

# **Humphrey**

# **The Twinkle Dog**

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# Concept

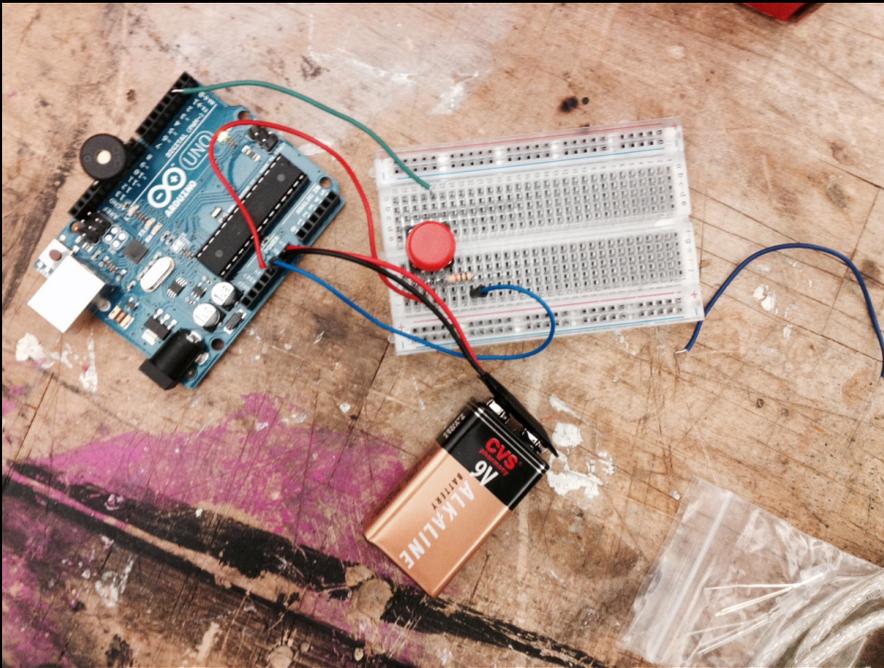
**Use Arduino to create a “night light.”**

**Meaning, a toy that plays music  
and lights-up in the dark!**

# **Inspiration**

**(Pause while we pull up  
the clips of our inspiration.)**

# Process



**1. Assembled the Arduino board using a speaker and a push button.**

**2. Used the notes from "Twinkle, Twinkle Little Star" to code the song.**

```

#include "pitches.h"

int melody[] = {
  NOTE_C6, NOTE_C6, NOTE_G6, NOTE_G6, NOTE_A6, NOTE_A6, NOTE_G6, NOTE_F6, NOTE_F6, NOTE_E6, NOTE_E6, NOTE_D6, NOTE_D6,
  NOTE_C6, NOTE_G6, NOTE_G6, NOTE_F6, NOTE_F6, NOTE_E6, NOTE_E6, NOTE_D6, NOTE_G6, NOTE_G6, NOTE_F6, NOTE_F6, NOTE_E6,
  NOTE_E6, NOTE_D6, NOTE_C6, NOTE_C6, NOTE_G6, NOTE_G6, NOTE_A6, NOTE_A6, NOTE_G6, NOTE_F6, NOTE_F6, NOTE_E6, NOTE_E6,
  NOTE_D6, NOTE_D6, NOTE_C6}; // note durations: 4 = quarter note, 8 = eighth note, etc.:
  int noteDurations[] = {
    4, 4, 4, 4, 4, 4, 2, 4, 4, 4, 4, 4, 4, 2, 4, 4, 4, 4, 4, 4, 2, 4, 4, 4, 4, 4, 2, 4, 4, 4, 4, 4, 2, 4, 4, 4, 4, 4, 2,
    4, 4, 4, 4, 4, 4, 2};

int LED = 13;
int button = 2;
int buttonValue = 0;
boolean isSongPlaying;

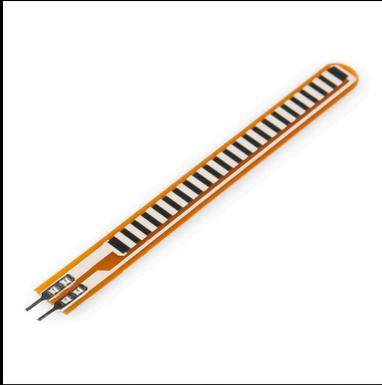
void setup(){

  //serial.begin(9600);
  pinMode(button, INPUT);
  pinMode(LED, OUTPUT);
}

void loop(){
  buttonValue = digitalRead(button);
  if(buttonValue == HIGH){
    digitalWrite(LED, HIGH);
    PlaySong();
  }
  else{
    digitalWrite(LED, LOW);
  }
  noTone(8);
}

void PlaySong(){
  for (int thisNote = 0; thisNote < 42; thisNote++) {
    int noteDuration = 1000/noteDurations[thisNote];
    tone(8, melody[thisNote],noteDuration);
    int pauseBetweenNotes = noteDuration * 1.30;
    delay(pauseBetweenNotes);
    noTone(8);
  }
}

```



**3. Assembled the second Arduino board using an RGB LED and a flex sensor.**

**4. Coded the LED to run through each color (RED, GREEN, BLUE).**

```

#define GREEN 3
#define BLUE 5
#define RED 6
#define delayTime 20
int flex= A0;
int flexval;

void setup() {
  Serial.begin(9600);
  pinMode(flex, INPUT);
  pinMode(GREEN, OUTPUT);
  pinMode(BLUE, OUTPUT);
  pinMode(RED, OUTPUT);
}

int redVal;
int blueVal;
int greenVal;
int val = 7;

void loop() {
  flexval= analogRead(flex);
  Serial.println(flexval);

  if(flexval >= 100){
    int redVal = 255;
    int blueVal = 0;
    int greenVal = 0;
    for( int i = 0 ; i < 255 ; i += 1 ){
      greenVal += 1;
      redVal -= 1;
      analogWrite( GREEN, greenVal );
      analogWrite( RED, redVal );

      delay( delayTime );
    }
  }
}

```

```

redVal = 0;
blueVal = 0;
greenVal = 255;
for( int i = 0 ; i < 255 ; i += 1 ){
  blueVal += 1;
  greenVal -= 1;
  analogWrite( BLUE, blueVal );
  analogWrite( GREEN, greenVal );

  delay( delayTime );
}redVal = 0;
blueVal = 255;
greenVal = 0;
for( int i = 0 ; i < 255 ; i += 1 ){
  redVal += 1;
  blueVal -= 1;
  analogWrite( RED, redVal );
  // analogWrite( BLUE, blueVal );
  Serial.println(redVal);
}

}
analogWrite( BLUE, LOW );
  analogWrite( GREEN, LOW );
  analogWrite( RED, LOW );

}

```



**5. Stuffed a bear with both breadboards, two 9 volt batteries, and two Arduino boards.**

**6. Realized the bear was too small :(**



**5. Found Humphrey!**

**7. Placed the push-button behind his nose.**

**8. Placed the LED in his belly.**

**9. Voila! Humphrey the Twinkle Dog.**

# **How does Humphrey work?**

**(Pause for demonstration.)**

# Application

**Ideally, Humphrey The Twinkle Dog would be a toy for children that they could light up next to them before they go to sleep.**

**Zzzz...**