

109.829

Wackelspinne Waggle spider



Necessary tools

Pencil
Scissors
Bradawl
Screwdriver
Fretsaw
Drills 4 and 5 mm dia
Craft glue
Hot glue gun
Paint & brush

Please Note

The OPITEC range of projects is not intended as play toys for young children. They are teaching aids for young people learning the skills of Craft, Design and Technology. These projects should only be undertaken and tested with the guidance of a fully qualified adult. The finished projects are not suitable to give to children under 3 years old. Some parts can be swallowed. Danger of suffocation!

Parts list	No.	Size in mm	Description	Part Nr.
Plywood	1	115x65x5	Base	1
Pipe cleaner	4	500x9	Legs & body	2
PVC tube	1	ø 6	Waggle legs	3
Battery holder	1		Power source	4
Micro switch	1		Switch	5
Motor	1		Drive	6
Steel clip	1		Motor fixing	7
Cable	1	500	Circuit	8
LED red	2	ø5	Eyes	9
Screws	1		Motor fixing	10
Machine screws	2	3x10	Waggle mech	11
Machine screws	3	4x16	Legs	12
Connector block	1		Waggle mech	13

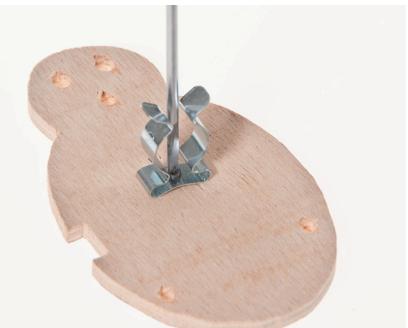
INSTRUCTIONS



1. Trace out the outline of the spider using the pattern on page 5. Mark out the holes and use a bradawl to mark the centres. Cut out the shape of the spider and sand to finish.



2. Drill the holes for the eyes, 5mm dia. See pattern on page 5. Drill the three holes for the legs. Now is the time to paint the spider if you wish.



3. Screw (11) the spring steel clip (8) on the centre point of the spider, underneath



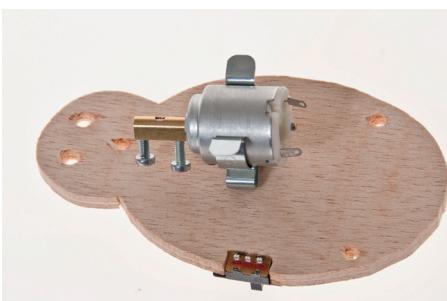
4. Fix the cable joiner (14) on the end of the motor (7) shaft and add the 2 machine screws as shown



5. Place the motor in the steel clip (7) as shown



6. Glue the micro switch (5) in the slot as shown. Use an all purpose glue



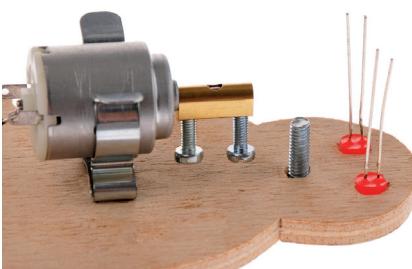
7. Micro switch glued into its slot



8. Insert the 3 machine screws (12) through the pre-drilled holes



9. Insert the LEDs (9) through the holes in the spider head

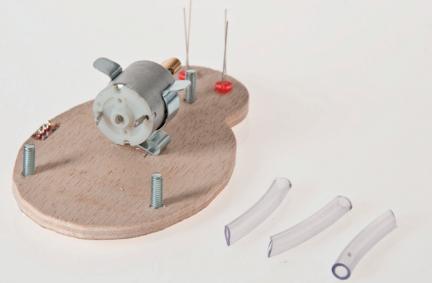


10. Take care when inserting the LEDs as they are poled. The longer legs should face together on the inside and the shorter legs toward the outer edge of the spider. As a second check the small flat on the edge of the LED also faces the outside

INSTRUCTIONS



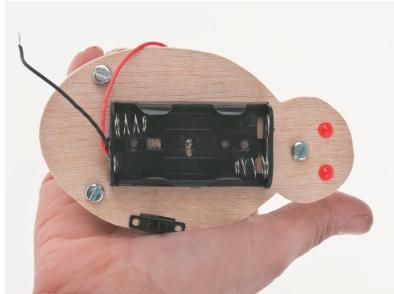
11. Cut three ca. 40mm lengths from the PVC tube (3). Then cut the ends of these at 45 degrees on one end .



12. Place the tubes over the machine screws as shown. If these are too loose wind a little sellotape around the machine screw thread



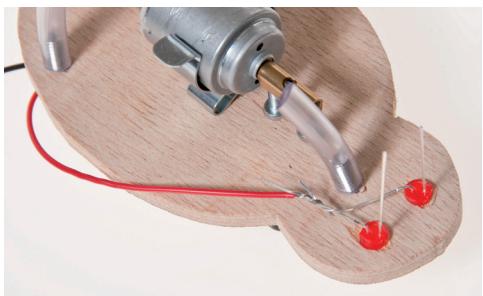
13. Coat the battery holder with an all-purpose glue



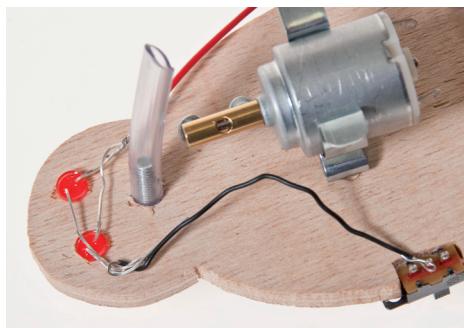
14. Glue the battery holder in the middle of the spider



15. Cut a 80 mm length from the cable. Strip the insulation from the ends, join one end to the middle connector on the micro switch .



