

LED Pinwheel: Spinner assembly

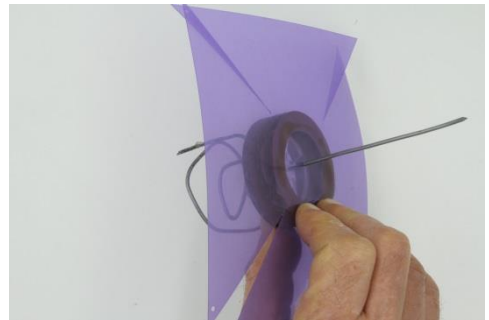


Glue the hubs together using the guidelines to align the acrylic hub.

Slide on to the assembly stand, with the double hub to the top.

Slide the spinner on to the stand with the holes to the RIGHT of the diagonal cut when you look from above.

Glue to the hubs.



Pick up the corners with holes and push on to the press-stud, one at a time.

When all four are in place, clip on the other half of the press-stud.

LED Pinwheel: Chassis assembly

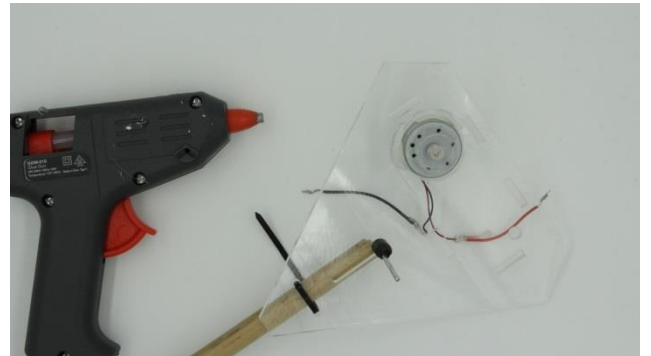


Bend the axle at 90° about 50mm from the end.

Push into the end of the handle, and glue in place.

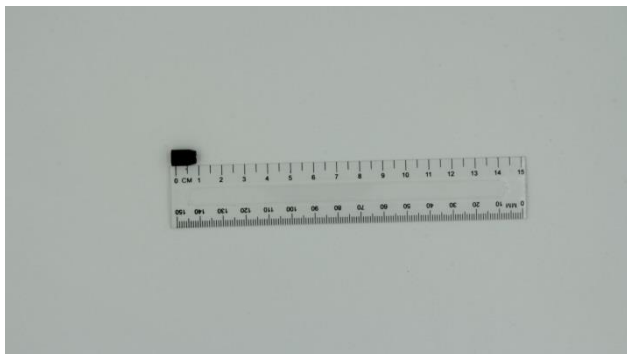
Push the small motor hub onto the shaft, then add glue and the larger hub.

Avoid getting glue near the motor and make sure it spins freely!



Slide the axle through the slot (motor hole to the left), and zip-tie in place.

Push the motor through with the wires at the back and to the centre. Glue into place.



Sharpen one end of the polytube in a pencil sharpener. Cut a 10mm length from polytube, and slide onto the axle from the front, with the sharp end uppermost (so it will touch the hub)

LED Pinwheel: Joule Thief assembly

Winding the Toroid



Take the 150mm piece of twinned wire, and loop it through the toroid.



Continue looping for 5 or 6 turns

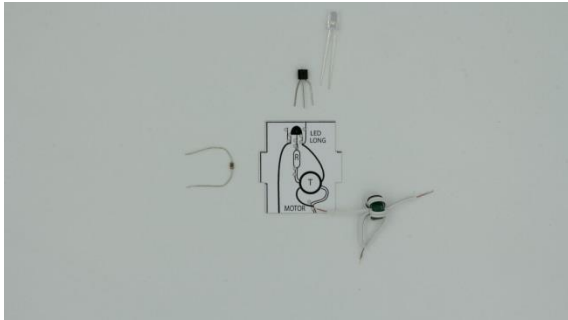
Avoid crossing the wires over.



Split the wire, and strip the ends.

Take the black wire from one pair, and twist together with the white wire from the other pair

LED Pinwheel: Joule Thief assembly



Assemble the pieces required, and the template diagram.



Insert the transistor legs through the holes.

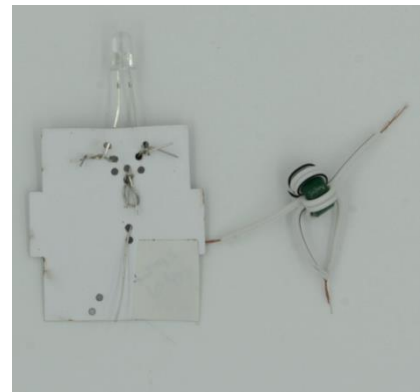
Make sure the flat side is facing the same way as in the diagram.

Push the resistor through, and twist to the **middle transistor leg** at the back.



Bend over the last 5mm of the LED legs, and insert the LED beside the transistor. Twist onto the **side transistor legs** at the back.

Make sure the long leg is in the right place (follow the template).

