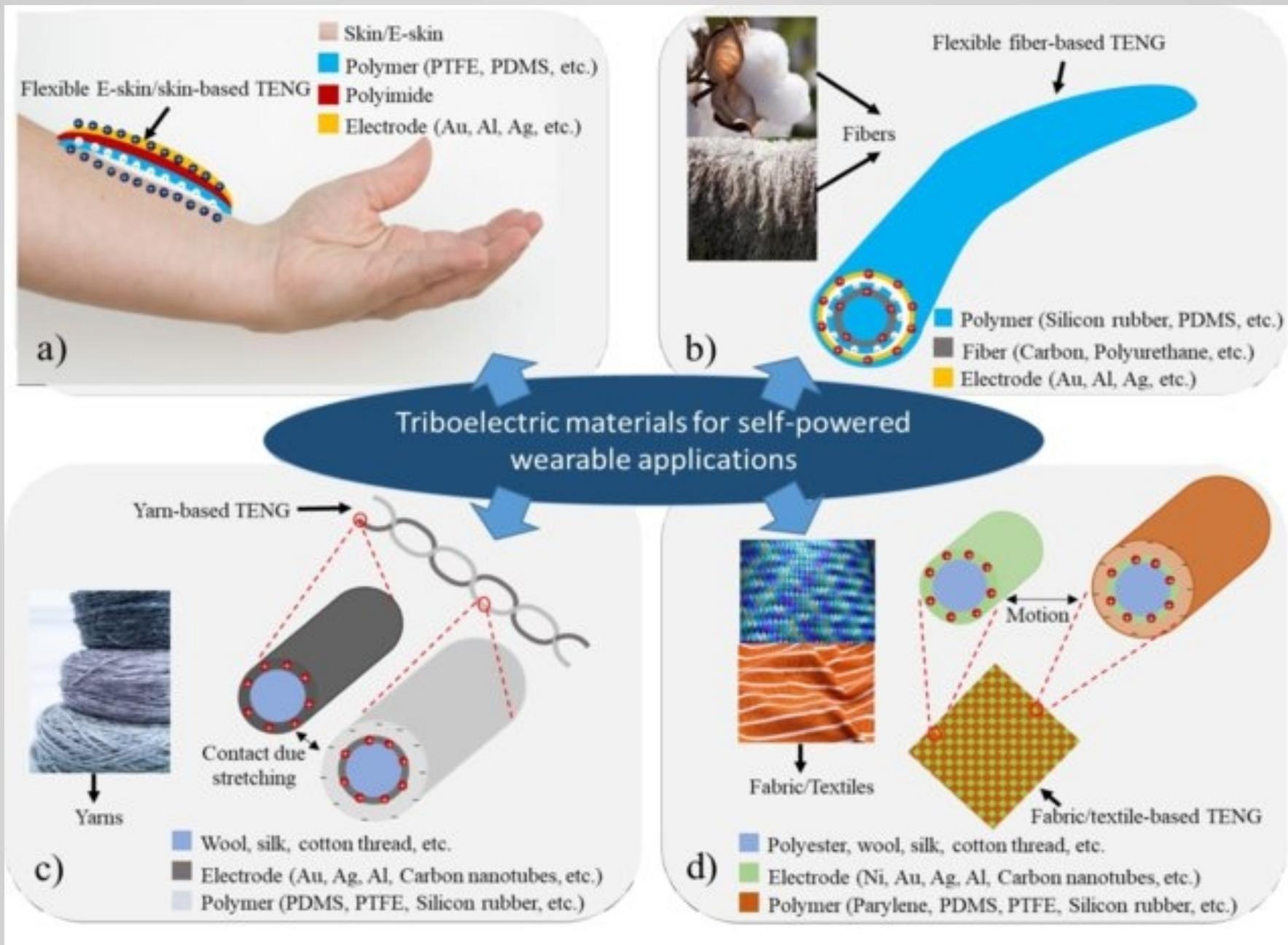
# TENG and Hybrid nanogenerators FEA

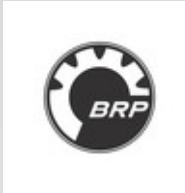




# TENG Power levels and applications



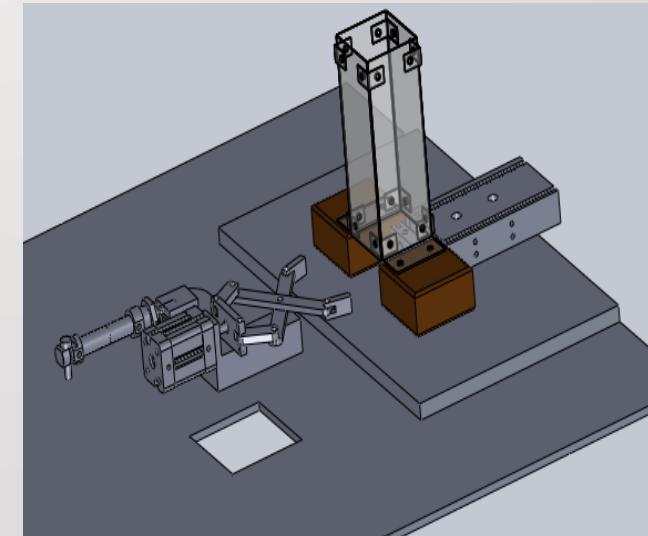
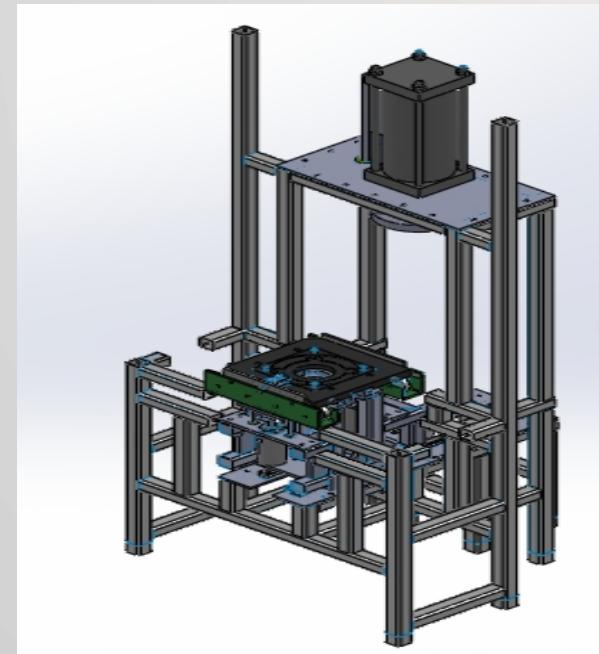




SEP 2015 – SEP 2016  
Mechanical Engineer

JAN 2012 – DEC 2012  
Mechanical Design Engineer

# Modelling, development and validation of new technological equipment for the final assembly process of Can-am off-road vehicles





