



SAN DIEGO STATE UNIVERSITY

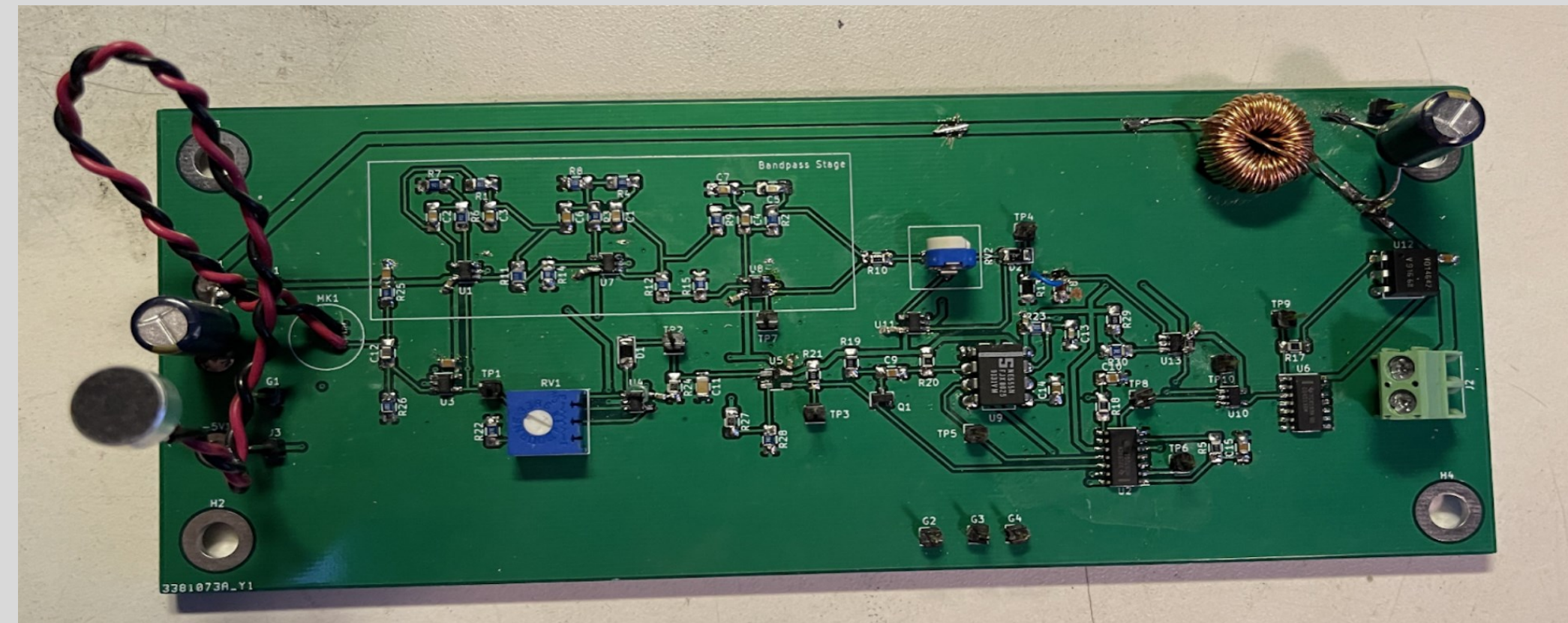
Makyo Hyosho Smart Mirror

Senior Design Project

Instructor: Barry Dorr
Advisor: Hakan Toreyin

Clap Circuit

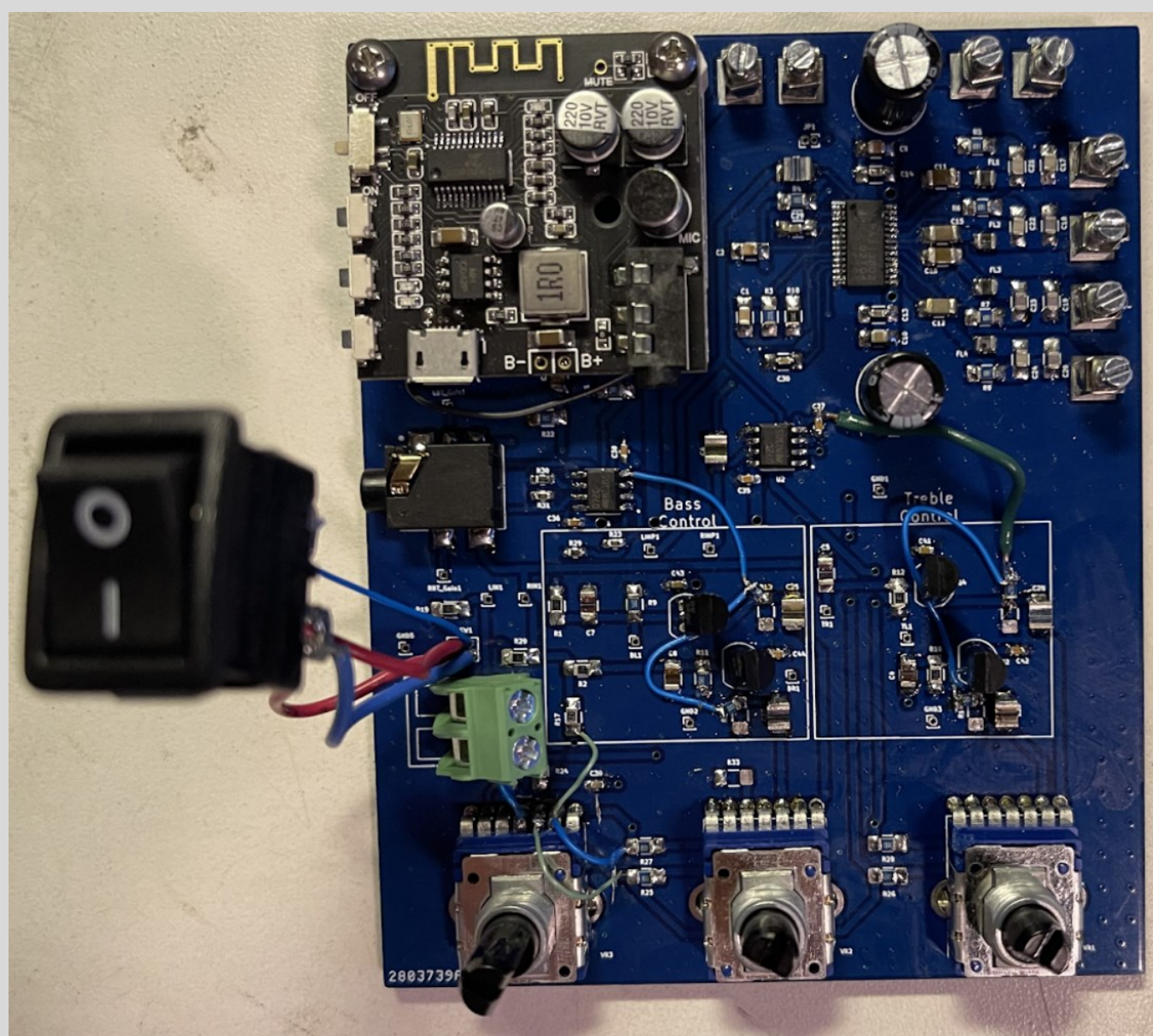
Adds a hands-free approach to turning on lights as well as the convenience to turn on lights from a distance



It uses a 3rd order Chebyshev filter, having a center on clapping frequency (2500Hz center frequency with a 1000Hz bandwidth). This then turns on/off our white LED strips surrounding the mirror.

Speaker Unit

Added to make the smart mirror an entertainment center to pair with the LED reactive circuit for an awesome light show aesthetic



It uses a class D amplifier for bass and treble boost, along with a speaker AMP and tone control, allows full control of music from the auxiliary input or Bluetooth.

