
Pixie
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Problem Statement

It's 3 a.m., you have no motivation, but the deadline is in a couple hours. As a fellow college student, this might be all too familiar.

To make things worse, your phone is seducing you from the corner of your desk. Your motivation is on life support and all you can do is procrastinate.

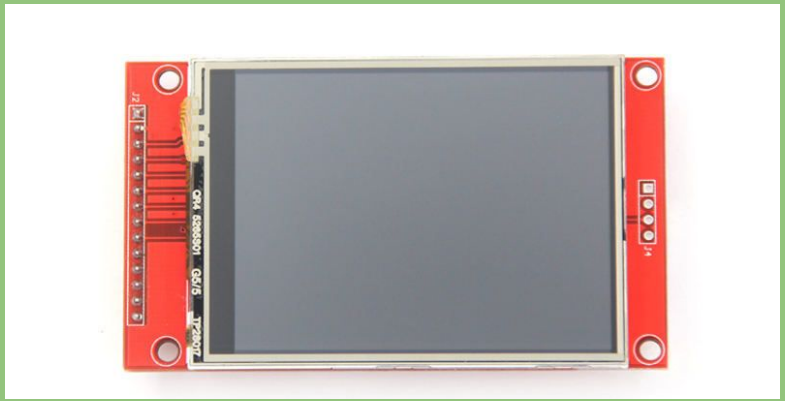
BUT WAIT, DESPAIRING SCHOLAR - SALVATION IS AT HAND!

Our Solution: The Pixie Display

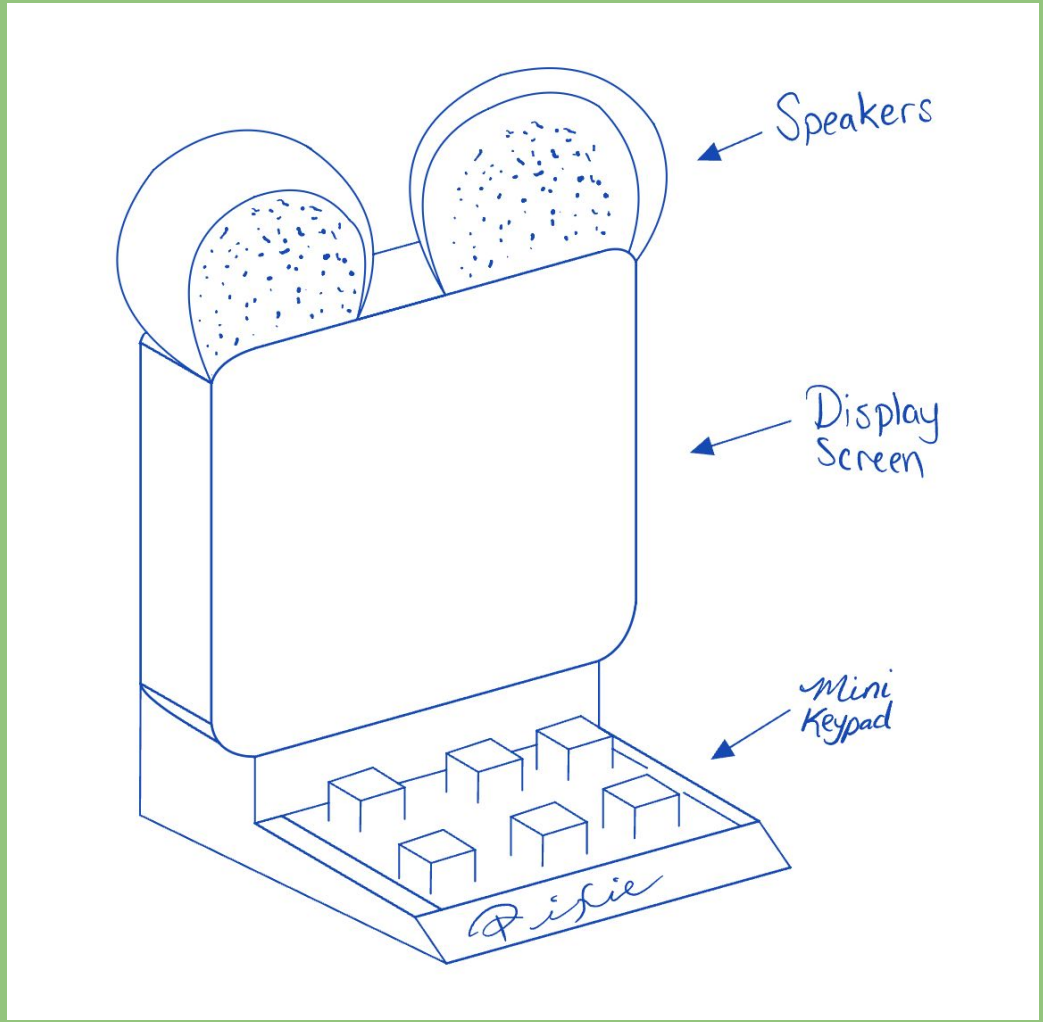
Pixie, the perfect desktop companion! Pixie is a pint-sized desk friend that combines both functionality and charm. It can provide you with some extra light through its customizable LED display without disturbing your colleagues or roommates.

