




BINARYBOTS



Dimm
Inventors Manual



Safety Precautions

- Parents please read the instructions carefully with your children prior to first use.
- Please keep this instruction manual as it contains important safety information
- The toy is only for connection to Class II computer equipment bearing the double insulation symbol - 

- Any included electronic terminals must not be short circuited
- Do not touch the temperature sensor when in use
- The battery and battery box must be connected with the correct polarity
- Do not connect more than one battery at a time
- Exhausted batteries must be removed from the toy

8+

WARNING: Only for use by children aged 8 years and older. Instructions for parents are included and must be observed

CE

CB Information Systems Ltd
L55 3BT UK



Waste Electrical and Electronic Equipment (WEEE)

Bring electrical appliances to local collecting points for waste electrical and electronic equipment. Other components can be disposed of in domestic refuse

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Find lots of fun activities at
www.binarybots.tech



Colours and decorations may vary from those shown.

Please remove everything from the packaging and check the contents.

If any items are missing, please contact the BinaryBots team.

Contact details are on our website.

In his space lab on planet Hex, Alien Inventor Binary has been busy creating exciting programmable objects that help young inventors learn coding and learn about the Internet of Things and STEM.

Follow these instructions to build Dimm, your very own Robot.

Step 1



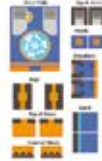
Check you have everything you need

Step 2



Assemble Dimm

Step 3



Make Dimm your own with stickers

Step 4



Connect the micro:bit to your computer

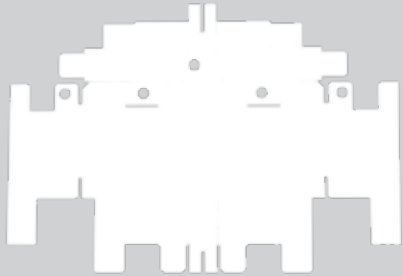
Step 5



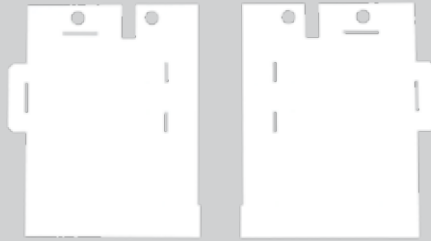
Start coding Dimm to do amazing things!

For example videos on assembling Dimm, visit: www.binarybots.tech/videos

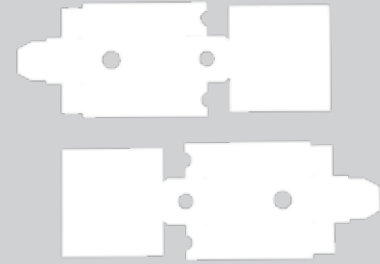
Step 1 - Check you have everything you need



Main Body (1)



Legs (2)



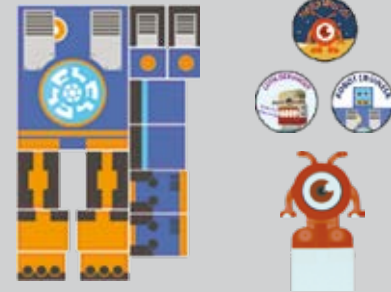
Arms (3)



Feet (4)



Head (5)

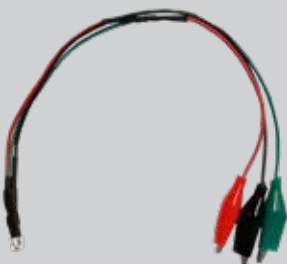


Stickers (6)

* You may need to push out any remaining pieces of card using the images above as a guide



Temperature Sensor (7)



Light Sensor (8)



Motion Sensor (9)



Crocodile Clip Hands (10)



Buzzer (11)



BBC micro:bit (12)



Micro USB to USB Cable
(13)

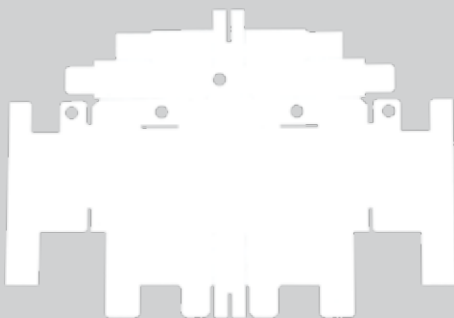


AAA Battery Pack (14)
(Requires 2xAAA Batteries)

*Wire colours may vary



Step 2 - Assemble Dimm - Dimm's Body



Take Dimm's main body (1) out of the box & unfold it.