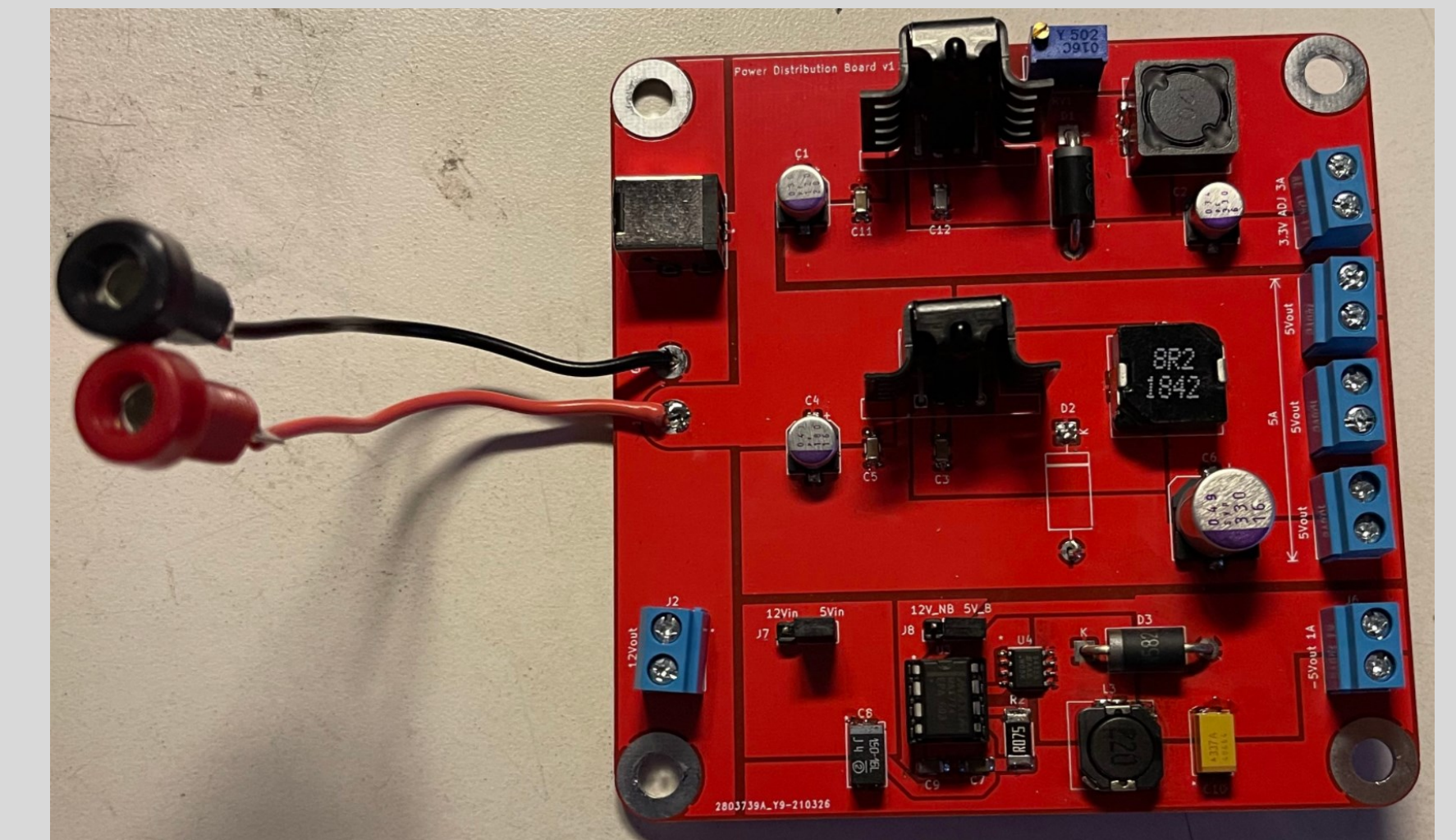
Project Description

Our group fully designed, tested, and constructed a smart mirror that makes your everyday life a bit easier whether that be through putting all your notifications in one place or act as an entertainment center. Features include: an LCD screen displaying notifications such as weather and stocks, clap activated lights, and built in speakers with corresponding music-reactive LED strips. The Smart Mirror embodies the idea of technology providing numerous functions to simplify and entertain individuals, all in one centralized place.