But Pixie is more than your run-of-the-mill desk light – Pixie is also a canvas for your creativity. Easily upload a pixel art design to personalize your desktop buddy. Pixie also has a variety of other features that can rescue you from the clutches of procrastination and light up your late-night study session like never before!

The Basics



Sketch:



Pixie Features

01	Pixel Art	• User designed pixel art uploaded via Bluetooth / WiFi • Provides user with a distraction free stimulus (TikTok, Instagram, Snapchat, etc.) between working periods
02	Sound Activated Light	• Soft night-light or wake-light to illuminate room, activated by clapping or other sound • Prevents immediately reaching for phone upon awakening
03	Study Timer	• Study mode timer to allocate periods of focus time dedicated to academic or work-related activities • Active timer visible to help reinforce focus and encourage productive activities
04	Date/Time/Weather	• Provides user with useful information about their surroundings and current events without the need to reach for phone, utilizing widgets to display date, time, weather, etc.
05	Notification Syncing	• Critical notification syncing (email, incoming calls, etc.) with user's phone • Keeps user up-to-date with communications while limiting media distractions

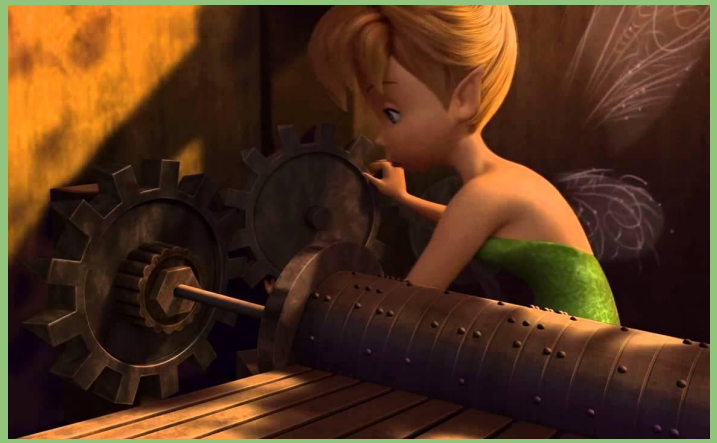
Key Technologies

- OLED, LED, or LCD Display
- Bluetooth Module for notification syncing and uploading display settings
- WiFi Module for pulling date, time, and weather information from web servers
- Speakers (audio cables, drivers, amplifiers)
- Mini Keyboard/Keypad for native control over Pixie functionality
- 3D printed enclosure
- Microprocessor

Engineering Tasks

- System Functional Blocks: Display, Speaker, Keyboard/Keypad, Bluetooth, WiFi
  - Research various communication protocols to configure the display, relay audio to speakers, and process data sent over bluetooth and WiFi

- User Functional Blocks: Bluetooth, WiFi, Keyboard/Keypad, microphone
  - Hardware (mechanical) design for keyboard comfort/accessibility, web server/app development for user to send data over bluetooth/WiFi, audio signature encoding for microphone sensitivity



Project Summary

- Desktop companion that can reduce distractions and manage time
- Plan to implement
  - LED Display
  - Timer, date/time/weather, synced notifications, day/night mode
  - Music streaming capability, sound activated light
- Need to determine best options for power, screen display, bluetooth/Wi-Fi module, microphone, speaker, and 3D print
- Use functional blocks to engineer our design
  - System
  - User
- Offers a solution to optimize a study environment

Questions?