

shroomCycle

PROBLEM SPACE

Poor Sleep Hygiene can lead to reduced academic performance, mental health problems, and decreased overall well-being. Many university students struggle with poor sleep hygiene due to varying class times, social activities, and late night study sessions (Lu et al., 2023).

Our Domain is Improving Sleep Hygiene among friends in university.

Lu, S., Stone, J. E., Klerman, E. B., McHill, A. W., Barger, L. K., Robbins, R., Fischer, D., Sano, A., Czeisler, C. A., Rajaratnam, S. M. W., & Phillips, A. J. K. (2023). The organization of sleep-wake patterns around daily schedules in college students. SLEEP. <https://doi.org/10.1093/sleep/zsad278>

DESIGN CONSIDERATIONS

- HELPS IMPROVE SLEEP QUALITY
- HELPS REDUCE SCREEN TIME PRIOR TO SLEEPING
- COLLABORATIVE AND CONTEXTUAL
- FOR STUDENTS (AFFORDABILITY)
- EASY TO USE

CONCEPT

shroomCycle is designed to promote healthy sleep habits in a group of friends.

Each lamp features lights corresponding to each user, that responds to changes in ambient lighting, turning on when someone in the group begins preparing for bed.

When a user places their phone on a pad at the base of their lamp, their corresponding LED light turns off, signaling to the others that they have gone to sleep. This creates a shared sense of accountability within the group. Hence the system fosters better sleep routines by subtly indicating who is asleep, encouraging more consistent sleep patterns among the users.

USER RESEARCH & USER TEST

User Reserach

Interviews:

- Good sleep" defined as 8-9 hours
- Academic/job pressures hinder sleep goals
- Pre-sleep phone use common
- Housemate noise disrupts sleep

Autoethnographies:

- Consistent pre-sleep phone use (social media, YouTube)

Diary Studies:

- Pre-sleep digital content consumption
- Immediate phone use upon waking
- Poor sleep quality during academic stress periods

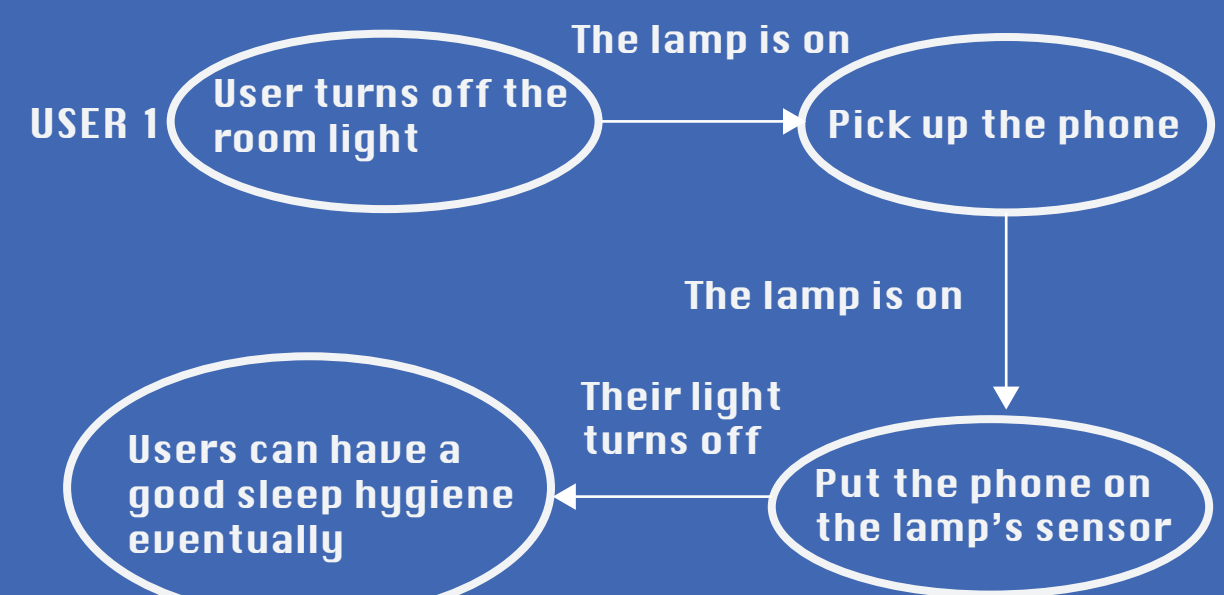
User Test

Like mushroom shape?   Good design  Doesn't matter

"It is motivated, but it has a limitation for the phone which is too big."

"No, it does not effect the sleep but if there are too many lights like a disco ball, that is disturbing."

USER FLOW



USER 2 has the same user flow as the user 1.

