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InsomLamp

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ABSTRACT

InsomLamp is a sleep lamp destined for those who suffer from insomnia, with adjustable brightness and soft color temperatures such as calming orange or red to help relax in the evening. The lamp is equipped with built-in white noise, such as nature sounds, gentle music, or a rhythmic sound. An in-built timer gradually decreases the light brightness and the volume of white noise over time, which makes it easier to fall asleep. The lamp's smart alarm mechanism gradually raises light intensity and sound to gently wake users at the moment they choose, promoting a more natural wake-up process. This study describes the design process, technical specs, and user input, demonstrating its potential as a useful tool for improving sleep quality and general health. In conclusion, the InsomLamp, created for those experiencing insomnia, is user-friendly and offers several additional benefits to help them improve their sleep quality in everyday life.

Keywords: sleep lamp; people with insomnia; improve sleep quality.

1. INTRODUCTION

Insomnia disease is defined as symptoms that we may have difficulties falling asleep, wake up during the night, or wake up earlier than usual and can't get back to sleep easily (American Psychiatric Association, 2013 as cited by Van Someren, 2021) We decided to develop a new solution to solve the common problem of insomnia, and we called it InsomLamp. InsomLamp was developed with empathy for those experiencing sleep difficulties, offering a unique blend of gentle lighting and soothing sounds to create a peaceful sleeping environment, ensuring a restful night's sleep and refreshed awakening.

We have integrated white noise into InsomLamp to intensify the state of relaxation and significantly reduce the time it takes to fall asleep. According to Riedy et al. InsomLamp utilizes white noise to decrease the likelihood of external noise to affect sleep. InsomLamp's gentle lighting supports better sleep by influencing sleep quality and circadian rhythm.

1.1 Innovation Development

InsomLamp can be further developed to other features such as:

- i. Wireless Sleep Lamp: The lamp can be modified to be wireless by using a rechargeable battery, or it can be made to use solar energy using solar panels.

- ii. Motion Night Light: In the event that the user has to wake up in the middle of the night, a motion sensor will be fitted to the lamp to turn on a gentle light. By doing this, the users won't use strong lights, which might interfere with their sleep.

2. METHODOLOGY

This product is made of eco-friendly materials. For the body and the hood of the lamp we use recycled plastic as it is renewable. For the bulb, we use LED as it is more energy efficient and safe for the users.

2.1 Prototype

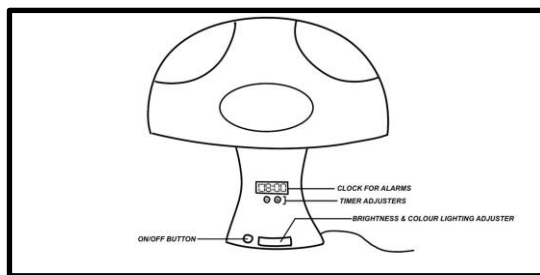


Figure 1. Front view

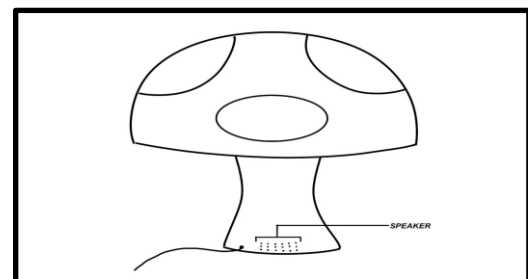


Figure 2. Back view

InsomLamp is designed to be simple and easy to use for all ages. The main features for InsomLamp are:

- i. Adjustable lighting: The brightness and colours of the light are made to be adjustable, so it can function well according to the user's needs and situations. For example, warm colours like red and orange are added to help the body wind down, especially in the evening.
- ii. Built-in white noise machine: Calming sounds such as nature and gentle music are implied into the sleep lamp to mask unexpected noise that can disrupt users sleep.
- iii. Automatic sleep routine: The sound of the noise and the light will dim after a certain period of time to assist the users in falling asleep while also saving electricity.
- iv. Smart alarm feature: The lamp will gradually increase the light intensity and sound level according to the alarm set by the users to help them wake up naturally.

