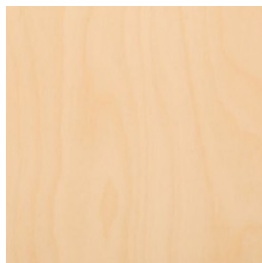




Build Your Own STRING THING

The “String Thing” or string shooter is an easy to make, fascinating device that displays unusual characteristics of a moving loop of string. It can be constructed for as little as \$12.



**SCRAP
WOOD**



**TOY
WHEELS**



**DC
MOTORS**



**PLASTIC
GEAR**



**3-4 D SIZE
BATTERY
HOLDER**



**1/4 INCH
COPPER
TUBING**



**SMALL
FUNNEL**



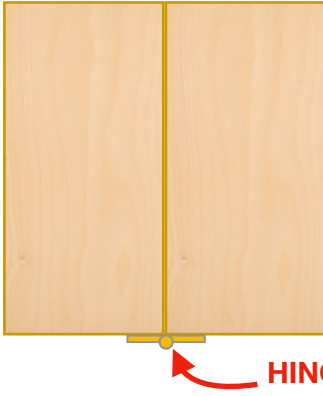
**SMALL
HINGE**



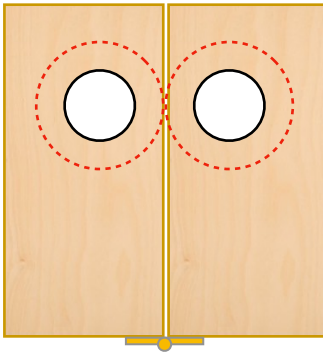
STRING/YARN



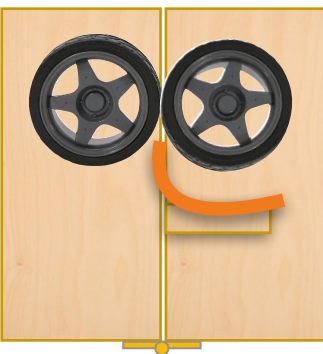
If your wheels do not fit directly onto the motor shaft glue a small gear (that fits the motor shaft) onto the motor. Before gluing, scratch the glue surfaces with some sandpaper and use hot glue or CA glue if possible. **Be sure it is as centered as possible.**



Cut 2 pieces of scrap wood about 3" X 6". Glue your hinge to one end of the wood pieces as show

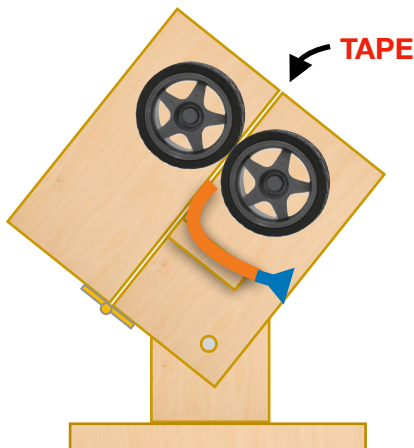


Drill two holes into the plywood the same width as the motors or slightly larger. Space them so that the wheels will touch when placed into the holes.



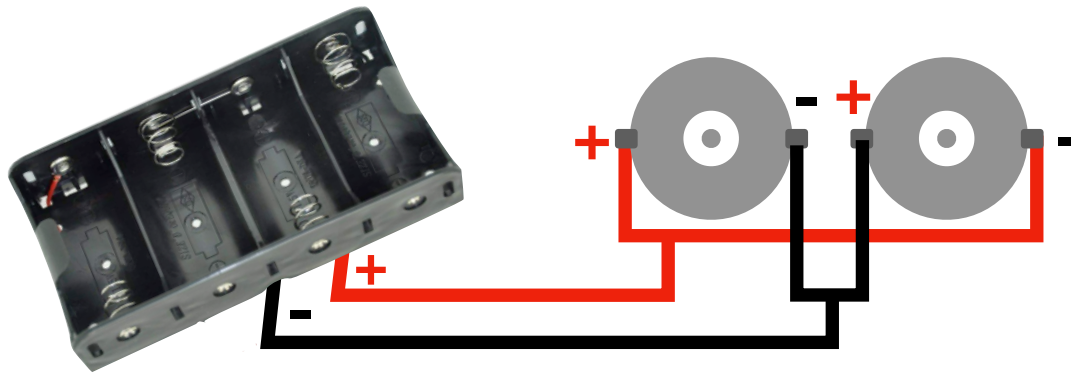
Place the motors in the holes and hot glue in place, making sure the motors and wheels line up and are as straight as possible. Attach the wheels to the motor shaft.

