FREE FAMILY GUIDE

mBot Quick Play 02 - Hello + Shy

Simple, tested steps for a first success with the original mBot.



Created by Meredith C

Hello + Shy

Wave near mBot and it says hello, then chooses a wiggle, nod or spin. Move very close and it backs away shyly.

This activity uses the ultrasonic “eyes” on the front of mBot. No remote is required after upload.

Before you start

- Add **mBot** as the device in mBlock 5. Do not use CyberPi.
- Select **Upload** mode.
- Check that the ultrasonic sensor is connected to **port 3**.
- This upload replaces the program currently stored on mBot.

Step 1 - Make one variable

Open **Variables** → **Make a Variable** and name it r.

r lets mBot choose one of three greeting movements at random.

Patch's workshop rule
One change at a time. Let the machine show us what comes next.

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Step 2 - Build the program

```
when mBot(mcore) starts up
stop moving
forever
  if <<(ultrasonic sensor port3 distance(cm)) > 1>
      and <(ultrasonic sensor port3 distance(cm)) < 5>> then … else …
    LED all shows color [pink] for 1 secs
    play note E5 for 0.25 beats
    play note C5 for 0.5 beats                    ← “oh-oh”
    move backward at power 30 % for 0.3 secs
    wait 1 seconds
    move forward at power 30 % for 0.3 secs
    turn on [all] light with color red 0 green 0 blue 0
  else
    if <<(ultrasonic sensor port3 distance(cm)) > 1>
        and <(ultrasonic sensor port3 distance(cm)) < 12>> then
      LED all shows color [green] for 1 secs
      play note E5 for 0.25 beats
      play note A5 for 0.5 beats                  ← “Hel-lo”
      set [r] to (pick random 1 to 3)
      if <(r) = 1> then                           ← wiggle
        turn left at power 40 % for 0.2 secs
        turn right at power 40 % for 0.2 secs
        turn left at power 40 % for 0.2 secs
        turn right at power 40 % for 0.2 secs
      if <(r) = 2> then                           ← nod
        move forward at power 30 % for 0.3 secs
        move backward at power 30 % for 0.3 secs
        move forward at power 30 % for 0.3 secs
        move backward at power 30 % for 0.3 secs
      if <(r) = 3> then                           ← spin
        turn right at power 50 % for 1.4 secs
      turn on [all] light with color red 0 green 0 blue 0
      wait 1 seconds
```

The > 1 check matters. Some sensors report 0 when they receive no echo; without this check, mBot may react when nothing is there.

Upload

1. Save the project.
2. Connect the USB cable and switch mBot on.
3. Select **Connect → USB**, then choose the port containing usbserial.
4. Select **Upload Code**.
5. Unplug the USB cable before play.

Quick test

1. Switch mBot on. It should remain still.
2. Wave about 8-10 cm in front of its eyes. It should greet you and choose a movement.
3. Move a hand quickly to within 5 cm. It should light pink and back away.

A slowly approaching hand passes through the Hello zone first. Move in quickly to trigger Shy.

Spin time depends on the floor and battery level. Adjust 1.4 secs if the turn is too long or too short.

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Want to add driving and music?

The free **Drive + Piano** activity gives the arrow keys short, controlled movements and turns keys **1-8** into a scale.

You can also connect both activities in one upload-and teach the **D** key to play a secret birthday song.

The **Complete Remote Playset** includes the connected program, printable remote card and troubleshooting notes.

> **Continue with the Complete Remote Playset**
> Return to the free download page for the connected program, printable remote card, troubleshooting notes and birthday-song Easter egg. No sign-up required.
> Find the latest download page and occasional project notes at appsbymeredith.carrd.co.

Safety

- Test on an open floor and keep an adult within reach.
- Do not use this program near the edge of a table, bed or sofa.
- The ultrasonic “eyes” are sensors: do not press or poke them.

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