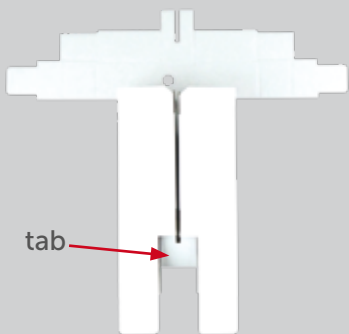


Fold in one side of the main body, lining the edge of the cardboard with the middle of the body.





Fold the other side of the main body using the previous step as a guide.



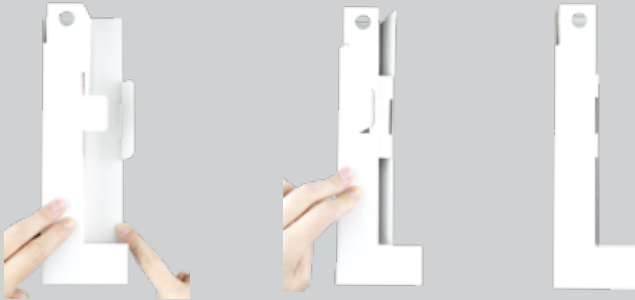
Fold up the 'tab' located between the legs and secure in place.



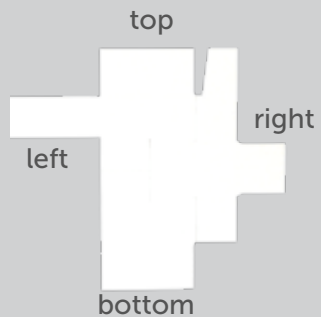
Step 2 - Assemble Dimm - Dimm's Legs and Feet



Find Dimm's legs (2) and partially fold along all the creases.



Fold the strips of cardboard over and secure in place with the fold lock. Repeat for the second leg.



Locate Dimm's feet (4), fold in the sides, starting with the right section and then the top section.



Fold the left flap so it meets the other side and then fold the bottom section over both flaps to hold the whole foot in place. Repeat this page for Dimm's other foot.



Step 2 - Assemble Dimm - Put the Feet on the Legs



Turn the foot over, and push down the two strips of cardboard in the top.



Slide the foot down from the top of the leg



Complete Leg ready for body

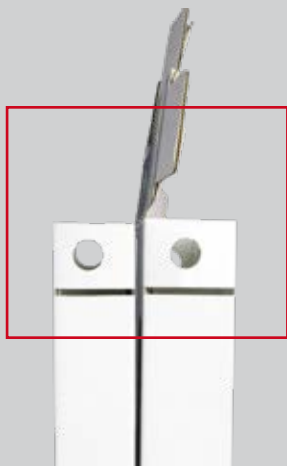
Get one of the assembled feet and turn it over.

Push the two flaps of cardboard down into the foot and hold in place, then slot the foot over the top of one of the assembled legs and move it down until it is locked in place like a shoe.

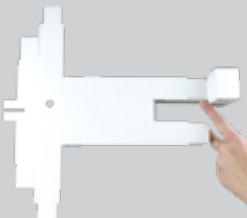
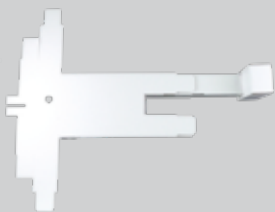
If the foot gets stuck as you are moving it down, it is usually due to the locking tab on the leg - it may need a bit of a wiggle.

Repeat this page for the second foot.





Line the legs up with the body, making sure that the top of the body looks like the picture on the left.



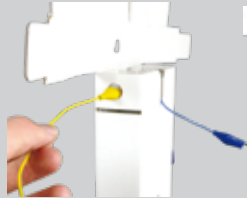
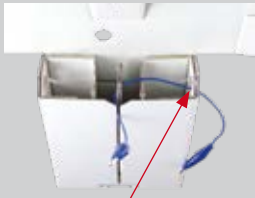
Once the legs are lined up with the body, slot the legs into place. Make sure that the tabs on the bottom of the body are pushed inwards to fully secure the feet.



