

10th September 2019

Energy Observer Catamaran

Aims:

- Constructing the solar Catamaran based on the instructions written by OPITEC for the 111.714

Solar-Catamaran (retrieved 10th July 2019 from

<https://nbg-web01.opitec.com/img/111/714/111714be.pdf>)

Necessary tools:

Pencil and ruler
 Fretsaw
 Pillar drill
 Screwdriver
 Spanner M4
 Drills 4,5 8mm diameter
 Sandpaper, file
 Craft knife or chisel
 Side cutters
 Soldering iron, solder
 All purpose glue or waterproof PVA
 Varnish or paints ,brush



PARTS LIST				
Plywood	1	220x150x6	Base	1
Spring clip	1	Ø23-27	Motor holder	2
Machine screw	1	M4 x30	Fixing	3
Nut	2	M4	Fixing	4
Washer	2	M4	Fixing	5
Wing nut	1	M4	Fixing	6
Solarmotor	1	Ø24	Drive	7
Micro switch	1	19x6	Circuit	8
Cable,black	1	500	Circuit	9
Solar cell	1	1,5V/300mA	Power source	10
Propeller	1	130	Drive	11
Cable binder	6	3,5x345	Fixing	12

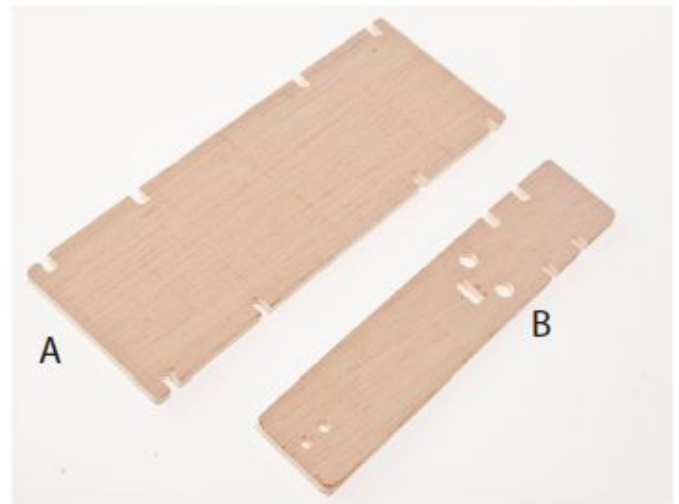
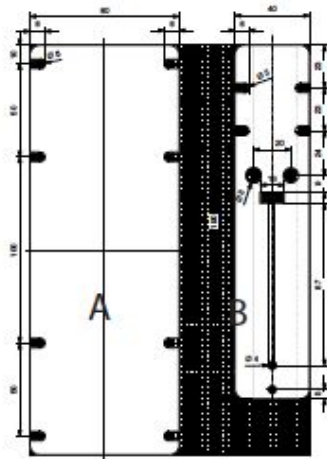


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Instructions:

1. Trace the pattern (s. Seite 5) on the plywood sheet (1) and cut out the shapes. Cut and drill PART A and PART B. Sand to finish.

Teil (A) und (B) bohren, abfeilen und versammeln.

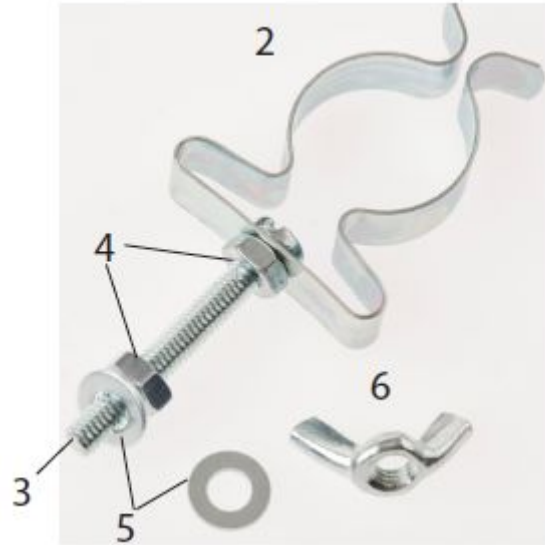


2. Mark and cut the cable channel with a craft knife or a chisel (B) between 4 mm hole and the sitch (Pattern broken line).