Carefully bend the copper tube slightly as shown trying not to crimp it. Filling the tube with sand before bending will help. Glue it in place on a piece of scrap wood so that one opening of the tube lines up with the middle of the wheels as shown.



Glue the funnel onto the end of the tube, keeping the opening as smooth as possible. Attach the string thrower to a base with a bolt that will allow you to tilt the thrower up and down. The distance between the top of the pieces can be held in place with tape or hot glue and scrap wood.

Now your done! It's time to power up and experiment.

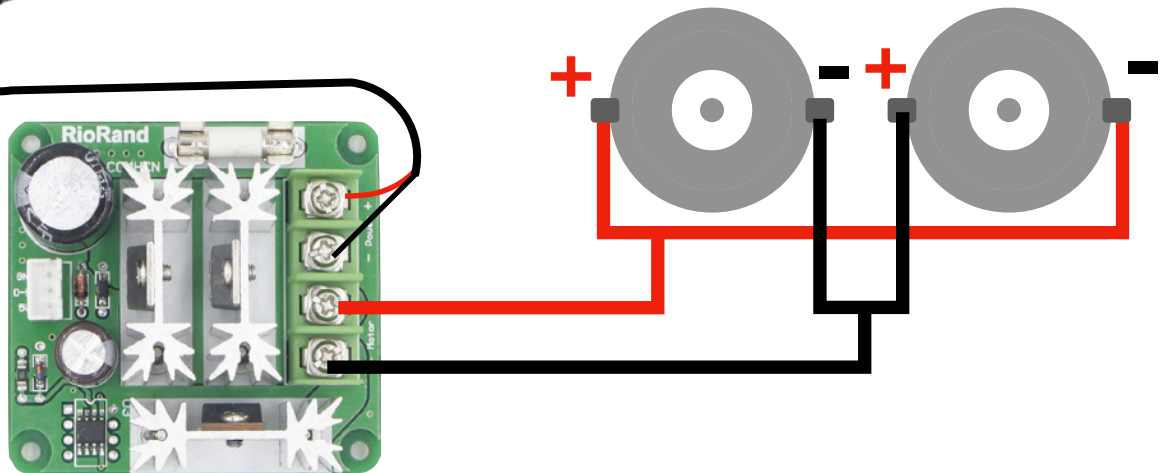


This wiring will spin one DC motor one way, and the other wheel the opposite way. If any wheels are not spinning the correct way, simply reverse the polarity of the wires. If both wheels are spinning the wrong way, reverse the polarity at the battery connection.

NOTE: My motors use about 6 Volts (and 2 amps) at the ideal speed. Experiment with different numbers of batteries to find the best speed for your string shooter. I'd start with 3 D size batteries (4.5 volts) if it does not run fast enough try 4 batteries, and so on. For best results, use the speed control shown below.



Wiring to a variable speed controller Power supply is 12 volts, 3 amps



Working the String Thing:

Thread the string/yarn through the tube and funnel . The length is up to you - experiment a bit to find the length that gives the best effect. Knot, glue, or sew the ends together trying to create as smooth a transition as possible. We've gotten loops over 12 feet high to work great! Experiment with angle, speed, and distance between the wheels. If you post a video, be sure to let us know or include "Science Bob" in the title so that we can find it.

Happy Exploring!



<http://www.youdoitelectronics.com/actobotics-2-55-press-fit-wheel-2-pack-595648?fee=2&fep=1584>



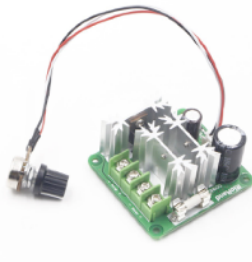
https://www.amazon.com/10000RPM-Mini-Magnetic-Motor-Smart/dp/B008595SC8?keywords=dc+motor&qid=1540773888&sr=8-7&ref=sr_1_7



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