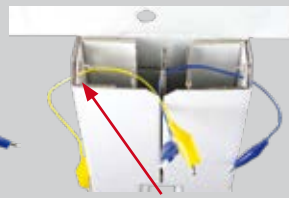
Step 2 - Assemble Dimm - Installing Components



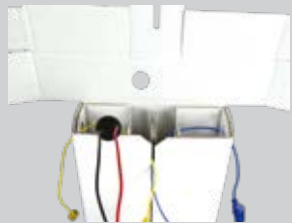
Blue croc clip through the right hole



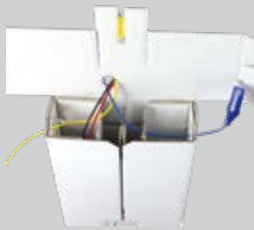
Yellow croc clip through the left hole



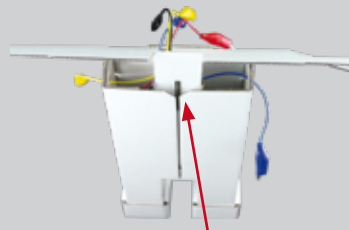
Locate the blue & yellow crocodile clip hands (10) and thread the blue crocodile clip through the hole on the right and the yellow crocodile clip through the hole on the left.



Buzzer in Dimm's left leg



Feed the blue, yellow, black and red crocodile clips through the hole in the top of Dimm

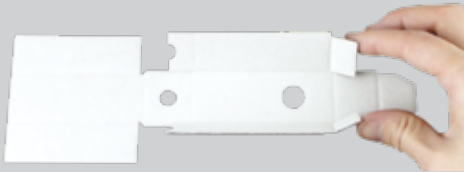


Fold the top flap down between Dimm's Shoulders

Find the buzzer (11), place it in one of Dimm's legs. Now thread the black, red, blue and yellow crocodile clips through the hole located on the top of Dimm. Make sure all the wires are out of the way, then fold the top flap down between Dimm's shoulders.

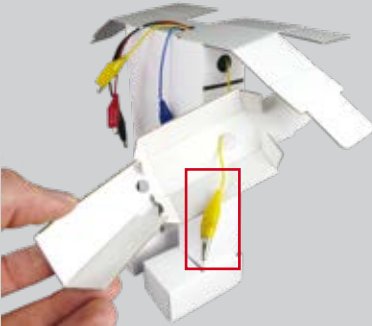


Step 2 - Assemble Dimm - Dimm's Arms



Locate Dimm's Arms (3).
Partially fold along all the
fold lines.

Next thread the yellow
crocodile clip wire from
Dimm's body, through the
shiny outside of the larger
hole on the arm.

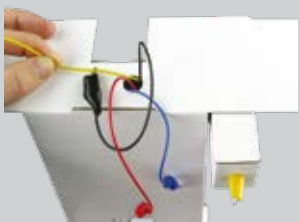


Push the plastic casing on
the crocodile clip back a bit
and wedge the clip into the
smaller hole of the arm,
giving it a small push to
make sure it is secure.

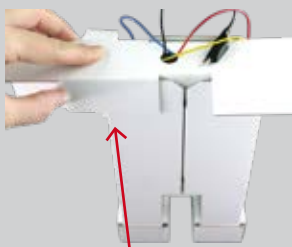


Making sure the crocodile clip is secure in the small hole, first fold the sides of the arm in and then the front of the arm up to make the box complete.

Finally, fold the flap of cardboard to lock the arm together.



Gently pull on the other end of the yellow wire to guide the arm up and into place under the shoulder



Fold the back section down



Fold the back flap around and shoulder flap over the arm, slotting the shoulder flap under the arm into the slot to lock everything in place.

Repeat pages 13 - 14 for the other arm.



Step 2 - Assemble Dimm - Making the Head

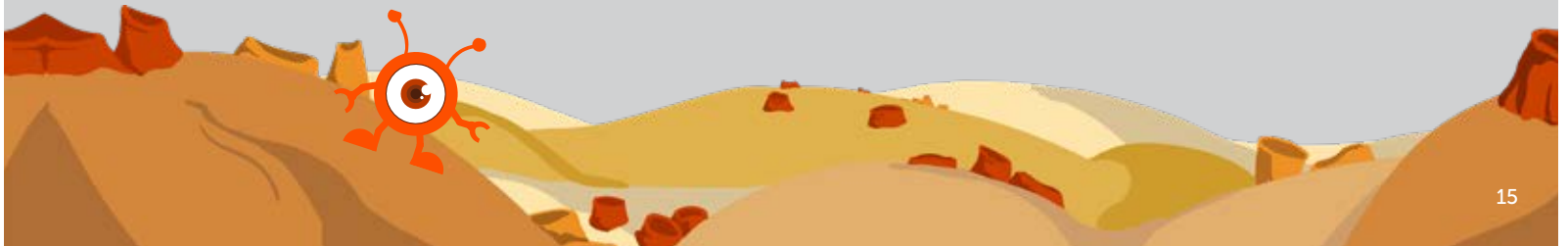


Locate the main part for the BBC micro:bit head (5)
Fold the side flaps inwards
and then up to join each
other.



