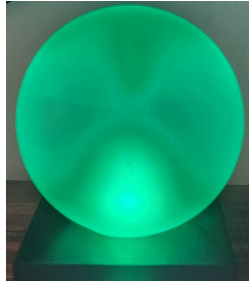


# The Orb

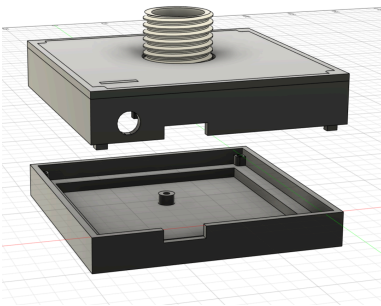


## Overview

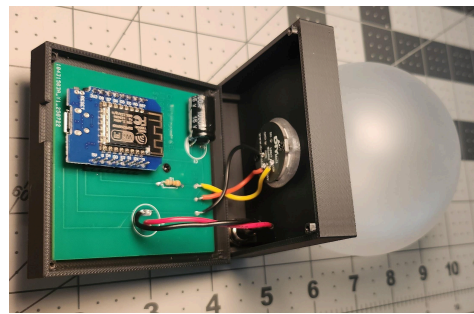
The Orb is an innocuous looking frosted sphere that conveys whether a certain financial index, commodity, stock or even crypto is up or down at the moment with color and conveys how drastic the change is by pulsing the light. Measures 100mm x 80mm x 80mm, weighing only 110g. Uses a 3D-printed enclosure modeled from scratch in Fusion 360 and a custom PCB designed in EasyEDA.

## Photos

Enclosure Design (Designed in Fusion 360)

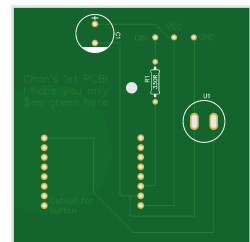


Finished Build



## Wiring

- Solder all components to the custom PCB that I specifically designed for this project (shown at right)
- Screw PCB into bottom of enclosure base, ensuring USB port faces USB hole in enclosure
- Mount the switch into the cradle on top of enclosure base
- Screw LED ring into base of threaded piece, and push through the top hole
- Screw glass globe onto threaded piece sticking out from top
- Secure top and bottom pieces of base together with screws



## Code

- Open Arduino IDE, then connect ESP8266 to computer
- Select 'LOLIN(WEMOS) D1 R2 & mini' for board
- Upload the 'InfoOrb.ino' in the project files here
- Go through configuration steps, keeping an eye on serial monitor for any issues

## Lessons Learned

- Using 'ESP\_DoubleResetDetector' made captive portal reuse easy without access to the board.
- Pulse animations look far smoother when brightness modulation is sinusoidal.
- A resistor + capacitor drastically improves LED stability and reduces flicker.

Full build log, code, and files: <https://github.com/ChandlerEx/Projects>