tts

Make a set of traffic lights

Crumble blog 3

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Follow this step-by-step guide on how to make a set of traffic lights.
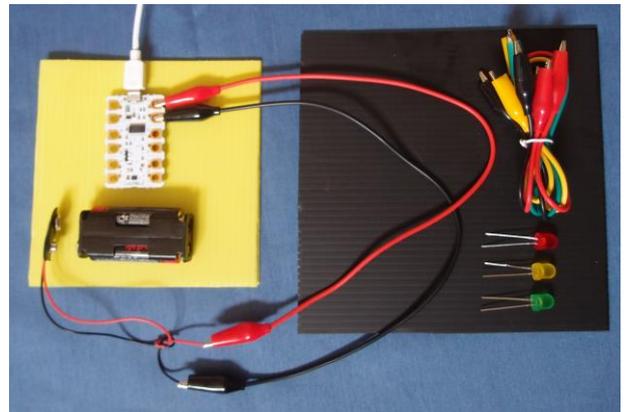
Associated resources:
Crumble lesson plan
Crumble PowerPoint – traffic lights
Crumble blog 1 – set up the controller
Crumble workbook 3 – Traffic lights

You will need:

Parts included in class kit

- 1 Crumble controller unit (see Crumble blog 1)
- 1 sheet of corrugated plastic 16.5 cm x 16.5 cm
- 4 crocodile leads
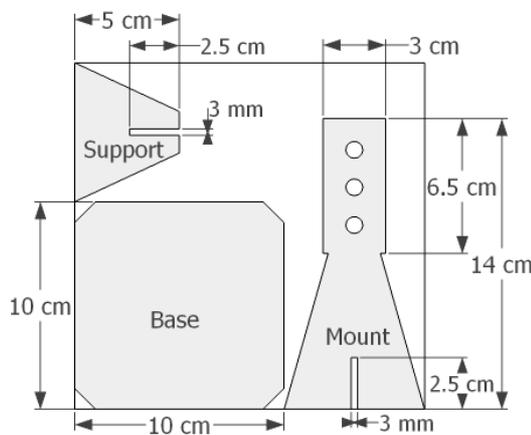- 1 red LED
- 1 yellow LED
- 1 green LED

Other parts, tools and consumables

- Ruler
- Pencil
- Large scissors
- Pointed nail scissors
- Low melt glue gun & glue sticks
- Computer (see Crumble blog 1)

Step 1

On the sheet of corrugated plastic, mark out the base, mount and support as shown on the right. Cut the parts out neatly with the large scissors. Pierce the three holes for the LEDs with the pencil to get them in the right place, then enlarge them with the nail scissors until they are just big enough to fit the LEDs tightly.
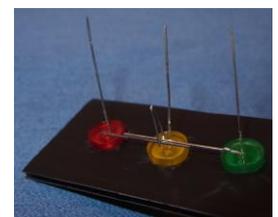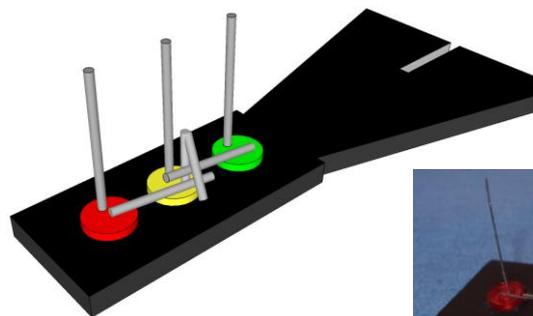