Fold the long strips of card up
and fold them in to the head
to lock everything together.

Making sure the head is
the right way up and facing
fowards fold the small tab of
card in the middle inwards.





Front piece of cardboard for the BBC micro:bit head



Locate the front piece of cardboard for the BBC micro:bit head (5).

Slot the side flaps into the sides of the head.

Next fold the top tab down.

Make sure that the small tab folded earlier is still folded down.

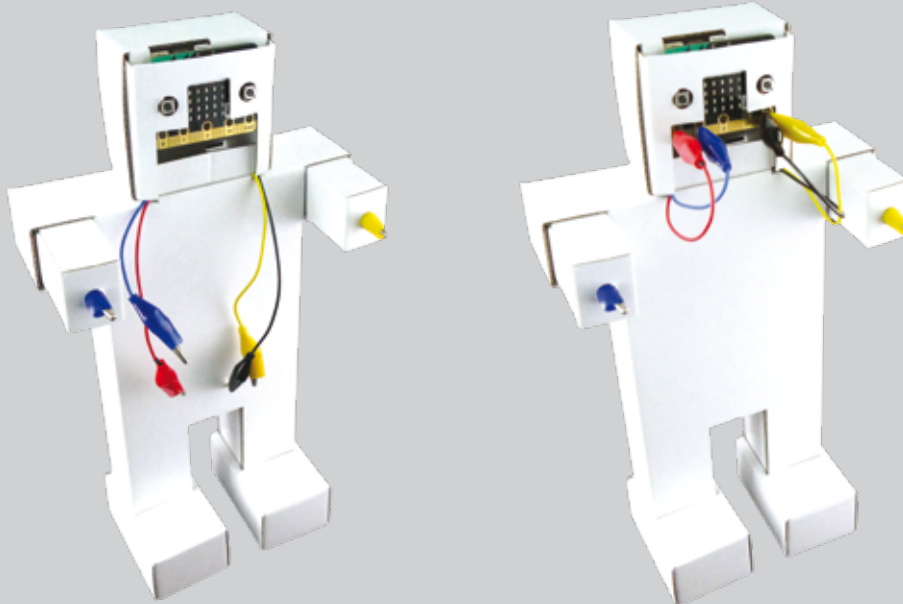


Get the BBC micro:bit (12) and with the buttons facing forwards, slot it into the head behind the front piece of cardboard.

Finally, making sure that you have the blue & red wires on one side and the yellow & black wires on the other side, slot the whole head on top of Dimm's body.



Step 2 - Assemble Dimm - Wiring up the head

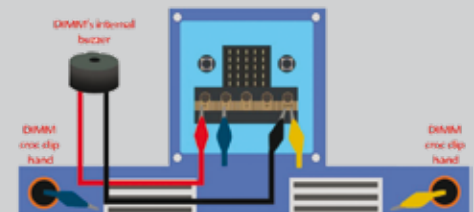


To get started with Dimm, we want to wire up his hands and the Speaker.

Attach the red crocodile clip from the speaker to pin 0.

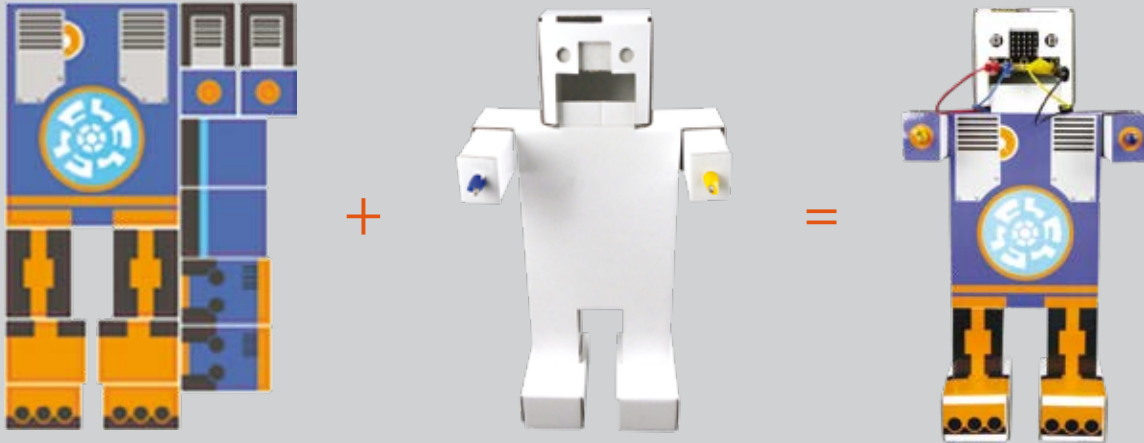
Attach the blue crocodile clip from Dimm's hands to pin 1.

