

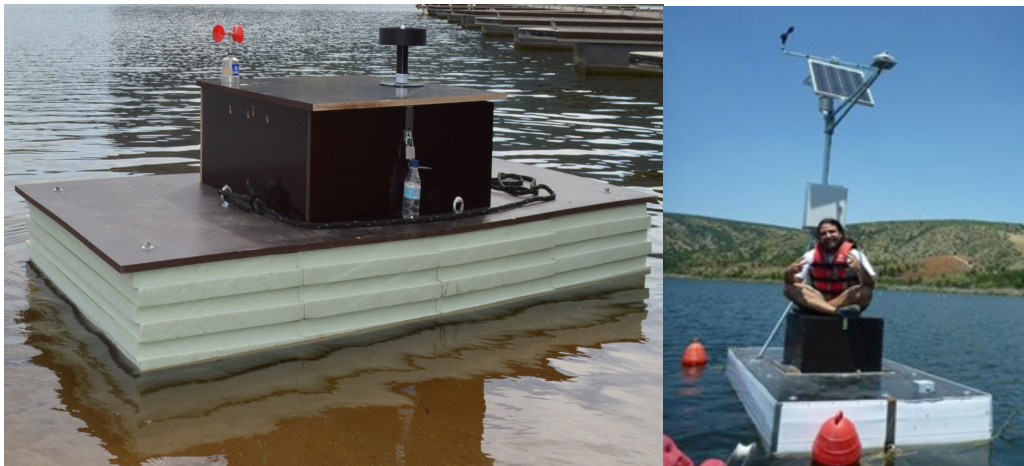
NETLAKE Guidelines for automated monitoring system development

003 How to deploy a low cost option

Objective

In this factsheet, we give an overview of one “low cost” platform system.

Examples



Same low cost platforms in Spain and Turkey.

Materials

- 3 waterproof plywood sheets (width (W) 1250 mm, length (L) 2500 mm, thickness (T) 21mm)
- 3 high density polystyrene foam sheets (W 1000 mm; L 1200 mm; T 200- 300 mm – can also be T 100-150 mm, but then you need 6 pieces and you have to glue them to get thickness needed)
- threaded rod/screw rod (diameter 10 mm) – 3.2 meters
- washers and nuts (for 10mm screw rod) – 32 pieces
- lifting loop nuts (for 100 mm screw rod) – 4 pieces (to connect ropes for anchors)
- waterproof box (1 plywood panel goes to here)
- metal corners (50x50x35x2.0mm) – 12 pieces
- door hinges – 2 pieces (for the box cover)
- glue for polystyrene foam

- screws for wood (max length 2.2mm, thickness need to fit with holes on metal corners and door hinges)
- door hooks (e.g. length 30 cm)
- waterproof padlock
- padlock hasp
- ropes and anchors
- tools (jigsaw, power cutter or grinder for metal, battery drill, spanners, ruler or water level, marker)

Construction guide

1. Cut matching centre holes in the middle of two plywood sheets – this is the hole through which your sensors will go into the lake – the size of the hole depends on your needs (Example picture 1 below).
2. Drill (drill bit diameter 12-14mm) matching holes in 8 places on both plywood panels. These are the holes through which you will insert the screw rods through the sandwich you make of the polystyrene foam plates and plywood panels.
3. Glue the polystyrene foam plates between two plywood sheets (Pic.2).
4. Use a power cutter to cut 8 equal length pieces (eg. 40 cm – depends on the thickness of your platform) of screw rod.
5. Attach the two plywood sheets (polystyrene sheets in between) together with the screw rods, secure with washers and nuts from both side of platform (Pic. 3). The rods should be well in from the corners of the platform and pass through the polystyrene. Use one screw rod on each corner and other four in the centre part of the platform (eg. around the box) to connect and fix the foam plates with plywood on more points.
6. Use lifting loop nuts on those corners and side of platform where you plan to connect your ropes for anchors.
7. Cut off the ends of the screw rod (as short, as you can) on each connection points – to avoid tripping on them when you use your platform on the lake (Pic. 4).
8. Cut the pieces from the third plywood sheet for the instrumentation box – (size of the box depends on your need for your devices; e.g. data logger, battery, connectors, additional cables, etc.).
9. Attach pieces to each other with metal corners and screws.
10. Attach the box on the top of your platform with metal corners and screws.
11. Use door hinges to connect box cover with the walls.
12. Connect the padlock hasp with the cover and front wall.
13. Connect the door hooks inside of the cover panel and side walls – this will help you to hold the cover open if you place your equipment inside of the box or you are working with your platform on the lake (Pic. 5).
14. Think about how you can hold the battery, data logger and other equipment in a stable position within the box (to avoid them moving with wave action) on your platform, if needed?
15. Make some small holes (eg. drill bit 10mm) to the box walls to avoid large temperature or pressure changes in the box.
16. Your new platform is ready to be used (Pic. 6).

Example pictures for constructions



More information

This platform (1.23x2.5m) can easily carry all equipment for water measurements and two people (one on both side) for maintenance.

Bigger platforms (1.5x3m) are more balanced and can carry up to four persons if needed.

If you need any other instructions with this platform you can directly connect Alo Laas (Alo.Laas@emu.ee)

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