Robot antenna

Make a robot with a real flashing LED antenna programmed in Scratch

1 Connect the antenna

Use a jumper wire to connect the long leg of the LED (the positive leg) to **GPIO pin 17** on the Raspberry Pi. Next, add a resistor to limit the flow of current, and then use another jumper wire to connect the resistor to the ground pin.

2 Flash the antenna

Open Scratch and enable the Scratch GPIO extension by clicking **More Blocks > Add Extension > Pi GPIO**.
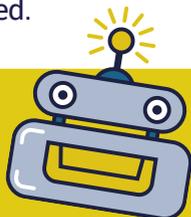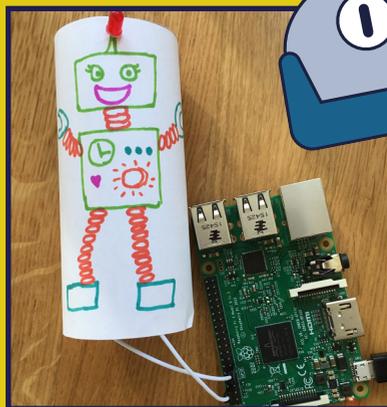
Use code to make the LED flash and the Pi beep when the space key is pressed.

```
when space ▼ key pressed
play sound computer beeps ▼
set gpio 17 to output high ▼
wait 1 secs
set gpio 17 to output low ▼
```
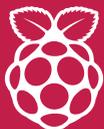
3 Make your robot

Draw your own robot design on a piece of card or paper. Make sure you include an antenna in your drawing. Push a pencil into the antenna to make a hole, and then push your LED through the hole to make the robot's antenna.

Challenge: customise your antenna

Can you make your LED antenna stay on for longer? Can you make the LED flash more than once when the space key is pressed?

Want to learn more? Find the whole project at **rpf.io/antenna**
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