**The mini torch recommendation**

**LED**

1. R2835W-W5M-Q20 : <https://www.luckylight.cn/en/products/lighting-led/mid-power-led/r2835w-w5m-q20/> (60mA 0.2W LED)\_\_midpower range
2. <https://www.digikey.com/en/products/filter/led-lighting-white/124?s=N4IgjCBcoMxgnFUBjKAzAhgGwM4FMAaEAeygG1wYYAmAFhhCLCpltsctYAYBWD52gHYAbAA4QAXSIAHAC5QQAZVkAnAJYA7AOYgAvk3ijE0EKkiZchEuRBdJM%2BZCWrNO3fpDUbAGQCSAcQAJABVfADl-AAJvAFEAEUVJXSA>

**Time IC**

We ‘ll use ATMega32u chip which is present in Arduino Micro and Leonardo Arduino boards.

(We will have to introduce sleep function and the two buttons to act as the interrupt to wake up the IC once time needs to be set and also to wake up the IC to display clock time). Thus reduce power consumption significantly.

An RTC IC with a small form factor e.g. Maxim Integrated **DS3231MZ+TRL** which is also very accurate

Crystal oscillators for the atmega is not needed (configured to be the internal clock by the bootloader) and for the RTC=32KHz.

Boot loading instructions: <https://www.instructables.com/Burn-a-New-Bootloader-Arduino-Pro-Mini/>

**LCD screen**

The smallest OLED screen that uses I2C e.g. 0.69 inch screen <https://africa.rsdelivers.com/product/midas/mcot096016ay-wi/midas-069in-white-passive-matrix-oled-display-96-x/8235948>

Button to turn light on/off – Well use normal push buttons and implement a software toggle.

And to write to the output to turn on the LEDS, well use a MOSFET (N\_MOS) **WST02N10:** [**https://lcsc.com/product-detail/MOSFETs\_Winsok-Semicon-WST02N10\_C148341.html**](https://lcsc.com/product-detail/MOSFETs_Winsok-Semicon-WST02N10_C148341.html)

Also for the time setting button we will use a normal button in conjunction with ezButton library to handle different event like button press, double press and long press

**Battery**