Power Supply

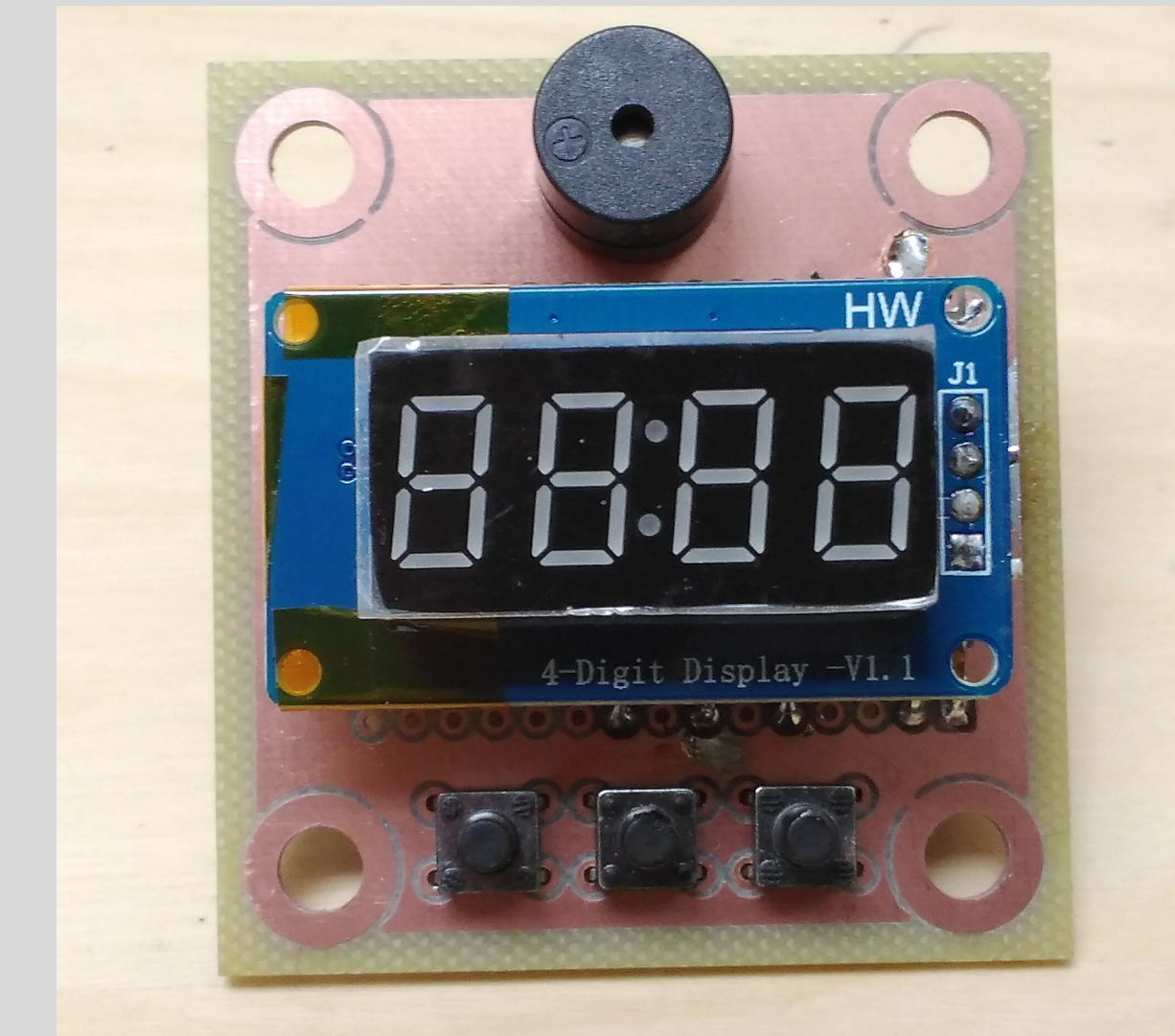
Provides and distributes power to the various PCBs



By using buck converters to step down the 12V input voltage to 5V, -5V, and 3.3V, the entire layout of PCBs within the smart mirror enclosure receive power.