MAR 2014 – DEC 2014

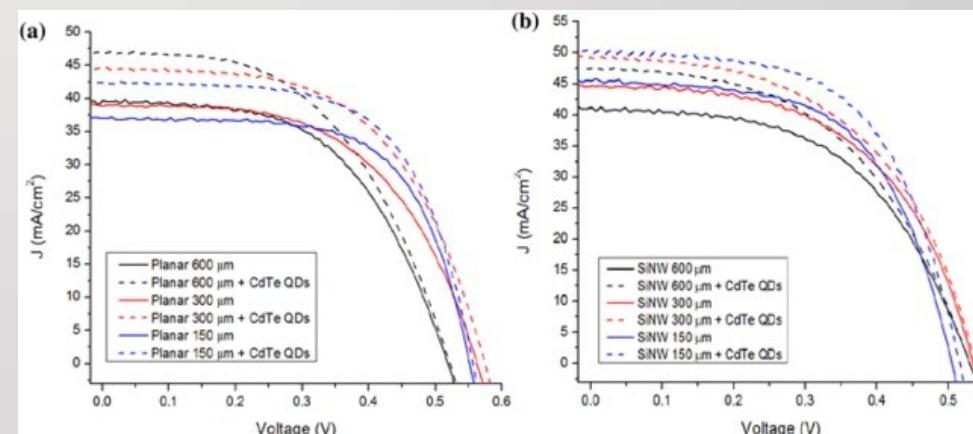
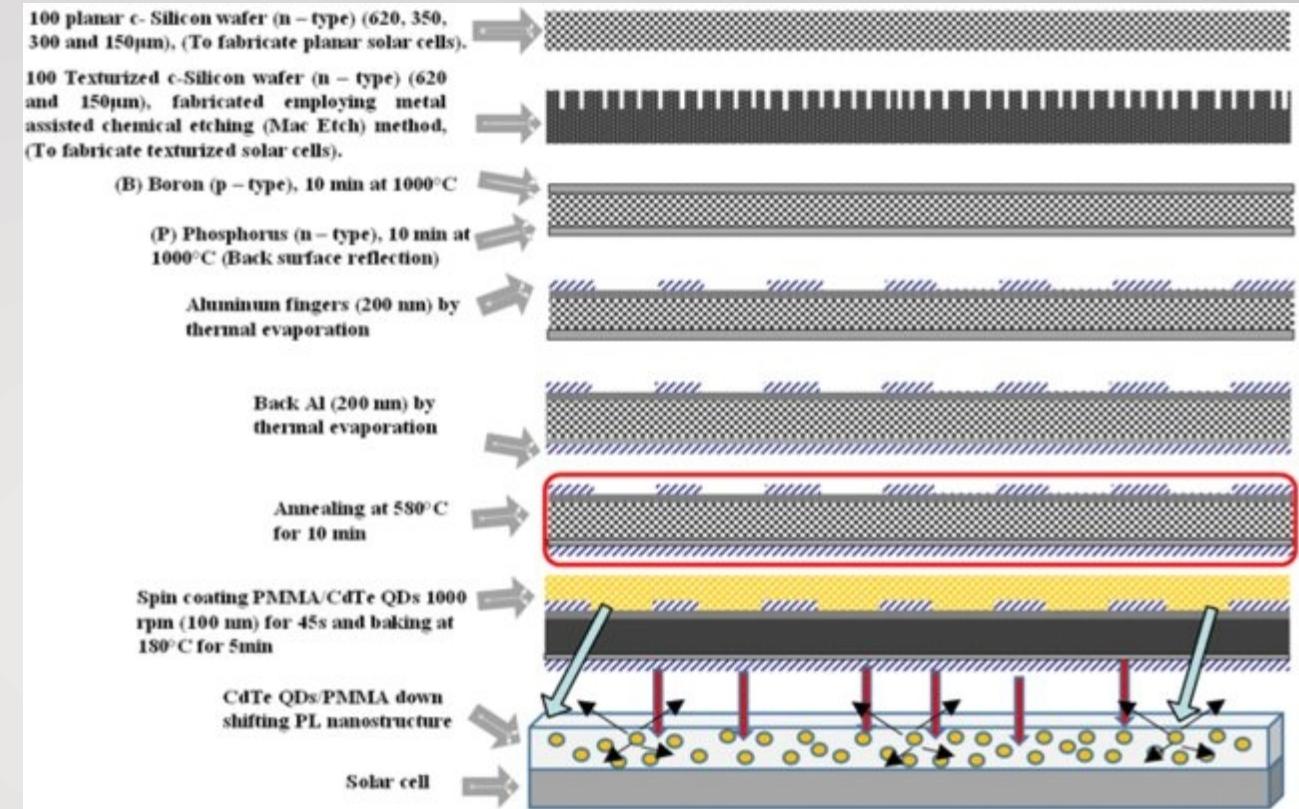
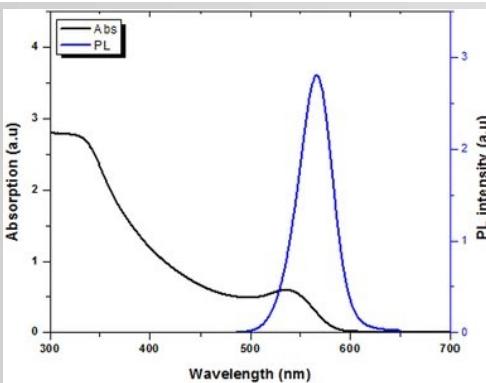
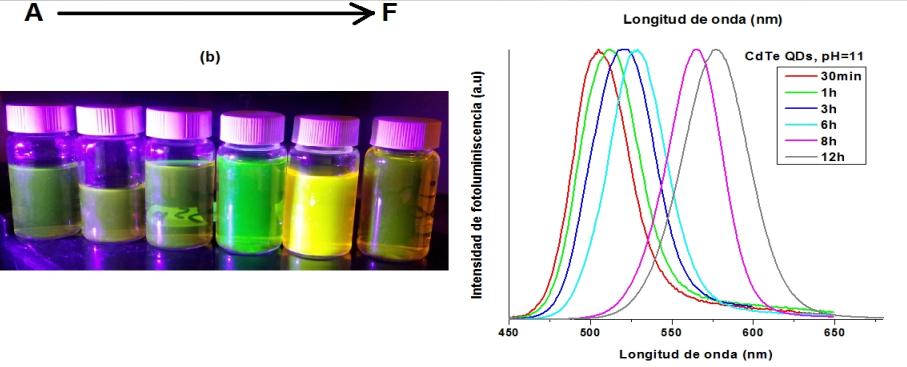
MEMS Lab Researcher (Cleanroom)