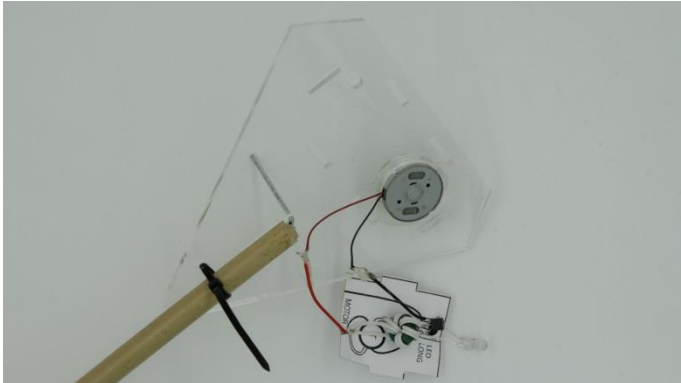


Insert the toroid wires, and twist the **joined wires** together with the **resistor** at the back, and

white wire to the **transistor + LED**



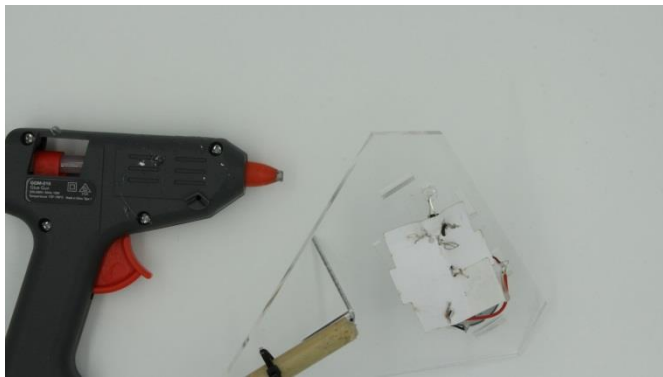
LED Pinwheel: Attaching the Joule Thief



Attach the motor wires to the Joule Thief by pushing them through the template, and twisting

Black wire to the transistor + LED

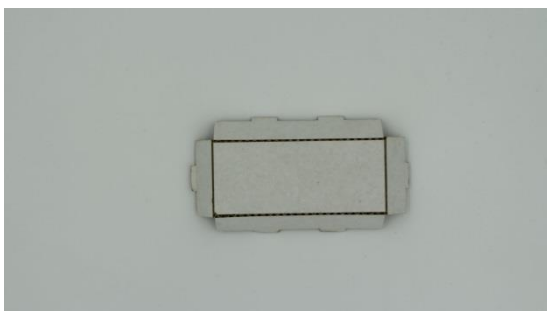
Red wire to the black toroid wire



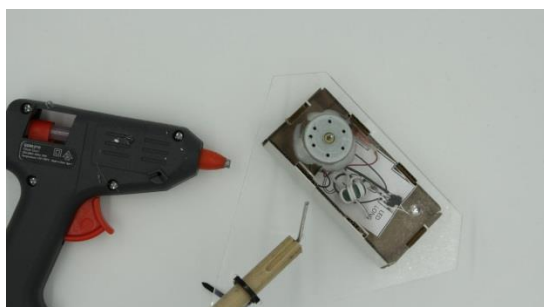
Bend the LED to fit into the hole provided in the chassis, and glue in place.

Spin the motor clockwise with your fingers, and the LED should glow.

If not, check the wires are all tightly twisted together.



Fold the Joule Box along the scored lines



Insert the tabs into the slots on the chassis, and glue into place.

Avoid letting twisted wires touch.

LED Pinwheel: Aligning the spinner



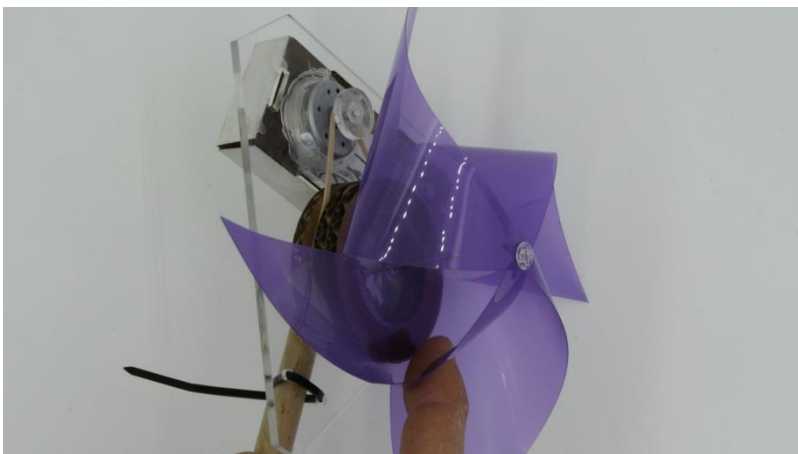
Loop a rubber band around the acrylic hub.



Slide the spinner onto the axle, and loop the rubber band over the motor hub.

The band needs to run on the smaller hub.

Look from the side, and ensure the motor and spinner hubs align. Trim the spacer if necessary to make this happen.



Blow on the spinner , and slide the handle up and down until it turns easily, but still moves the motor shaft.

Glue the handle in place.

The LED should glow in a good breeze.