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# Owly: Sleep Aid Buddy

## Description

Owly is a 3D printed owl that will function as a bedside sleep aid buddy designed for babies and toddlers. Often kids need to have a night light on, their parents to read to them, or to hum to them until they doze off because they suddenly become scared of the dark or experience separation anxiety. Using sound and light therapy, it is meant to transform the everyday bedroom into a more relaxed and sleep inducing environment.

The artifact will provide two types of sounds. The first sound is the classical lullaby "*Hush Little Baby*", and is meant to encourage the child to begin getting ready to sleep. The second sound will be a subtle pink noise frequency. Pink noise has been proven to help with restlessness because it replicates sounds of nature such as waterfalls, waves, or leaves rustling. It creates a relaxed environment and has been scientifically proven to help with sleep<sup>1</sup>.

Owly will also provide light therapy as there will be blue LEDs that light the artifact from within. Colors play a huge role in our environments and consequently can affect our moods. The ganglion cells in the human eyes are used to collect information from

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<sup>1</sup> "Can Pink Noise Help You Sleep?" Cleveland Clinic. Cleveland Clinic, April 28, 2022.  
<https://health.clevelandclinic.org/why-pink-noise-might-just-help-you-get-a-better-nights-sleep/>.

our visual surroundings. The part of our brain that produces hormones, the hypothalamus, will receive the information from the ganglion cells through chemical signals and thus produce hormones according to what our eyes see. The color blue is a color that is not stimulating to the human eye, so when blue is seen the hypothalamus will produce more melatonin, a hormone that helps put us to sleep<sup>2</sup>.

The arfiticat Owly will build an emotional connection with the child as it comes in a friendly shape and uses five of the human senses in its functioning. The first sense is touch, to activate the artifact, the second is sight as owly emits a calming blue light to help melatonin production, and the third is hearing as the user will have the choice to play a lullaby or pink noise.

It has been scientifically proven that sound therapy helps with restlessness and is a major sleep aid as there are countless sleeping phone applications that provide pink noise. The color blue has also always been associated with calmness and, in addition, has an effect on our brains that releases melatonin. On average, a child needs 10 to 12 hours of sleep to avoid difficult behaviors and potential health problems. With enough hours of good quality sleep, a child's academic performance will be better. As a result their memory, behavior and mental health will improve.

## Sensors

The type of system that Owly will be following is a linear system. The artifact will be activated by using three touch sensors which are switches that are placed on the back of the owl. The first sensor at the top will be used as a switch for the blue light that will

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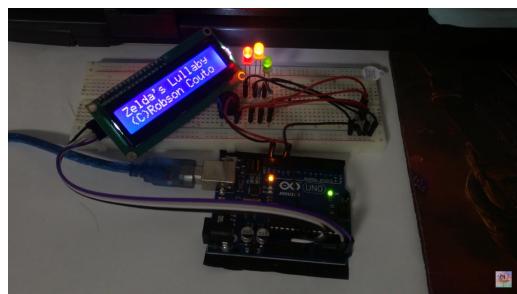
<sup>2</sup> Nazish, Noma. "The Best (and Worst) Bedroom Colors for Sleep, According to Experts." Forbes. Forbes Magazine, September 29, 2022.  
<https://www.forbes.com/sites/nomanazish/2022/09/27/the-best-and-worst-bedroom-colors-for-sleep-according-to-experts/?sh=487690e26355>.

help with the production of melatonin. The second sensor will play the lullaby “*Hush little baby*” with the purpose of mentally preparing the child for sleep. The third sensor will be another switch which plays the pink noise, creating soothing and steady sounds that helps the user feel relaxed. All three switches can be activated by a simple touch of the finger and can also be turned off the same way. Owly’s eyes will hold two speakers that play both sound options and the blue LEDs will react to the frequency of the sound, making Owly more animated. The artifact will be 3D printed with a hollow inside in order to place the blue LEDs inside as well as to hide all of the wiring.

## Similar Works

### Zelda's Lullaby:

A small project using Arduino, a buzzer, an LCD and some LEDs. Buniel coded the notes of “*Zelda's Lullaby*” and then had Arduino interpret the code to be played through the buzzer. The LEDs react to each note of the code, and the LCD screen displays the original title of the lullaby.



Buniel, Gideon. “*Zelda's Lullaby*”, July 18 2021  
<https://www.youtube.com/watch?v=2gscrgVTN8w>

### Glow Dreaming:

“*Glow Dreaming*” is a type of humidifier that was created to help parents put their child to sleep. It combines aromatherapy, sound therapy and light therapy in one. The humidifier releases essential oils into the air, emits a faint red light, and plays pink noise.



Beneau, Aloni and Cara. Pigeon, Stephane. “*Glow Dreaming*”, 2016  
<https://glowdreaming.com/pages/how-it-works>

