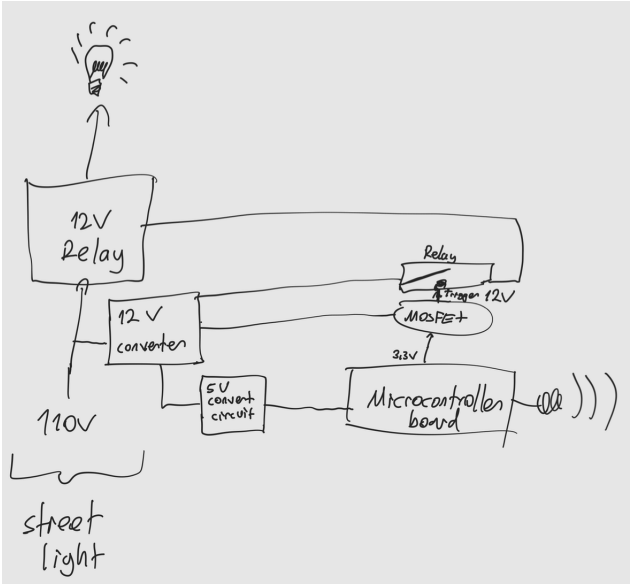

Figure 1: Circuit

Electronics

The mesh network chip is one of the crucial parts of our system A-Prometheus. The electronics and logistics of the chip will be discussed in this article. The dimensions of the integrated circuit will be $12 \times 10 \times 4$. The offered chip will have a circuit design as shown above.
The cost of the circuit is calculated as:

Microcontroller + Antenna	7.49$
5V DC Converter	1.26$
12V DC converter	2.05$
N-channel MOSFET	0.36$
5V Relay	0.56$
Total Cost:	11.72$

Links to the corresponding components:

Microcontroller + Antenna: https://www.seeedstudio.com/XIAO-ESP32S3-p-5627.html

5V DC Converter: https://www.digikey.com/en/products/detail/mornsun-america-llc/LS01-K3B05SS/13530983

2.05$ 12V DC converter: https://www.digikey.com/en/products/detail/mornsun-america-llc/LS05-13B12R3/13531111

0.36$ N-channel MOSFET: https://www.digikey.com/en/products/detail/rochester-electronics-llc/IPP230N06L3GXKSA1/12096960

0.56$ 5V Relay: https://www.digikey.com/en/products/detail/cui-devices/PR4-5V-450-1A/16752699?utm$_a dgroup = utm_s ource = google utm_m edium = cpc utm_c ampaign = PMax$