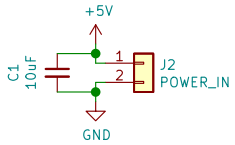
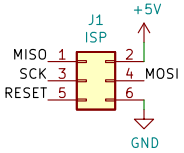
Power input

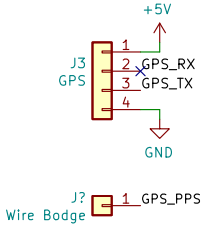


ICSP header

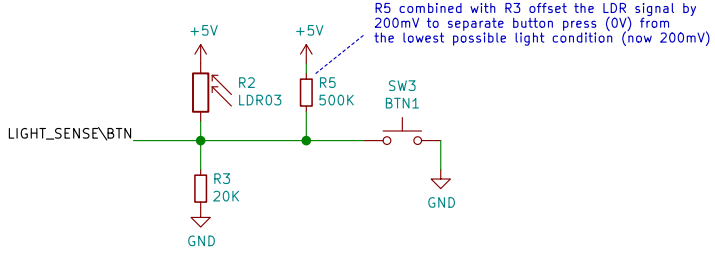


GPS module

GPS transmits current time every second over a 9600 baud serial connection.

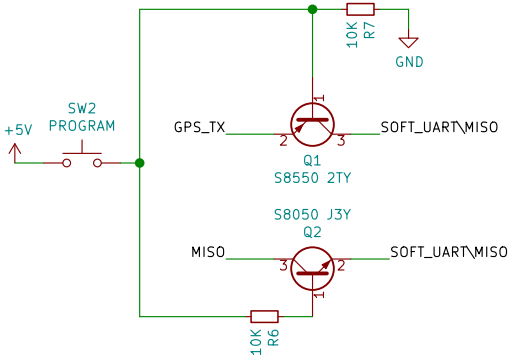


Ambient light sensor + button

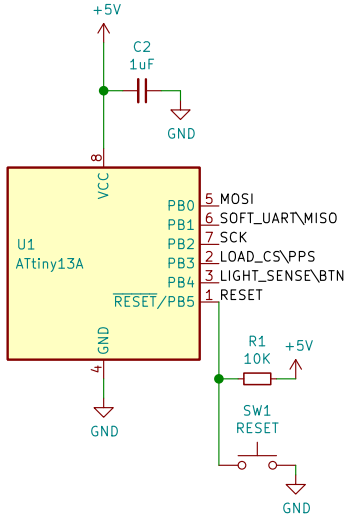


GPS TX / ICSP MISO shared pin switch

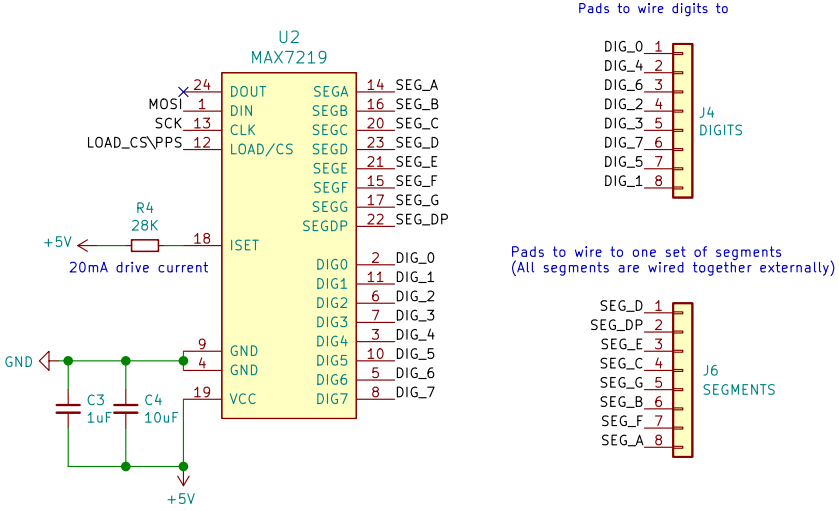
While programming, the PROGRAM switch must be held to prevent the GPS TX signal interfering with the ICSP MISO line.



Microcontroller



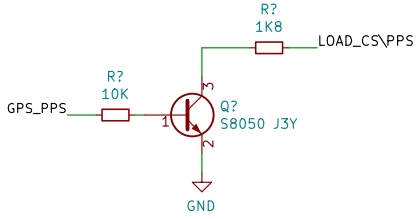
7 segment display driver / output



GPS PPS pin sharing with MAX7219 LOAD/CS

The GPS module's TIMEPULSE (PPS) pin idles low and pulses precisely at the top of each second. This is inverted here so it can share a pin with LOAD/CS on the MAX7219, which idles high. The line is pulled down during timepulse and otherwised released to be pulled high by the MCU.

This allows the MCU to listen for the timepulse signal when it wants to, and drive the LOAD_CS pin of the MAX7219 normally in output mode without the PPS signal interfering.



Tiny GPS Clock

stecman

Sheet: /		File: doom-clock.sch
Size: A4	Date: 2021-08-07	**Rev: v1.1**
KiCad E.D.A. kicad (5.1.7)-1		Id: 1/1