

Project Skylight

A Smartlamp Providing Clarity

Eric Brauer

eric.m.brauer@gmail.com

Agenda:

- What is it?
- Why?
- Demo
- Features
- Technical Overview
- Where to go from here

**Project Skylight is an
Internet-Connected Lamp.**





A view of the outside world.

Addressing the Problem of Disorientation.

Simple, and Cost-efficient.

Demonstration:



Demonstration:



Demonstration:



The GUI.

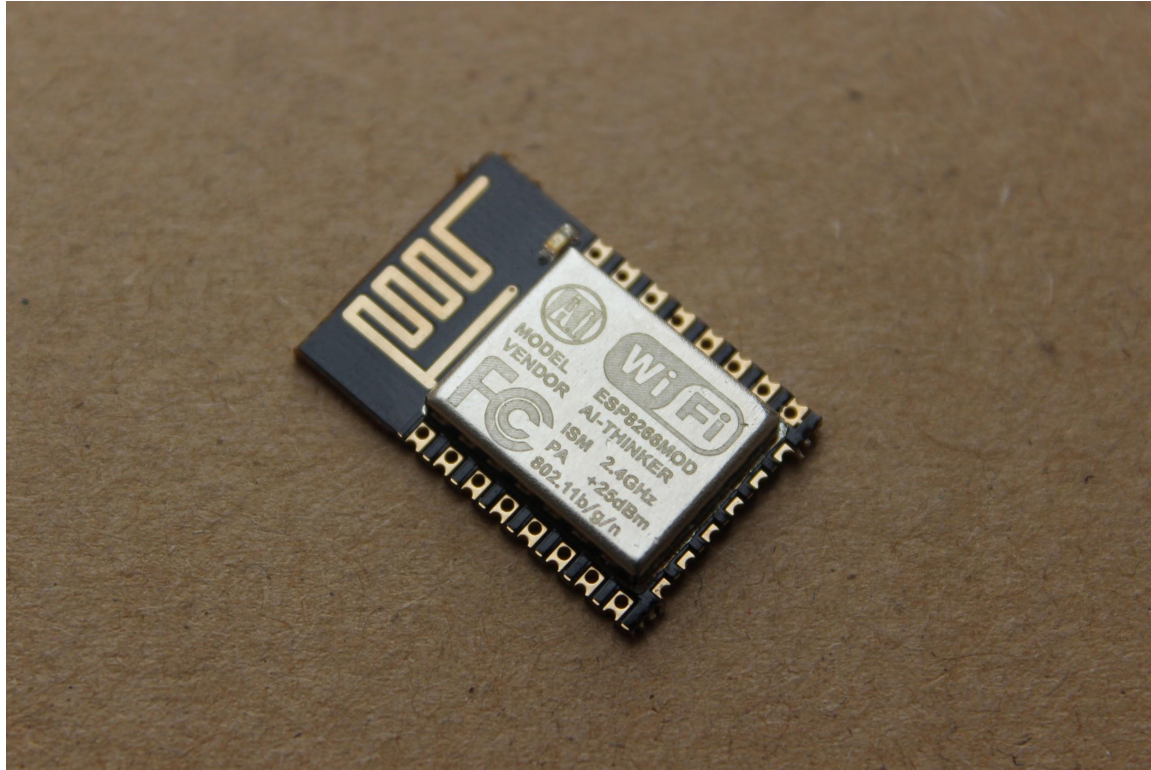


Features of the Skylight:

- Connects to NTP for proper time
- Downloads the Time of Day
- Uses LEDs to simulate the sky
- Serves a web interface to control some features
- A knob controls brightness