Attach the black & yellow crocodile clips to the pin marked GND for 'Ground'.



Step 3 - Make Dimm Your Own With Stickers

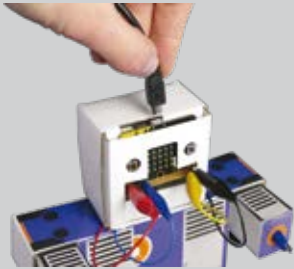
Get the sticker sheet out of the kit (6) & stick the different sections on to your finished Dimm. Lay Dimm down for ease and make sure that the wires are out of the way.



You can also colour in Dimm using pens or create your own design online to be printed and stuck on Dimm.

Step 4 - Connecting the BBC micro:bit to a computer or Mobile Device

To connect to a PC or Mac - You will need to use the USB cable provided (13)

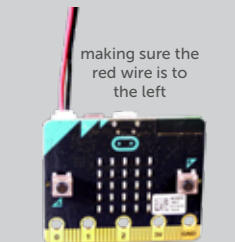


Now you need to plug the BBC micro:bit on Dimm, into your computer - using the USB cable provided (13).

To connect to a mobile device - You will need to use the battery pack provided (14)

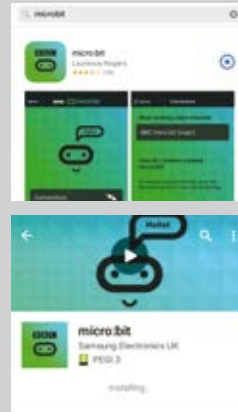


Make sure the battery pack is turned on and inserted into Dimm's head. We recommend this for demonstration purposes



Connect the battery to the BBC micro:bit

making sure the red wire is to the left



Go to your device store, for example if you have an Apple go to the App store, if you have an Android go to the Play store, search for "micro:bit" and install the app to your device.

Once you have installed the app, open it, click on find connections and then the 'Pair a new micro:bit' button which is normally yellow. Follow the instructions to connect your micro:bit with Bluetooth.

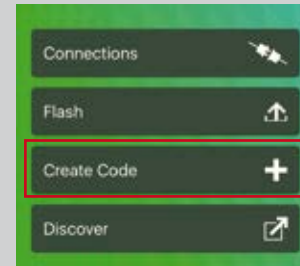
Step 5 - Start coding Dimm to do amazing things

When you are coding using the BBC micro:bit, you need to do it through their online editor.

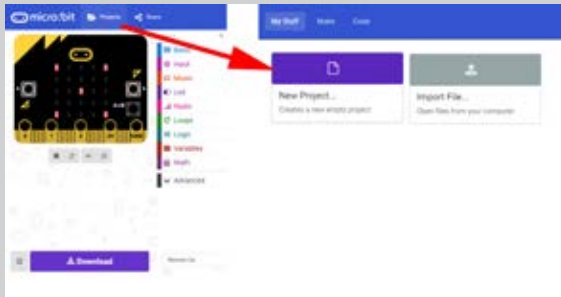
If using a computer, open the web browser and go to <http://microbit.org/>
When it loads, click on "Let's Code"
shown in the image below, on the left in the red box.



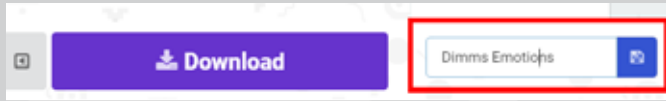
If you are using your mobile device, click on "Create Code" which will take you to the website.



There are lots of different types of editor you can use to program the BBC micro:bit. We are going to use the 'JavaScript Blocks Editor (PXT)' for this project. Click on the 'Let's Code' button shown in a red box on the left.



When you see the script window, click on 'Projects' -> 'New Project..'