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3. Make up the motor holder from a spring steel clip (2) machine screw (3) nuts (4) washer (5) and wing nut (6).



4. Insert the holder through the 4mm hole in part B add from underneath a washer (5). Fix the holder with a wing nut (6) underneath.



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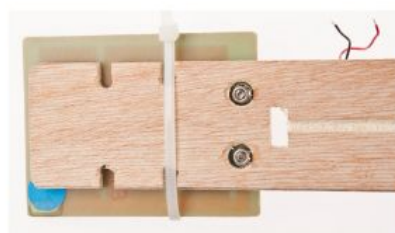
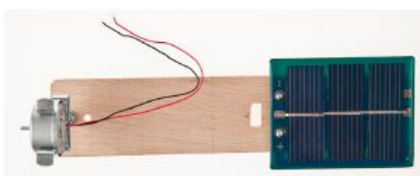
5. Insert the solar motor (7) in the string clip mounting (2) with the shaft facing forward (2) and adjust the motor so that the cables lead downwards.



6. Use the connections with the solar cell (10) to fix it in the place. The cell must be with the active side uppermost.

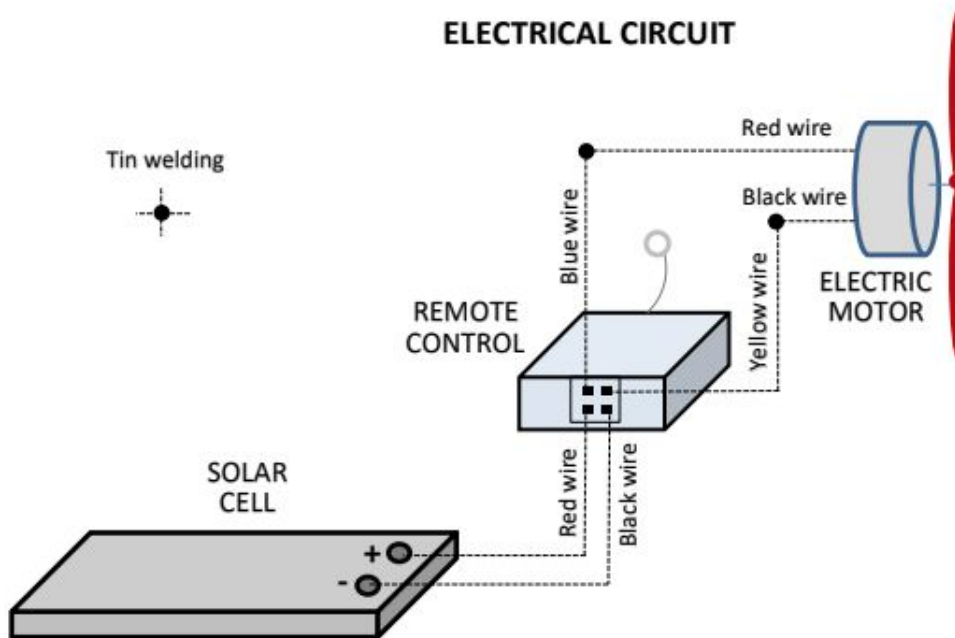


7. Lay the solar cell on part B, so the connections are in the 8mm holes. Fix the solar cell with two cable blenders (12) to part B. To do this ensure the cable blinder lays in the join and connects with the notches in part B. Tighten and clip off the remainder.



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8. The electrical system has three parts to be ensembled. Fix the electrical system to the wood.



9. Join the power unit to two empty plastic lemonade bottles (0.5, 1 or 1.5 liters) with cable joiner and cut them to length.

10. Make sure the bottle ends face the motor and the propeller.

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11. Wait and try it in “El río San Pedro”. Prepared to win the catamaran competition!

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INSTRUCTIONS

Patterns
M 1:1