3. RESULT AND DISCUSSION

Bar Chart of Difficulty to fall asleep and Waking Up in The Middle of the Night

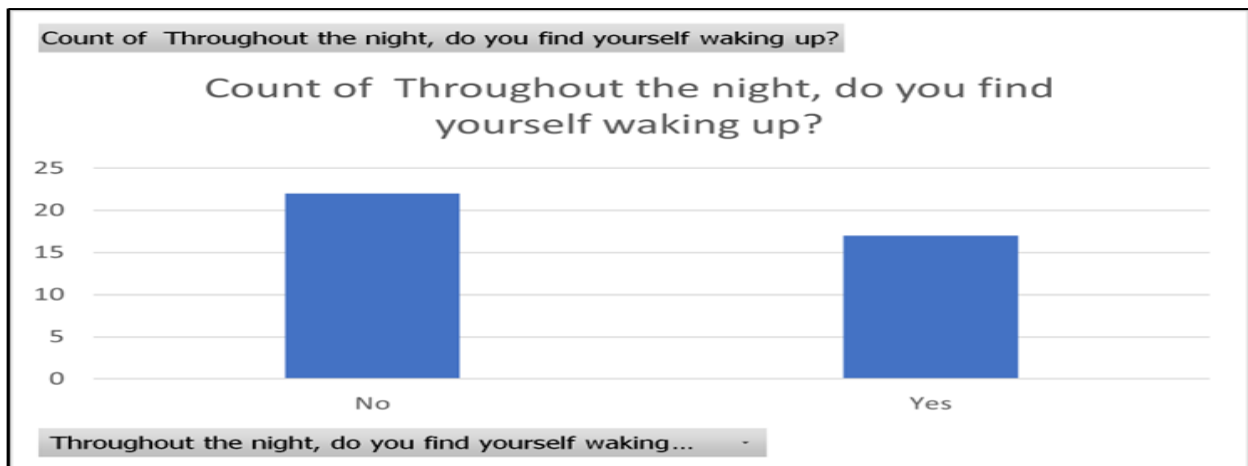


Figure 3.

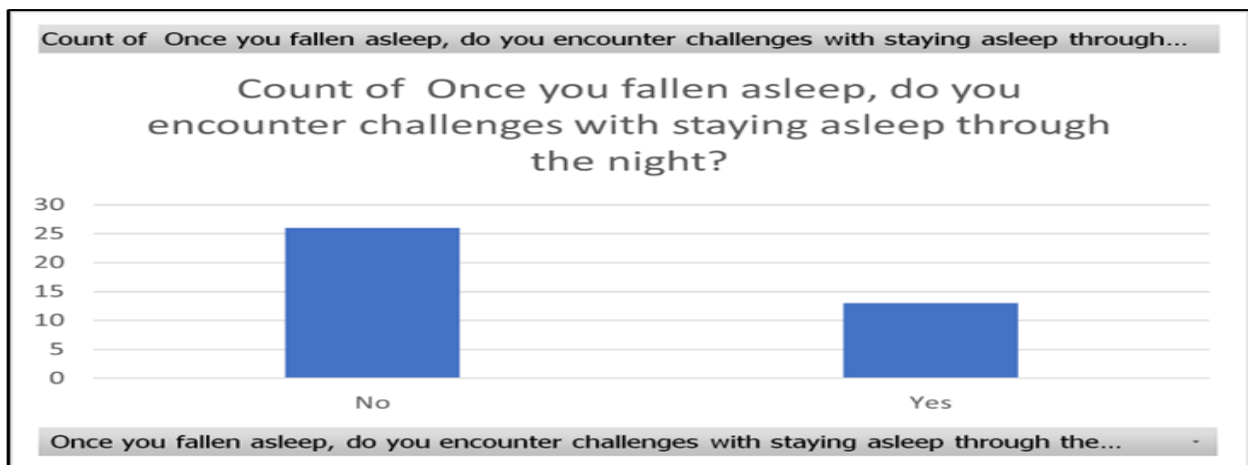


Figure 4.

3.1 Relevance of the invention

InsomLamp is relevant towards people who are facing sleeping disorders. This product focuses on people who have insomnia. InsomLamp has a lot of useful features such as the adjustable brightness of warm light, built in white noise and an implemented timer that can help the user to overcome insomnia better. The product is very simple for public people to use and handy.

3.2 Contribution to environment or society

InsomLamp can contribute to all of these aspects by contributing to new knowledge about how to overcome sleeping problems and cope with this problem efficiently. Additionally, by using this product, the target audience will manage to develop a healthy sleeping habit. Next, in the technology aspect, we have built new technology and innovations like the adjustable brightness of warm light, white noise and automatic timer in one product that will help the target audiences to cope with insomnia.

4. CONCLUSION

In conclusion, the InsomLamp offers a huge step forward in managing insomnia and fostering better sleep quality. Furthermore, the combination of a progressive sleep timer and a smart alarm system has proven effective in promoting normal sleep-wake patterns. Our findings indicate that the InsomLamp not only enhances sleep quality but also promotes the establishment of appropriate nighttime habits, which are critical for general well-being. Next, future suggestions might include connectivity choices for smart home integration, broader white noise selections, and better sleep tracking capabilities. These innovations have the potential to elevate the InsomLamp to a more comprehensive sleep solution that meets a broader spectrum of user demands.

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