

## SET UP.



Photograph by Ed Troxell

## MATERIALS

**[A] Heavy paper, card stock, or scrap cardboard**

**[B] ¼" plywood scrap** about the same size as one side of the wooden box [L]

**[C] Wood glue or cyanoacrylate gel glue** or other good permanent glue for wood and plastic

**[D] AA alkaline batteries (4)**

**[E] 4xAA battery holder** Digi-Key #BH24AAW-ND ([digikey.com](http://digikey.com)) or RadioShack

**[F] Insulated solid-core wire, 24-gauge, different colors** Scavenge from dead telephone cable, Ethernet cables, thermostat wire, intercom cable, and anything with tiny colored wires. You can't have too many different colors of wire.

**[G] Insulated, stranded hookup wire, 22-gauge or thereabouts**

**[H] Gearmotor** Pololu Robotics & Electronics ([pololu.com](http://pololu.com)) plastic gearmotor: part #1118 or #1119 (the latter is slower but stronger)

**[I] Gearmotor mount and mounting bracket** Pololu stamped aluminum L-bracket pair, part #2670

**[J] DPDT toggle switch** Digi-Key #EG2407-ND, RadioShack #275-636, or salvage this and the micro switch from common electronics.

**[K] SPDT lever micro switch** Digi-Key #EG4544-ND or RadioShack #275-016

**[L] Small wooden box with lid** large enough to fit the battery pack, motor, and arm in resting position (down). The one I used was purchased at a Dollar Giant store. If your lid isn't hinged, you'll also need some small hinges.

## TOOLS

**Table saw or handsaw** that can cut wood straight

**Miter box (optional)** but helpful for handsaw straight cuts

**Jigsaw, coping saw, or scroll saw** or other saw that can cut curved wooden pieces

**Pencil and eraser**

**Ruler**

**Scissors**

**File and sandpaper**

**Drill and drill bits: ¼<sup>16</sup>", ¼"**

**Small screwdriver** for hinge and motor mounting screws

**Soldering iron**

**Wire strippers**

**Side cutter**

**Hobby knife**

**Glue gun and hot glue**