FEB 2013 – JAN 2015

MSc Material Science

# Modelling synthesis and characterization of luminiscent down shifting nanostructure based on CdTe quantum dots applied to crystalline silicon solar cells

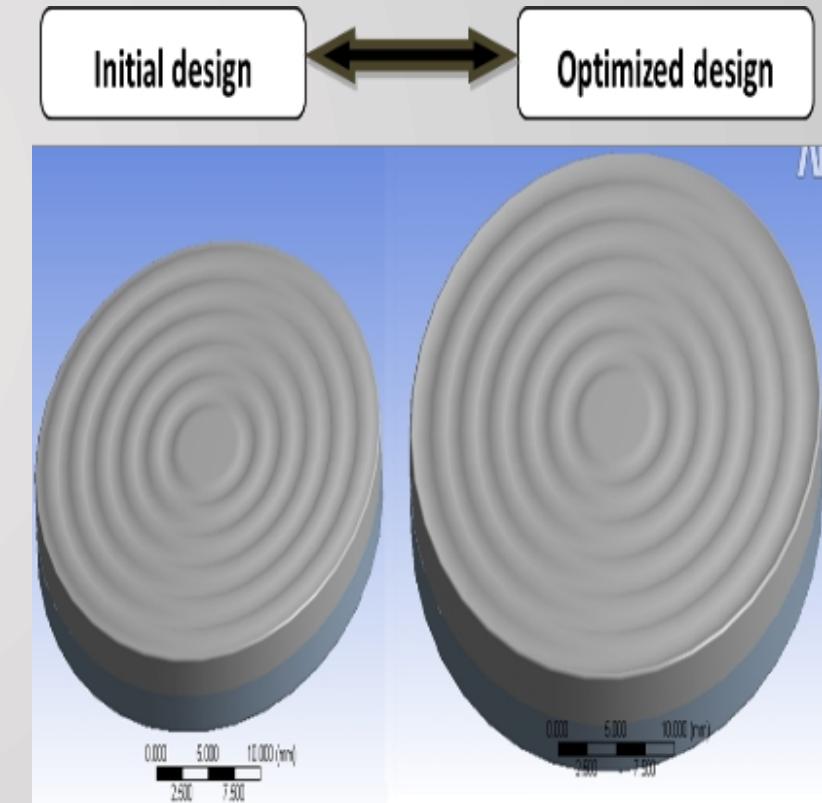
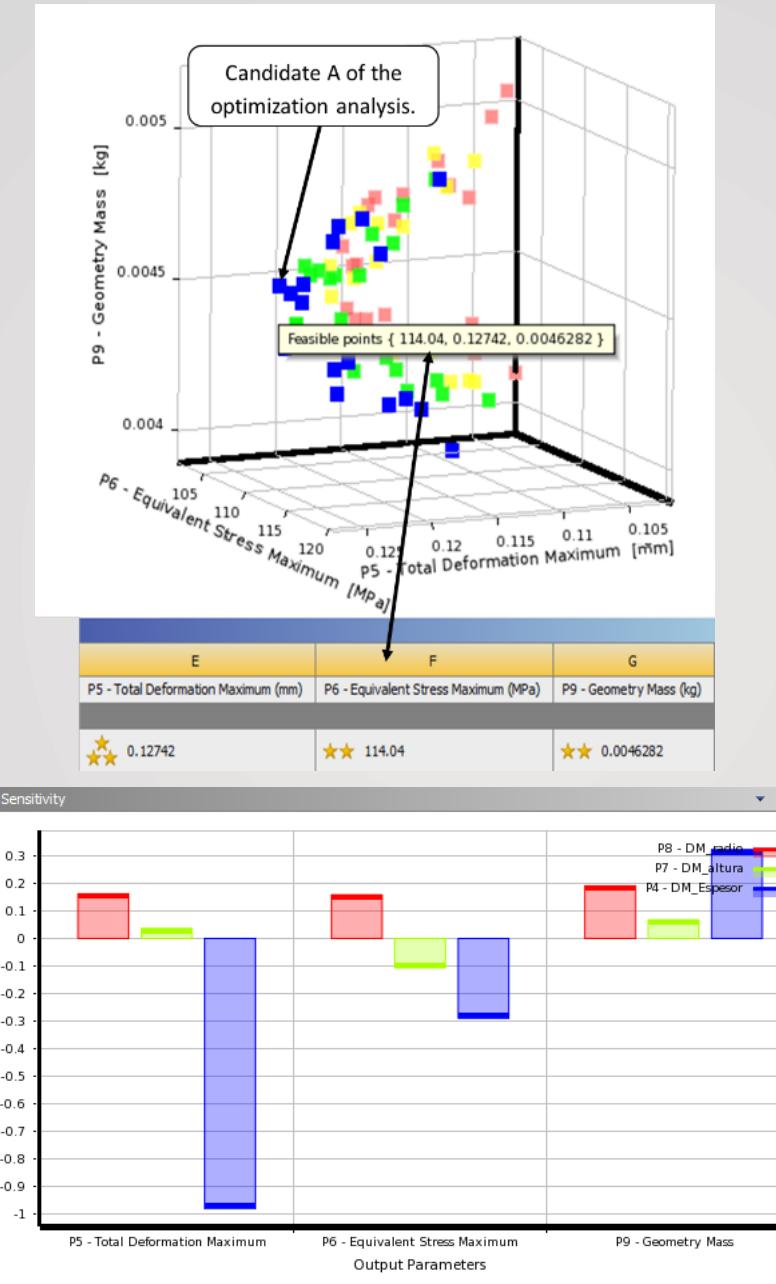
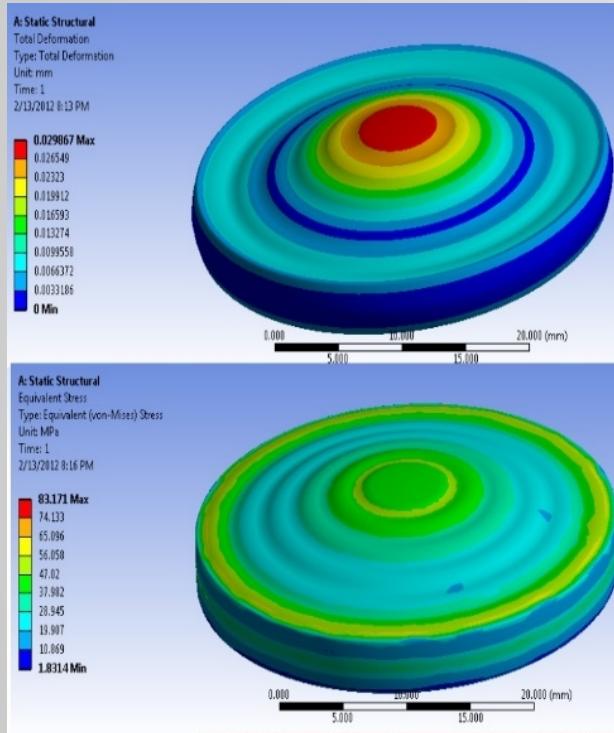
A → F