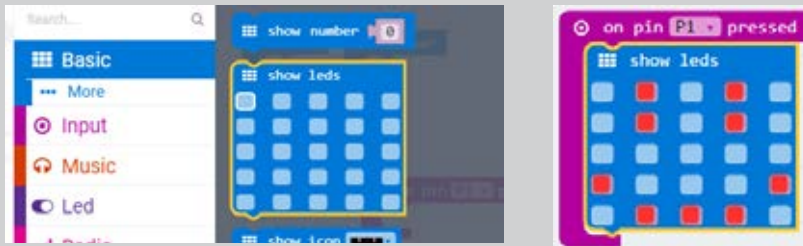


Next you will need to rename the project so it is easier to locate later in the activity, change the name to something meaningful i.e Dimms Emotions.



Click on the 'Input' tab, select a 'on pin P0 pressed' block, this pin will listen out to see when a pin is pressed. Its called registering an 'event handler' that will do something when you hold Dimm's hands. What is actually happening, is you are completing a circuit from the hand that is connected to pin P1.

Step 5 - Start coding Dimm to do amazing things



Click on the 'Basic' tab and select the 'show leds' block. This block will allow you to light up Dimm's face however you want. Drag the block over the 'on pin P1 pressed' block and then tick the boxes to create an emotion for Dimm, for example a happy face!



The program is ready to run, so click on 'Download' at the bottom of the window - this will create your code and download it to your computer or your mobile device

If you are using a computer:

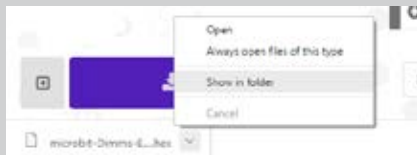


figure 1

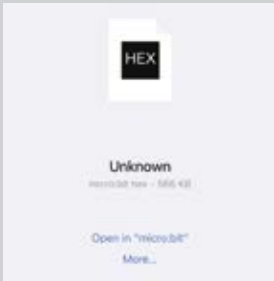


figure 2

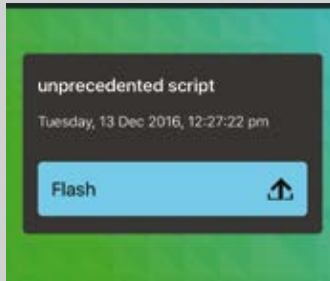
Click on the downloaded file at the bottom of the browser (figure 1) - select 'Show in Folder', this will show the location of the downloaded file.

Copy and paste your file onto the BBC micro:bit (figure 2)

If you are using a mobile device:



Tap on the 'Open in "micro:bit"' link - this will take you to the BBC micro:bit app.



Then tap on the 'Flash' button and the code will flash to your micro:bit.

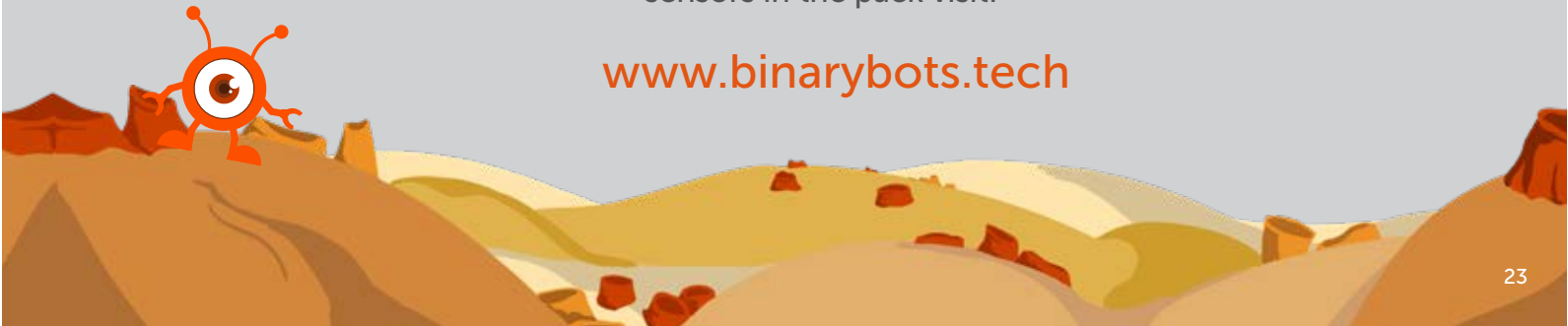


An example of Dimm

Now you're officially a robot inventor, it's time to enjoy learning how you can use Dimm to learn lots more about robots and coding.

For lots of exciting projects & activities you can do with Dimm using the sensors in the pack visit:

www.binarybots.tech





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