16. The red cable from the battery holder is joined to the Anode of the LEDs as shown . Twist it in place.



17. Now join from the wire from the switch to the cathode of the LEDs

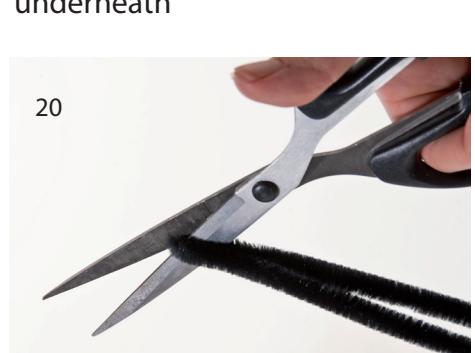


18. Cut a 40-50mm long piece of cable and join it to the minus pole of the motor



19. Join a cable from the motor (6) to the micro switch (5) this also is joined to the middle connector

20 Cut two of the pipe cleaners in half as shown



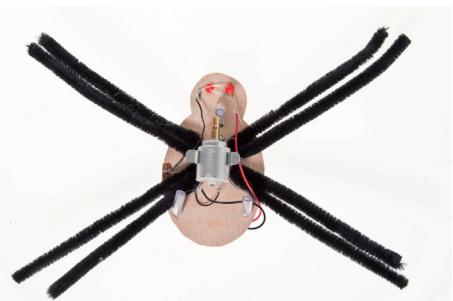
INSTRUCTIONS



21. Bend the pipe cleaners in half and glue them in place as shown. Use a hot glue gun



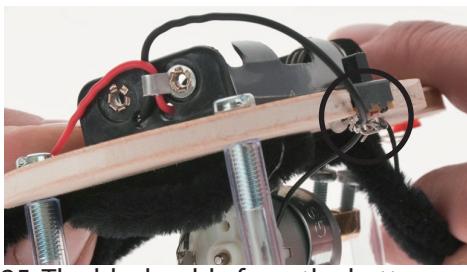
22. Use a hot glue gun to fix them in place.
PLEASE NOTE: a hot glue can cause burns



23 .Photo: showing the legs in place



24. Cut a 60-70mm long piece of cable.(8) strip the ends Join one end to the free connections on the motor (6) The other end is connected to the minus pole of the battery holder (Spring)



25. The black cable from the battery holder 4 is guided and joined to the right hand connection on the micro switch. Be Careful that this cable does not touch others



27. Bend the legs to shape as shown

PLEASE NOTE: Do not try to stand the spider on a table top etc The legs should not touch any surface.



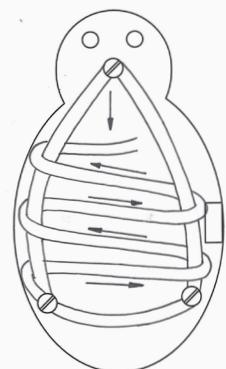
28 . Take the two left over pipe cleaners and twist them together



29. Undo the single end screw and clamp the loop from the twisted end of the pipe cleaner underneath and re- tighten



30 Loosen the other machine screws and clamp the pipe cleaner under them as shown (re-tighten) Then thread the remaining pipe cleaner over the battery case as shown

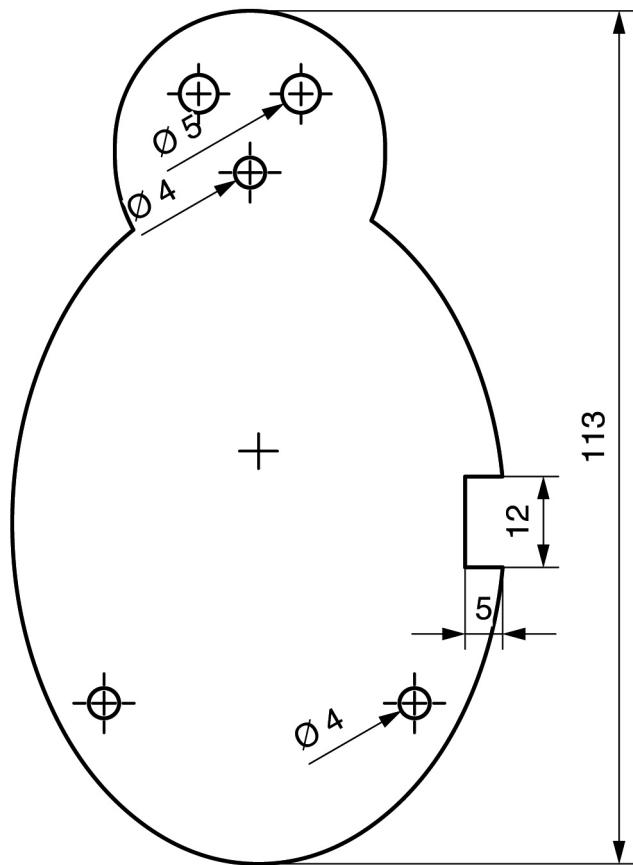


31. Once you have adjusted the PVC tubes and switched on the spider will either turn in a circle or walk backwards. This can be adjusted by moving the PVC tubes or the machine screws



INSTRUCTIONS

Patterns
Scale 1:1



Wiring plan