SOCIAL & MOBILE COMPUTING

Social Computing:

- Network created by users' actions
- Shared experience fosters community
- Mutual accountability

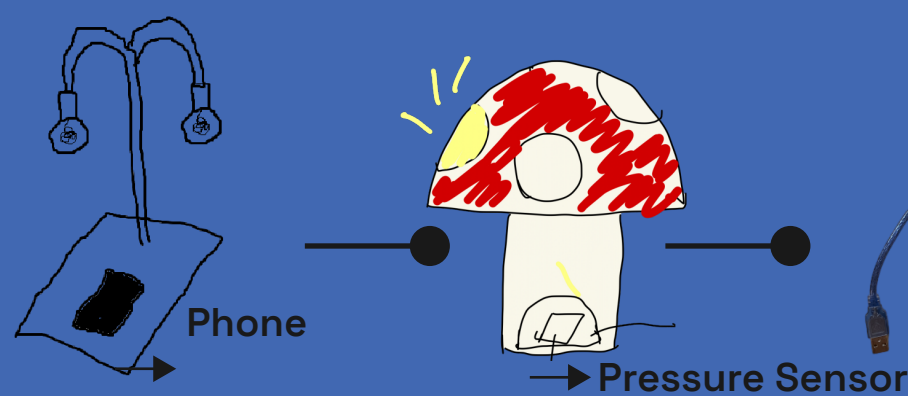
Mobile Computing:

- Contextual relevance to bedroom/sleep environment
- Light sensor adapts to surroundings
- Automatic activation when room lights off

Integration:

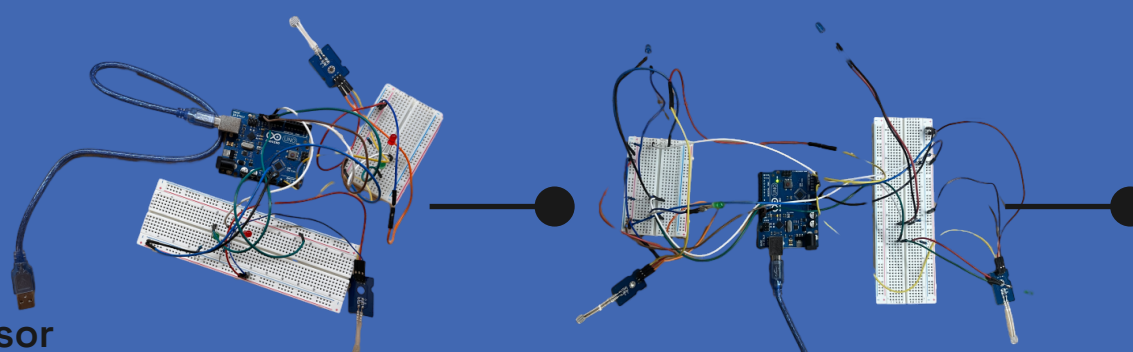
- Lamp announces user's sleep intention
- Prompts others to consider sleeping
- Combines social and contextual elements

DESIGN PROCESS



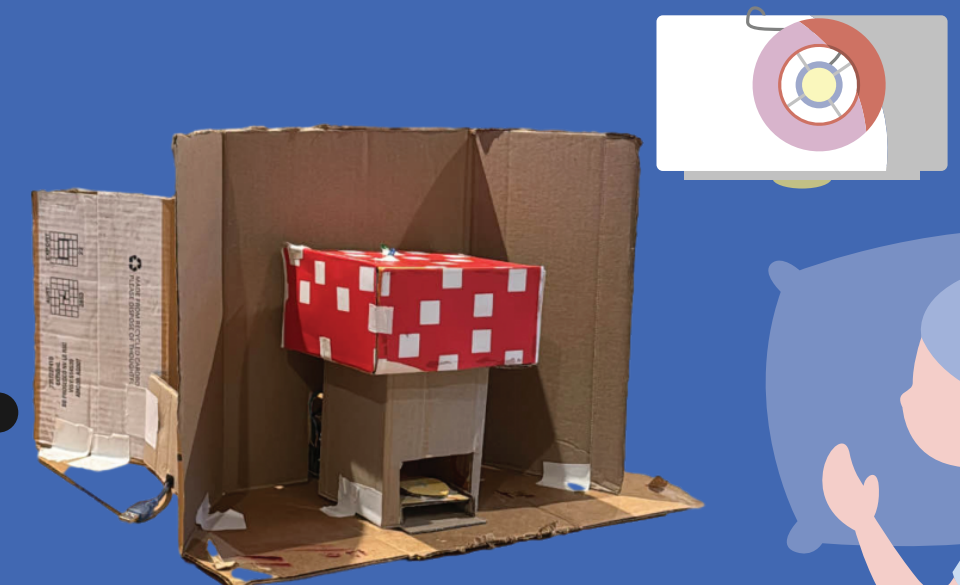
PROTOTYPE 1

For our first prototype, we believed that this approach would gradually improve the sleep quality of both users by encouraging them to limit phone use. The idea is that users, not wanting to disturb their friend's sleep, would be motivated to change their own behaviour, thereby positively influencing each other's habits. The second draft follows the same concept but incorporates aesthetic enhancements. The design was inspired by the mushrooms from the Mario games, adding a playful and visually appealing element to the lamp.



PROTOTYPE 2

For Prototype 2, we also went through at least two iterations. In the first physical prototype, the lamp would turn off when the phone was placed on the sensor and light up when the phone was removed. The second iteration built on this by adding an additional feature—the lamp would automatically light up in dark environments. This change was made so that the lamp remains turned off during the day time.



PROTOTYPE 3

Based on user feedback from testing Prototype 2, many felt that the use of a microcontroller made the design appear too complex, which led to concerns about the perceived difficulty of operating the lamp. To address this and improve the aesthetic appeal, we created a final product for Prototype 3: a mushroom-shaped sensor lamp. Inspired by the mushrooms in Minecraft, this design balances functionality with a visually pleasing appearance, making the lamp more user-friendly and attractive.