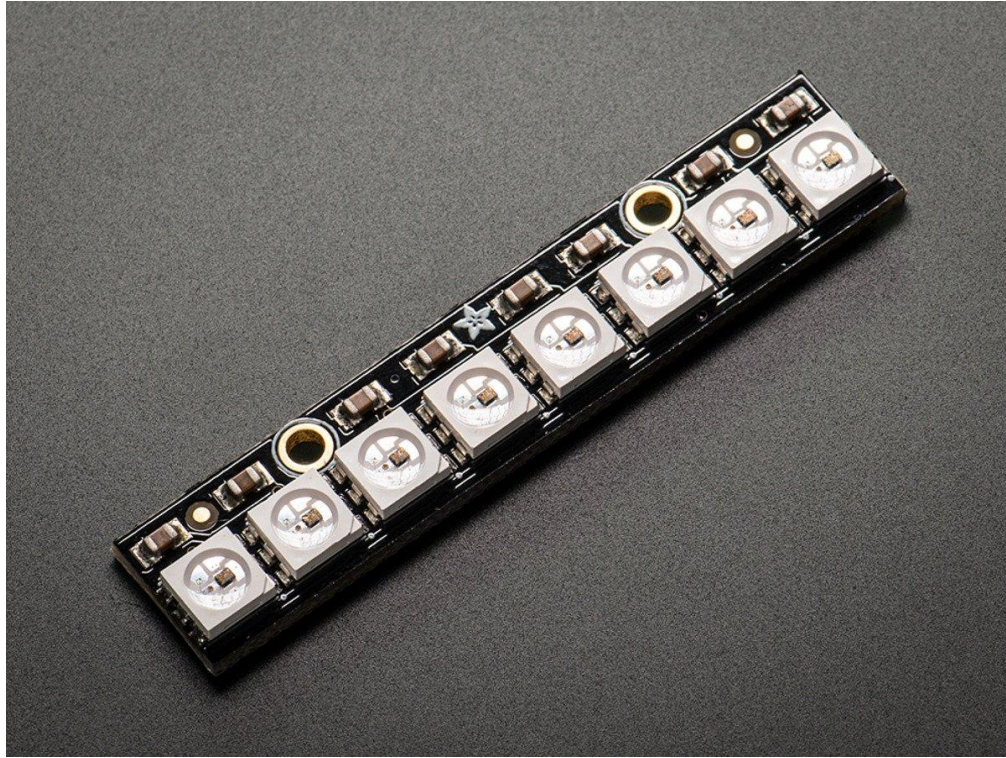
Technical Specifications



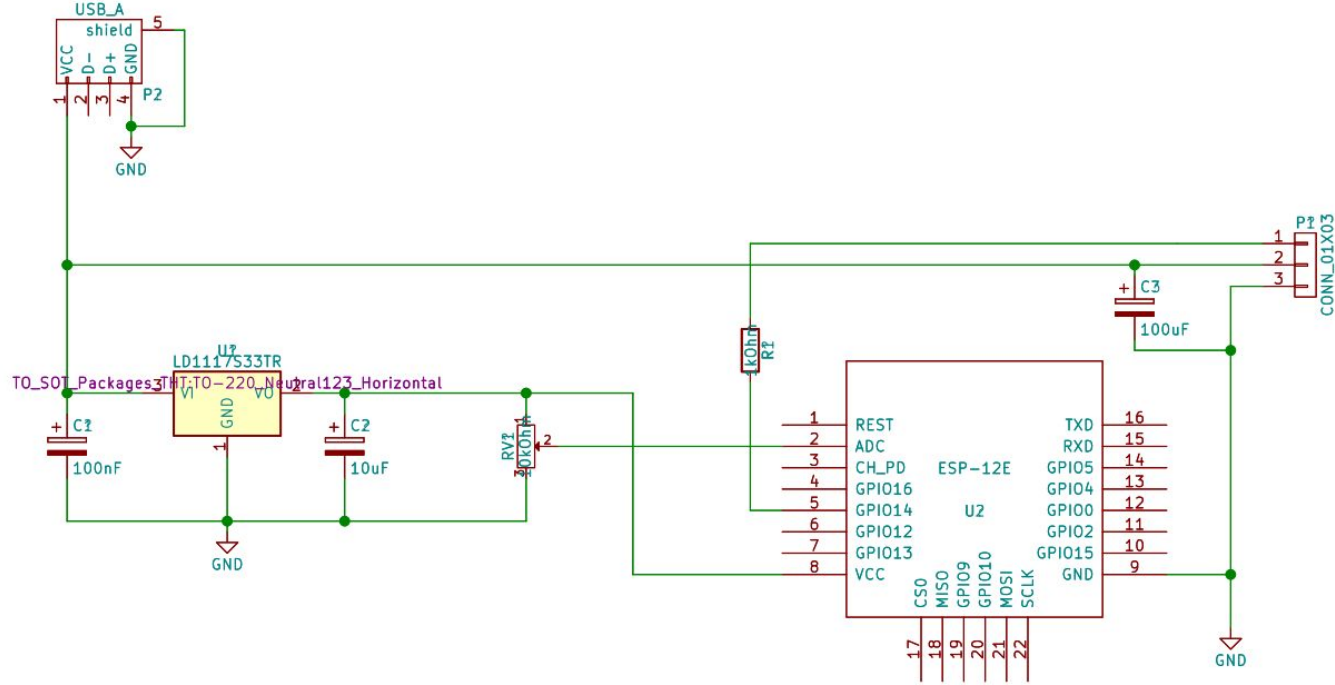


Hardware: MCU/WiFi Module

<https://hackaday.com/tag/esp-12/> for ideas



Hardware: Neopixels



Hardware Schematic

Software:

- NTP used to Synchronise current time
- OpenWeatherMap API is used to get sunrise/sunset times for a current location.
- Programmed in Arduino with some additional libraries
- Example JSON response:

```
{"coord":{"lon":139,"lat":35}, "sys":{"country":"JP","sunrise":1369769524,"sunset":1369821049},  
"weather":[{"id":804,"main":"clouds","description":"overcast clouds","icon":"04n"}],  
"main":{"temp":289.5,"humidity":89,"pressure":1013,"temp_min":287.04,"temp_max":292.04},  
"Wind":{"speed":7.31,"deg":187.002},"rain":{"3h":0},"clouds":{"all":92},"dt":1369824698,  
"id":1851632,"name":"Shuzenji","cod":200}
```

*<http://openweathermap.org/current>

Viability of the Product:

Pros

- Fulfills the Product Requirements
- Cost of Materials was fairly low at \$45, could be much lower.
- Few security / privacy concerns
- Lots of room for expansion

Viability of the Product:

Cons

- Would require more development to be truly scalable
- Would require a professional license or a server for API calls.
- The enclosure is not what I had in mind.

Future Developments:

Feel free to suggest your own

- Simulate some weather: cloudy, sunny, thunderstorms.
 - Create themes: fireplace, aquarium.
 - Repeatable alarms
 - Change the temperature of the light: F.lux for your bedroom
 - Implement Android/iOS apps
 - Connect to MQTT for subtle notifications
 - more..!
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