Timer

Counts down desired time in minutes

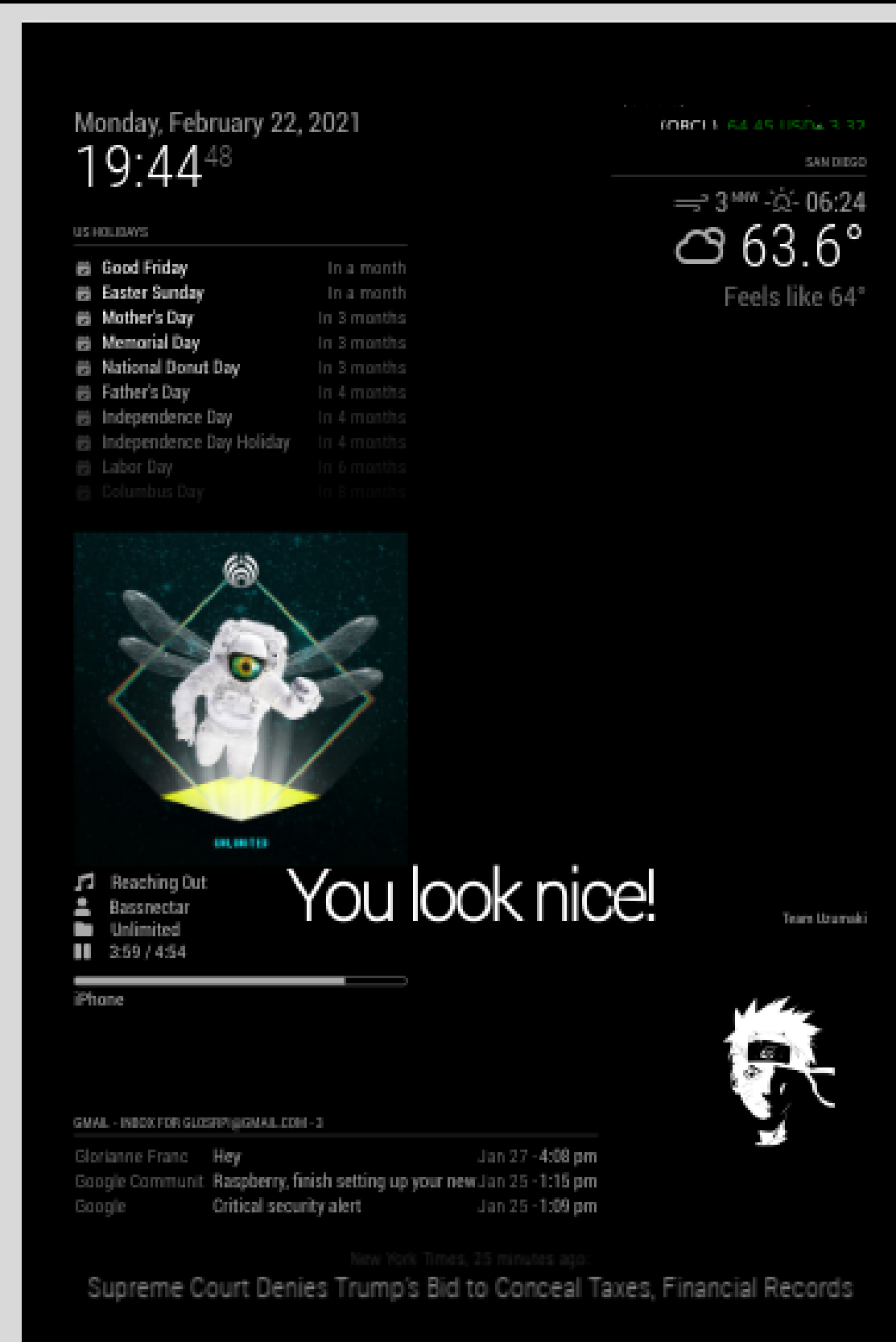


It is programmed with an Arduino nano, and displays through a 4 digit, 7 segment display. It then beeps when the countdown is finished using a buzzer.

Software

Groups all of the notifications you check daily into one centralized place using open source project called the Magic Mirror

By using embedded modules within a Raspberry PI 4, features such as Spotify, visual stocks, event calendar, weather along with time and date, are present ready for user enjoyment.



