Temperature / Humidity Sensor
200nA Sleep
I2C-Address: 0x44

VI2C
C2 100nF
U3 SHT31-DIS
ADDR SDA — SDA
RESET SCL — SCL
R ALERT
VDD VSS
GND

Infrared Temperature Sensor (optional)
5000nA Sleep
I2C-Address: 0x5a

VI2C
C4 100nF
U5 MLX90614
VDD SCL — SCL
VSS SDA — SDA
GND

EEPROM
5000nA Standby
I2C-Address: 0x50

VI2C
U4 24LC32
A0 VCC SDA — SDA
A1 SCL — SCL
A2 WP
GND VSS
C5 100nF
GND

Reverse Polarity Protection

PWR_FLAG
U2 TPS27081A
VOUT VIN
VOUT R2
R1,C1 ON/OFF
BT1 Keystone-2468
GND

Boost Converter

VIN_SENSE
+3.3V
L1 4.7uH
U1 TLV61225
L VOUT
VIN FB
EN
GND
C3 10uF
C1 10uf
GND

LoRA Module
200nA Sleep

+3.3V
R3 100k
+3.3V
U8 RFM95W
GND DIO2
MISO DIO1
MOSI DIO0
SCK VCC
SS DIO3
RESET DIO4
DIO5 GND
GND ANT
RFM95_IRQ
MISO
MOSI
SCK
RFM95_NSS
RFM95_NRST
RFM95_DIO5
J1 CONUFL001-SMD-T
Z1 Z
Z2 Z
Z3 Z
AE1 ANT-868-CHP-T
C10 100nF
GND

Light Sensor
10nA when disabled

PHOTO_VCC
PWR_FLAG
U6A ADG633YRU
+3.3V
330k R2
Offset: 3.3V*1/(33+1)=97mV
10k R7
U7 TSV911RILT
C7 100nF
GND
D1 BPV10
R8 1M
C11 4.7pF
R9 33k
C12 15pF
U6B ADG633YRU
U6C ADG633YRU
160Hz low pass
10k R5
PHOTO_SENSE
C9 100nF
PHOTO_SWITCH
100k R1
PHOTO_ENABLE
C6 100nF
100k R6
U6D ADG633YRU
VDD EN VSS GND
C8 100nF
GND

STM32L4 MCU
245nA Standby with RTC

+3.3VA
C13 100nF
GND
NRST
+3.3V +3.3VA PWR_FLAG
FB1 WE742792040
+3.3V
100 R13
VIN_SENSE
U9 STM32L412KB
NRST PA0
VDD PA1
VDD PA2 — RFM95_DIO5
VDDA PA3 — RFM95_NRST
PH3 PA4 — RFM95_NSS
PC14 PA5
PC15 SCK
MISO
MOSI
PB0 PA9
PB1 PA10
PB3 PA11 — PHOTO_ENABLE
PB4 PA12 — PHOTO_SWITCH
PB5 PA13 — SWDIO
PB6 PA14 — SWCLK
PB7 PA15
VSS VSS
RFM95_IRQ
PHOTO_SENSE
I2C_ENABLE
SCL
SDA
+3.3V
C14 100nF
+3.3V
C15 100nF
C16 100nF
R14 10k
GND

SWD Connector

+3.3V
J2 SHF-105-01-L-D-TH
VTref RESET — NRST
SWDCLK/TCK — SWCLK
SWDIO/TMS — SWDIO
SWO/TDO
NC/TDI
GNDDetect GND
GND

I2C Bus Control

+3.3V
R10 100k
PMV250EPEA Q1
I2C_ENABLE
VI2C PWR_FLAG
R11 4.7k
R12 4.7k
SCL
SDA

H1 MountingHole
H2 MountingHole

Henri Heimann
Sheet: /
File: sensor-node.sch
Title: Urban Climate Monitor Sensor Node
Size: A3   Date: 2020-11-02   Rev: 2.0
KiCad E.D.A. eeschema 5.1.7+dfsg1-1bpo10+1   Id: 1/1