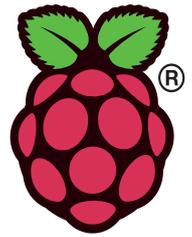


SINGING JELLY BABY RECIPE

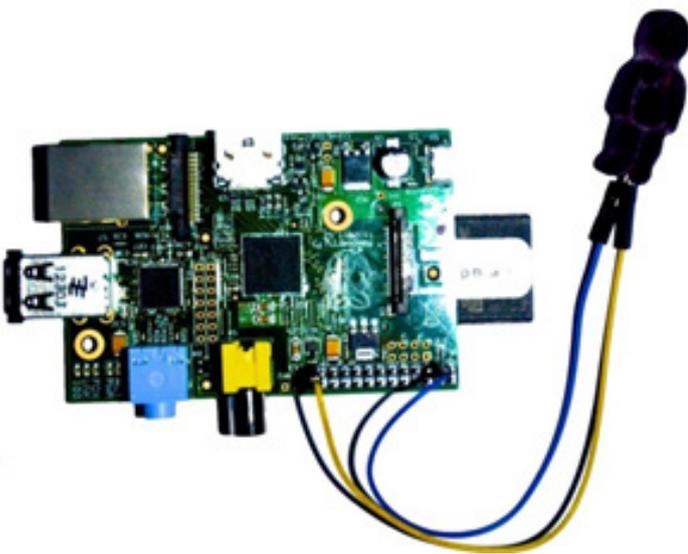
A PHYSICAL COMPUTING PROJECT FOR THE RASPBERRY PI – NO SOLDERING REQUIRED!

This recipe has been developed by the Raspberry Pi Foundation in conjunction with OCR



Difficulty: Basic

This recipe will allow you to turn a Jelly Baby into an input device for your Raspberry Pi and will guide you through writing a program that will make the Jelly Baby sing when you squeeze it.



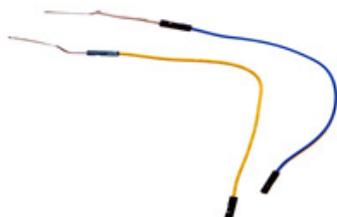
Ingredients needed in addition to your Raspberry Pi:

- 1x Jelly Baby
- 2x Jumper Wire (female to female)
- 2x (non-plastic-coated) Paper Clips
- 1x Headphone or Speakers

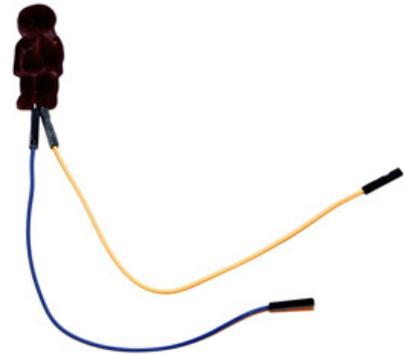
1. Take the paper clips and unbend to form a wire (should look like the image below).



2. Push the straightened paper clips into one end of each of the jumper leads.

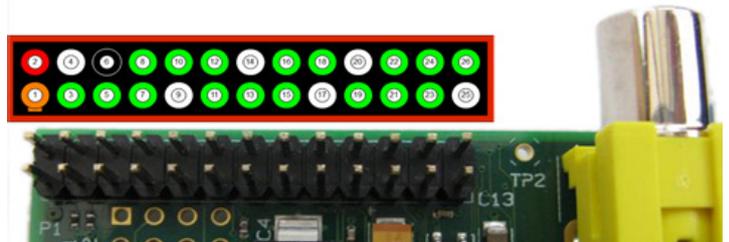


3. Insert the paper clips into the Jelly Baby so that they are close to each other but not touching (this may require a couple of attempts to get right!)



4. Take the other end of one of the jumper leads and push onto pin 3 of the General Purpose Input-Output (GPIO) header which is connected to one of the GPIO channels.

5. Take the end of the other jumper lead and push onto pin 25 of the GPIO header which is connected to ground.

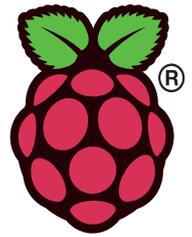


Raspberry Pi GPIO header pins. The diagram above the pins shows the pin numbers. You will be using pin 3 and pin 25. **Warning! You can damage your Raspberry Pi if you do not use the GPIO pins correctly!**

Congratulations! You have now turned a Jelly Baby into a switch that you can use to trigger events in your programs for the Raspberry Pi.

... continued

WRITE A PROGRAM THAT TRIGGERS A SOUND TO PLAY WHEN THE JELLY BABY IS PRESSED



Type the following instructions into the command line on the Raspberry Pi:

1. Run a command to install a program that can play mp3 files from the command-line

```
sudo apt-get install mpg321
```

2. Download an mp3 sound effect to play when the Jelly Baby is pressed - all of this instruction should be typed on one line (*Pro Tip: You can change this file later to make your own version of this recipe*)

```
wget https://github.com/Rob-Bishop/RaspberryPiRecipes/raw/master/la.mp3
```

3. Open a command line text editor (press the Control and X keys simultaneously to save your work and exit):

```
nano SingingJellyBaby.py
```

4. Type in the following code (*Pro Tip: Any lines beginning with a # symbol are comments so don't need to be included for the program to work - they will, however, help you to understand the code*)

```
# First we need to import the libraries that
# we need

# Import the time library so that we can make
# the program pause for a fixed amount of time
import time

# Import the Raspberry Pi GPIO libraries that
# allow us to connect the Raspberry Pi to
# other physical devices via the General
# Purpose Input-Output (GPIO) pins
import RPi.GPIO as GPIO

# Import the os library so that we can make
# our program call other programs that run on
# the Raspberry Pi
import os

# Now we need to set-up the General Purpose
# Input-Output (GPIO) pins

# Clear the current set-up so that we can
# start from scratch
GPIO.cleanup()
```

```
# Set up the GPIO library to
# use Raspberry Pi board pin
# numbers
GPIO.setmode(GPIO.BOARD)

# Set pin 3 on the GPIO header to be an input
GPIO.setup(3,GPIO.IN)

# This loop runs forever and plays the mp3
# file when the two wires are touching
while True:

    # Check to see if pin 3 on the GPIO
    # header is connected to the ground pin
    if GPIO.input(3) == False:

        # If it's connected to ground
        # then play the mp3 file
        os.system('mpg321 la.mp3 &')

    # Wait for a second before repeating
    # the loop
    time.sleep(1);
```

5. Run the program

```
sudo python SingingJellyBaby.py
```

Congratulations! Now when you press the Jelly Baby, the wires will touch and the mp3 file will play.

MAKE IT YOUR OWN!

There are many simple ways that you could create your own variations of this recipe, some examples of which are listed below:

- Change the mp3 file that is played
- Add an additional Jelly Baby input
- Instead of playing a sound, print a message to the console