Team Members



Brandon Lee

Enes Basbug

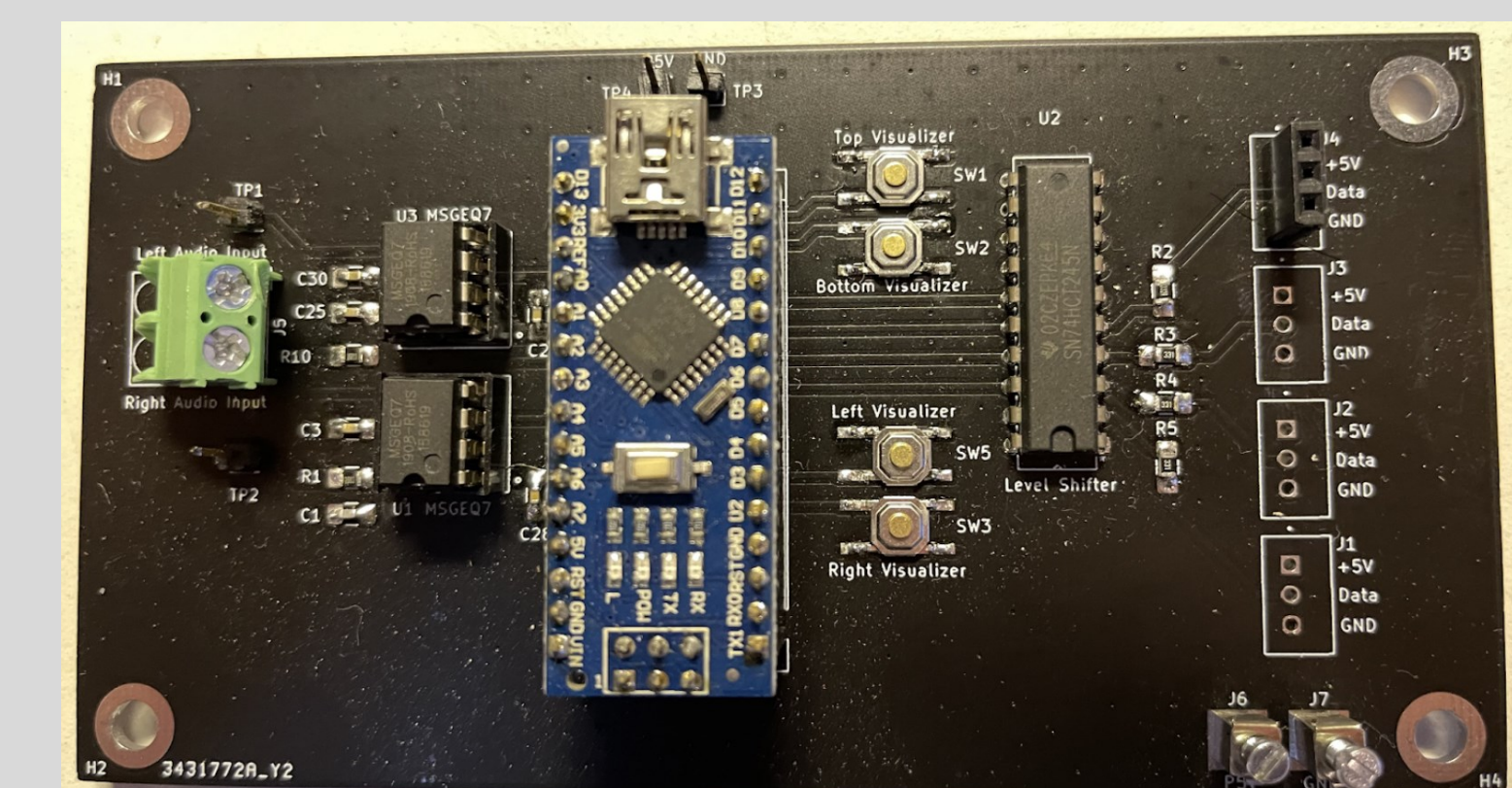
Angelo Navarro

Eduardo Cadena

Glorianne Francavilla

LED Music Visualizer

Provides enhanced music experience to user



It is connected to music reactive LED's that are mounted at the sides of the frame. They change color based on the frequency and melody of the music. The visualizer changes modes at the press of a button, and it is all coded within an Arduino nano.