Step 2

Slot the support onto the mount (you may need to adjust the slot length to allow the bottom of the two parts to line up) and glue these to the base. Push the three LEDs into the holes in the mount, with red at the top and green at the bottom.
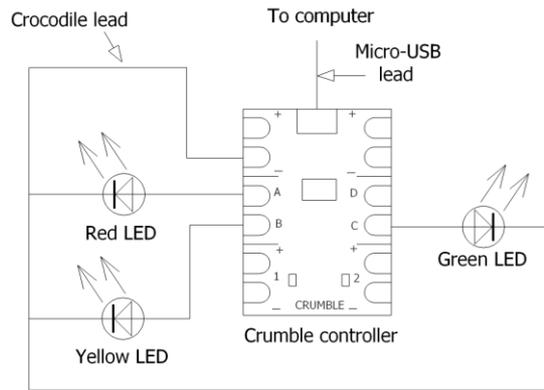
Step 3

Rotate the LEDs in the holes until the short legs are all on the same side. (If the LEDs are loose in the holes you can glue them in now.) Gently bend the short leg of the red LED down and the short leg of the green LED up so they are touching the short leg of the yellow LED. Be careful not to snap them off. Gently bend the short leg of the yellow LED in half so that it traps the other two legs as shown.
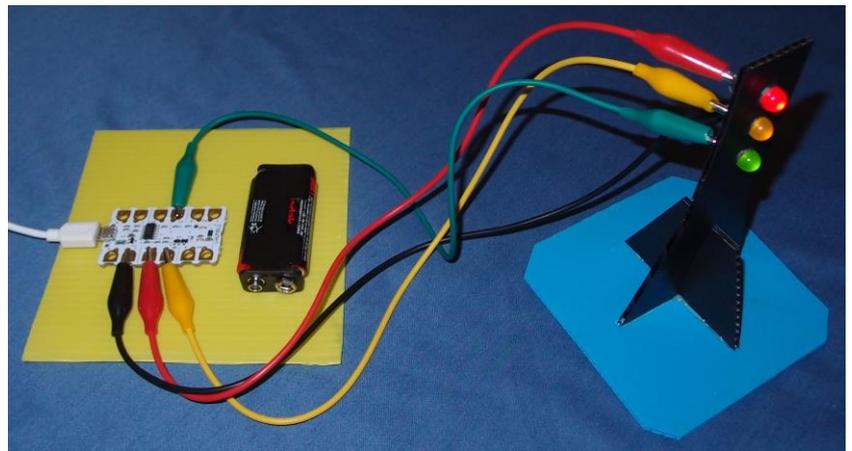
Step 4

- Use one crocodile lead to connect from the long leg of the red LED to terminal A on the Crumble.
- Use a second crocodile lead to connect from the long leg of the yellow LED to terminal B.
- Use a third crocodile lead to connect from the long leg of the green LED to terminal C.
- Use the remaining crocodile lead to connect from the three joined short legs of the LEDs to the negative (-) terminal on the Crumble.

Don't clip on the battery snap connector; unlike motor outputs 1 and 2 which require the battery, the outputs A, B, C and D are powered from the computer via the micro-USB lead.
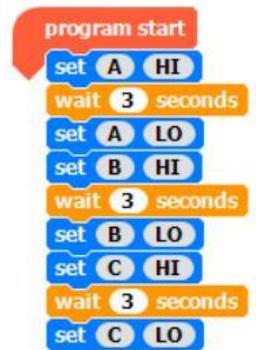
Step 5

Select the file 'Light LED' from the Crumble folder. Click on the green arrow to run your program, and check the red LED lights up.
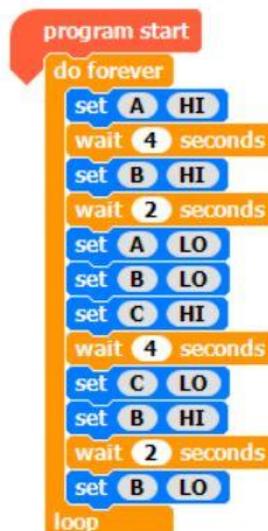
Step 5

Step 6

Modify your program as shown to make each of the LEDs light up in turn.

Step 6

Step 7

Now program a traffic light sequence in a continuous loop, such as the one shown here. This one starts with red, then changes to red and yellow, then green, yellow and then back to the beginning (red).

Step 7