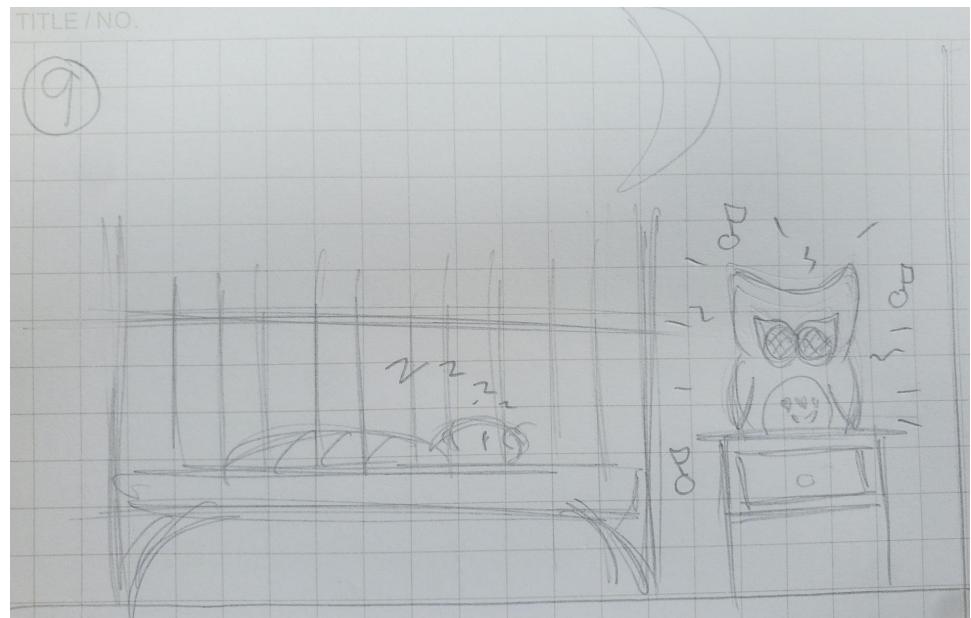
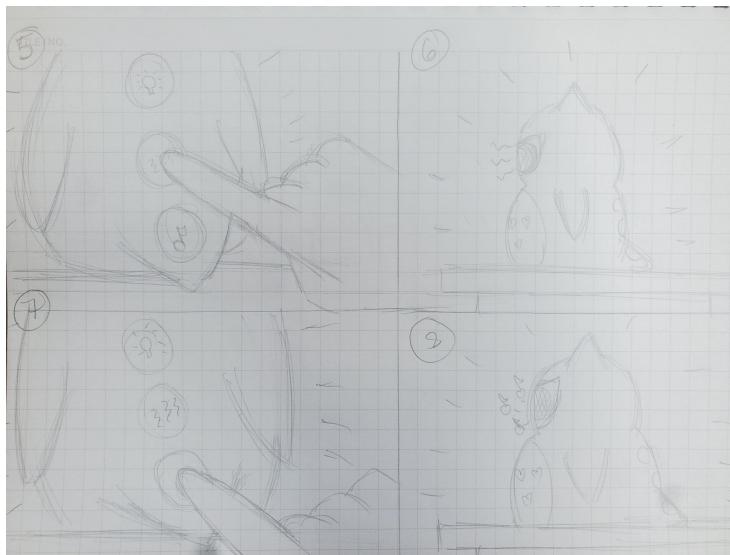
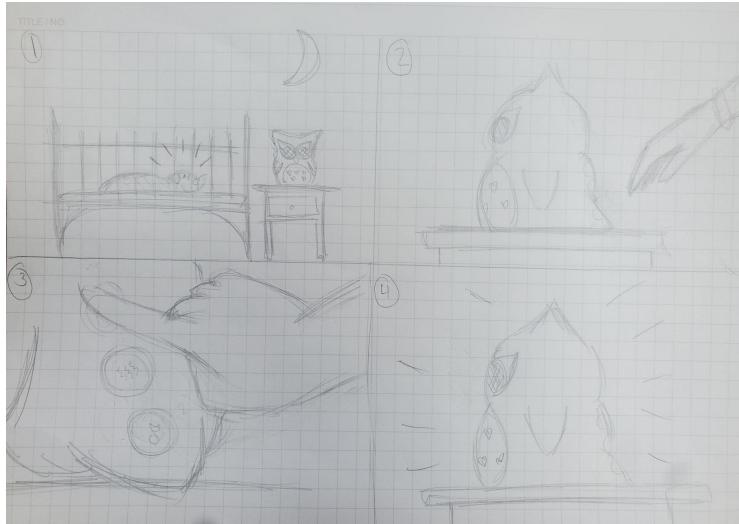
### Touch Sensor:

Ecolocity LED created a LED strip with a touch sensor switch. To turn on the LED you touch the indicator light. To brighten or dim the light, you simply hold your finger on the sensor.



Ecolocity, “*Touch Sensor Switch for LED Strip Lights*”, 2018  
<https://www.youtube.com/watch?v=edBM3-a-tfg>

## Storyboard



## What is the Difference?

“Zelda’s Lullaby” was the piece that inspired me to have the blue LEDs react to the sound of Owly. Whether it is the “*Hush Little Baby*” lullaby or the pink noise, the LEDs will glow and pulse based on the notes that are being played. The main differences would be that “Zelda’s Lullaby” has a LCD screen that displays the title to signify that it is on, whereas Owly has touch sensors to indicate whether it is on or off. The artifact Owly is heavily inspired by “*Glow Dreaming*” as it is also a sleep aid. The differences between the two is that Owly does not work as a humidifier, and is not red. Research has found the color red alerts the brain which will cause it to produce cortisol rather than melatonin. Instead, Owly will be emitting a blue light. The main similarity between the two is that they both use the subtle sound of pink noise to put children to sleep. Ecolicity’s work with touch sensors was the inspiration for having touch as the main sensors and switches for Owly. The only difference is that Owly won’t be able to be dimmable like Ecolicity’s work because the light will only change based on the sound, or when the user turns it on and off. When designing Owly, I took into consideration these three works and wanted to add more human interaction, thus I made sure that my artifact will engage three of the human senses.