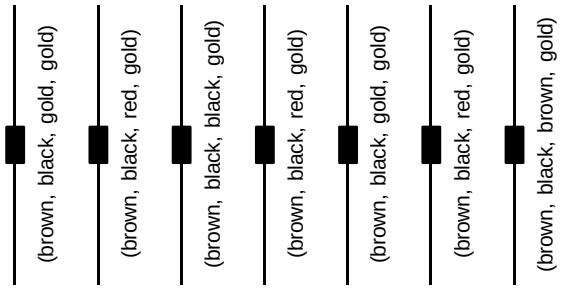
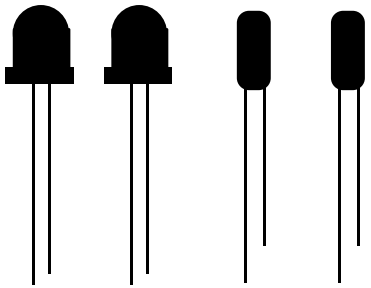
# THE WEE BEASTIE




R1 (1R) R2 (1k) R3 (10R) R4 (1k) R5 (1R) R6 (1k) R7 (100R)



LED1 (red) LED2 (red)

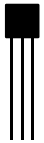


C1 (10u elect.) C2

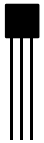
+
2 x MOTORS + WIRES
2 x WEIGHTS
3 x SPRINGS
3 x BOLTS
3 x SPACERS
6 x WASHERS
6 x NUTS
BATTERY BOX
4 x STICKY PADS

IC1 socket

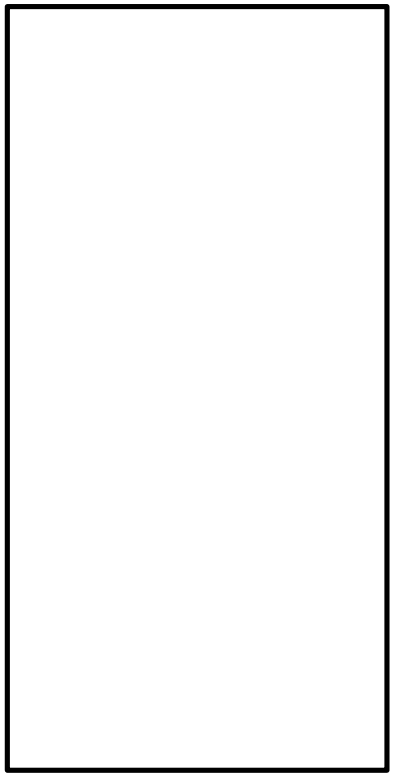
IC1 - DE1X (PIC12F629)



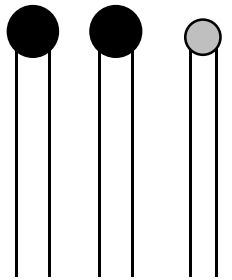
TR1 (MPSA13)



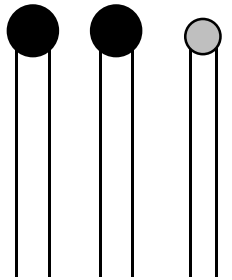
TR2 (MPSA13)



Circuit board



C3 (4n7) C4 (100n) LDR1



C5 (100n) C6 (100n) LDR2

## CONSTRUCTION

**1**. Identify the different components using the spotter chart.

**2**. Fit and solder the resistors (R1 to R7) to the circuit board. Identify the resistors by the coloured stripes on the body.

**3**. Fit and solder the electrolytic capacitors (C1 and C2) to the board putting the shorter leg (the leg nearer the stripe on the body) into the hole with the – sign. Fit and solder capacitors C3 (marked '472') and C4 (marked '104') either way around.

**4**. Solder the transistors (TR1 and TR2) matching the half-circle shape of the transistor to the half-circle shape on the board (flat side against flat side).

**5**. Solder the light sensors (LDR1 and LDR2) to the board either way around. Be careful when soldering as excessive heat may melt the plastic.

**6**. Solder the lights (LED1 and LED2) putting the shorter leg into the hole with the line.

**7**. Solder the chip socket (IC1) matching the notch in the socket to the notch on the board. Do not solder the chip directly to the board.

**8**. Solder the battery box to the board securing it in position with a pair of sticky pads.

**9**. Solder the remaining capacitors (C5 and C6, marked '104') across the tags of the motors, then solder two flexible wires to the tags of each motor as well. Solder the other ends of the wires to the holes on the board within the marked outlines for each motor. Attach the motors to the board using the sticky pads with each motor pointing outwards (not blocking the leg holes). See diagram overleaf.

**10**. Push the yellow weights onto the spindles of the motors, such that the small protrusions are on the outside. Don't push the weights so far down that their motion is obstructed.

**continued overleaf**

## CONSTRUCTION (continued)

**11**. Push the bolts through the three large holes in the board (LEG1 to LEG3) and assemble the legs in the order: spacer - washer - spring - washer - nut - nut (see diagram). Tighten the first nut (but don't over-tighten it), then tighten the second nut against the first to lock it.

**12**. Carefully bend the legs of the chip inwards a little with your fingers. Fit the chip into its socket matching the small notch in the chip to the notch in the socket.

**13**. Insert 2 AA cells into the battery box, observing the correct polarity.

**14**. If *The Wee Beastie* is working properly the lights should flash twice and the motors should run briefly.

## OWNER'S GUIDE

'Feed' *The Wee Beastie* by holding it under a bright light source. The LEDs will flash as it begins to feed and will flash faster and faster until it is fully charged (which takes about 45 seconds). Then place *The Wee Beastie* on the floor away from the light and it will rattle and roll and bounce around for up to 2 minutes (when fully fed).

Note that *The Wee Beastie* works best on hard surfaces rather than carpets, and it is better to use rechargeable AA cells (Ni-Cd or Ni-MH) rather than disposable ones. If using disposable cells then they need to be high quality alkaline.