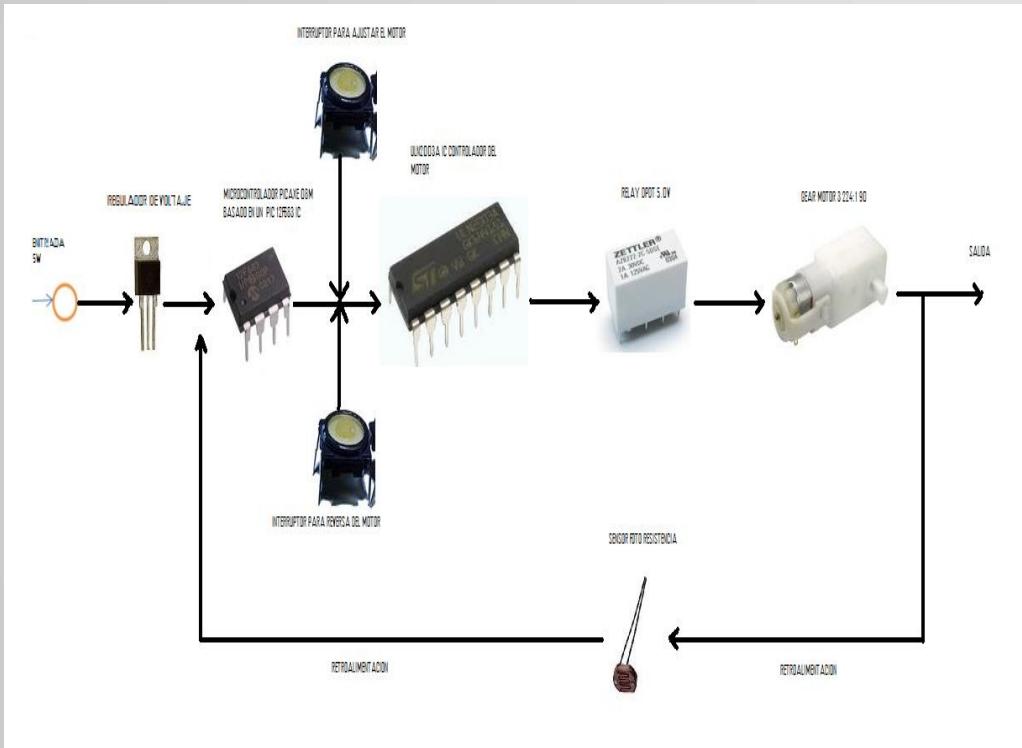


AUG 2006 – DEC 2011  
BSc Mechanical Engineer

# Membrane Structural Optimization for Barometric Capacitive Capsule



# SMART blinds project



# THANK YOU

For your Time & Attention