IDEA CHALLENGE 2022
Challenge brief


Climate change is making the wettest days wetter


With more extreme weather comes potential energy
that we want to harvest

Objective: Design a small-scale hydropower generator that can harvest rainwater energy

Deliverables:

- A physical prototype for testing
- This should be supported by digital prototypes (CAD, renders, simulations)
- Come up with a use scenario for your generator

Requirements:

- Must use the supplied stepper motor as a generator
- Design must fit inside a backpack
- Potential water energy is fixed to 1 KJ*
- Must feature bespoke parts

* The amount of water running through the generator you design is limited to 1 KJ. That means you are free to use e.g. a 10 L reservoir at 10 meters or a 50 L reservoir at 2 meters when testing your design

Supplies:

Each team has received the same supplies

- A stepper motor and shaft coupler
- Diodes and capacitors
- An Adafruit INA260 power meter

to generate and measure the power your design produces.

Challenge assessment

Pro2booth entries quality
15 points

Up to 5 points per day

Based on number of prototypes uploaded and quality of entries

Physical performance
40 points

Based on physical test of prototype

Factor	Weight
Cost of prototype (Euro)	50 %
Number of parts	20 %
Weight	20 %
Setup/ packing time	10 %

Final design
40 points

Evaluation judged by organizers and professionals

Scenarios

Prospective quality of final design

Final pitch

Bonus points
20 points

Daily challenges
5 points per day